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STUDENT SCHOOL ENGAGEMENT AS A POTENTIAL PREDICTOR OF HIGH
SCHOOL COMPLETION

A Dissertation

Presented to

the Faculty of Morgridge College of Education

University of Denver

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Philosophy

by

Jennifer Albanes

August 2012

Advisor: Cynthia Hazel, Ph.D.

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ABSTRACT

There is a dropout epidemic in the United States. In the US, 25% of high school students do not graduate on time. For Latinos, the number is worse, with only 64% graduating from high school. Current research is clear that 9th grade is a critical year for keeping students in school. Students that earn all their credits for their core classes in 9th grade are more likely to graduate than students who fail one or more class during their freshman year. Prior to this study, engagement has been connected to dropout in the literature, but with differing ideas of how to measure engagement. The Student School Engagement Measure (SSEM) could be one tool used to estimate levels of engagement and identify students at risk of dropping out. This study used structural equation modeling to identify whether 8th grade SSEM scores were a significant predictor of credits earned by the end of 9th grade. The results of this study indicated that 8th grade SSEM scores were not a significant predictor of credits earned at the end of 9th grade, supporting previous research has found that engagement changes from year to year. These findings suggest that measuring engagement over the course of a single year, instead of using the SSEM as a long term predictor, might be a more useful use of the SSEM.

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Chapter One: Introduction

The Dropout Epidemic

In the United States, 25% of students do not graduate on time (Stillwell, 2010). Dropping out of school closes the door on a lifetime of opportunities. High school dropouts are more likely to live in poverty, and their children are likely to live in the same economic situation. For the economy, it means a lack of skilled workers and fewer entrepreneurs. For communities, it means lower voting rates and lack of civic participation (Secada et al. 1998). Latinos have become the largest minority in the United States, and they have the highest dropout rates of any race or ethnicity. The short and long term consequences of the Latino dropout epidemic will be devastating.

Over the years, an appreciation for the complexity of the dropout phenomenon has emerged in the literature. Existing research is clear that 9th grade is a critical year in which more students drop out than any other grade (Herlihy, 2007). A Johns Hopkins research study, *Building a Graduation Nation – Colorado* (Balfanz, 2008), found that students who were successful in grades 6 through 10 were typically able to graduate from high school, even in high poverty school districts. The ninth grade was referenced as a critical point that indicated success or failure to graduate high school. Specifically the transition from 8th to 9th grade represents a turning point in the academic lives of students.

In the US, Latinos have the highest high school dropout rate with only 64% of 18-24 year olds having completed high school (U.S. Department of Commerce, 2000). The literature points to several possible causes for the current dropout rate. First, Latino

students are the most segregated racial or ethnic group in the United States schools (DeBlassie & DeBlassie, 1996). Second, Latinos are underrepresented in advanced placement classes, and are more likely to be placed on a vocational track rather than a college preparatory track, regardless of academic background (Hill & Torres, 2010). Third, Latinos attend the most poorly equipped schools in the most poverty-stricken school districts and they are more likely to have teachers with minimal experience (Conchas, 2001). Finally, Latinos often have teachers who are of different cultural or ethnic backgrounds. In the 2003-2004 school year, only 6% of teachers were Latino (NCES, 2007). This may lead to a lack of cultural understanding between teacher and student. All of these factors contribute to high dropout rates for Latinos; in some communities, all of these factors exist in the same school. After examining these factors, it is not surprising to learn that Latinos have the highest dropout rate of any ethnicity.

On-Track Indicators in the Literature

The marker variables (e.g., socioeconomic status, family structure) that place students at risk for dropout are well described in the literature (Christenson, Sinclair, Lehr, & Godber, 2001). However, recent research is clear that during this critical point between 8th and 9th grade, course failure and attendance are predictive of dropping out of high school (Allensworth & Easton, 2007). The Consortium on Chicago School Research introduced the “on track indicator” in 2005 which included combining course credits earned and course grades (Allensworth & Easton, 2005). First year high school students are considered “on track” if they earn at least five full year course credits and no more than one “F” in one semester in a core class during their first year of high school. In

Chicago Public Schools, whether students are on-track, their GPA, and the number of semester course failures all correctly identified high school graduates and non-graduates 80% of the time (Allensworth & Easton, 2007). On-track students are 3.5 times more likely to complete high school in four years than students who are not on track to graduate at the end of their 9th grade year (Allensworth & Easton, 2005).

The decision to leave school is usually not a spontaneous one, but rather a process that occurs over the course of many years. In contrast to a discrete event, research has shown that early school leaving is the outcome of a long process of disengagement with measurable indicators that are present in the early grades (Barclay & Doll, 2001). Most theories draw upon the construct of engagement/disengagement to conceptualize the dropout process (Finn, 1989; Rumberger, 2004; Whelage, Rutter, Smith, Lesko & Fernandez, 1989).

Defining Engagement

Student engagement has varying definitions. Generally, there is agreement that “engagement is a multi-dimensional construct ... [that] is highly influenced by specific facilitators such as family and school expectations” and represents “the fusion of behavior, emotion, and cognition under the idea of engagement” (p. 61, Fredricks, Blumenfeld, & Paris, 2004). In the literature, school engagement has been defined by many terms, including connectedness, affiliation, membership, bonding, and belonging (Jimerson, Campos, & Greif, 2003; Osterman, 2000). Most research confirms that engagement is plastic and that higher engagement results in improved academic outcomes. Key ingredients of student engagement include participation, identification

with school or social bonding, academic performance, and personal investment in learning (Finn, 1993; Maehr & Midgely, 1996; Wehlage, Rutter, Smith, Lesko, & Fernandez, 1989).

For the purposes of this study, the term Student School Engagement is used. The definition is as follows:

Student school engagement is a multi-dimensional meta-construct representing a student's internally and externally mediated affiliation with and investment in schooling. Student school engagement is a biopsychosocial phenomenon, occurring in and responding to environmental contexts within a developmental trajectory (Hazel, Jack, Wonner, Albanes & Gallagher, 2008).

This definition implies that student school engagement is internal; it is the perceived goodness of fit between the student and his or her environment. How does one measure students' perception about their educational environment? Self report seems to be the most logical method. However, engagement has been measured in numerous ways, depending on how researchers define the construct.

Measuring Engagement

Some studies measure engagement as a single construct and others measure it as multi-dimensional. Those that measure engagement as a single construct often choose behavioral indicators because of the ease of measurement. What researchers refer to as academic or behavioral engagement has been measured by such things as grades, time spent on homework, attendance, suspensions, classroom participation, or participation in extracurricular activities. While this information is helpful to understand the

consequences of engagement or disengagement, measuring behavioral indicators does not constitute students' school engagement, which is the *perceived* fit between themselves and their school environment. This must be done by self report. The Hazel model of Student School Engagement provides a tool that measures aspirations, belonging, and productivity by self report. The Student School Engagement Measure (SSEM; Appendix A) was validated by Vazirabadi (2010) and has been used to measure the relationship between engagement and achievement data. However the SSEM has not been used to examine the relationship between student school engagement and credits earned, nor has it been used to examine the relationship between belonging and credits earned for Latinos.

Very few studies have measured engagement as a multi-dimensional construct and found a relationship between engagement and achievement. Sciarra and Seirup (2008) determined that engagement had a significant relationship to math achievement for all racial groups. Ladd and Dinella (2009) studied the effects of early engagement on achievement. Wang and Holcombe (2010) used structural equation modeling to assess adolescents' perceptions of school environment and engagement in relationship to academic achievement. In all three studies, engagement was positively associated with grade point average.

The Importance of Belonging in Engagement

Hazel et al.'s model of Student School Engagement (2008) includes the domains of aspirations, belonging, and productivity. The domain of Aspirations describes the value that students place on school and can be described as a student's appraisal of the

worthwhileness of an education and its utility to his or her future. Belonging describes the connection and emotional investment that students have to school, peers, staff, and even the physical building itself. Productivity describes the energy put into academic success, and it can be described as effort, persistence, and the willingness to work. This study theorizes that of these three domains, belonging has the greatest impact on a student's risk of high school dropout.

The origins of belonging began with the work of Finn (1989) who devised his theory of engagement based on the ideas of participation and identification. Participation is the extent to which students participate in classroom and school activities, while identification occurs when students internalize the feeling that they belong in school (Finn, 1989). He concluded that students who do not participate actively in school and who do not develop a sense of identification with school are at risk for a number of consequences, including dropping out of school (Finn, 1989). Finn's idea of identification has evolved into the terms school belonging or school membership.

In her seminal article on belonging, Goodenow (1993) defined belonging as "students' sense of being accepted, valued, included, and encouraged by others in the academic classroom setting and of feeling oneself to be an important part of the life and activity of the class" (p. 25). Since the 1990's, numerous studies have linked belonging and academic achievement. One of the more thorough reviews was completed by Osterman (2000) who studied students' need for belonging in their school communities. She found that students who experience a sense of relatedness have more positive attitudes towards school, class work, teachers, and peers: "They are more likely to like

school and they are more engaged. They participate more in school activities and they invest more of themselves in the learning process” (p. 343). Additionally, she concluded that the strongest relationships were the association between the experience of relatedness and student engagement. Teacher support had the most impact on student engagement and how students feel about school was determined by the quality of the relationship they have with teachers (Osterman, 2000).

The Importance of Belonging for Latinos

The Student School Engagement Measure (SSEM) has not been used to study engagement specific to Latinos, nor the relationship between belonging and dropout of Latinos. The literature shows that social factors have been associated with positive academic achievement for Latinos, including the influence of families on their achievement, the potential for caring teachers and other school staff to influence positive outcomes, and involvement with positive peer groups (Garcia-Reid, 2007). Latino culture places high value on relationships, promotes communalism rather than individualism, and interdependence is highly valued (Triandis, 1988). Close relationships are encouraged among family, extended family, peers, and adults in the community. The Latino understanding of the self is defined through relationships (Olmeda, 2003). These cultural-specific values suggest a connection between social relationships (belonging) and school related outcomes, like dropout.

Valenzuela (1999) argued that personalized student-teacher relationships and meaningful academic engagement are two of the ways in which schools can promote student engagement and prevent dropout among Latinos. Subsequent studies have made

the same conclusions (Brewster & Bowen 2004; Garcia-Reid, Reid & Peterson, 2005; Garcia-Reid, 2007). Other researchers have found the link between family support and achievement. Garcia et al. (2005) found that parental involvement in school activities and discussion of school issues was positively associated with school success. Martinez, DeGarmo, and Eddy (2005) reported that as parents gave Latino youth more encouragement, homework completion increased, as did grade point average and school completion.

The research on peer relationships and outcomes for Latino youth are generally positive. Garcia et al. (2005) analyzed data for both boys and girls and found peer support exerted a small but significant direct effect on school engagement. Garcia-Reid (2007) found peers to be an important influence for Latina middle school girls, with support from friends impacting engagement in school. Ream and Rumberger (2008) found that how much a peer group valued education had a significant effect on the amount of preparation for school as well as an increase in homework completed. Additionally, the number of friends who had dropped out of school negatively affected amount of preparation and homework completion.

The Hispanic Dropout Project

The Hispanic Dropout Project was commissioned by the U.S. Department of Education in 1995, to study dropout among Latino youth, and provide suggestions to schools and policy makers (Secada et al. 1998). Researchers found that Hispanic students dropped out of school because no one established individual relationships with

them, communicated high academic expectations for them, or provided them with meaningful opportunities to achieve those expectations.

The Hispanic Dropout Report's first recommendation was that all students have someone in their lives that understands how schools work, and is willing to take personal responsibility to ensure that student makes it through school (Secada et al. 1998).

Hispanic students who finished high school often identified someone an adult (a teacher, coach, staff member, or member of the community) who supported their efforts to stay in school.

Conclusion

Effective dropout programs designed for Latino youth should be informed by research that addresses the risk factors specific to their ethnic group. Most of the studies on school engagement have been done with White, middle-class students and do not consider the impact of race/ethnicity on the different dimensions of school engagement. The Hispanic Dropout Project advises, "Aspirations are not enough; for schools to make a difference, they must provide ways for students and their families to achieve those aspirations" (Secada et al. 1998, p. 24). Very few studies have used engagement as a predictor for academic achievement among Latino youth. Therefore, this study addresses a critical gap in the literature, using 8th grade engagement scores to predict credits earned by the end of 9th grade and using belonging to predict credits earned for Latino students.

Research Questions

1. Is Student School Engagement, measured in 8th grade, a significant predictor of credits earned at the end of 9th grade? Is the SSEM a stronger predictor of credits earned at the end of 9th grade, than ABC Stoplight Risk Score? Are there significant differences between males and females on the path coefficients?
2. Is Student School Engagement, measured in 8th grade, a significant predictor or credits earned at the end of 9th grade for Latinos? Is the SSEM a stronger predictor of the credits earned at the end of 9th grade, than ABC Stoplight Risk Scores for Latinos? Are there significant difference between males and females on the path coefficients?
3. Is Belonging a better predictor for credits earned at the end of 9th grade, than Aspirations and Productivity for the entire sample?
4. Is Belonging a better predictor for credits earned at the end of 9th grade, than Aspirations and Productivity for Latinos in the sample?

Definition of Key Terms

The writer has introduced many terms in this chapter, which will be used throughout this study. Thus, it is critical to share the author's definitions of these terms, in order to avoid confusion.

ABC Stoplight Risk Scores: A score (0-4 scale) based on the number of risk factors a student had at the end of 8th grade, which puts them at greater risk for dropout.

Achievement: Academic success in school, typically measured by Grade Point Average (GPA; 0-5 scale) and course grades

Aspirations: The value that students place on school and their own appraisal of how worthwhile an education is to their future.

Belonging: The connection and emotional investment students have to their school, their peers, teachers, staff, and the physical building itself.

Dropout: Leaving school before a student is able to complete high school.

Hispanic: Individuals of both Latin American (including Mexico, the Caribbean Islands, and South America) and Spanish backgrounds. Also considered as a “race” while Latino is widely considered “ethnicity.”

Latino: Individuals of Latin American backgrounds, including Mexico, Central America, the Caribbean Islands, and South America.

On-Track Indicators: Academic measures such as credits earned and course grades, that have been shown to predict whether students graduate on time from high school.

Peer relationships: Students’ relationships with individuals similar in age, at school or in their neighborhoods.

Productivity: The effort, persistence and willingness to work on school-related assignments and classroom activities.

Student School Engagement: A students’ perceived fit between themselves and their

learning environment. This can only be measured by self report and not by behavioral indicators such as absences.

Chapter Two: Literature Review

The high school dropout problem is a national crisis. Nearly one third of high school students leave the public school system before graduating and the problem is more severe for students of color (U.S. Department of Education, 2006). Educators and researchers are working together to identify early warning signs for students who are at risk for dropping out, and provide them with resources they need to stay in school. School engagement has been considered the primary theoretical model for understanding and intervening with potential dropouts. Student school engagement could potentially be one early identifier of school dropout.

In the US, Latinos have the highest high school dropout rate with only 64% of 18-24 year olds having completed high school (U.S. Department of Commerce, 2000). The literature points to several possible causes for the high dropout rate. First, Latino students are the most segregated racial or ethnic group in the United States schools (DeBlassie & DeBlassie, 1996). Second, Latinos are underrepresented in advanced placement classes, and are more likely to be placed on a vocational track rather than a college preparatory track, regardless of academic background (Hill & Torres, 2010). Third, Latinos attend the most poorly equipped schools, in the most poverty-stricken school districts, and they are more likely to have teachers with minimal experience (Conchas, 2001). Finally, Latinos often have teachers who are of different cultural or ethnic backgrounds. In the 2003-2004 school year, only 6% of teachers were Latino (NCES, 2007). This may lead to a lack of cultural understanding between teacher and student. All of these factors contribute to high dropout rates for Latinos; in some communities, all of these factors exist in the same

school. After examining these factors, it is not surprising to learn that Latinos have the highest dropout rate of any ethnicity.

Categorizing Dropouts

Research has been conducted on classifying the types of students who drop out of school. In *Building a Graduation Nation- Colorado*, researchers identified four different types of students who are at risk of dropping out (Balfanz, et al. 2008). The first type is students who experience life events that cause them to dropout, such as having to work to support the family or staying home to tend to a sick family member. The second type is students who fade out; their academic performance is satisfactory, but they do not sense a reason to continue to attend school. The third type is students are pushed out of the school system because they are perceived as a threat to others or themselves (such as being violent towards others). The fourth type is students who have poor academic performance and fail their courses. All four categories of students who drop out are categorized at the individual level, mostly ignoring the influences of community and peers.

Rumberger (2001) presented two conceptual frameworks to help understand the dropout phenomenon: individual and institutional. The individual perspective focuses on the attributes of the students, such as values, attitudes, and behaviors and how they contribute to the decision to leave school. The individual framework includes student engagement, educational achievement (academic achievement, educational stability, and educational attainment), student mobility, student background characteristics, and retention. The institutional perspective focuses on the settings and supports of family,

school, community, and peers. Family factors include family socioeconomic status, human capital, and social capital. School factors include school composition, school resources, structural characteristics of the school, and school processes and practices. Community and peer factors include neighborhood characteristics such as poverty rate and whether or not the community provides employment opportunities before and after school (Rumberger, 2001). Viewing dropouts through an institutional lens may help practitioners identify dropouts more easily, and provide supports that cover more than just individual students.

Transition to 9th Grade

Existing research is clear that 9th grade is a critical year in which more students drop out than any other grade in high school (Herlihy, 2007). A Johns Hopkins research study, *Building a Graduation Nation – Colorado* (Balfanz, et al. 2008), found that students who were successful in grades 6 through 10 were typically able to graduate from high school, even in high poverty school districts. Students who did not perform well in these grades had become disengaged at an early stage and had a considerably lower rate of graduation. The 9th grade was referenced as a critical point that indicated success or failure to graduate high school. During this critical point, course failure and attendance were considerably more predictive of dropping out of high school than the number of suspensions experienced by the student (Balfanz, et al. 2008). These two behavioral indicators are easy to monitor and provide schools with vital information about who is at risk for dropping out.

On-Track Indicators

There has been a paradigm shift in education, from measuring dropout to a concentrated focus on school completion indicators. Recent research has indicated that course performance and attendance are the most powerful predictors of high school completion (Allensworth & Easton, 2005; 2007). The Consortium on Chicago School Research introduced the “on-track indicator” in 2005 which included course credits earned and course grades (Allensworth & Easton, 2005). First year high school students are considered “on track” if they earn at least five full year course credits and no more than one F in one semester in a core class during their first year of high school. In Chicago Public Schools, the combination of whether a student was on track, his/her GPA, and the number of semester course failures correctly identified high school graduates and non-graduates 80% of the time (Allensworth & Easton, 2007). On-track students were 3.5 times more likely to complete high school in four years (Allensworth & Easton, 2005). This current research supports the idea that school completion indicators are effective measures of identifying students at risk for dropping out.

Dropout in Colorado

In 2008, Colorado high school students had a 73.8% graduation rate, based on their 2004 freshman cohort (Colorado Department of Education, 2009). The Colorado Statewide Dropout Initiative was created in January of 2008 in response to Governor Ritter’s call to cut the state’s dropout rate in half over the next 10 years. The goal of the initiative was to identify behavior warning signals prior to dropout. Using data from Denver Public Schools, researchers found that among one cohort of 2006-2007 dropouts,

77% had failed one or more semester courses in 9th grade, 61% had missed more than 20 days of school, and 10% had been suspended at least once (MacIver, Balfanz & Byrnes, 2009). According to research conducted in Chicago Public Schools, 9th grade attendance and 9th grade course failure are two indicators to identify students at risk for dropout and those indicators should be used in the field to help prevent dropout.

Latino Dropout

According to the 2010 Census, Latinos are now the largest minority group in the United States, at 16% of the population, followed by African Americans at 12% of the population (U.S. Census Bureau, 2010). Additionally, Latinos have the highest dropout rate of all major ethnic groups, at 17% annually, followed by African Americans at 9% (U.S. Department of Commerce, 2000). This should be a great concern for the United States. Only slightly more than half of Latino students graduate on time from high school with a regular diploma (Kelly, 2005). This means the largest minority in the United States will be underprepared for employment, decision making, and engagement in civic life (Secada et al. 1998). The Latino dropout issue is not simply a problem: it is an epidemic with wide reaching future consequences.

The Hispanic Dropout Project

The Hispanic Dropout Project was commissioned by the U.S. Department of Education in 1995. The purpose was to study the Hispanic dropout issue and make recommendations for schools and policy makers in the United States. The first recommendation was that every student has someone in his/her life who understands how schools work, and who is willing to take personal responsibility to ensure that student

makes it through school (Secada et al. 1998). Hispanic students who finished high school often identified someone at school (a teacher, coach, staff member or member of the community) who supported their efforts to stay in school. The most successful schools with the lowest rates of dropout also connected the students in meaningful ways to adults. Secondary schools adopted strategies such as school within a school, a group of teachers accepting responsibility for a group of students, everyone on staff agreeing to “adopt” some students, and older students mentoring younger students (Secada et al. 1998). The Hispanic Dropout Project researchers noted that the most impressive schools they visited hired Spanish speaking teachers or teachers that were familiar with Latino culture. They incorporated language and culture into their teaching practice, an effective approach that kept students engaged in the instructional process (Velez, 1999). Researchers strongly recommended that schools be more aggressive in responding to early warning signs that a student has become disengaged from school (Secada et al. 1998).

Contributing Factors to Latino Dropout

Velez and Saenz (2001) studied the available literature regarding Latino dropout, as well as examined the research and data needs for this topic. They identified three clusters of factors to that contribute to Latino dropout: individual, family, and structural. Individual factors include oppositional behaviors/adversarial subcultures, academic performance, accelerated role taking, generational status and acculturation, Spanish language use, and ethnic group membership. Family factors include family structure, socioeconomic status, and social capital. Structural level factors include school practices, relative group size of ethnic group, and community ethnic context (Velez & Saenz,

2001). They determined that these factors do not operate independently of one another. This research provides evidence that a student's family, peer group, and school characteristics plays a significant role in his/her decision to dropout.

The Study of Belonging and Engagement in Schools

The study of engagement began within the school dropout literature. Finn (1989) found that school engagement could be explained by his model of participation-identification, which seemed to be an important factor in school completion. Participation is the extent to which students participate in classroom and school activities, while identification occurs when students internalize the feeling that they belong in school (Finn, 1989). He concluded that students who do not participate actively in school and who do not develop a sense of identification with school are at risk for a number of consequences including dropping out of school (Finn, 1989). Finn (1993) conducted two studies, to determine if there was a relationship between engagement (participation) and academic achievement. In both studies, he found a strong relationship between the two, which led to further research on engagement and academic achievement.

Finn's idea of identification has evolved into the terms school belonging or school membership. Goodenow was the source of much research in the early 1990's, producing three seminal articles regarding belonging and its connection to student achievement. In one study (1991), she found a sense of belonging was closely related to the outcome measures of student grades and student effort. Additionally, urban students tended to have lower levels of belonging. Hispanic students scored higher on perceived belonging where they represented a majority of the student body and girls perceived higher levels of

belonging than boys. In a second study (1992), she found that sense of belonging was moderately and significantly correlated to the values of one's friends, student expectancies, value of school work, and school motivation. The third article (1993) examined the relationship between school membership, motivation, and academic achievement. She found that school belonging was strongly related to first semester grades and to grade point average for the year. Belonging is an important part of school engagement because students who feel accepted and included are more likely to be engaged in school, including a greater involvement in school activities and higher levels of participation in classrooms (Osterman, 2000).

Measuring School Engagement

Engagement has been defined and measured in many ways. Jimerson, Campos, and Grief (2003) found that items used to measure engagement in previous research consisted of five areas: academic performance, classroom behavior, extracurricular involvement, interpersonal relationships, and school community. However the literature is split; some studies measure engagement as a single construct and others measure it as multi-dimensional. Those that measure engagement as a single construct often choose a behavioral indicator due to the ease of measurement. Engagement has been measured by behavioral indicators such as grades, time spent on homework, attendance, suspensions, classroom participation, and participation in extracurricular activities. Current engagement instruments include some of these behavioral indicators. Appleton and Christenson's Student Engagement Instrument (2006) used behavioral indicators such as

grades and suspensions to measure engagement. Fredricks et al (2005) and Finlay (2006) measured engagement partially by self report of participation in school related activities.

Although this information is helpful to understand the consequences of engagement or disengagement, measuring behavioral indicators does not constitute students' school engagement, which is the *perceived* fit between themselves and their school environment. This must be done by self report, and not simply by measuring behavioral indicators. What has been defined as emotional or psychological engagement in the literature is more similar to student school engagement. It includes school membership, relationships with teachers and peers, as well as feelings of belonging. Although difficult to measure, this construct is crucial to engagement because it measures an aspect of the student's perspective of the fit between self and environment. However, even this type of engagement is not sufficient definition of the construct of student school engagement.

Current Models of Student Engagement with School

The recent literature on engagement includes several major camps, which have their own theories of engagement. Fredricks, Blumenfeld, Friedel, and Paris (2005) believe that three factors encompass school engagement. Appleton, Christenson, Kim, and Reschly (2006) posit their own four factor model of student engagement. Finally, Hazel et al. (2008) have a three factor model of student school engagement.

Fredericks, Blumenfeld, Friedel, and Paris's Model of School Engagement

Fredricks, Blumenfeld, Friedel, and Paris (2005) developed a three-factor model of school engagement, which included emotional, behavioral, and cognitive engagement.

Fredericks et al.'s model is comprised of three dimensions:

- Emotional engagement: Identification with the students' school, emotional reactions to the classroom, and student relationships with peers and adults.
- Behavioral engagement: Positive conduct and involvement in academic-related activities and participation in school-related activities.
- Cognitive engagement: Psychological investment and strategy used in learning.

Fredericks et al.'s research concluded that engagement types overlap with each other and constructs are less differentiated. They theorized that it was possible that the emotional engagement component preceded the cognitive and behavioral engagement components, while the cognitive and behavioral engagement components had a greater effect on academic success (Fredricks, et al. 2005). Additionally, researchers questioned developmental differences in engagement and called for more detailed measures to examine cognitive engagement.

Fredericks' Engagement Scales

Fredricks et al. (2003) created engagement scales using three components containing various sources of previous research. The first concerns the use of strategies to obtain an academic goal. The use of strategies and putting forth additional effort to ensure quality material has been mentioned previously in cognitive engagement research (Fredricks et al. 2004). The second is the ability to delay immediate gratification; in other words, being

able to prioritize and set boundaries in a responsible manner (e.g., doing homework before watching television). The third is student morale. Student morale is operationalized through continued effort and perseverance. The Fredricks et al. (2005) model was validated through exploratory factor analysis, means and standard deviation comparisons, concurrent validity (zero-order correlations), standardized regression, and qualitative interviews.

Finlay's School Engagement Survey (FSES)

Finlay (2006) accessed the body of work by Fredricks et al. (2004) to design an instrument from numerous sources. The three factors measured by the FSES were emotional, cognitive, and behavioral engagement. The validity and reliability of the instrument was assessed by using Cronbach's alpha. Emotional engagement questions had a reported alpha of .88 or higher, cognitive engagement questions had an alpha of .86 or higher, and behavioral engagement questions had a reported alpha of .49 or higher. Convergent validity was measured by examining correlations between the scales and outcomes such as GPA and attendance. At two of the three pilot sites, the scales appeared to be valid with significant correlations between cognitive and behavioral engagement and GPA and grades in Math and English.

Appleton, Christenson, Kim and Reschly's Model of Student Engagement

The Appleton, Christenson, Kim, and Reschly (2006) four-factor model of student engagement contains the following components: affective engagement, cognitive engagement, behavioral engagement, and academic engagement. This four-factor model differs from the previously discussed three-factor model in that it includes an academic

engagement component. Academic engagement refers to activities and goals such as course credits, homework completion, and the time in which the student remains on task and not distracted. Academic engagement and behavioral engagement were to be observed through student achievement and behavioral measures (i.e., risk scores, number of office referrals, suspensions, etc.). Cognitive engagement and affective engagement remain latent and need to be measured through self report.

Appleton and Christenson's Student Engagement Instrument (SEI)

Appleton et al. (2006) designed the SEI as a self-report instrument to measure the cognitive and affective components of engagement. The SEI was validated through confirmatory and exploratory factor analysis, and researchers chose the 4 factor model as the best fit for the data. Convergent and discriminant validity were tested using bivariate correlations between the sum of the scales, GPA, and suspensions. Appleton et al.'s results supported validity of the instrument, as well as a later validation study by Betts (2010).

Hazel's Model of Student School Engagement

Given that engagement was considered to be multi-dimensional and comprised of many different attributes and behaviors, Hazel et al. (2008) contended that engagement was best suited to be measured as the following set of sub-domains that affect school success: aspirations, belonging, and productivity.

1. Aspirations describes the value that students place on school and can be described as a student's appraisal of the worthwhileness of an education and its utility to his or her future.

2. Belonging describes the connection and emotional investment that students have to school, peers, staff, and even the physical building itself.
3. Productivity describes the energy put into academic success, and it can be described as effort, persistence, and the willingness to work.

Hazel et al. coined the term Student School Engagement to emphasize that the measurement of engagement represents the student's perception of the goodness of fit between his/her needs and the school environment. The definition is as follows:

Student school engagement is a multi-dimensional meta-construct representing a student's internally and externally mediated affiliation with and investment in schooling. Student school engagement is a biopsychosocial phenomenon, occurring in and responding to environmental contexts within a developmental trajectory (Hazel, Jack, Wonner, Albanes & Gallagher, 2008).

Student School Engagement Measure (SSEM)

The Student School Engagement Measure (SSEM; Appendix A) was designed to measure students' perception of the fit between themselves and their educational environment. The validation sample consisted of 389 middle school students, recruited by a school district. Vazirabadi (2010) used confirmatory factor analysis to test the validity of a three factor model, to ensure the SSEM was not only a good self-report tool, but also that it accurately measured the three domains of student school engagement: aspirations, belonging and productivity. Cronbach's alpha showed the reliability of the three domains ranged from .83 to .92. Factor loadings for each domain ranged from .62 to .81 for Aspirations, .51 to .79 for Belonging, and .53 to .81 for Productivity.

Vazirabadi used Huebner's Student Life Satisfaction Survey (SLSS; 1991), to test discriminant validity, and the Appleton et al. (2006) and Fredericks et al. (2005) surveys to test convergent validity. Among the subscales, convergent validity was established, as all correlations were found to be statistically significant ($p < .000$). Additionally, discriminant validity was also established as the subscales of the SSEM were found to be statistically insignificant with the Life Satisfaction Instrument. Criterion validity was tested using structural equation modeling and student outcome measures such as attendance, academic achievement, and individual suspensions. The SSEM was found to be a significant predictor of all three outcomes. The CFI was .91 and at the acceptable criterion of .90. The RMSEA was acceptable at .06 and fell within the acceptable range (i.e., below .08). The normed χ^2 is also acceptable at 2.44, within the range of 2 to 3. Although the SRMR was .06 and within the acceptable range (i.e., below .10), the value of the highest standardized residual was 4.85, which was above the acceptable limit of the absolute value of 2.0. Lastly, both GFI and AGFI measures were high (.86 to .83) for the selected model. Vazirabadi's research revealed that the SSEM was a promising tool and should continue to be used in the field of education.

Aspirations, Belonging and Productivity in the Literature

Many current engagement studies measure engagement by behavioral indicators and refer to these findings as engagement. These indicators (e.g. attendance, suspensions, classroom participation, and involvement in extracurricular activities) have a strong correlation with academic achievement (Fredericks, et al. 2007). However, these behavioral indicators do not constitute a measurement of the construct of engagement.

They are measuring behaviors, the consequences of engagement or disengagement. Using Hazel et al.'s (2008) definition of engagement, some aspects of aspirations, belonging and productivity can be found in the school engagement literature.

Aspirations

In the Hazel et al. (2008) model of student school engagement, aspirations were defined as the value students place on school and the worthwhileness of an education to their future. Items from the SSEM that measure aspirations include "I plan to pursue more education after high school," and "Being successful in school will help me in the future."

Investment in learning is a similar construct to aspirations. Fredericks et al.'s (2004) theory of school engagement included the three factors of emotional, behavioral, and cognitive engagement. They emphasized the idea of investment in learning in the construct of cognitive engagement. Sciarra and Seirup (2008) used Frederick's multi-dimensional construct of student engagement (2004) to examine the relationship between mathematics achievement and engagement across five ethnic groups. Math achievement was the dependent variable, with cognitive, emotional, and behavioral engagement being the independent variables. Results indicated that the three types of engagement have a significant relationship to math achievement for Latino students. Additionally, 7% of the variance in math scores for Latino students was accounted for by engagement variables, a medium practical significance level (Sciarra & Seirup, 2008).

The literature shows a link between investment in learning and achievement. Students' educational aspirations have not been considered as part of student

engagement, except by Hazel et al. (2008). Additionally, the link between aspirations and dropout has not been thoroughly studied, especially in Latino students. However, some research has shown that there is a discrepancy between Latino students' aspirations and their achievement (Hill & Torres, 2010). Hill and Torres called for further research in this area.

Belonging

Hazel et al. (2008) defined belonging as the connection and emotional investment that students have to school, peers, staff, and the physical building. Examples of items on the SSEM that measure belonging are "I am proud to be a student at this school," and "Teachers help me be successful at school."

Belonging has been researched for the last 20 years and there is plenty evidence linking belonging to positive school outcomes. Most evidence suggests that belonging influences achievement (Osterman, 2000). Connell and Welborne (1991) collected data from students in a variety of settings that included rural, suburban, and urban areas, to examine the relationship between relatedness and engagement. The study found that emotional security (relatedness) with parent, teachers, and classmates was significantly associated with teacher ratings of student engagement (measured as preparedness for class, doing more than necessary and being "tuned in"). Additionally, a sense of emotional security with teachers and peers had a stronger correlation with engagement than security with parents (Connell & Welborne, 1991). Connell, et al. (1995) used path analysis to significantly predict students level of school engagement (behavior, emotions and thought processes) based on perceptions of support. Other studies by Ryan et al.

(1994) and Wentzel (1998) had similar conclusions: they found strong positive correlation between security with teachers or teacher support and self-reported student engagement. Wentzel (1999) argued that children develop positive behavioral and social patterns based on their relationships with adults and those patterns affect all aspects of their development, including school performance. She found that middle school students who perceived teachers as supportive and caring displayed higher levels of motivation to achieve in school.

There is some evidence that supports belonging as directly related to achievement. School belonging has been associated with positive academic and psychosocial outcomes. Anderman (2003) defined belonging as “students’ perceptions of the social context of schooling and their place in it” (p. 6). She used Goodenow’s Sense of School Belonging Scale to measure belonging over three time points for students in sixth and seventh grade. Questions included, “I wish I were in a different school,” “I feel like a real part of this school,” and “I am proud of belonging to this school.” Anderman’s results indicated that students’ grade point average were correlated with levels of belonging.

Furrer and Skinner (2003) examined a sense of relatedness, its role in student engagement (measured by behavioral indicators), and academic performance in 641, (mostly Caucasian) elementary school students. Results indicated that student and teacher reported levels of student engagement each mediated the relationship between relatedness (aggregated across parents, teachers, and peers) and student grades. Additionally, student reported relatedness to parents, peers, and teachers significantly predicted engagement. Woolley, Kol, and Bowen (2009) used structural equation modeling to examine the

influence of teachers, families, and friends on a student's school success. Questions included "Indicate how often adults in your home support you in the following ways," "I am able to tell my problems to my friends," and "My teachers care about me." They found that a higher level of satisfaction with school and more positive school behavior were predictive of better grades and more time spent on homework. Higher teacher support was predictive of satisfaction with school and better behavior. Higher levels of parental support and parental education monitoring were predictive of increased experiences of teacher support. Examining peer relationships, they found that higher ratings of positive friend behavior at school were associated with more positive behavior at school and increased teacher support. Voelkl (1997) found that school identification (as measured by value and school belonging) was significantly correlated with achievement test scores in fourth and seventh grades for Caucasian students, but not for African American students.

This research supports the idea that social relationships connect students to school, and could possibly be used to predict school success and dropout. The literature shows a direct link between belonging and academic achievement; therefore, the next logical step would be using belonging to predict dropout. This type of study has not been conducted with Latino youth.

Productivity

Hazel et al. (2008) defined the construct of productivity as effort, persistence, and willingness to work on school related assignments and activities. Some items on the

SSEM that measure Productivity include, “I know how to study for tests,” and “When I have an assignment due, I keep working until it is finished.”

One approximation to this construct in the literature is participation and another is self-regulation. Participation in the classroom and outside the regular curriculum is associated with academic performance for elementary and middle school students across both race and gender (Finn, 1993). Jennings (2003) explored the relationships between academic performance, caring relationships, and meaningful participation in four middle schools in northern California with diverse student populations. Meaningful Participation in Schools (MPS) is part of the resiliency module of the California Healthy Kids Survey (CHKS; Constantine, Bernard & Diaz, 1999). Some questions on the MPS scale included “I do meaningful activities at school,” “At school, I help decide things like class activities or rules,” and “I do things at my school that make a difference.” Jennings found that students with moderate levels of MPS had significantly higher grade point averages than students with low MPS.

The Beginning School Study (Alexander, Entwisle & Dauber, 1993) showed that teachers’ ratings of participation in the first grade were related to achievement tests scores and grades over the first four years of school. Johnson, McGue, and Iacono (2006) found that participation was associated with changes in academic achievement for students age 11-17, beyond familial factors. Li and Lerner (2011) assessed adolescents from fifth to eighth grade, to determine if there are trajectories of engagement and if those trajectories were linked to grades, depression, delinquency, and substance abuse. Engagement was measured by behaviors such as work completion, preparation, and

attendance as well as perceptions of how much teachers and peers cared for them and how much they cared about school. Results indicated that different trajectories of engagement were significantly linked to changed grades for the students; those students who reported low levels of engagement also reported the lowest grades (Li & Lerner, 2011).

Diperna, Volpe, and Elliott (2001) used structural equation modeling to predict achievement in reading and language arts based on their theory of academic enablers, which included participation in class discussions. Their sample consisted of 394 elementary school students, with 19% identified as minority status. Engagement was measured with the Academic Enablers subscale of the Academic Competence Evaluation Scales (ACES; Diperna & Elliott, 2000) and included “Participates in class discussions,” as an engagement item. Researchers found that levels of participation had moderate to large effects on reading achievement.

Wang and Holcombe (2010) used structural equation modeling to assess adolescents’ perceptions of school environment and engagement, and its relationship to academic achievement in seventh and eighth graders. Researchers defined school engagement as school participation (“How often do you have trouble in school because it is hard for you to sit in your seat for a long time?” and “How often do you find that it is hard for you to get homework done?”), school identification (“In general, I like school a lot” and “I have to do well in school if I want to be a success in life”), and use of self-regulation strategies (“How often do you relate what you are studying to other things you know about?” and “How often to you check your homework to make sure it’s done

correctly when you finish it?”). Results indicated that greater school participation, school identification, and use of self-regulation strategies were positively associated with grade point average.

Ladd and Dinella (2009) assessed student engagement during first through third grade, as well as scholastic progress defined as reading and math subtests on the Wide Range Achievement Test (WRAT; Wilkinson, 1993). Engagement was measured as cooperative-resistant participation (“Responds promptly to teacher requests,” “Uses classroom materials responsibly”) and school liking-avoidance (“Likes being in school,” “Enjoys most classroom activities,” and “Complains about school”). Both types of engagement made significant, predictive contributions to changes in achievement. Students who exhibited engagement across grades made greater academic progress than those students who displayed lower levels of the two types of engagement (Ladd & Dinella, 2009).

Klem and Connell (2004) argued for the link between engagement, achievement, and school behavior across levels of economic and social advantage/disadvantage. Their sample consisted of elementary and middle school students from ages of 7 to 15. Researchers operationalized engagement as effort, attention, preparation and the belief that doing well in school is important. They found that engaged students tend to earn higher grades, perform better on tests, and drop out at lower rates than students who have lower levels of engagement (Klem & Connell, 2004).

Participation in school and use of self-regulation strategies have been linked to positive academic outcomes. However, self-regulation strategies have not been

researched in regards to their link to dropout. Metacognitive strategies and the link to dropout have not been researched thoroughly and could be critical information for the field.

Connecting Dropout and Engagement

Student school engagement has been considered to be the primary means for understanding and intervening with potential dropouts and to promote school completion (Christenson, et al., 2007). Most theories draw upon the construct of engagement/disengagement to conceptualize the drop out process (Finn, 1989; Rumberger, 2004; Whelage, Rutter, Smith, Lesko, & Fernandez, 1989). Finn's participation-identification model points to the lack of participation in school activities and lack of connection to adults and peers as the impetus for withdrawal and eventual dropout. Most researchers view dropping out as a gradual withdrawal that is influenced by students' individual behaviors, internal dispositions and attitudes toward school, and social involvement in the school community (Ream & Rumberger, 2008).

Very few researchers have used a multi-dimensional construct of engagement to predict dropout. Janosz, Archambault, Morizot, and Pagani (2008) measured school engagement over time, using Fredericks et al.'s model. The affective dimension assessed students' enjoyment and interest in school-related challenges and tasks; the cognitive dimension evaluated students' willingness to learn language arts and mathematics. Using growth modeling, they found that pathways of engagement were a significant predictor of dropping out: low levels of engagement or decreasing levels of engagement significantly

predicting dropout. In a similar study, the same researchers used the same engagement model to measure engagement in over 13,000 students in Quebec. They gathered data about student dropout and concluded that decreases in student engagement contributed to school dropout, supporting their earlier research (Archambault, Janosz, Morizot, & Pagani, 2009). Empirical evidence suggests that engagement could be used as a predictor for dropout.

Engagement Specific to Latinos

Most research related to Latino engagement is not measured as a multi-dimensional construct. Researchers parcel out engagement into academic and behavioral types, and explore connections between indicators of engagement and achievement. Despite this disadvantage, two qualitative studies do shed some light upon aspects of students' engagement and academic environments.

Qualitative Examination of Latino Engagement

Conchas (2001) qualitatively explored the variability in Latino school engagement by looking at how school programs construct school failure and success for U.S. born and immigrant Latino students. His study took place in an ethnically diverse high school in California and he collected data for 2 years. Data included field notes on day to day interactions of students with peers and teachers, interviews with students and teachers, maps of seating arrangements, report cards, student work, teacher evaluation, and announcement flyers. His focus was on the 26 Latino students in the 10th, 11th, and 12th grades. Conchas observed “structural and cultural processes that divided students by race and distributed opportunities among students in a way that reproduced social

inequities” (p. 484). For example, the school was divided into academic groupings, creating an academically competitive school culture, which occasionally caused hostile ethnic and racial relations.

His results showed that students were aware of institutional mechanisms that impact school engagement, using the example that most low-track classes were composed of Black and Latino students, while high-track classes were composed of mostly Asian and White students. This structural racial and ethnic separation was also reflected in with whom students socialized both in and out of the classroom. It was common to find Asians on one side of the classroom, Blacks on the other, and Latinos sitting together. One student spoke of the institutionalized nature of racial and ethnic divisions, and said that teachers, “have seen it over and over and over again, and after a while, they help in making stereotypes come true” (p. 486). Conchas explains that these actions affect students and their academic engagement. He also found that, although there were advanced classes and highly qualified teachers at the school, the Latino students did not feel that they had access to them, leading to feelings of alienation and invisibility. This translated into a lack of motivation, failure to plan for college, and pessimism about career goals (Conchas, 2001). Conchas brought to light the structures and institutionalization of racism in American schools, with the hope that policy makers and practitioners can change the system.

A two year ethnographic study of school engagement was conducted among Puerto Rican girls (Dow, 2007). The site for the study was an urban middle school in the Northeast United States. Nine Puerto Rican girls participated in the study, but the article

highlights the experience of two adolescent girls. One was reported to be a perfect student by her teachers and the other was struggling academically. Data were collected through field notes, classroom observations, interviews with the girls, and focus group discussions. Dow explored engagement through the metaphor of passing, which was mentioned numerous times by the girls. Passing was both achieving credentials and goals, along with avoiding outcomes like failing and retention. Dow illustrated the value that teachers place on compliant behaviors: those that allow a student to pass for being an engaged student. Behaviors like rote memorization and the ability to work independently were highly valued. As long as students were competent at these behaviors, they were able to pass as engaged students (Dow, 2007). The girls' behavior was shaped by classroom practices, roles they were expected to play, and social construction of who passes as an engaged students. The author noted that the girls' engagement could shift "in the three minutes it took them to move from one class to another" (p. 369). These differences in engagement indicate that engagement is malleable; therefore, engagement could be improved with appropriate interventions and curricula.

The qualitative literature shows that institutional segregation contributes to the low engagement of Latino youth; most Latino youth were in the lower-track classes and felt they did not have access to the more qualified teachers. This, in turn, created disengagement and negative attitudes about their future. Additionally, compliant behaviors were all that was needed to pass for an engaged student in some schools. More research is needed to examine what teachers think engagement truly means and how to engage students who feel that they are on a track that leads to failure.

Aspirations and Latinos

There is little research that considers how aspirations are connected to engagement in Latinos. A similar construct is school meaningfulness. Brewster and Bowen (2004) investigated the effects of social support from teachers on the school engagement of middle and high school Latino students at risk of school failure. Engagement was the dependent variable and was measured by assessing problem behavior at school and school meaningfulness (“I find school fun and exciting, “I look forward to learning new things at school” and “I look forward to going to school.”). Researchers found that social support from teachers was positively related to engagement among Latino students. As student perceptions of teacher support increased, problem behavior decreased and perceived school meaningfulness increased (Brewster & Bowen, 2004). Garcia-Reid (2007) defined engagement similarly to Brewster and Bowen (2004) as school meaningfulness (“I find school fun and exciting, “I look forward to learning new things at school,” and “I look forward to going to school”) and measured the construct with questions from the School Success Profile. She used path modeling to predict engagement with Hispanic middle school girls, using variables such as perceived teacher support, friend support, and parental support. She found that perceived social support provided by parents, friends, and teachers, was positively correlated with school engagement among Hispanic girls. Girls who perceived more favorable attitudes from their teachers tended to have higher engagement scores. Girls who reported a greater frequency of parental encouragement and greater trust and closeness with friends had higher engagement scores (Garcia-Reid, 2007).

Overall, perceived teacher support has been linked to increased school meaningfulness in several studies and seems to be a critical piece of school engagement. Social support provided by parents, friends, and teachers has been positively correlated with school meaningfulness among Hispanic girls. Additionally, social support has been linked to increased commitment to school. School meaningfulness has been linked to fewer problem behaviors, but has not been studied to examine a link to dropout.

Belonging and Latinos

The few journal articles that have been published that specifically address Latino school engagement focus mainly on social relationships, especially with teachers, as a major factor for school engagement. Social relationships are the closest approximation to the student school engagement definition of belonging in the literature. Woolley and Bowen (2007) examined the association between the number of supportive and caring adults in the home, school, and neighborhood with engagement of middle school students. They measured engagement with an 11 question survey that represented the constructs of connectedness, motivation, attendance, and participation, based on Finn's (1993) theory of participation and identification. Items included "I look forward to learning new things at school," "I find school fun and exciting," "What kind of grades did you make on your last report card?" and "During the past 30 days, how many hours on average did you spend studying or doing homework each school night?" Engagement was the dependent variable, with social capital and exposure to risk being the independent variables. Results indicated that Latino students had significantly lower engagement than White students, but not significantly lower than Black students. Latinos also had

significantly higher risk exposure and significantly lower social capital than Whites (Woolley & Bowen, 2007).

Rios and Romo (2010) questioned 69 Mexican-American elementary school girls about their interactions with their mothers and teachers. Questions about perception of teacher caring included “My teacher cares about my classwork” and “My teacher cares about me getting a good education.” Questions about perception of teacher friendliness included “My teacher is friendly” and “My teacher is a good listener.” Results indicated that the more the students perceived their teachers to care for them, the higher their grades were in math. Girls with higher grades in reading perceived their teachers as more friendly. Vaquera (2009) used belonging as a measure of engagement which was measured with three questions regarding attachment to school (“I feel close to people at this school,” “I feel like a part of this school,” and “I am happy to be at this school.”) Vaquera found that adolescents who reported having friends had fewer engagement problems and higher levels of belonging than their peers with no friends. Two thirds of white students identified having a best friend at school, but only 50% of Hispanic youth reported having a best friend at school. Those who did not have a best friend at school reported lower levels of belonging.

This research supports the idea that social relationships are highly important to Latino youth. Relationships with teachers have been linked to positive academic outcomes for Latino youth. Hazel’s model of engagement includes belonging, the connections students have to peers and teachers at school. Belonging could be used to

predict dropout among Latinos. However, this research has not been conducted, highlighting a gap in the literature.

Productivity and Latinos

The student school engagement construct of productivity is similar to participatory behaviors, work effort, self-regulation, and other strategies used by students. Ream and Rumberger (2008) used a national longitudinal database to show that behavioral and social aspects of school are linked to school completion and drop out among Mexican-American students. They defined engagement as action-oriented participatory behaviors: time spent on homework, school preparation, athletic participation, and arts participation. Result indicated that Mexican-American students spent significantly less time on homework and on preparation for school than their non-Latino white counterparts. Additionally, Mexican-American students were less involved in academic endeavors and extracurricular activities than non-Latino white students.

Murray (2009) investigated the associations between Latino students' relationships with parents, teachers, and indicators of engagement. Engagement was measured with items that asked about effort ("I work very hard on my school work") as well as strategies used at school ("When something bad happens to me in school, I try to figure out what I did wrong so it won't happen again"). Findings indicated that parent-child relationships and teacher-student relationships accounted for a significant portion of the variance in engagement. Students with higher closeness and trust with teachers had higher engagement than students who rated lower closeness and trust with teachers.

Green, Rhodes, Hirsch, Suarez-Orozco, and Camic (2008) explored how initial participation, gender, and support from caring adults shaped engagement over time. Previous research indicated that access to supportive relationships with school adults vary by gender, with boys experiencing less support than girls, as well as boys being less likely to seek out help when experiencing academic setbacks. Researchers defined engagement as behaviors necessary for school success, like work completion, turning in homework on time, and paying close attention in class. Data was collected through the Longitudinal Immigration Student Adaptation study, which surveyed recently (within 5 years) arrived immigrant youth from Central America, China, Dominican Republic, Haiti, and Mexico. Results indicated that gender and mean support emerged as important predictors of engagement trajectories (Green, et al. 2008): increases in support were accompanied by increases in engagement and engagement of immigrant youth changed over time and was not uniform across individuals.

Effort and use of strategies have been shown to be connected to academic success and engagement. Productivity, as defined by Hazel (2008), has not been studied among Latinos and researchers have not examined the possible link between use of strategies and dropout.

Conclusion and Theoretical Model

In the United States, the high school dropout problem is a national crisis. Existing research is clear that 9th grade is a critical year in which more students drop out than any other grade in high school (Herlihy, 2007). A Johns Hopkins research study, Building a Graduation Nation – Colorado (Balfanz, 2008), found that students who were successful

in grades 6 through 10 were typically able to graduate from high school, even in high poverty school districts. The Consortium on Chicago School Research introduced the “on track indicator,” which combined course credits earned and course grades to determine if a student is on track to graduate on time (Allensworth & Easton, 2005). First year high school students are considered “on track” if they earn at least five full year course credits and no more than one F in one semester in a core class during their first year of high school. On-track students are 3.5 times more likely to complete high school in four years than students who are not on track to graduate on time (Allensworth & Easton, 2005). Using credits earned, or on track status at the end of 9th grade, is a valid way to measure who is at risk of dropping out of school.

In the US, Latinos have the highest high school dropout rate with only 64% of 18-24 year olds having completed high school (U.S. Department of Commerce, 2000). The literature points to several possible causes for the high dropout rate, including living in the most poverty stricken areas of the country, segregation, underrepresentation in advanced classes, and having teachers of different cultural backgrounds. The Hispanic Dropout Project was commissioned by the U.S. Department of Education in 1995, to study drop out among Latino youth, and provide suggestions to schools and policy makers (Secada, et al.1998). Researchers found that Hispanic students dropped out of school because no one established individual relationships with them, communicated high academic expectations for them, or provided them with meaningful opportunities to achieve those expectations.

Hazel et al.'s model of Student School Engagement (2008) includes the domains of aspirations, belonging, and productivity. Aspirations describes the value that students place on school and can be described as a student's appraisal of the worthwhileness of an education and its utility to his or her future. Belonging describes the connection and emotional investment that students have to school, peers, staff, and even the physical building itself. Productivity describes the energy put into academic success, and it can be described as effort, persistence, and the willingness to work. Aspirations, belonging, and productivity are important constructs of student school engagement, and those constructs can be found in the school engagement literature for Caucasian, as well as Latino, students. Social relationships at school seem to be especially important to Latino youth and the literature points to the connection between relationships and academic outcomes, including dropout. The literature provides empirical evidence that there may be a relationship between student school engagement and dropout. Therefore, student school engagement could be used as an indicator of dropout.

Based on a thorough review of the literature, theoretical model 1 was developed for the first 2 research questions (see Figure 1). There is a clear relationship between school engagement and dropout; therefore it may be used as an early warning indicator. Theoretical model 2 (Figure 2) was developed for the third and fourth research questions. It is clear from the literature that social relationships and connections to others help provide Latino students with the support they need. The Hispanic Dropout Project confirms this idea, emphasizing that the students who stay in school are those whom have connections to adults and peers at school. The successful students can identify someone

at school that provides them the support they needed to move through school and eventually graduate.

Figure 1. Theoretical Model 1

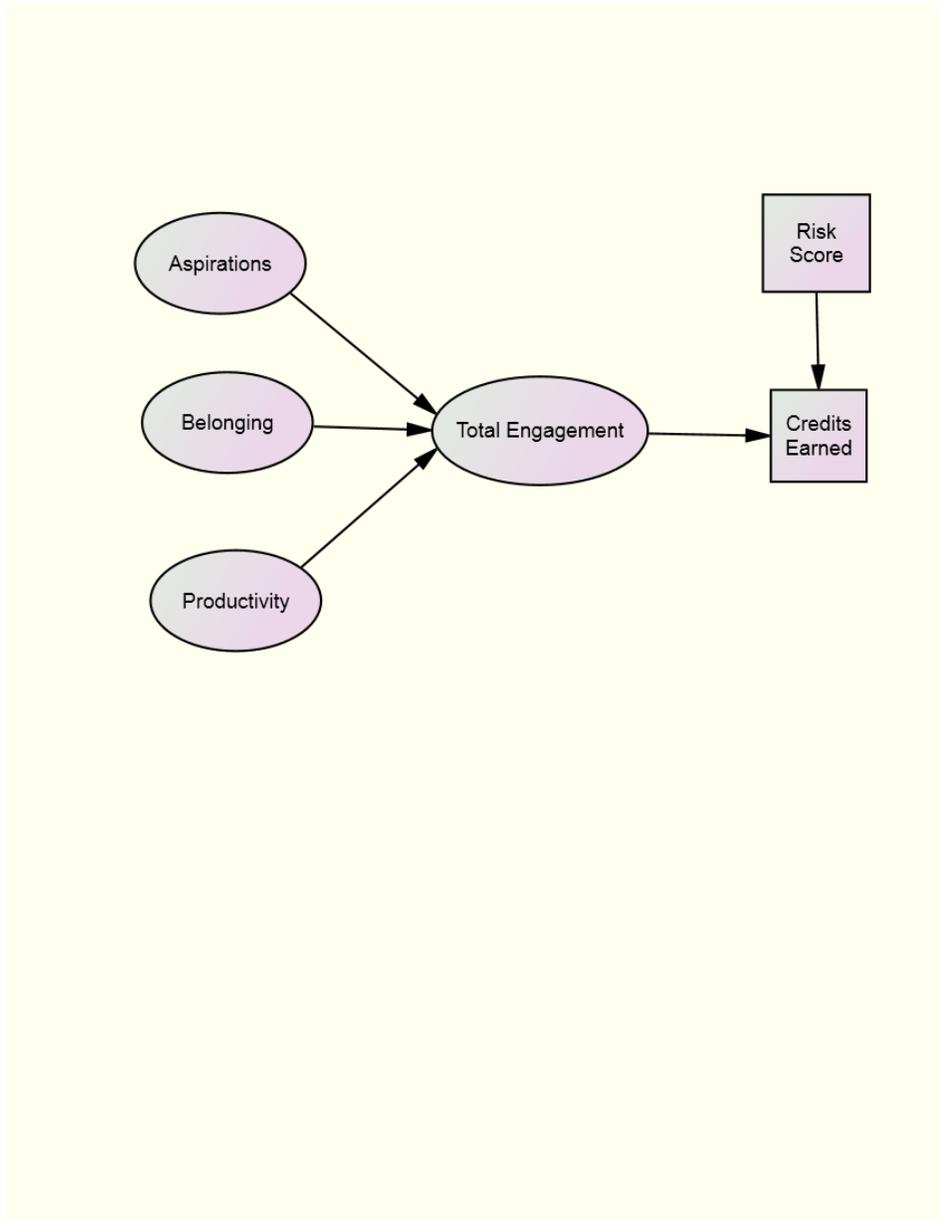
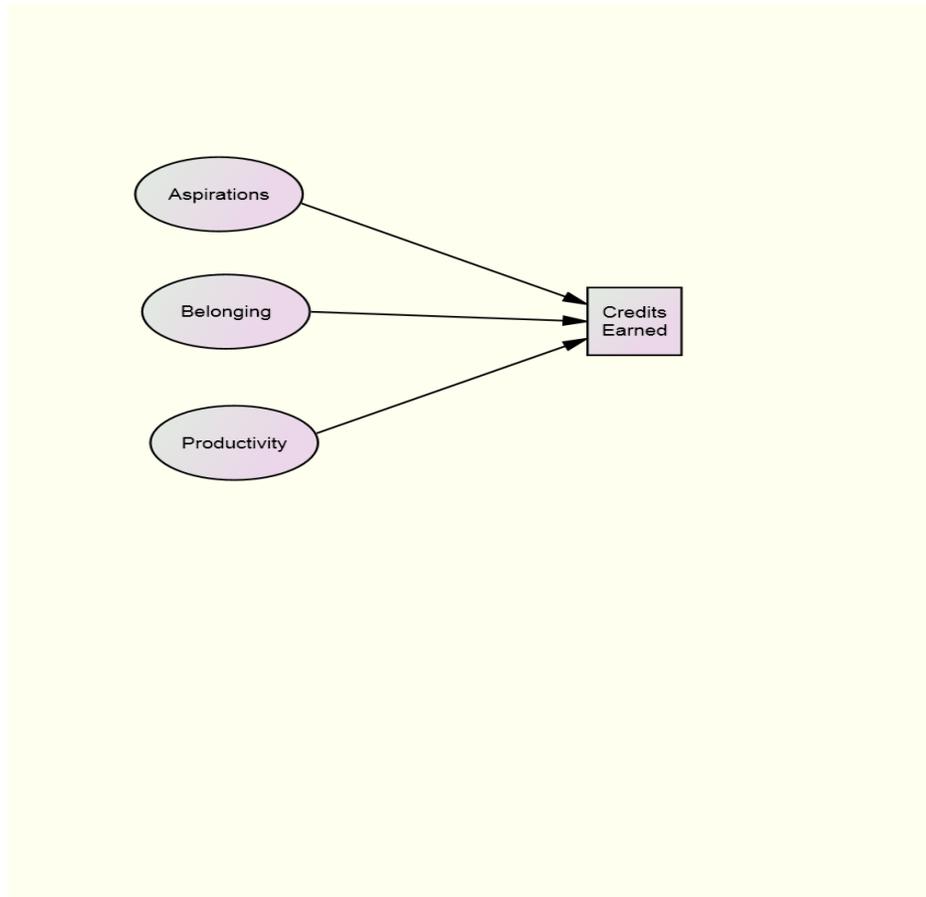


Figure 2. Theoretical Model 2



Chapter Three: Methods

The Method chapter consists of a description of how this study was completed. The study was a secondary analysis of data collected by a school district in 2008 and 2009. Participants included 389 8th graders from an urban school district, who were asked to take the SSEM by the school district. The students were given the SSEM via online survey or by paper and data were entered into a main database, from which this study data was drawn. The outside consultant for the 2008 SSEM data collection was a committee member and advisor for this current study. The school district collected data on the amount of credits earned by students at the end of 9th grade for all freshmen in 2009.

Design

The purpose of this study was to investigate the relationship between student school engagement and dropout, as measured by on-track to graduation status. The study was a longitudinal survey design. Engagement data was collected in the form of a questionnaire, at approximately one point in time for all of the participants in the spring of 2008, and then achievement data from the end of the students' 9th grade year was also used as part of the study, to examine whether engagement scores can predict end of 9th grade total credits earned.

Kraemer (1991) identified three distinguishing characteristics of survey research. First, survey research is used to quantitatively describe specific aspects of a given population. These aspects often involve examining the relationships among variables. Second, the data required for survey research are collected from people and are,

therefore, subjective. Finally, survey research uses a selected portion of the population from which the findings can later be generalized back to the population.

The primary limitation of a convenience sample is that the statistical scope of inference only extends to three schools. The primary limitation of a survey design is that the independent and dependent variables are used to define the scope of study, but cannot be explicitly controlled by the researcher. Thus, the conditions necessary for causality cannot be met.

The advantages to survey research are that surveys are capable of obtaining information from large samples of the population. They are also well suited to gathering demographic data that describe the composition of the sample (McIntyre, 1999). Surveys are inclusive in the types and number of variables that can be studied, require minimal investment to develop and administer, and are relatively easy for making generalizations. Surveys can also elicit information about attitudes that are otherwise difficult to measure using observational techniques (McIntyre, 1999).

Sample

The population studied was 8th graders in an urban, metropolitan school district and the sample was 8th graders at three middle schools in the same school district. The participants were chosen based on a convenience sample. Survey techniques were used to collect engagement data from the students and the outcome measures were collected by the school district. The pilot of the survey included 396 participants who took the survey in 2008. However, when their credit data were collected, the district could only find

outcome data on 384 which means 12 students were not able to be included in the study.

See Table 1 for demographic information regarding the sample.

Table 1
Demographics of the sample

Variable	N (%)	<u>N Latino Only</u> (%)
Girls	173 (45%)	124 (41%)
Boys	211 (55%)	179 (59%)
Free/Reduced Lunch	255 (66%)	222 (73%)
Gifted	88 (23%)	67 (22%)
Special Education	31 (8%)	26 (9%)
Latino	303 (79%)	
Non-Latino	81 (21%)	

Instrument

The instrument that was used for this study was the Student School Engagement Measure (SSEM; Hazel, Albanes & Jack, 2009), developed by the University of Denver Student School Engagement Research Team. The SSEM is composed of 22 items, proposing statements in which the student responded using a 10 point Likert-type scale. The scale ranges from Strongly Disagree (1) to Strongly Agree (10). Each question was written in both English and Spanish. The survey measured students' perceptions about their own levels of engagement with school in three domains: aspirations, belonging, and

productivity. Vazirabadi (2010) conducted the validation study for the SSEM, and in that study, the survey was used to measure the relationship between engagement and achievement data. The validation sample consisted of 389 middle school students, recruited by a school district. Vazirabadi (2010) used confirmatory factor analysis to test the validity of a three factor model, to ensure the SSEM was not only a good self-report tool, but also that it accurately measured the three domains of student school engagement: aspirations, belonging, and productivity. Cronbach's alpha showed the reliability of the three domains ranged from .83 to .92. Factor loadings for each domain ranged from .62 to .81 for Aspirations, .51 to .79 for Belonging and .53 to .81 for Productivity.

Vazirabadi used Huebner's Student Life Satisfaction Survey (SLSS; 1991) to test discriminant validity and Appleton et al.'s (2006) and Fredericks et al.'s (2005) surveys to test convergent validity. Among the subscales, convergent validity was established, as all correlations were found to be statistically significant ($p < .000$). Additionally, discriminant validity was also established as the subscales of the SSE were found to be statistically insignificant with the Life Satisfaction Instrument. Criterion validity was tested using structural equation modeling and outcome measures of attendance, academic achievement, and individual suspensions. The SSEM was found to be a significant predictor of all three academic outcomes mentioned above. The CFI was .91 and at the acceptable criterion of .90. The RMSEA was acceptable at .06 and fell within the acceptable range (i.e., below .08). The normed χ^2 is also acceptable at 2.44, within the range of 2 to 3. Although the SRMR was .06 and within the acceptable range (i.e., below .10), the value of the highest standardized residual was 4.85, which was above the

acceptable limit of the absolute value of 2.0. Lastly, both GFI and AGFI measures were high (.86 to .83). Vazirabadi established that the SSEM is a useful tool and should be continued to be used in the field of education.

Outcome Measure

Credits earned by the end of 9th grade will be the outcome measure, collected by the school district. Credits earned ranged from 0 to 95. The district gave approval on February 12, 2012 to release the information for the study.

Analysis

Structural Equation Modeling (SEM) was the technique chosen to test associations between the variables. Mplus (Muthen & Muthen, 2007) was the software packages used for analysis. The goal of SEM is to test a theory by specifying a model that represents predictions of that theory, based on constructs measured by appropriate indicators (Kline, 2011). SEM was chosen for several reasons. First, SEM uses multiple indicators to represent and define latent constructs, which allows researchers to tease out measurement error from these indicators, thus being able to test the fit of the model. Second, SEM improves upon the predictive capacity of multiple regression by allowing for true multivariate estimation, including the estimation of direct and indirect effects (Kline, 2011). Finally, SEM is superior to regression in testing hypothesized latent constructs.

Study Variables

The 22 questions in the SSEM were the observed variables used to construct the three engagement domain scores plus an overall engagement total score for the first two

research questions. The Belonging domain scores were used to predict outcome measures for research questions three and four that are Latino-specific. The dependent variable was credits earned at the end of 9th grade. Not earning sufficient credits by the end of 9th grade is associated with not completing high school in four years (Allensworth & Easton, 2007). ABC Stoplight Risk Scores, a collaborative design between Dr. Cynthia Hazel and the school district, were added to the model as a covariate. Risk scores ranged from 0-5, based on how many risk factors a student has at the beginning of their 9th grade year. Risk factors include the number of absences, number of suspensions, failure of math in 8th grade, and failure of language arts in 8th grade.

Model Identification

A model is considered identified if it has more sample moments than free model parameters and all latent variables were assigned a scale (Klein, 2011). The number of observations are determined by assessing the sample moments in the model. The formula for determining sample moments is $v(v+1)/2$.

Model Specification

There were two models in this study (Figures 3 and 4). The first model was developed to answer the first two research questions, and used aspirations, belonging, productivity, and a total engagement score to predict credits earned at the end of 9th grade. It also included 8th grade risk score as a covariate. Risk score was added to this model in order to answer the question if engagement was a stronger predictor of credits earned than the risk score currently being used by the school district. Multigroup analysis

was used to answer the components of the first two research questions that addressed differences in ethnicity and sex.

The second model used aspirations, belonging, and productivity to predict credits earned by the end of 9th grade, without the covariate risk scores. Model 2 answers the third and fourth research questions, which were examining which domain of student school engagement was a stronger predictor of credits earned. Similar to Model 1, multigroup analysis was used to address the fourth research question about differences in ethnicity.

Model 1 (Figure 1) has one endogenous observed variable: credits earned by the end of 9th grade. Eighth grade risk score was added as a covariate. The three remaining exogenous latent variables (aspirations, belonging, and productivity) were constructed with 22 observed indicators. Model 2 (Figure 2) has one endogenous observed variable, credits earned, as well as and three exogenous latent variables constructed with 22 observed indicators. Risk score was not included in Model 2 because only research questions one and two contained the question about whether engagement was a stronger predictor of credits earned than risk score.

Figure 3. SEM Model 1

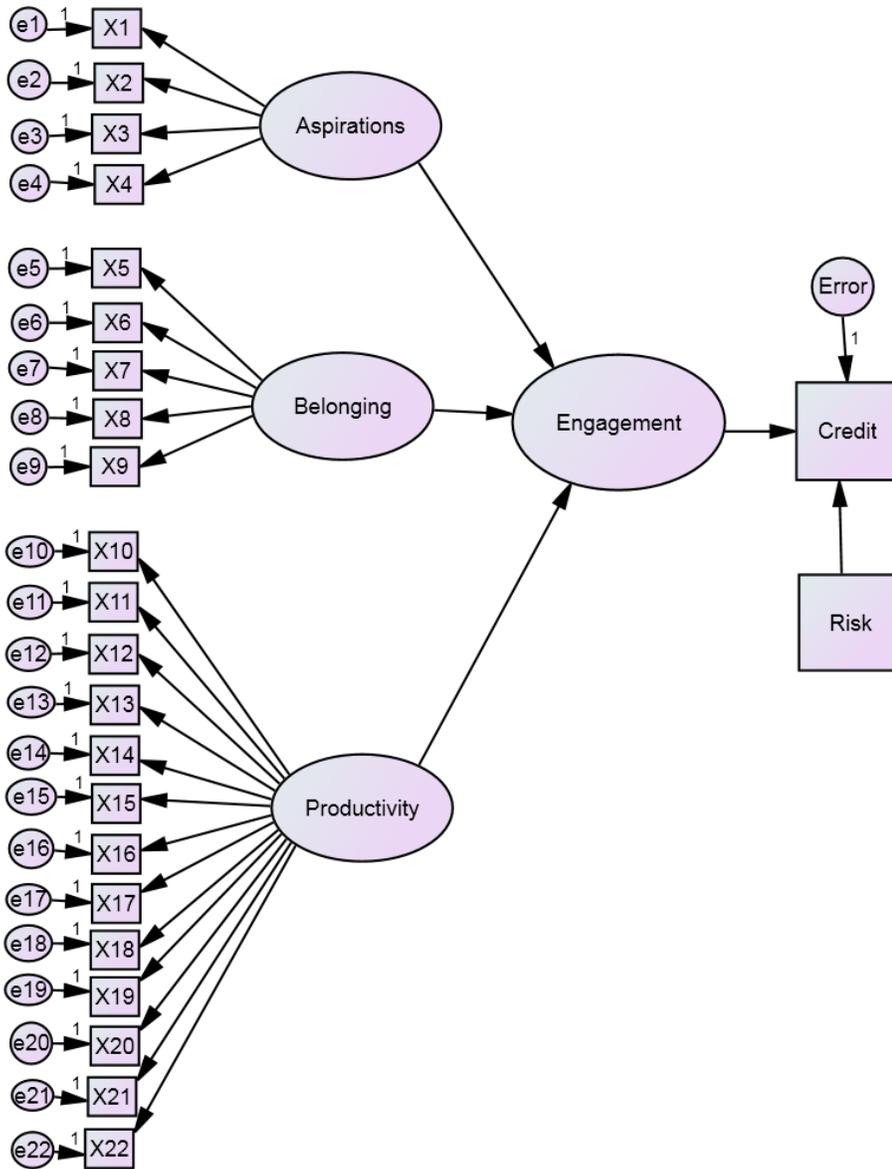
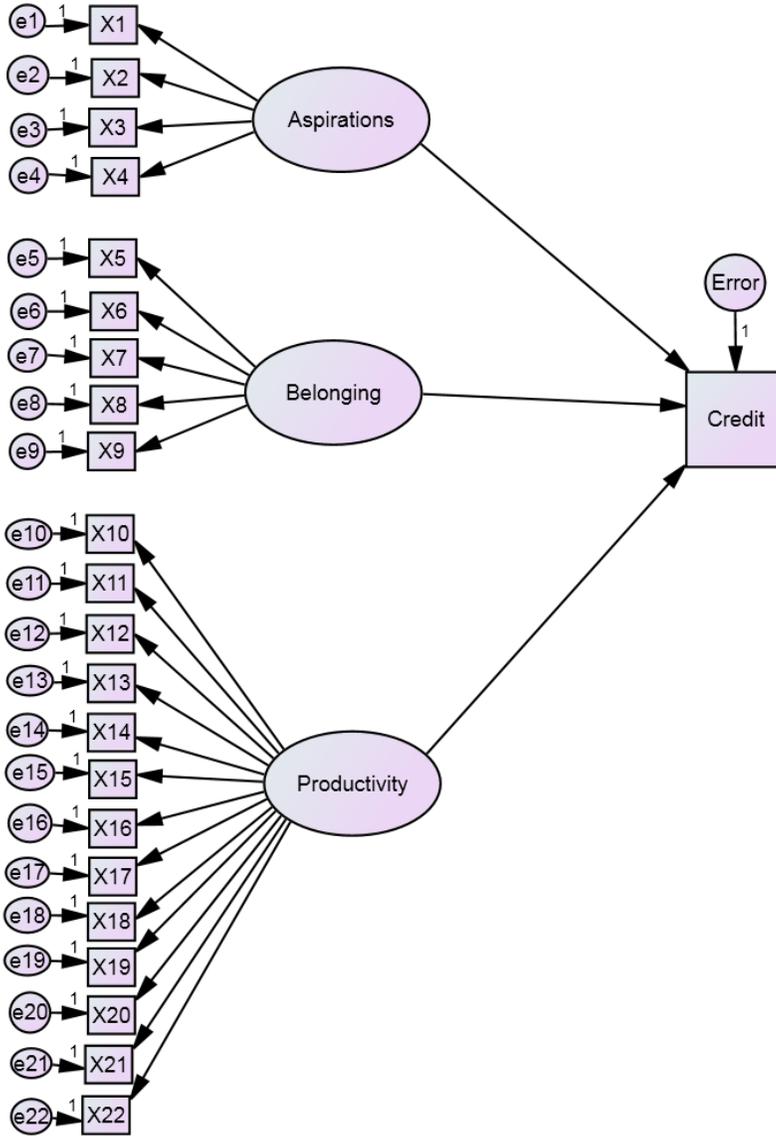


Figure 4. SEM Model 2



Estimation Method

In cases when the model assumption is met and sample size recommendation for structural equation modeling (SEM) analyses is considered large, maximum likelihood estimation (ML) should be considered for analysis (Kline, 2011). However, maximum likelihood estimation assumes that the endogenous variables are normally distributed, using any other estimating method other than ML requires detailed justification (Kline, 2011). The SSEM data was categorical and violated the assumption of normality; however the outcome variable credits earned was continuous. Mplus software was used for the final analysis, instead of AMOS, so that the option of a robust weighted least squares approach (WLSMV) was available. WLSMV is considered to work well if the sample size is 200 or better (Flora & Curran, 2004; Muthen, du Toit, & Spisic, 1997). Due to the continuous nature of the outcome variable, MPlus defaulted to ML for the analysis.

SEM Assumptions

Several assumptions are necessary to conduct an analysis using SEM:

1. The model is correctly specified
2. Variables are unstandardized
3. There are no missing values
4. Independence of scores
5. Independence of the exogenous variables and error terms
6. Exogenous variables measured without error
7. Multivariate normality of the endogenous variables (for ML estimation)

Model specification is of critical importance. If the model is not correctly specified, the researcher must begin again with this first step before moving on towards

model identification. SEM requires multivariate normality. This means that all univariate distributions are normal, the distribution of paired variables is normal, and all scatter plots manifest linearity and homoscedasticity (Kline, 2011). SEM is sensitive to the presence of outliers. Kline (2011) defines outliers as cases with scores that are significantly different than the rest. One basic method recommended to detect such cases is to compute z-scores; typically, z-scores above 3.0 would be considered “extreme” cases. Another important assumption of SEM is there cannot be missing data. SEM is susceptible to the effects of missing data, thereby preventing model analysis. Multicollinearity in SEM results in singular covariance matrices and it occurs when the inter-correlations among variables are extremely high (greater than 0.85) (Kline, 2011).

Model Fit

In over-identified path models (defined as degrees of freedom greater than zero), the model does not fit the data; thus, it is important that the model’s fit is assessed. There are many indices that assess the fit of a structural equation model, and new indices are being created everyday (Kline, 2011). As a result, Kline recommends the following four indices to be used with SEM model results:

1. Model chi-square
2. Root mean square error of approximation (RMSEA)
3. The comparative fit index (CFI)
4. Standardized root mean residual (SRMR)

The chi-square statistic tests the null hypothesis that the model is correct, thus the chi-square test is based on a central distribution that has only one parameter (i.e., the degrees of freedom). The higher the value of the chi-square statistic, the worse the model

fit is. As a result, this statistic is a “badness-of-fit” test. Thus, failure to reject the null hypothesis would indicate model fit.

Root mean square error of approximation (RMSEA) is the error of approximation which concerns the lack of fit in the researcher’s model to the population covariance matrix. The general rule of thumb for interpreting this statistic is that models with RMSEA below .05 are considered to have a close approximate fit, between .05 and .08 suggests reasonable approximation, and above .10 indicates poor fit (Kline, 2011). Most SEM computer programs provide the 90% confidence interval for the population parameter for which the lower and upper bounds of the interval are not symmetrical.

Comparative fit index (CFI) is an increment or comparative fit index, which is widely used in SEM. This index assesses the relative fit of the researcher’s model to a baseline or an independence model. The baseline model assumes zero population covariances among the observed variables. Because the baseline model assumes no relationship among the variables, the value of its chi-square is often larger than that of the researcher’s model. Given that the independence model has zero covariances, the researcher’s model is almost always going to have favorable results in comparison with the independence model; thus, it is not difficult for the researcher to have a better model. It is suggested that a CFI value above .90 is considered a reasonably good fit of a model.

The standardized root mean residual (SRMR) is a measure of the mean absolute value of the covariance residuals (Kline, 2011). Ideally, a model would have a coefficient of zero, indicating a perfect fit; the higher the coefficient, the poorer the fit of the model. Values less than .10 are favorable (Kline, 2011).

Conclusion

This study used structural equation modeling to examine the relationship between student school engagement and the academic achievement outcome measure of credits earned at the end of 9th grade. Data from the SSEM was collected at the end of 8th grade. Using all participants, the answers to the 22 questions from the SSEM were modeled as observed indicators of the three domains of engagement. Aspirations, belonging, and productivity, as well as a total engagement score were modeled as a predictor of credits earned at the end of 9th grade. Eighth grade Risk Score was added as a covariate. This model addressed the research questions related to the SSEM being a significant predictor of 9th grade outcomes.

For the second model, the answers from the 22 questions from the SSEM were modeled as observed indicators of the three domains of engagement. Those three scores were modeled as predictors of credits earned at the end of 9th grade. This model addressed the research questions related to Belonging being a more significant predictor of 9th grade outcomes for Latino students than Aspirations and Productivity.

Chapter Four: Results

This chapter discusses the results of the research questions presented at the end of the literature review. As stated in the Methods section, structural equation modeling was used to determine if student school engagement was a significant predictor of credits earned at the end of 9th grade. Results are presented in the form of tables and explanations of the data. The research questions that will be addressed in this chapter are the following:

1. Is Student School Engagement, measured in 8th grade, a significant predictor of credits earned at the end of 9th grade? Is the SSEM a stronger predictor of credits earned at the end of 9th grade, than ABC Stoplight Risk Score? Are there significant differences between males and females on the path coefficients?
2. Is Student School Engagement, measured in 8th grade, a significant predictor of credits earned at the end of 9th grade for Latinos? Is the SSEM a stronger predictor of the credits earned at the end of 9th grade, than ABC Stoplight Risk Scores for Latinos? Are there significant difference between males and females on the path coefficients?
3. Is Belonging a better predictor for credits earned at the end of 9th grade, than Aspirations and Productivity for the entire sample?
4. Is Belonging a better predictor for credits earned at the end of 9th grade, than Aspirations and Productivity for Latinos in the sample?

The first step of data analysis was to examine the descriptive statistics of the major study variables. Table 2 below shows the mean and standard deviation of the continuous variables, along with the mean and standard deviation of student risk score. Gender and ethnicity are not included in the table because they were binary categorical variables. The next step was to examine the correlations between the major study variables. Table 2 below shows the correlations between study variables.

Table 2
Means, Standard Deviations, and Correlations for Study Variables

Variable	1	2	3	4
Ethnicity	1.00			
Sex	.160	1.00		
Credits	.059	.019	1.00	
Risk	.002	-.008	.006	1.00
Mean			61.98	1.56
Standard Deviation			23.05	.99

In order to use the MPlus software (Muthen & Muthen, 2007) for SEM, a covariance matrix was created. A covariance matrix looks similar to a correlation matrix, but displays the variance (average of the squared difference from the mean), or difference between two variables, whereas a correlation examines the relationship between the two variables. MPlus software uses the covariance matrix as summary data for analysis.

Next, several structural models were created using MPlus, in order to examine the relationship between Engagement and credits earned by the end of 9th grade. Model 1 (Figure 3, page 57) used a higher order engagement model to predict credits earned, with risk score as a covariate. Model 2 (Figure 4, page 58) used only the three domains of

Aspirations, Belonging and Productivity as predictors of credits earned. The model fit indices and path coefficients are presented in Table 3.

Table 3.
Fit Indices and Path Coefficients for Models 1 & 2

Index	Model 1	Model 2
Chi Square	450.87	461.89
Chi Square with risk score	468.19	
Degrees of Freedom	227	248
Sig.	0.00	0.00
Chi Square/df		
Comparative Fit Index (CFI)	0.88	0.88
Root Mean Squared Error (RMSEA)	0.07	0.07
Lower 90%	0.06	0.06
Upper 90%	0.08	0.08
Standardized Root Mean Residual (SRMR)	0.06	0.06
Highest standardized residual	522.95	523.08
Path Coefficients		
ENG-Credits	-0.02	
ENG-Risk	0.00	
ASP- Credits		0.52
BEL-Credits		0.65
PRO-Credits		0.16

Model 1 did not fit the data adequately. The CFI was .88, below the acceptable criterion of .90. The RMSEA was 0.07 and fell within the acceptable range (below .08). The SRMR was .06 which was within the acceptable range (below .10). The highest standardized residual was 522.95, clearly above the acceptable limit 2.0 (Joreskog & Sorbom, 1984). Model 2 did not fit the data adequately. The CFI was .88, below the

acceptable criterion of .90. The RMSEA was 0.07 and fell within the acceptable range (below .08). The SRMR was .06 which was within the acceptable range (below .10). The highest standardized residual was 523.08, clearly above the acceptable limit 2.0 (Joreskog & Sorbom, 1984).

Upon examination of the path coefficients for Model 1, it was clear that engagement and risk were not significant predictors of the amount of credits earned at the end of 9th grade. However, the factor loadings from two of the three engagement domains to engagement were significant: belonging and productivity. Belonging (1.22, $p < .05$) and Productivity (0.84, $p < .05$) were both significant indicators of overall engagement in this sample; Aspirations was not. Upon examination of the path coefficients for Model 2, it was clear that the three domains of engagement were not significant predictors of credits earned.

In addition to summary data (covariance matrix), MPlus can also use individual data which required converting an Excel file to a text file. Using individual data allowed for multigroup analysis, to examine the differences between sex and ethnicity in the first model. Differences were examined by first constraining all paths on Model 1 to be equal, and then second, relaxing the two paths between engagement and credits and engagement and risk.

Table 4.
Fit Indices for Multi-group Analysis of Ethnicity Model 1

Index	Most Constrained	Least Constrained
Chi Square	1165.14	1159.72
Latino	690.57	688.91
Non-Latino	474.57	470.82
Degrees of Freedom	519	517
Sig.	0.00	0.00
Chi Square/df		
Comparative Fit Index (CFI)	0.88	0.88
Root Mean Squared Error (RMSEA)	0.08	0.08
Lower 90%	0.07	0.07
Upper 90%	0.08	0.09
Standardized Root Mean Residual (SRMR)	.07	0.07
Highest Standardized Residual	567.02	564.38
Path Coefficients		
Engagement		
Latino	1.25	0.28
Non-Latino	1.25	3.30
Risk		
Latino	2.62*	1.18*
Non-Latino	2.62*	6.25*

*p<.05

In regards to differences in ethnicity, again overall model fit is poor. Chi square was significant. The contribution to chi square was greater for Latinos (Table 4); however there were a greater amount of Latinos in the overall sample. Chi square difference test was non-significant. The CFI was .88, below the acceptable criterion of .90. The RMSEA was 0.08 and did not fall within the acceptable range (below .08). The SRMR was .07

which was within the acceptable range (below .10), however, the highest standardized residual was 567.02, clearly above the acceptable limit 2.0 (Joreskog & Sorbom, 1984).

Upon examinations of the path coefficients, results indicate that overall engagement as a predictor of credits earned is similar, and non-significant, for both Latinos and non-Latinos. However, risk is a significant predictor of credits earned for both Latinos and non-Latinos in both the most constrained and least constrained models.

Table 5.
Fit Indices for Multi-group Analysis Sex Model 1

Index	Most Constrained	Least Constrained
Chi Square	1193.62	1192.89
Males	630.885	630.51
Females	562.740	562.38
Degrees of Freedom	519	517
Sig.	0.00	0.00
Chi Square/df		
Comparative Fit Index (CFI)	0.88	0.88
Root Mean Squared Error (RMSEA)	0.08	0.08
Lower 90%	0.07	0.08
Upper 90%	0.08	0.09
Standardized Root Mean Residual (SRMR)	.07	0.07
Highest Standardized Residual	566.72	565.52
Path Coefficients		
Engagement		
Males	0.98	1.42
Females	0.98	0.73
Risk		
Males	2.28	1.53
Females	2.28	3.16

In regards to differences in sex, again overall model fit is poor. The contribution to chi square was greater for males, however there were a greater amount of males in the overall sample. Chi square difference test was non-significant. The CFI was .88, below the acceptable criterion of .90. The RMSEA was 0.08 and did not fall within the acceptable range (below .08). The SRMR was .07 which was within the acceptable range (below .10), however, the highest standardized residual was 566.72, clearly above the acceptable limit 2.0 (Joreskog & Sorbom, 1984).

By examining the path coefficients, results indicate that overall engagement as a predictor of credits earned is non-significant for both males and females, meaning there is no differences between the two groups in regards to engagement being a predictor of credits earned. Similarly, there is no difference between the two groups regarding risk being a predictor of credits earned.

Overall, the study results indicated that the proposed models were a poor fit for the sample data. The path coefficients were examined separately in order to determine if there were differences regarding ethnicity and sex among the sample. The coefficients indicated that there were no differences between the Latino and non-Latino groups. Results also indicated that there were no differences between males and females in regards to the contribution of sex as a variable. However, risk scores were a significant predictor of credits earned for both Latinos and non-Latinos in both the most constrained and least constrained models.

Chapter Five: Discussion

The purpose of this study was to test two models of student school engagement that examined whether 8th grade engagement was a predictor of high school completion (measured by credits earned by 9th grade). Previous research has shown that 8th and 9th grade is critical to support students and prevent drop out. It is during these critical years that researchers have found that course failure and attendance are predictive of dropping out of high school (Allensworth & Easton, 2007). Engagement has been linked with dropout in the literature since the early work of Finn (1989) who devised his theory of engagement based on the ideas of participation and identification. Finn's participation and identification later became the construct of belonging, which has been used to predict dropout in previous research. This research led to the questions and hypotheses that created this study.

The hypothesis for the first research question was that overall engagement would be a significant predictor of credits earned the following year and a stronger predictor than risk score. The hypothesized model was a poor fit for the data, meaning that for this particular sample, overall engagement was not a predictor of credits earned the following year. Previous research has shown that engagement changes from year to year (Hughes, Luo, Kwok & Loyd, 2008; Li & Lerner, 2011; Wang & Eccles, 2011). One reason this model may have been a poor fit is because of the changing nature of engagement in

middle school, making it a poor predictor of outcomes measured one year later. Engagement could have a more immediate, meaningful effect on student outcomes instead of outcomes measured one year later. The validation study for the SSEM (Vazirabadi, 2010) showed a significant relationship between SSEM scores and CSAP scores taken approximately one month before the survey. Other researchers (Appleton, Christenson, Kim & Reschly, 2006) have identified positive correlations between school engagement and school success, but have not used engagement as a predictor of later outcomes. This study was the first to examine if the SSEM was a predictor of more long term outcomes.

The second research question was specific to ethnicity: overall engagement would be a stronger and significant predictor of credits earned for Latinos in the sample. Results indicated that for both the Latino and non-Latino group, engagement was not a significant predictor of credits earned, thus there was no difference between the two groups. These results could be due to the lack of ethnic diversity in the sample; it is difficult to compare groups when 79% of the sample is composed of one ethnicity. A more diverse sample may have helped answer the question of differences between the two groups.

The hypothesis for the third research question was that the construct of belonging would be a stronger predictor of credits earned for the overall sample. Results indicated that again, the model was a poor fit for the data, meaning that the three domains of engagement themselves were not predictors of credits earned. Similar to the reasoning for the first research question, this could be due to the unique nature of engagement and how often it changes over time, making it a poor predictor of long term outcomes.

The hypothesis for the last research question was that the construct of belonging would be a stronger predictor of credits earned for the Latino-only sample. The model was a poor fit for the data. Regardless of the ethnicity of this sample, the three domains were not significant predictors of engagement. However, similar to the argument for the second research question, a lack of diversity in the sample may have contributed to this issue.

The results indicated that the ABC Stoplight Risk Scores did have a direct, significant effect on total credits earned. This is most likely due to criteria that compose the risk scores. Failure in 8th grade math and language arts contributes to half of the risk score; it is logical that there would be a significant relationship between failure of an 8th grade class and overall credits earned by 9th grade. The school district that participated in this study can interpret these results as a success for their district; they should continue to use ABC Stoplight Risk Scores for early identification of students who are at risk of dropout.

Little research has been conducted to examine the longitudinal changes in engagement over the course of the school year, although researchers suspect a temporal change of engagement depending on the time of year. Recent research by Wang and Eccles (2011) measured some aspects of engagement once per year, over four years. School participation, sense of school belonging and self-regulated learning all changed over the course of the four year study. Wang and Eccles results indicated that engagement does change from year to year; therefore, measuring a student's school engagement in 8th grade may not be the most accurate way to predict their outcomes one

full year later. There is a great amount of change between the spring of 8th grade and the spring of 9th grade, including: the end of middle school, the end of friendships, the end of relationships with teachers, a two month break from school, beginning high school, building new relationships with teachers and friends, and the academic challenges that come with high school. Based on what researchers know about engagement, one would predict fluctuations in engagement scores during this transitional time in the lives of adolescents.

Measuring engagement is still crucial to understanding which students are at risk for dropout. However, a more useful purpose for the SSEM may be to periodically measure engagement over the course of a single academic year, in order to identify which students need support at different times of the year. The point of measuring student school engagement over time is that engagement is not a trait, meaning that it is not relatively constant over time. Instead, engagement is fluid, malleable, and can vary during students' overall school experience. School staff has seen variability in student engagement not only from day to day, but from class to class. Imagine a student who is in a 9th grade Language Arts class who reads at a 5th grade level or a student who has a poor relationship with his/her Algebra teacher. Or the opposite, a student who typically has high levels of engagement, is bullied and beaten by peers. That student may not want to return to school, and may have lower levels of engagement after the incident. Situations and experiences can vary a student's school engagement therefore it is important to measure or monitor engagement over time.

The most critical time to measure engagement would be at the beginning of the school year (August), to identify which students need support immediately. A second measure could be taken in December, to identify students who need support when they return from their winter break. A final measure could be administered after students have completed their state standardized testing and returned from their spring breaks (April), in order to determine which students not only need support at the end of the school year, but also to identify which students may benefit from summer programs (academic or social) to help bridge the gap that occurs between grade levels.

Limitations

For this study, participants were from three urban middle schools from the same school district, with a majority Latino population. Therefore, there were unequal amounts of Latino and non-Latino participants. Although the sample size helped identify that the model was a poor fit for Latinos, the unequal balance of ethnicity made it difficult to compare the two groups. The study may have been more meaningful with a larger, more diverse sample. Potential inclusion criteria could be: urban, suburban, and rural schools as well as more equal proportions of Latino, Caucasian, African-American and Asian students.

Students with high levels of engagement may have answered the survey more accurately than students who were disengaged. The disengaged students may have considered the survey as unimportant, and their data may be less accurate. Additionally, several students were absent the day of the survey and were not included. These students are of particular interest to the research, for students who do not attend school regularly

may be less engaged than their attending peers. Therefore, the data may have been skewed towards more positive responses. Another limitation is that the original SSEM data set included 396 participants who took the survey in 2008. However, when their credit data were collected, the district could only find outcome data on 384 which means 12 students were not able to be included in the study.

Future Research

The construct of student school engagement is still in its infancy; it requires more research to understand its nuances and complexity. The Student School Engagement Measure (SSEM) validation study indicated its usefulness specifically to 8th graders, and it has also been used in with 9th graders. However, little is known about the utility of the instrument for lower grade levels. Previous research by Hughes, Luo, Kwok, and Loyd (2008) attempted to measure engagement in students as young as first grade. Hughes, et al., recognized that behavioral engagement had been the focus of research with elementary students, and used Fredericks (2004) model to assess engagement over 1st, 2nd and 3rd grade. The SSEM should be validated with students in 6th and 7th grade, and could later be reworded so that the survey is appropriate for elementary grades. The earlier school staff are able to intervene and support students, the more likely students will be to complete high school.

Further research should be conducted in order to determine if student school engagement is more influential on short-term or long-term outcomes. Using the SSEM in the fall to predict outcomes in the spring of the same academic year may provide additional information about how the survey could provide the most benefit to a school

district. Student school engagement could have a more immediate, meaningful effect on student outcomes instead of outcomes measured one year later. Additionally, future research should consider using a different outcome variable, such as grade point average or standardized tests scores (presently called TCAP in Colorado) in order to examine if the SSEM may be a predictor of those academic outcomes.

A longitudinal study may be more informative, examining students' engagement several times over the course of one academic year. School personnel have spoken anecdotally about how students' engagement changes over time: higher engagement at the beginning of the year, a decline before a winter break, a slight increase after break, another drop before spring break and a steady decline from March through May. However this phenomenon has yet to be measured. A study that documents how student school engagement changes over the course of one school year would be highly valuable to the field of engagement.

Implications for Practice

As school psychologists, a goal for our students is high school completion and post-secondary success. Psychologists are in a unique position to offer support and guidance to administration and teachers regarding student school engagement and implementation of developmentally appropriate interventions to increase school completion. Research has shown that the transition from 8th to 9th grade is a critical year in order to encourage high school success. School psychologists can aide in transition planning for individual students identified at risk of dropping out, as well as assisting administration in program development for transitioning the entire freshman class.

At the individual level psychologists can connect students to peer mentors, upper level students who have high levels of engagement. At the school-wide level, psychologists can assist with developing freshman-specific programs in order to assist with transition and increase engagement. Some districts have success asking 8th graders visit their high schools one day in the spring so that they can tour the building, meet their teachers, and future classmates. Other districts conduct a freshman academy, in which the 9th graders are invited to come to school over the summer in order to register for classes, meet their new peers, teachers and administrators. Psychologists can also assist with transition at the classroom-level once school has begun, developing presentations and activities that homeroom teachers can use during the first few weeks of school to increase engagement.

The results of this study could indicate that when students' school engagement is measured, intervention should not be delayed because of the changing nature of engagement. Psychologists can use the SSEM three times a year, to progress monitor student school engagement, similar to reading or math benchmarking assessments. At the universal or Tier 1 level, SSEM results provides school psychologists information about the engagement of a group of students (by class or grade level), to help guide program development and intervention at the classroom or school-wide level in order to increase engagement. At the Tier 2 level, SSEM results could provide school psychologists with an added dimension of understanding of a student, and therefore crucial information about how to best intervene and support that student. Support at the Tier 2 level could be provided in small groups of similarly engaged students. Additionally, the SSEM results

can help guide teachers about how to group students in the classroom, giving highly engaged peers the opportunity to be role models to lower engaged peers. At the Tier 3 level, SSEM results provide individualized, detailed information about specific aspects of engagement and therefore exactly where to intervene with a particular student and their family. Support at the Tier 3 level could be provided individually by the school psychologist, counselor, or administrators and could be similar to Check & Connect, in which a mentor works with a caseload of students and their families in order to monitor grades, attendance, and behavior (Anderson, Christenson, Sinclair & Lehr, 2004)

Conclusion

Adolescent development theories point to the idea that students at this age are focused primarily on the present and not the future. Piaget (1954) theorized that this age group is tasked with moving from concrete to abstract thinking. Once they reach the formal operations stage they can begin to think about the future. Perhaps measuring engagement at the end of 8th grade and expecting it to predict outcomes one year later for this age group is presumptuous; failing to recognize the changing nature of not only engagement, but adolescents themselves.

Although this study did not provide fruitful information about the SSEM as a predictor of long term outcomes, it did raise questions about the changing nature of the construct of engagement, supporting the idea of measuring engagement several times over the course of an academic year. This study supports future research that takes the dynamic nature of engagement into account when studying this phenomenon. Finally,

this study contributes to the body of literature and researchers who are interested in early intervention for students at risk for dropping out of school.

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Appendix A

Student School Engagement Measure (SSEM)

Aspirations

1. I plan to pursue more education after high school.
2. My school work is important.
3. Getting good grades is important to me.
4. Being successful in school will help me in the future.

Belonging

5. There is a lot I can learn from my teachers.
6. I am proud to be a student at this school.
7. I like most of my teachers.
8. I feel like a part of my school.
9. Teachers help me to be successful at school.

Productivity

10. I look for more information about things we are learning in school.
 11. Most days, I look forward to going to school.
 12. I study at home.
 13. There is someone in my family who helps me when I have trouble completing my homework.
 14. When learning new things, I try to connect them to things I already know.
 15. When I have an assignment due, I keep working until it is finished.
 16. If I do not know what something means, I do something to figure it out.
 17. It is important to me to be successful in a job.
 18. I talk to my family about problems I am having in school.
 19. My family knows how I am doing in school.
 20. When I am doing school work, I make sure I understand what I am learning.
 21. I know how to study for tests.
 22. I pay attention to my teachers.
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