The Relationship between Extracurricular Activities, Student Engagement, and Academic Outcomes

by

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(Under the Direction of Amy Reschly)

Student engagement plays a significant role in education reform due to its malleable nature and relationship to academic outcomes. Extracurricular activity participation is often included within student engagement, even though it may have a curvilinear relationship with academic outcomes. The purpose of this study was to investigate the relationship between extracurricular activity participation, student engagement, and academic outcomes within a nationally representative sample. Results provide implications for identification and intervention.

INDEX WORDS: Student Engagement, Extracurricular Activities, Academic Achievement, Structural Equation Modeling, Factor Analysis, Curvilinear Regression

THE RELATIONSHIP BETWEEN EXTRACURRICULAR ACTIVITIES, STUDENT ENGAGEMENT, AND ACADEMIC ACHIEVEMENT

by

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DEDICATION

I would like to dedicate this thesis to my parents. You have loved me unconditionally ever since I came into your lives 25 years ago. You have sacrificed to ensure that I and my siblings had a great life. You have supported me through every part of my life, and you have taught me how to support myself. You have taught me valuable lessons: kindness matters, doing my best is always good enough, never judge a book by its cover, always be willing to listen, among others. Even as I face new challenges, you continue to support my decisions. You show me that loving your job is one of the best things you can do, and you show me that loving your family is even more important. Thank you for everything; I am blessed to have such wonderful parents. I love you.

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CHAPTER 1

INTRODUCTION

In America, children spend more than half of their awake hours participating in various structured and unstructured activities outside of school (Fredricks, 2001; Fredricks & Eccles, 2005). Studies indicate structured activities can increase academic achievement, social development outcomes, and psychological well-being while unstructured or unsupervised time is associated with riskier behaviors and poor academic outcomes (Barkto, 2005; Fredricks, 2011; St-Amand, Girard, Hiroux, & Smith, 2017).

Extracurricular activities are structured developmental activities provided to students outside of the typical school hours and often teach tasks or involve experiences that fall outside of the academic curriculum (Forneris, Camire, & Williamson, 2015). One purpose of extracurricular activities to enhance students' educational experiences (Forneris et al., 2015). Such activities serve as a place for students to act out developmental tasks, offer a means to express and explore identity, and access challenging settings outside of the academic environment (Finn & Zimmer, 2012). Studies indicate students perceive that involvement leads to more developed internal and external skills (Forneris et al., 2015). Participation in extracurricular activities is also associated with positive short- and long-term outcomes in social, academic, and psychological domains (Barkto, 2005; Finn & Zimmer, 2012; Forneris et al., 2015; Fredricks & Eccles, 2005). Extracurricular activities are also associated with better interpersonal competence and student engagement (Bonhert, Fredricks, & Randall, 2010; Fredricks & Eccles, 2005; Forneris et al., 2015). Feldman & Matjasko (2005) asserted that the

impact of extracurricular activities might depend on the characteristics of the activity as well as the characteristics of the students involved, the adults who lead, and experiences outside of the activity (Bonhert, Fredricks, & Randall, 2010; Fredricks, 2012; Shernoff & Vandell, 2007).

Today, students have more freedom to choose extracurricular activities during middle school than in earlier grades. Engagement often begins with students sampling a broad range of activities and then focusing participation on a more specialized and smaller number of activities (Feldman & Matjasko, 2005). Continuous participation in extracurricular activities is associated with prosocial behaviors and school completion (Barkto, 2005; Feldman & Matjasko, 2005). However, extracurricular activity participation, in general, and within individual activities may fluctuate over time, which might impact academic performance (Feldman & Matjasko, 2005). Because of this fluctuation, Feldman and Matjasko (2005) noted that merely measuring the total number of activities is not be the best measure of extracurricular activity involvement. Instead, measurements of extracurricular activities should include measures of the breadth, intensity, and duration of participation (Bonhert et al., 2010; Feldman & Matjasko, 2005). Breadth refers to the total number or total variety of activities; intensity refers to the total time spent in the activity or the frequency of participation, and duration refers to the length of participation over time (Bonhert et al., 2010; Feldman & Matjasko, 2005). Feldman and Matjasko (2005) reported that breadth of activities was related to higher grades, placing more value on education, and decreased absences and boredom in class. Duration has been found to be positively related to academic achievement indicators (Bonhert et al., 2010).

Research has distinguished different categories of extracurricular activities, such as sports, fine arts, and academic clubs. Sports are the most popular extracurricular activity in the United States, and students often deem sports more important than other extracurricular activities

(Finn & Zimmer, 2012; Forneris et al., 2015). Student athletes reported higher self-esteem, levels of social-connectedness, and rates of school completion (Finn & Zimmer, 2012; Forneris et al., 2015). However, participation in sports is also associated with higher levels of school deviance, alcohol and drug use, bodily injury, stress, and social exclusion (Shernoff & Vandell, 2007). These differences in outcomes vary by gender, race, ethnicity, and grade (Shernoff & Vandell, 2007). Outcomes also vary based on the type of sport and the inclusion process for the sport.

Participation in fine arts is associated with higher levels of academic performance, student engagement, motivation, and self-esteem (Shernoff & Vandell, 2007). However, fine arts engagement also is associated with fewer positive relationships, thought to be a key mechanism to facilitate positive outcomes (Fredricks, 2012; Shernoff & Vandell, 2007). Academic clubs allow students to explore academic subjects outside of the general classroom and complete hands-on projects that might not be possible within the classroom. Participation in academic clubs is associated with higher academic performance and increased likelihood to attend college (Gilman, Meyers, & Perez, 2004; Shernoff & Vandell, 2007). However, academic clubs are offered less frequently, particularly in higher Title I schools. (Shernoff & Vandell, 2007).

One challenge in studying the effects of extracurricular activities is self-selection bias (Feldman & Matjasko, 2005; Finn & Zimmer, 2012). Students typically choose activities based on their preferences, influenced by gender, peer groups, age, and academic achievement. However, very few studies measure these correlates before students choose activities, and no studies to date have randomly assigned students to extracurricular activities and measured their impact on academic outcomes (Feldman & Matjasko, 2005). In addition, gender and socioeconomic status are important moderators of extracurricular activity involvement and indicators of academic achievement, such as GPA (Feldman & Matjasko, 2005). Because such

variables cannot be manipulated, it is very challenge to study the effects that gender and socioeconomic status play on the interactions of academic achievement and extracurricular activity participation (Bonhert et al., 2010; Feldman & Matjasko, 2005).

Overscheduling Hypothesis

The total number of activities is an important predictor of adolescent functioning and academic outcomes (Feldman & Matjasko, 2005; Fredricks & Eccles, 2005). Students typically devote five hours per week in organized extracurricular activities, a commitment related to positive outcomes (Feldman & Matjasko, 2005). However, there is evidence suggesting a curvilinear relationship between the total number of activities and academic outcomes, suggesting a threshold at which the number of activities is no longer beneficial (Feldman & Matjasko, 2005; Fredricks, 2012; St-Amand et al., 2017). This phenomenon was deemed the "overscheduling hypothesis" (Feldman & Matjasko, 2005; Fredricks, 2012). Feldman and Matjasko (2005) found that participating in extracurricular activities for more than 20 hours each week is associated with more alcohol consumption and lower self-esteem, a negative effect varying by ethnicity (Feldman & Matjasko, 2005). Fredricks (2012) found that, for tenth grade students, participating in four or more activities as well as participating for more than 14 hours per week negatively impacted academic performance. However, researchers note that the types of activities might be more important than the total number of individual activities in determining the threshold (Feldman & Matjasko, 2005). In addition, this threshold might differ by race and gender, among other factors.

Student Engagement

Student engagement is the investment and effort students expend on school and school-related activities (Finn & Zimmer, 2012; Lovelace, Reschly, Appleton, & Lutz, 2014). It includes the malleable, everyday tasks required for learning, such as attendance, following directions, completing assignments, and holding positive attitudes toward school and learning, and it is considered essential for learning (Appleton, Christenson, & Furlong, 2008; Barkto, 2005; Finn & Rock, 1997; Finn & Zimmer, 2012; Fredricks, Blumenfeld, & Paris, 2004; Gilman, Meyers, & Perez, 2004; Lovelace et al., 2014; Reschly, Betts, & Appleton, 2014).

Described as a multidimensional meta-construct, many models have been hypothesized to describe the components of student engagement (Fredricks et al., 2004; Lovelace et al., 2014; Reschly et al., 2012). There is consensus among scholars that student engagement includes three dimensions involving cognition, affect, and behavior (Fredricks et al., 2004). These models recognize the relationship between the student, the environment, and learning (Appleton et al., 2008; Fredricks et al., 2004).

Behavioral engagement is defined as the observable behaviors required in the learning process, such as attentiveness, preparedness, attendance, and assignment completion (Lovelace et al., 2014). Cognitive engagement is the expenditure of cognitive energy during the thought process, such as asking questions and persisting with difficult tasks (Fredricks et al., 2004). Finally, affective engagement is the extent to which a student perceives he or she belongs within the school and classroom environment and perceives that the school activities are worth pursuing (Barkto, 2005; Finn & Zimmer, 2012; Fredricks et al., 2004). This feeling of belonging provides an incentive to participate and to persist in boring or difficult school activities.

Many different variables can predict student outcomes, such as race, ethnicity, language ability, and socioeconomic status. Although these variables are important and measurable, they cannot be easily changed to impact academic achievement. Unlike other predictors of academic achievement, student engagement can be altered. It is responsive to teacher and school practices (Finn & Rock, 1997; Finn & Zimmer, 2012; Fredricks et al., 2004). School faculty can intervene and alter a student's engagement, which can help improve their academic outcomes over time.

Student engagement is important as such behavior is easily understood and changed (Finn & Zimmer, 2012). These behaviors can be seen in parallel forms in younger and older grades, and student engagement can increase or decrease throughout the student's school career (Finn & Zimmer, 2012). Engagement is considered a protective factor that increases the odds of school completion (Finn & Zimmer, 2012; Reschly et al., 2014). There is increased risk for poor educational outcomes when students do not participate in class and school activities, have a low sense of belonging, and exhibit inappropriate behavior in the classroom (Finn & Rock, 1997; Finn & Zimmer, 2012; Reschly & Christenson, 2012; Reschly et al., 2014).

Many studies provided evidence that student engagement directly impacts academic outcomes such as graduation rate and dropout (Finn, 1989; Finn & Rock, 1997; Fredricks et al., 2004; Reschly & Christenson, 2006). Because of this relationship, student engagement often is used to study dropout in more detail. Further, studies on dropout interventions began to focus on increasing student engagement to increase school completion (Lovelace et al., 2014; Reschly & Christenson, 2006, 2012; Reschly et al., 2014). Student engagement is one of the main vehicles for school reform to improve graduation rates (Fredricks et al., 2004; Reschly & Christenson, 2006). However, student engagement can be used for more than just predicting and preventing dropout. Student engagement variables can be used to improve social and emotional outcomes as

well as improve the student's likelihood of succeeding in high school, college, and future careers (Reschly & Christenson, 2006). Monitoring these variables can help schools improve student skills to help them complete high school and become successful in their future careers (Reschly & Christenson, 2006).

Within the student engagement model, extracurricular activity involvement is often included as a component of behavioral student engagement, as demonstrated in Figure 1 (Fredricks et al., 2004; Reschly & Christenson, 2006; Reschly & Christenson, 2012).

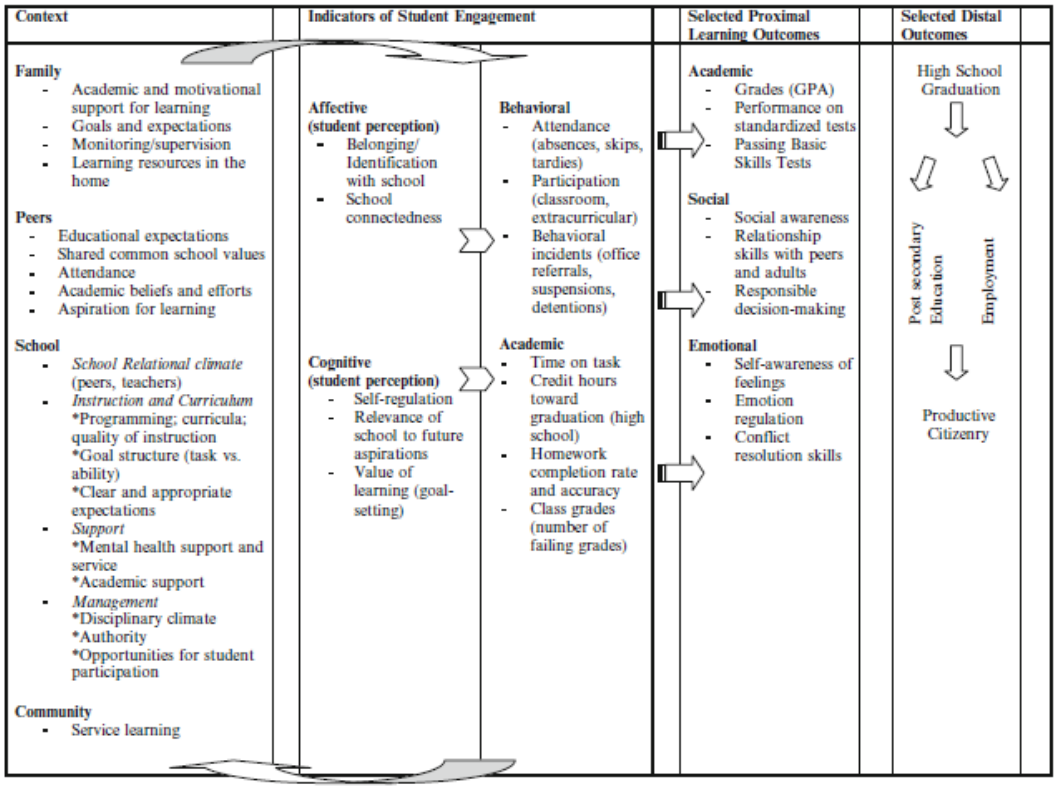

Figure 1. The process of student engagement (Reschly & Christenson, 2012).

Extracurricular activity involvement is often considered a major component of behavioral student engagement, and it is believed to have a similar direct relationship with academic

outcomes (Appleton et al., 2008; Finn & Zimmer, 2012; Fredricks et al., 2004; Reschly & Christenson, 2012). However, recent research suggests extracurricular activity involvement might have a more curvilinear relationship with academic achievement (Fredricks, 2011; Fredricks et al., 2012). It is hypothesized that students have less time to devote to academic tasks as time in extracurricular activities increases, which decreasing their time for academics, which can negatively impact the student's engagement and academic performance (Fredricks, 2011). This is also as the zero-sum model (Fredricks, 2011) and suggests that a more specific study of the relationship between these three variables is required.

Of the three components of student engagement, behavioral student engagement demonstrates the strongest relationship with academic outcomes (Finn, 1989; Finn & Rock, 1997; Fredricks et al., 2004; Lovelace et al., 2014; Reschly & Christenson, 2006). Behavioral student engagement is also the easiest to measure and intervene upon, as it includes behaviors such as attending class, completing assignments, and paying attention in class (Lovelace et al., 2014). Cognitive and affective engagement are believed to influence behavioral engagement, which in turn, influences academic outcomes. However, affective and cognitive engagement are more difficult to measure. Specific measures are needed to study these components of student engagement (Lovelace et al., 2014). For this reason, behavioral engagement is used in the current study.

CHAPTER 2

CURRENT STUDY

The purpose of the current study is to investigate the relationship between extracurricular activity participation, student engagement, and academic achievement. Previous studies have determined a strong positive relationship between student engagement and academic outcomes. Many models and previous studies of student engagement include extracurricular activity participation as a component of behavioral engagement. However, some previous research has determined a negative or curvilinear relationship between extracurricular activity participation and academic outcomes. Specifically, this study explored the following questions:

1. What is the underlying relationship between measures of behavioral student engagement and measures of extracurricular activity participation?
2. Is there a curvilinear relationship between extracurricular activity participation and academic outcomes? If so, is type of activity or total number of activities more important for determining the threshold, according to the "overscheduling hypothesis?"
3. Does extracurricular activity participation mediate the relationship between student engagement and academic outcomes, when controlling for academic achievement and other self-selection factors.

Method

Dataset

For this study, data were gathered from the National Educational Longitudinal Study (NELS) collected between the years of 1988 and 2000 (US Department of Education, 1988). NELS was the third longitudinal study conducted by the National Center of Education Statistics (NCES) in the US Department of Education to study elementary and secondary students. Specifically, NCES collected data on students while they were enrolled in middle school, high school, and college. Data for each student were collected from parents, teachers, school administrators, and the students themselves.

NELS collected data using a two-part, clustered national probability sample. Schools were the first sampling unit (US Department of Education, 1988). A total of 1,052 private and public schools with eighth graders participated in this study, which is approximately a 70% participation rate (US Department of Education, 1988). Bureau of Indian Affairs schools, special education schools, vocational schools that did not directly enroll students, schools on military bases, and private and public schools with ungraded classrooms were not included in the sample and therefore are not represented in the dataset. Then, 26 students were randomly selected to participate within each school; students who identify as Asian and Hispanic were oversampled to match the national census at the time. Student participation was 94%, and participation decisions were determined by the school staff. About 5% of the sample was excluded due to severe cognitive disability, limited English proficiency, or physical, mental, and emotional concerns (US Department of Education, 1988). Students who dropped out of the study were refreshed during each follow-up year.

Variables

For this study, only data from the tenth-grade questionnaire were used. These data included questions concerning the student's attendance, behavior, and preparedness (US Department of Education, 1988). Variables were included that were associated with the student's participation in many different extracurricular activities (e.g. team sports, academic clubs, band). In addition, the data included information provided by parents regarding the student's race, ethnicity, home language, gender, socioeconomic status, and risk factors (e.g. single parent household). Finally, the data included the student's achievement score on a national reading assessment.

Student Engagement. Nine questions were used to measure behavioral student engagement, and all nine questions used the same scale (*Never, 1-2 times, 3-6 times, 7-9 times, and more than 10 times*). Items included in the analyses focused on questions about the student's behavior, attendance, and preparedness in school. Items included how often the student got into trouble at school, how often the student had In-School Suspension (ISS) and Out-of-School Suspension (OSS), how often the student came to class without books, pen and paper, and completed homework, how often the student was tardy or absent, and how often the student skipped class (US Department of Education, 1988).

Extracurricular Activity Participation. The individual extracurricular activities were measured with a Likert scale (Not a Member, Member, Leader, Combination). This variable was re-coded to a binary scale (Not a Member, Member) for analysis. Activities were grouped by type (listed in Table 1), and the number of activities the student participated in was counted and recorded. To calculate the total number of extracurricular activities in which the student

participated, the totals for each group were summed and recorded. All extracurricular activities measured in this study are listed in Table 1.

Extracurricular Activity Group	Extracurricular Activity
Sports	Team sports
	Individual sports
	Intramural team sports
	Intramural individual sports
Music	Band
	Orchestra
	Plays
	Musicals
Academic Clubs	Academic Honor Society
	Science fair
	History Club
Spirit	Cheer
	Government
	Yearbook
	Newspaper
	School Service Clubs
Other	Future Teachers of America
	Family, Career, and Community Leaders of America
	Future Farmers of America
	School Hobby Clubs

Table 1. List of Extracurricular Activities.

Academic Achievement. Academic achievement was measured with a variable created by NCES (US Department of Education, 1988). The students completed an assessment of their math, reading, social studies, and science skills. The assessment was similar to the National Assessment of Educational Progress (NAEP), which is an assessment administered to a sample of middle and high school students each year (US Department of Education, 1988). The students

completed assessments in all subjects, but only the reading scores were included in this study. This was due to the relative stability of reading performance; students can perform different on subjects more heavily influenced by classroom teaching (e.g. math). The standardized test scores on the NELS reading examination are comparable to the IRT-estimated number correct scores on the NAEP, which represents the students' reading skills compared to a nationally representative sample of high school students (US Department of Education, 1988).

Risk. The NCES created a composite measure of the child's exposure to risk (US Department of Education, 1988). The elements of the risk index included: single parent household, low parental education, sibling had dropped out of school, the student spends three or more hours at home alone, family limited English proficiency, and low family income.

Participants

Data from the students' tenth grade year were used for this study (N = 14,915). Participants for whom their schools offered less than half of the extracurricular activities measured in the survey were removed to ensure that a student's participation was not a result of lack of availability (N = 7,785).

Students were sampled to match the national census at the time (US Census Bureau, 1985). After removing students with missing data and students who did not attend a school that offered less than 50% of the measured extracurricular activities (N = 7,130), the sample was still similar to the national census at the time (US Census Bureau, 1985). In this sample, 53% of the sample was female, and 47% was male. Seventy-one percent of the sample identified as White; 11% identified as Hispanic, and 10% of the sample identified as Black. Seven percent of the students identified as Asian or Pacific Islander, and only one percent of the students identified as Indigenous American. Asian/Pacific Islander students were oversampled, so the percentage of

students who identify as Asian/Pacific Islander is double the census distribution at the time. Students reported their home language: 80% reported that they only spoke English. Ten percent of the students reported that they did not speak English as their primary home language. Sixty-one percent of the students did not indicate any risk factors; 24% of the students indicated having one risk factor. Ten percent of the students had been exposed to two risk factors, and four percent were exposed to three or more of the identified risk factors.

Data Analyses

Factor Analysis. Factor analysis was performed to evaluate the first research question, which is the underlying relationship among the measures of behavioral student engagement and extracurricular activity participation. For this study, only measures of behavioral student engagement were used. The variables for tardiness, skipping class, getting in trouble, in-school suspension, out-of-school suspension, and being absent were all reverse coded for ease of analysis. An exploratory factor analysis (EFA) explored the relationship between the 14 variables for student engagement and extracurricular activities. An EFA allowed for a detailed exploration of the structure of the student engagement latent variable. Cronbach's alpha measured the inter-correlations of the variables comprising each factor to determine if this group of variables could reasonably form a factor.

Polynomial Regression. Polynomial regressions investigated the second research question, which is the relationship between extracurricular activity participation and academic achievement. While simple linear regression allows for testing an increasing or decreasing linear relationship, polynomial regression allows for a test of a curved model. In this case, the following quadratic formula examined the nature of the curved relationship:

$$y_i = \beta_0 + \beta_1 x_{1i} + \beta_2 x_{1i}^2 + \beta_3 I_{hbi} + \epsilon_i,$$

In this formula, β_0 was the average academic achievement of a student participating in no extracurricular activities, and β_1 was the average effect of an increase of one activity on academic achievement. The variable x_{1i} represents the number of extracurricular activities in which a student was involved, and ϵ_i was the variability in academic achievement for individuals participating in the same number of extracurricular activities.

To extend the formula for polynomial regression, the parameter β_2 represents the curvature of the relationship. If this parameter is positive, the relationship is convex; however, if the parameter is negative, then the relationship is concave. In addition, I_{hbi} is an indicator of whether or not the student experienced grade retention, which is a risk factor for lower academic achievement. Students who were previously retained were separated so the relationship between extracurricular activity participation and academic achievement could be studied without this risk factor potentially influencing the results. Finally, β_3 is the effect on academic achievement in the event the student previously was retained. An interaction term between this variable and the number of extracurricular activities was originally included, but this term was not significant in the model and, therefore, was removed.

The relationship between academic achievement and extracurricular activities was calculated with all extracurricular activities combined, regardless of category. Then, the relationship was re-calculated for each individual category of extracurricular activity (e.g. sports, fine arts).

Structural Equation Modeling. Finally, Structural Equation Modeling (SEM) was employed to investigate the third research question, the relationship between student engagement, extracurricular activity participation, and academic achievement. Two different models were

investigated for this study. The SRMR, RMSEA, CFI, and chi-square statistics were used to assess model fit. The RMSEA or SRMR threshold score that indicates an "acceptable" model is 0.08, and 0.05 is the threshold score for an "good" model (Loehlin & Beaujean, 2017). For the CFI score, a threshold of 0.9 was used to determine "acceptable" models, and a threshold of 0.095 was used to determine "good" models (Kline, 2016).

There are four criteria to determine the nature of a mediation relationship (MacKinnon & Luecken, 2011):

1. There is a significant relationship between the input variables and the outcome variable.
2. There is a significant relationship between the input variable and the mediator.
3. There is a significant relationship between the mediator and the outcome variable.
4. The relationship between the input variable and outcome variable is insignificant after the inclusion of the mediator.

The first three criteria determine the existence of a mediation relationship. The final criterion determines whether the mediator completely or partially mediates the relationship between the input variable and the outcome variable.

Results

Factor Analysis

To begin the exploratory factor analysis procedure, a scree plot was visually inspected to determine the factor number that would best fit the data, which is visually represented by the "elbow" in the plot. The "elbow" is the point in which the line begins to flatten to be completely horizontal. Visual inspection of the plot and determining the location of the "elbow" is a convenient way to determine the number of factors, and it is also known to be an accurate method as well (Asparouhov, Muthén, & Morin, 2015; Costello & Osborne, 2005; Schmitt,

2011). Based on the visual inspection of the scree plot, it was determined that five factors might fit the data best (Figure 2).

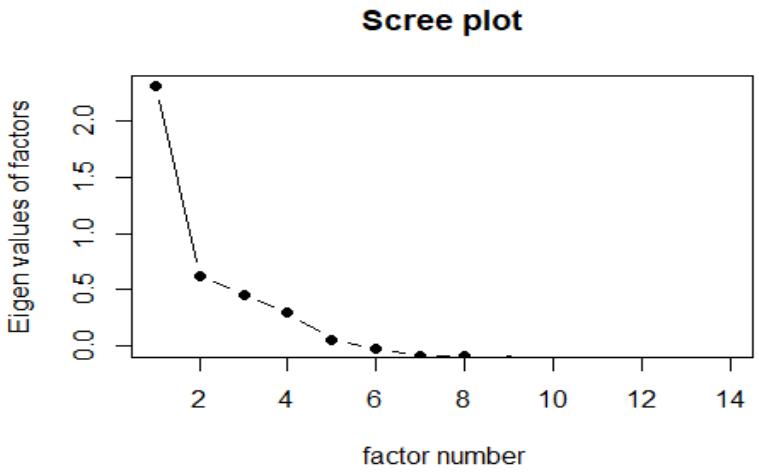

Figure 2. Scree plot with Extracurricular Activities.

Exploratory Factor Analysis with Extracurricular Activities. The data were rotated using a promax rotation to better fit the five factors. The promax rotation is the most common version of the oblique rotation, which allows the factors to correlate with one another. Originally, five factors were forced and preliminarily were considered to be: preparedness, discipline, attendance, extracurricular activities, and sports participation. This single-item was a factor, which is not allowed (Schmitt, 2011). Because of this, the five-factor model was rejected.

A four-factor model was also explored to eliminate the single fifth factor. The four-factor model is detailed in Table 2.

Table 2. Four-factor Model.

	Factor			
Variable	Preparedness	Discipline	Attendance	ECA
Tardy to Class	0.048	-0.029	**0.667**	-0.073
Skip Class	0.018	0.241	**0.494**	0.020
Get in Trouble	0.108	**0.522**	0.104	0.046
Put in ISS	-0.066	**0.729**	-0.035	-0.007
Put in OSS	-0.033	**0.557**	0.032	-0.031
Absent from School	-0.052	0.011	**0.558**	0.033
No Paper or Pencil	**0.751**	0.004	-0.096	-0.022
No Books	**0.756**	-0.017	-0.013	-0.026
No Homework	**0.48**	-0.042	0.110	0.034
Sports	-0.031	-0.036	0.044	**0.230**
Spirit Activity	0.016	0.049	-0.126	**0.642**
Music Activity	0.023	0.053	-0.039	**0.231**
Academic Club	0.000	0.076	0.003	**0.414**
Other ECA	-0.001	-0.074	0.032	**0.195**

The four-factor model combined sports with the other extracurricular activities. Only one item had a cross-loading above 0.2, which was the designated cut-off (Asparouhov et al., 2015). The cross-loading was noted but ultimately did not impact the results significantly. Coming to class without paper and pen, books, and completed homework created the Preparedness factor. Getting in trouble, getting in-school suspension, and getting out-of-school suspension created the Disciplined factor. Being tardy, absent, or skipping class created the Attendance factor. And finally, participation in sports, spirit, music, academic clubs, and other extracurricular activities created the Extracurricular Activity factor.

Relationship within Factors. Cronbach's alpha scores can range from 0 to 1, and higher alphas indicate increased correlations between the variables. For this exploratory research, a Cronbach's alpha of 0.6 was used as an acceptable range (Hair et al., 2010; Kline, 2000). The Cronbach's alpha scores for Preparedness (0.69), Discipline (0.64), and Attendance (0.65) all fell within the acceptable range. Extracurricular activity participation (0.36) fell well below the

determined acceptable range. This could mean that the extracurricular activities might be disconnected from the other constructs within the scale to adequately measure the student's extracurricular activity participation.

In addition, all nine variables for student engagement were combined to create a single scale. The Cronbach's alpha (0.74) for the nine variables fell above the acceptable range. Removing any of the nine student engagement variables lowers the Cronbach's alpha as did adding any Extracurricular Activities.

Exploratory Factor Analysis without Extracurricular Activities. Because of the lack of relationship between the extracurricular activity participation factor and the other three student engagement factors, another exploratory factor analysis was conducted without extracurricular activities. The scree plot determined that three factors may fit the data best (Figure 3).

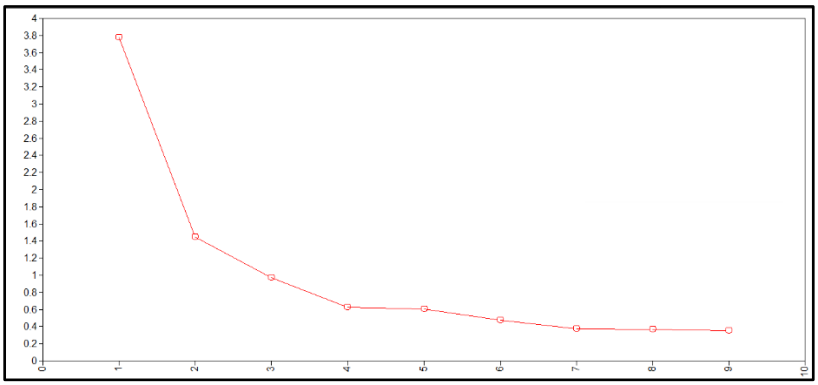

Figure 3. Scree Plot without Extracurricular Activities.

The promax rotation was employed originally, but this method resulted in several cross-loadings above the cut-off of 0.2. Therefore, a factor analysis using an oblimin rotation was conducted, which accounts for more covariance between the individual variables. This resulted in one item having a cross-loading above 0.2 (Asparouhov et al., 2015). However, this cross-loading did not significantly impact the results. The three-factor model (Table 3) includes three variables in each factor.

		Factor	
Variable	Behavior	Attendance	Preparedness
Tardy	-0.031	**0.667**	-0.069
Skipping Class	0.270	**0.515**	-0.050
Trouble	**0.720**	-0.018	-0.134
ISS	**0.854**	-0.031	0.050
OSS	**0.693**	0.143	0.011
Absent	0.019	**0.602**	0.062
Pencil/Paper	-0.050	0.080	**0.767**
Books	0.016	-0.040	**0.813**
Homework	0.036	-0.170	**0.524**

Table 3. Three-factor Model.

Getting in trouble, In-School Suspension, and Out-of-School Suspension comprised the Behavior factor. The Attendance factor included items that measured being tardy, skipping class, and begin absent. Finally, the Preparedness factor included coming to class with paper and pencil, books, and completed homework.

Polynomial Regression

A histogram was created to examine the distribution of extracurricular activity participation. Most students reported participating in zero or one activity.

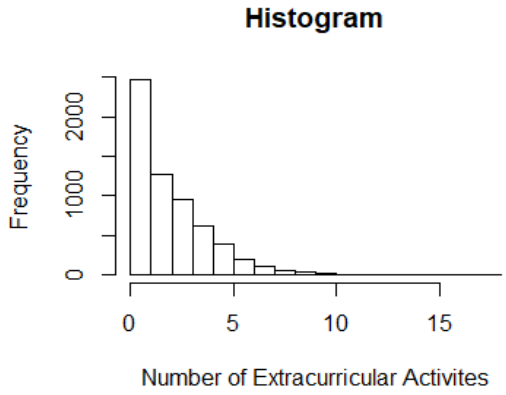

Figure 4. Histogram of Participation in Extracurricular Activities.

Five students reported participating in more than 12 activities, and these five were removed from the sample as outliers.

Total. The polynomial regression was conducted on the total number of extracurricular activities in which the students participated. For students who did not participate in any extracurricular activities, their average academic achievement level was observed at 49.8 points. Standardized scores changed by 2.74 points for each additional extracurricular activity in which the student engaged. However, the polynomial relationship was -0.26, indicating that the relationship between the total number of extracurricular activities and academic achievement was concave. In addition, students who were previously retained performed 8.06 points lower on average than the students who were on grade level. All of the estimates were significant ($p <$ 0.001).

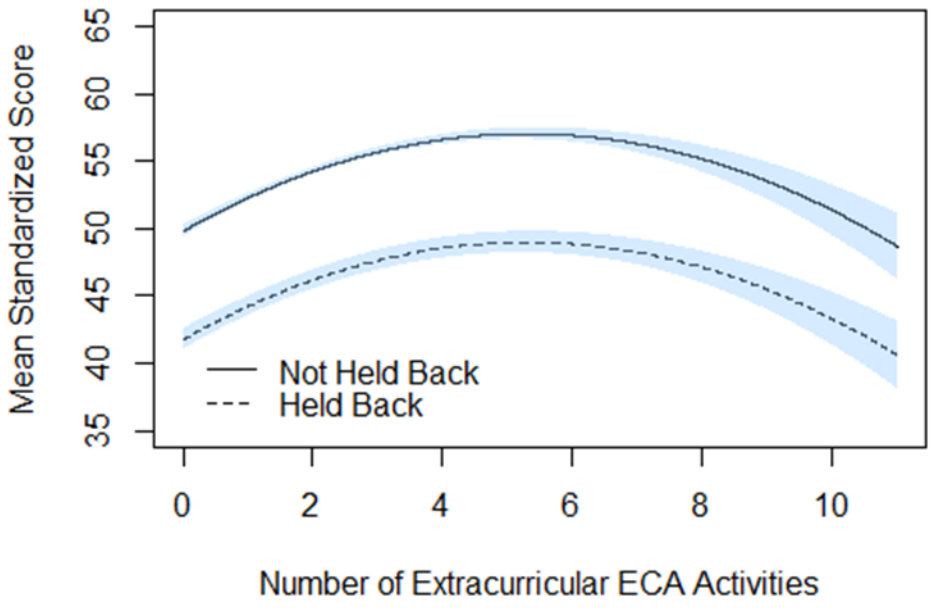

Figure 5. Extracurricular Activities and Academic Achievement.

Figure 5 graphs the relationship between the number of extracurricular activities and academic achievement scores with 95% confidence intervals. Based on the formula, the threshold for the number of extracurricular activities is 5.3 total activities. Extracurricular activities were then separated into groups, and the relationship between those categories and academic achievement was investigated.

Sports. The polynomial regression procedure was conducted again on the total number of sports activities in which a student participated. For students who did not participate in any sports and who were not academically retained, the average standardized score was 52.71 points. Standardized scores changed by 2.252 points for each additional sport in which the student was involved. The polynomial relationship was -0.425, which indicates a concave relationship between sports participation and academic achievement. In addition, students who were

previously retained scored an average of 8.607 points lower than other students. All of the estimates were significant ($p < 0.001$).

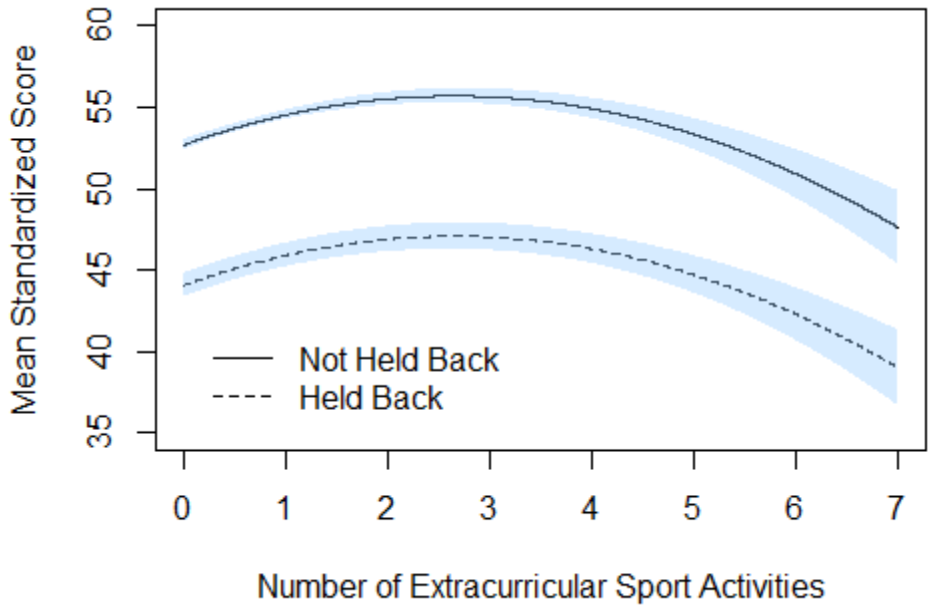

Figure 6. Sport Activities and Academic Achievement.

Figure 6 graphs the relationship between participation in sport activities and academic achievement with 95% confidence intervals. Based on these data, the threshold at which standardized scores began to decline was 2.65 sports activities. This indicates that 2.65 sport activities is the most optimal when coupled with academic achievement.

Spirit. The same analysis was employed to measure the relationship between spirit activities and academic achievement. For students who were not retained and did not participate in any spirit activities, their standardized score was 52.68 points. Scores for students who were retained on average fell 8.462 points below those who were not previously retained. In addition, each additional spirit activity changed academic achievement by 4.172 points. The polynomial

relationship is -0.929, which is concave. Again, all of these estimates were significant ($p <$ 0.001).

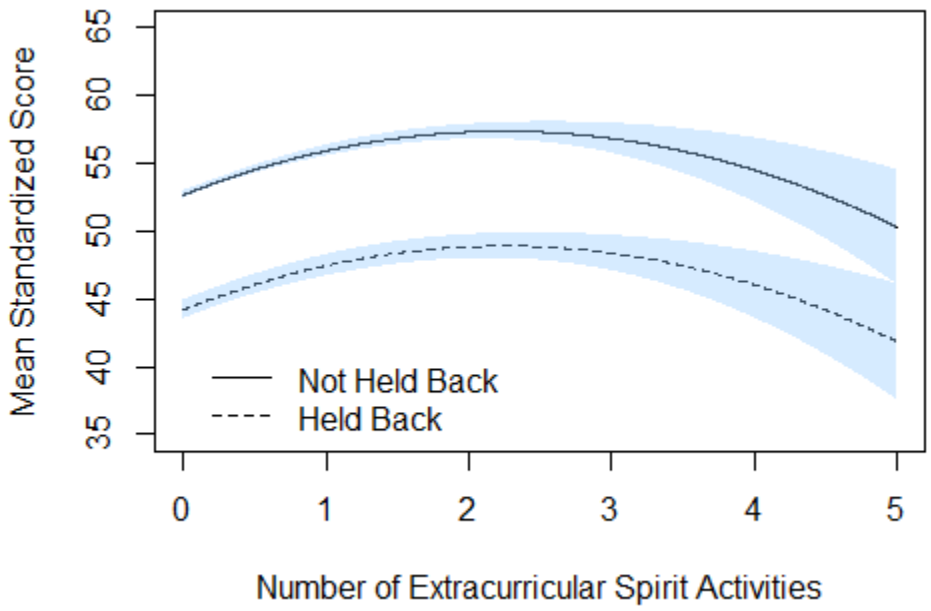

Figure 7. Spirit Activities and Academic Achievement.

Figure 7 depicts this concave relationship. According to these data, the threshold at which the number of spirit activities is optimal exists at 2.25 activities.

Music. The relationship between music activities and academic achievement was also calculated. For students who did not participate in any music activities, those who were never retained scored 52.993 points on average, and those who were retained scored 8.726 lower overall. Any additional music activities changed academic achievement by 3.661 points, and the polynomial relationship is -1.208, which is severely concave. All of these estimates are significant ($p < 0.001$).

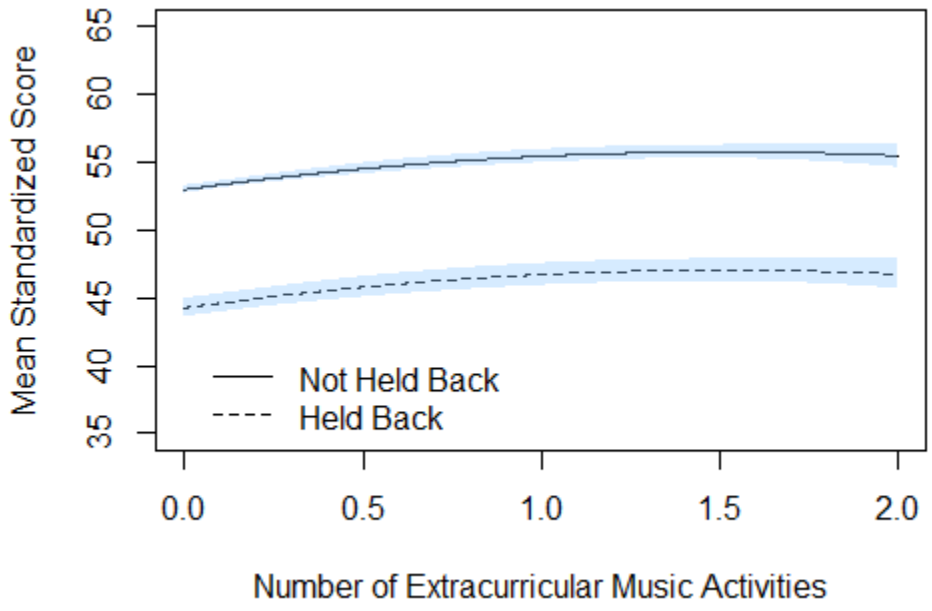

Figure 8. Music Activities and Academic Achievement.

Figure 8 depicts the relationship with 95% confidence intervals. It is important to note that students did not report participating in more than two music activities during the tenth grade year. With this, the estimated optimal number of music activities is 1.52 activities.

Academic Clubs. For students who did not participate in academic clubs, those who were on grade level scored 52.118 points on average. Students who were retained scored 8.347 points lower overall. For each additional academic club that the student is involved in, standardized scores change by 2.935 points. These estimates are all significant ($p < 0.001$).

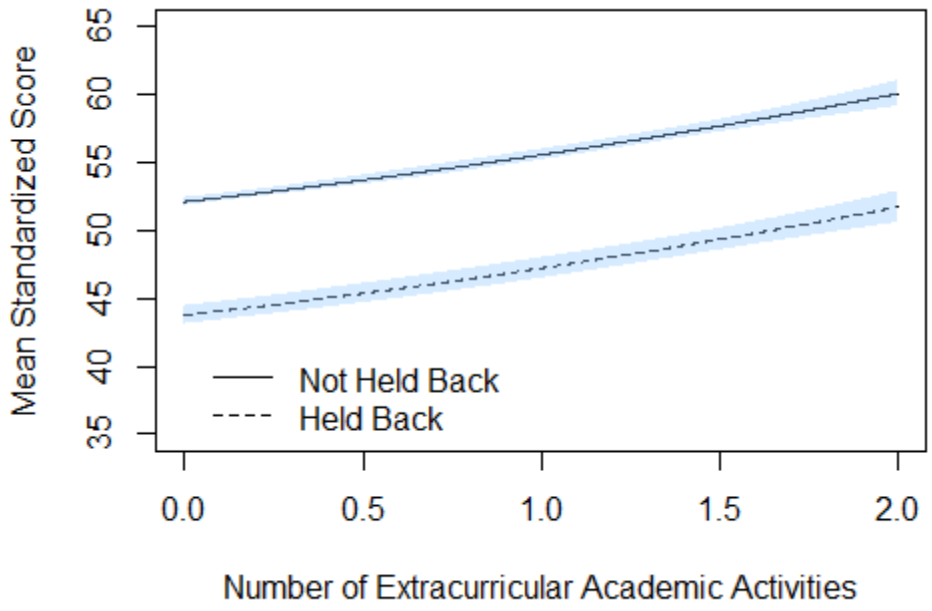

Figure 9. Academic Activities and Academic Achievement.

The relationship was depicted by Figure 9. Again, students in this sample did not report participating in more than two of the reported academic clubs at a time. Interestingly, the polynomial relationship is not significant, indicating that this polynomial relationship might not actually exist. The figure does not demonstrate any form of curvature. Based on this graphical depiction and the nonsignificant results, there is no estimate of an optimal level of participation in academic clubs.

Other. Extracurricular activities categorized as "Other" included school hobby clubs, Future Teachers of America (FTA), Future Homemakers of America (FHA), and Future Farmers of America (FFA). For students not involved in any of these activities, those who were on grade level scored on average 53.935 points. Those who had been retained scored 8.868 points lower overall. These two estimates were significant ($p < 0.001$).

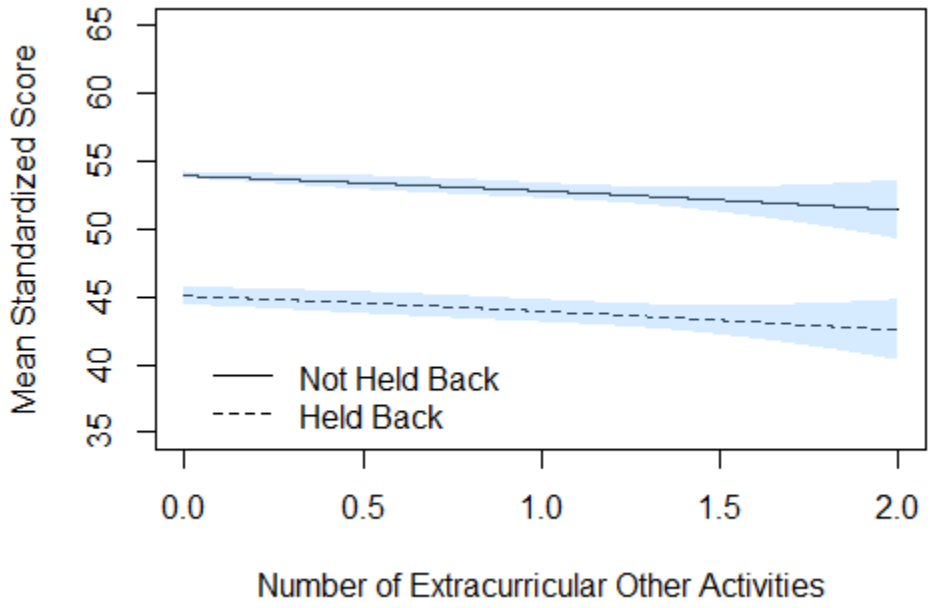

Figure 10. Other Activities and Academic Achievement.

Again, students did not report participating in more than two of these activities (Figure 10). The linear and polynomial relationships between these activities and academic achievement were not significant. This indicates that these activities might not impact academic achievement as the others do.

Structural Equation Modeling

Unrelated Model. The first model separated extracurricular activity participation from student engagement. The student's extracurricular activity participation was squared to account for the curvilinear relationship between extracurricular activities and academic achievement (called participation^2). Extracurricular activity participation and extracurricular activity participation^2 were separately regressed onto academic achievement. In addition, the latent variables Preparedness, Behavior, and Attendance were also regressed onto academic achievement (Figure 11).

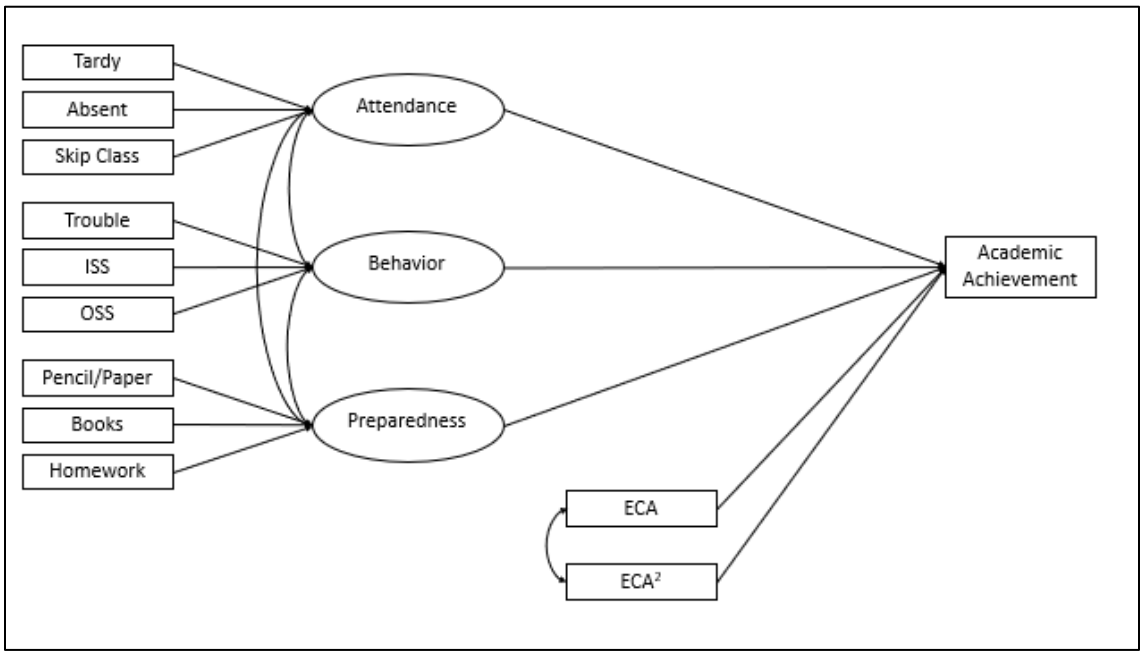

Figure 11. Structural Equation Model with Extracurricular Activity Participation Separated

The RMSEA score of 0.056 was below the "acceptable" threshold (Bollen, 2014). In addition, the SRMR statistic of 0.045 fell below the "good" threshold (Bollen, 2014). The CFI statistic was 0.93, which is above the "acceptable" threshold score (Bollen, 2014). These statistics indicate that this model might be an acceptable fit for the data, but there might be a different model that fits the data better.

Mediated Model. A second model was investigated where student engagement latent variables mediated the relationship between extracurricular activity participation and academic achievement as well as extracurricular activity participation^2 (Figure 12).

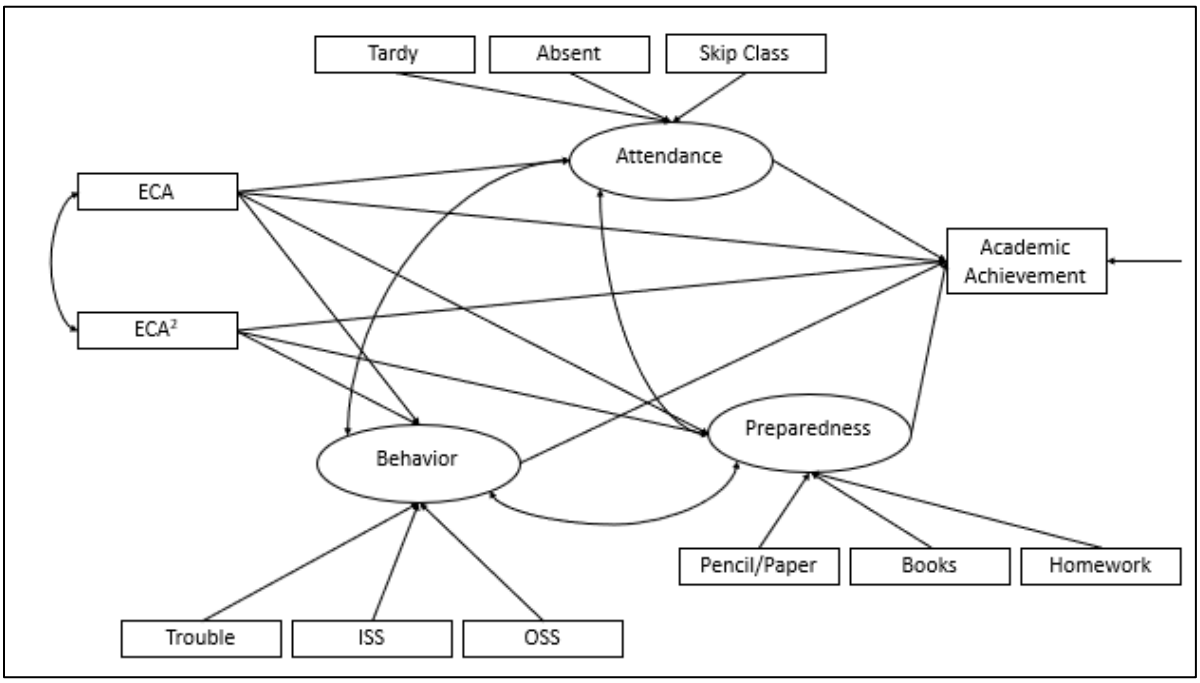

Figure 12. Structural Equation Model with Mediation Relationship

The RMSEA statistic of 0.046 is below the "good" threshold as is the SRMR statistic of 0.028. The CFI statistic of 0.959 is above the "good" threshold as well. These statistics indicate that this model is a good fit for the data. The mediation relationship seems to best fit the data and best model the relationship between extracurricular activity participation, student engagement, and academic achievement.

The first SEM Model indicates a significant relationship between extracurricular activity participation and academic achievement ($p < 0.001$) as well as extracurricular activity participation^2 with academic achievement ($p < 0.001$). The significant relationship between extracurricular activity participation and academic achievement as well as between participation^2 and academic achievement satisfies the first criterion.

The second SEM Model was be used to investigate the other conditions. For the second condition, the relationship between extracurricular activity participation and the latent variables

Preparedness ($p < 0.001$), Behavior ($p < 0.001$), and Attendance ($p < 0.001$) are all significant. In addition, the relationship between participation^2 and the latent variables Preparedness ($p < 0.001$), Attendance ($p < 0.001$), and Behavior ($p < 0.001$) are all significant. These significant relationships satisfy the second criterion, which requires a significant relationship between extracurricular activity participation and the latent student engagement variables as well as participation^2 and the latent student engagement variables.

The third criterion requires a significant relationship between the moderating variables and the outcome variable, which are the latent student engagement variables and academic achievement. Preparedness ($p = 0.04$), Attendance ($p < 0.001$), and Behavior ($p < 0.001$) were all significantly related to academic achievement. Therefore, the third criterion is met. With this, the first three criteria are met, which indicates the existence of a mediating relationship.

The final criterion describes the extent to which student engagement mediates the relationship between extracurricular activity participation (and participation^2) and academic achievement. For this, the significance of the direct relationship between extracurricular activity participation and academic achievement is examined. If the direct relationship is not significant, then student engagement completely mediates the relationship between extracurricular activity participation and academic achievement. If the direct relationship is significant, then student engagement only partially mediates the relationship between extracurricular activity participation and academic achievement. Based on the second SEM Model, the direct relationship between extracurricular activity participation and academic achievement was significant ($p = 0.025$), even with the mediation. This indicates that the latent student engagement variables partially mediate the relationship between extracurricular activity participation and academic achievement. In addition, the direct relationship between extracurricular activity participation^2 and academic

achievement is also significant ($p = 0.003$), indicating that the latent student engagement variables partially mediate the relationship between extracurricular activity participation^2 and academic achievement.

Based on the second SEM Model, extracurricular activity participation increases academic achievement scores (0.95). An increase in extracurricular activity participation slightly increases preparedness difficulties (0.08), which decreases academic achievement scores (-0.68). An increase in extracurricular activity participation decreases behavior problems (-0.17), which largely increases the academic achievement scores (-6.42). Finally, an increase in extracurricular activity participation decreases attendance problems (-0.13). Interestingly, a decrease in attendance problems also largely decreases academic achievement scores (3.12).

To account for the curvilinear relationship of extracurricular activity participation, the number of extracurricular activities student were involved in was squared and this variable was included in the analysis. Continuing to increase extracurricular activity participation past the threshold decreases academic achievement scores (-0.08). Increasing the extracurricular activity participation past the threshold increases behavior (0.02) and attendance problems (0.01). Increasing behavior problems decreases academic achievement scores (-6.42) but increases in attendance problems actually increase academic scores (3.12). In addition, increasing extracurricular activity participation past the threshold decreases preparedness problems, which increases academic achievement scores (-0.68).

CHAPTER 3

DISCUSSION

The purpose of this study was to investigate the relationship between student engagement, extracurricular activity participation, and academic achievement. Student engagement is the energy students expend on school-related activities, such as homework, learning, and attendance (Appleton et al., 2008; Barkto, 2005; Finn & Rock, 1997; Finn & Zimmer, 2012; Fredricks et al., 2004; Gilman et al., 2004; Lovelace et al., 2014; Reschly et al., 2012). Scholars typically agree on a model including three components: behavioral, cognitive, and affective factors (Appleton et al., 2008; Finn & Zimmer, 2012; Fredricks et al., 2004). Student engagement has a clear, direct relationship with academic achievement, which is why it is often studied as an indicator of academic achievement (Finn, 1989; Finn & Rock, 1997; Fredricks et al., 2004). Of the engagement subtypes, behavioral engagement has the strongest link to academic achievement; affective and cognitive engagement operate through their impact on behavioral student engagement (Finn, 1989; Finn & Rock, 1997; Fredricks et al., 2004; Lovelace et al., 2014; Reschly & Christenson, 2006). Typical indicators of behavioral engagement include attendance, behavior, being prepared for class, and extracurricular activity participation (Lovelace et al., 2014).

Extracurricular activity participation includes activities outside of the academic curriculum that allow students to act out developmental activities in structured or unstructured settings (Forneris et al., 2015; Fredricks, 2011; Fredricks & Eccles, 2005). Sustained extracurricular activity participation improves academic achievement, but participation changes

over time (Barkto, 2005; Feldman & Matjasko, 2005). Recent research also indicates that the relationship between extracurricular activity participation and academic achievement might be curvilinear (Feldman & Matjasko, 2005). There might be a threshold in which participation in extracurricular activities is no longer beneficial to academic achievement, deemed the "overscheduling hypothesis" (Feldman & Matjasko, 2005).

For this study, data from the National Educational Longitudinal Study (NELS) of 1988 were used to investigate the relationship between behavioral student engagement, extracurricular activities, and academic achievement (US Department of Education, 1988). The factor structure of behavioral student engagement was investigated using an exploratory factor analysis. Results indicated that extracurricular activity participation can create a fourth factor, but it did not strongly relate to the other measures of behavioral student engagement. When extracurricular activity participation was removed from the analysis, a three-factor model fit the data well. These factors included being prepared for class, attending class, and behaving during school. This fits theoretical models and previous literature, without the inclusion of extracurricular activity involvement (Finn & Rock, 1989; Fredricks et al., 2004; Lovelace et al., 2014; Reschly & Christenson, 2012).

Then, the specific relationship between extracurricular activity participation and academic achievement was investigated using a polynomial regression. Extracurricular activities were totaled as well as split into groups. Results indicated a curvilinear relationship between extracurricular activity participation and academic achievement. In addition, this study determined the threshold for total number of extracurricular activities. The study also determined that different categories of extracurricular activities (e.g. sports, music) have different thresholds in which participation becomes detrimental to academic achievement. Academic clubs do not

have a curvilinear relationship with academic achievement, which could be due to the frequency of academic club meetings (e.g., once per month). When all of the extracurricular activities are combined, students can be in 5.3 activities per year before participation negatively impacts their academic performance.

Finally, the relationship between student engagement, extracurricular activity participation, and academic achievement was investigated through two different structural equation models. The first did not include a relationship between extracurricular activity participation and student engagement, which was determined to be an adequate model. However, a second model in which student engagement mediated the relationship between extracurricular activity participation and academic achievement fit the data better. In addition, the three main criteria for a mediation model were met, indicating that student engagement does mediate the relationship between extracurricular activity participation and academic achievement. The fourth criterion is not required to determine the existence of a mediation relationship, but it is used to determine the strength of the mediation relationship. Results indicated that the three indicators used to study behavioral student engagement – being prepared for class, attending class, and behaving at school – partially mediate the relationship between extracurricular activity participation and academic achievement. While students may have difficulty in school as they participate in more and more extracurricular activities, student engagement helps compensate for that negative impact and help students continue to succeed at school. These results continue to demonstrate the protective nature of student engagement (Finn & Rock, 1997; Finn & Zimmer, 2012; Fredricks et al., 2004; Reschly et al., 2014). These results also highlight another risk factor schools may wish to monitor. Not only can schools identify and intervene on engagement behaviors for high-risk students, but schools can also identify students who are overly involved

in extracurricular activities and them improve their engagement behaviors, decrease their activity involvement, or complete a combination of these.

Student engagement theory often includes extracurricular activity participation as a measurable component of behavioral student engagement (Finn & Rock, 1989; Fredricks et al., 2004; Reschly & Christenson, 2012). However, the present results indicate that this relationship might not be completely accurate. Similar to previous research, extracurricular activity participation has a curvilinear relationship with academic achievement (Feldman & Matajsko, 2005). This study also adds to current research as it indicates that there is a threshold in which extracurricular activity participation is no longer beneficial to academic achievement, deemed the overscheduling hypothesis (Feldman & Matjasko, 2005). These results also indicate that extracurricular activity participation has a curvilinear relationship with academic achievement and student engagement has a more linear relationship. In addition, student engagement partially mediates the relationship between extracurricular activity involvement and academic achievement. Because of this, it is conceivable that student engagement can be a protective factor for students who are overly involved in extracurricular activities, and this alterable variable can help improve the overly-involved students' academic outcomes over time. In addition, this provides more information about the nature of the relationship between these two, as extracurricular activity participation is often used as a component of behavioral student engagement. Because of the partially mediated relationship, extracurricular activity participation may still be a component of student engagement, but the more complicated relationship is important to note.

Limitations and Future Directions

This study has several important limitations. First, this study used national longitudinal data to analyze the relationship between student engagement, extracurricular activity participation, and academic achievement. National longitudinal data has many benefits. Some of these include a very large sample size measured over a long period of time. National longitudinal data also allows researchers to answer many different questions. However, national longitudinal data also has its limitations. While national longitudinal datasets provide large sample sizes, they also have large amounts of missing data, which can make analysis difficult (Finn, 2006).

Because national longitudinal datasets include a large sample size over many years, the data are often old. Specifically, these data were collected in 1990, which was 31 years ago. While the findings may still be relevant today, as evidenced by the growing body of literature, the age of the data is certainly a limitation to note (Feldman & Matjasko, 2005). For example, participants for this study were sampled to match the US Census of the time, but the demographics of the country have changed over the past 20 years. In addition, the Risk Factors demographic variable includes information about Adverse Childhood Experiences, such as poverty and single-parent household. In this study, 61% of participants reported no risk factors. However, more recent literature has noted that the number of Adverse Childhood Experiences a child is exposed to may be increasing (Robles et al., 2019).

In addition, the national dataset includes information on a wide range of topics, but researchers have to choose which information best fits their topic instead of collecting information that specifically measures the topic of interest (Finn, 2006; Reschly & Christenson, 2006). This can make results less accurate and less clear. For example, these results suggested that extracurricular activity participation might not be beneficial as a fourth component of

student engagement. However, the longitudinal dataset only provides information about particular extracurricular activities, and the types studied might just be too different to demonstrate the relationship with student engagement. Future studies should use theory-driven measures that specifically assess student engagement variables (e.g. Student Engagement Instrument, Appleton et al., 2006).

In addition, this dataset included limited information on the student's extracurricular activity participation. The interviews asked about each extracurricular activity, and participants had to report if they were not a member, a member, a leader, or a combination of those options (US Department of Education, 1988). There was no information gathered about the amount of time they spend participating in the activity, the number of months or years they have participated in the activity, or their level of investment in the activity. These are all important factors to measure a student's extracurricular activity participation. For example, one football player may only commit to group practice and games, which could account for 10 hours per week. Another football player may commit to group practice, games, individual practice, individual training with coaches, and workouts, which is a significantly larger investment of time. If the study only measures the number of activities (such as this study), these two players would be counted similarly, even though the breadth and depth of their participation is very different. Therefore, it is vitally important that future research also explore the breadth and depth of the student's extracurricular activity participation to fully investigate the relationship between extracurricular activity participation, student engagement, and academic achievement (Appleton et al., 2006; Finn, 2006; Lovelace et al., 2014).

It is interesting to note that the interviews for the national datasets can include different questions during the follow-up interviews. This limitation specifically impacted this study as

some of the variables used for student engagement were not included in the first year and therefore could not be used to measure student engagement over those two time points (eighth and tenth grade). This was also true of the variables used to measure academic achievement, which were only available for the first and second years of data collection. The third data collection period did not include this variable, making it difficult to measure academic achievement through twelfth grade. Because of this, only the tenth-grade data were analyzed. Future studies should use the same questions for each time point to better facilitate a longitudinal study of these three variables.

There is another limitation of using only tenth-grade data. Although most students will continue through ninth grade, many students drop out before tenth grade. This is often referred to as the "ninth grade bulge, tenth grade dip" (National High School Center, 2007). Because of this, the academic scores might be skewed because lower achieving students might have dropped out before tenth grade, making the extent of the relationship less accurate. Future studies should include eighth or ninth grade information to account for students who dropped out before the tenth grade.

REFERENCES

Appleton, J. J., Christenson, S. L., Kim, D., & Reschly, A. L. (2006). Measuring cognitive and psychological engagement: Validation of the Student Engagement Instrument. *Journal of School Psychology,* 1-16. https://doi.org/10.1016/j.jsp.2006.04.002

Asparouhov, T., Muthén, B., & Morin, A. (2015). Bayesian structural equation modeling with cross-loadings and residual covariances: Comments on Stromeyer et al. *Journal of Management, 41*(6), 1561-1577. doi: 10.1177/0149206315591075

Bollen, K. A. (2014). Structural equations with latent variables. NY: Wiley.

Christenson, S. L. (2008, January 22). Engaging students with school: The essential dimension of dropout prevention programs. [Webinar]. National Dropout Prevention Center for Students with Disabilities.

Christenson, S. L., Reschly, A. L., & Wylie, C. (Eds.). (2012). *Handbook of research on student engagement.* New York, NY: Springer.

Costello, A. B. & Osborne, J. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment, Research, and Evaluation, 10*(7), 1-9. https://dio.org/10.7275/jyj1-4868

Darling, N. (2005). Participation in extracurricular activities and adolescent adjustment: Cross-sectional and longitudinal findings. *Journal of Youth and Adolescence, 34*(5), 493-505. https://doi.org/10.1007/s10964-005-7266-8

Eccles, J. S. & Barber, B. L. (1999). Student council, volunteering, basketball, or marching band: What kind of extracurricular involvement matters? *Journal of Adolescent Research, 14*(1), 10-43. https://doi.org/10.1177/0743558499141003

Farb, A. F. & Matjasko, J. L. (2012). Recent advances in research on school-based extracurricular activities and adolescent development. *Developmental Review,* 32, 1-48. https://doi.org/10.1016/j.dr.2011.10.001

Feldman, A. F. & Matjasko, J. L. (2005). The role of school-based extracurricular activities in adolescent development: A comprehensive review and future directions. *Review of Educational Research*, *75*(2), 159-210. https://doi.org/10.3102/00346543075002159

Finn, J. D. (2006). *The Adult Lives of At-Risk Students: The Roles of Attainment and Engagement in High School.* (NCES 2006-328). U.S. Department of Education, Washington, DC: National Center for Education Statistics.

Finn, J. D., & Rock, D. A. (1997). Academic success among students at risk for school failure. *Journal of Applied Psychology*, *82*(2), 221-234. https://doi.org/10.1037/0021-9010.82.2.221

Finn, J. D. & Zimmer, K. S. (2012). Student engagement: What is it? Why does it matter? In Christenson et al. (Eds.), *Handbook of Research on Student Engagement* (97-130). Switzerland: Springer. https://doi.org/10.1007/978-1-4614-2018-7_5

Fredricks, J. A. (2011). Engagement in school and out-of-school contexts: A multidimensional view of engagement. *Theory Into Practice,* 50, 327-335. https://doi.org/10.1080/00405841.607401

Fredricks, J. A. (2012). Extracurricular participation and academic outcomes: testing the over-scheduling hypothesis. *Journal of Youth and Adolescence,* 41, 295-306. https://doi.org/10.1007/s10964-011-9704-0

Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research, 74*(1), 59-109. https://doi.org/10.3102/00346543074001059

Fredricks, J. A. & Eccles, J. S. (2005). Developmental benefits of extracurricular involvement: Do peer characteristics mediate the link between activities and youth outcomes? *Journal of Youth and Adolescence, 34*(6), 507-520. https://doi.org/10.1007/a10964-005-8933-5

Gilman, R., Meyers, J., & Perez, L. (2004). Structured extracurricular activities among adolescents: Findings and implications for school psychologists. *Psychology in the Schools, 41*(1), 31-41. https://doi.org/10.1002/pitz.10136

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2010). *Multivariate data analysis* (7th ed.). Upper Saddle River, NJ: Prentice Hall.

Kline, R. B. (2000). *The handbook of psychological testing* (2nd ed.). New York, NY: Routledge.

Kline, R. B. (2016). *Principles and practice of structural equation modeling* (4th ed.). New York, NY: The Guilford Press.

Loehlin, J. C. & Beaujean, A. A. (2017). *Latent variable models: an introduction to factor, path, and structural equation analysis* (5th ed.). New York, NY: Routledge.

Lovelace, M. D., Reschly, A. L., & Appleton, J. J. (2017). Beyond school records: The value of cognitive and affective engagement in predicting dropout and on-time graduation. *Professional School Counseling: 2017-2018, 21*(1), 70-84. https://doi.org/10.5330/1096-2409-21.1.70

MacKinnon, D. P. & Luecken, L. J. (2011). Statistical analysis for identifying mediating variables in public health dentistry interventions. *Journal of Public Health Dentistry, 71*(1), 37-46. https://doi.org/10.1111/j.1752-7325.2011.00252.x

Mahoney, J. L. (2000). School extracurricular activity participation as a moderator in the development of antisocial patterns. *Child Development, 71*(2), 502-516. https://doi.org/10.1111/1467-8624.00160

National High School Center (2007). The first year of high school: A quick stats fact sheet. Washington, DC: National High School Center at the American Institutes for Research. Retrieved from http://www.betterhighschools.org/docs/NHSC_FirstYearofHighSchool_032807_000.pdf

Reschly, A. L., & Christenson, S. L. (2012). Jingle, jangle, and conceptual haziness: Evolution and future directions of the engagement construct. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), Handbook of Research on Student Engagement (pp. 3-19). New York, NY: Springer. https://doi.org/10.1007/978-1-4614-2018-7_1

Reschly, A. L. & Christenson, S. L. (2014). Promoting successful school completion. In K. Minke & G. Bear (Eds.), *Children's Needs-III: Development, Prevention, and Intervention* (103-113). Bethesda, MD: National Association of School Psychologists.

Robles, A., Gjelsvik, A., Hirway, P., Vivier, P. M., & High, P. (2019). Adverse childhood experiences and protective factors with school engagement. *Pediatrics, 144*(2). https://doi.org/10.1542/peds.2018-2945

Schmitt, T. A. (2011). Current methodological considerations in exploratory and confirmatory factor analysis. *Journal of Psychoeducational Assessment, 29*(4). https://doi.org/10.1177/0734282911406653

Schreiber, J. B. & Chambers, E. A. (2002). After-school pursuits, ethnicity, and achievement for 8th- and 10th- grade students. *The Journal of Education Research, 96*(2), 90-100. https://doi.org/10.1080/00220670209598796

Skinner, E., & Pitzer, J. (2012). Developmental dynamics of student engagement, coping, and everyday resilience. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of research on student engagement* (pp. 21-44). New York, NY: Springer. https://doi.org/10.1007/978-1-4614-2018-7_2

US Census Bureau (1985). *American Housing Survey for the United States in 1985.* Retrieved from https://www2.census.gov/prod2/ahsscan/h150-85.pdf

United States Department of Education (1988). National Center for Education Statistics. National Education Longitudinal Study. https://doi.org/10.3886/ICPSR09389.v1