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AN EXAMINATION OF RELATIONSHIPS BETWEEN
SCHOOL CLIMATE, STUDENT ENGAGEMENT AND
STUDENT ACADEMIC ACHIEVEMENT IN RHODE
ISLAND HIGH SCHOOLS

BY

BONITA S. BASNYAT

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF
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MASTER OF ARTS THESIS

OF

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UNIVERSITY OF RHODE ISLAND

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ABSTRACT

Different school-level factors contribute to understanding school dropout and school success (Christenson & Thurlow, 2004; Rumberger, 1995). Moving forward, schools and school-based professionals would likely benefit from improved approaches to assessing and understanding how school climate, student engagement and academic achievement relate to one another. However, while previous research has demonstrated associations between school climate, engagement and academic achievement, little is known about how these three elements of schooling interact with student/school demographic and context variables such as diversity, socio-economic status, and urbanicity. Information collected from the study evaluates the extent to which student engagement varies within a statewide set of schools differing in levels of diversity, SES, Urbanicity and aspects of school climate. Findings from this research are expected to provide school personnel, students, teachers, parents, and the community with a better understanding the critical role that school climate plays in engagement and assessment. With the help of this study, policymakers can begin the process of collaborating with the state and student surveys to improve student achievement.

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Chapter One

Statement of the problem

Many school level-factors contribute to understanding school dropout and school success (Christenson & Thurlow, 2004; Rumberger, 1995). For example, research has shown that school climate, student engagement and academic achievement are elements that predict to school level outcomes such as rates of graduation, rates of internalizing and externalizing behavior, levels of drug use and rates of illegal activities (Furlong, Whipple, Jean, Simental, Soliz, & Punthuna, 2003). To further understand and prevent school drop out rates, in particular, the field of education would likely benefit from improved approaches to assessing and understanding how school climate, student engagement and academic achievement relate to one another.

Though climate, engagement and academic achievement are all related, they are different elements of schooling. Climate is a construct that involves and describes the atmosphere of the school, often described, for example in terms of safety of a school environment, supportive of students, and so on. This atmosphere depends on the parents, teachers, friends, and students themselves (Halpin & Croft, 1963; Thapa, Cohen, Guffer & Higgins-D'Alessandro, 2013). On the other hand, engagement is represented by student classroom behaviors displayed (i.e., attendance, participation, social adjustment) that are observed and evaluated by teachers (Furrer & Skinner, 2003; Mouton, Hawkins, McPherson, & Copley, 1996). And, academic achievement has been used as an outcome variable dependent on student engagement and school climate (Klem & Connell, 2004, Mouton, Hawkins, McPherson, & Copley, 1996).

However, while previous research has demonstrated associations between school climate, engagement and academic achievement, just how these three elements interact with student demographic variables is less researched.

Identification and understanding of relationships between student engagement and school climate variables, *in context*, could eventually lead to actions that result in a positive change in student risk status and achievement. Since school climate variables are malleable, in contrast to students' demographic variables, positive school climate could potentially lead to higher levels of engagement in classrooms, which could lead to higher student achievement and lower levels of dropout. Therefore, this study examined how school climate, engagement and academic achievement interact and vary in the context of urbanicity, demographic and socioeconomic status, at the school level.

Justification of the study

Relationship between climate, engagement and academic achievement

School climate, academic achievement, and student engagement have been used as contributing aspects of school success. However, each of these variables is distinct in its contribution to overall student success, while at the same time, it is hard to define them in isolation from one another. Therefore, in the paragraphs below, academic achievement, school climate, and student engagement are defined in relation to one another and how they influence one another in terms of promoting student success.

Academic achievement

Academic achievement consists of mastery or attainment of components of a school's curriculum and has been measured mostly through class test scores, GPAs and standardized tests. It is a multifaceted construct, which involves and results from many layers of home and school environmental variables (Robbins, Lauver, Le, Davis, Langley, & Carlstrom, 2004). A student's home (Ferguson, 2005 Ferguson, Tilleczeck, Boydell, Rummens, Cote, & Roth-Edney, 2005), school, peer and teacher relationships (Eccles & Wigfield, 2002; Moreira, Crusellas, Sá, Gomes & Matias, 2010) have shown to be strongly linked with school performance. Studies have shown that there is a strong link between a student's socioeconomic status and academic achievement (Sirin, 2005), and, higher levels of parental involvement and support have been associated with higher levels of achievement (Gamoran, Turley, Turner, & Fish, 2010). A study conducted in 2014 established that two factors were very important for student success. First, a quality learning environment is critical in that it provides for adequate learning facilities and resources at school and second, students' home environments making a significant contribution to a child's academic achievement (Korir & Kipkemboi, 2014). Peer influences were also shown to be equally significant to the home environment in academic achievement. This study also shows that students whose friends engage in drug use, and who display chronic absenteeism have lower levels of academic achievement (Korir & Kipkemboi, 2014). The results of the Korir and Kipkemboi (2014) research are important in providing evidence that there are significant external contributors to students' academic achievement in addition to motivation and study habits. These external aspects

contributing to academic achievement are outside factors such as the home environment, parental involvement in school and the school climate, which includes all of the aspects that foster academic achievement mentioned above. This present study focused on school climate and other demographic variables such as diversity, academic achievement, and urbanity as its core variables to examine the variability in student engagement and academic achievement.

School Climate

School climate has been defined in many different ways over the years. For example, the earliest definitions of school climate define climate as the “personality” of the school ranging from a more open school to a more closed school (Halpin & Croft, 1963). The National School Climate Council in 2013 describes climate as the quality and character of school life and experiences that reflect norms, values, interpersonal relationships (e.g., between peers and teachers), teaching and learning practices (e.g., classroom structure and management), safety (e.g., feeling of safety physically and emotionally in the school) and organizational structures (e.g., resources available in school) (Thapa, Cohen, Guffer, Higgins-D'Alessandro, 2013).

The influence of school climate is observed many different areas of development for students such as social (Elias & Haynes, 2008), behavioral (McEvoy & Welker, 2000) and academic outcomes (Bryk & Schneider, 2002; Elias & Haynes, 2008; Klem & Connell, 2004; McEvoy & Welker, 2000). Additionally, positive school climate, which is characterized, by supportive teachers, peers and administrators, has been shown to be related to a range of positive student outcomes (e.g., mental, physical, psychological and emotional) (Way, Reddy, & Rhodes, 2007).

Importantly, lower levels of absenteeism could lead to higher levels of student engagement, which is important for both academic achievement as well as positive school climate. Interestingly, the literature has identified student engagement as one of the common indicators of positive climate and higher academic achievement (Furrer & Skinner, 2003).

Student Engagement

Engagement in a classroom has been defined as a student's active involvement during tasks. Engagement is defined as a behavior related to motivation and self-determination (Furrer & Skinner, 2003). Engagement has been categorized into three types: behavioral, cognitive and affective engagement. An example of *Behavioral Engagement* is that of students actively participating in class (e.g., raising their hands in response to a question), *Cognitive Engagement* is indicated when students are using what they are learning to solve problems, are making efforts to learn skills and knowledge relating to future goals. *Affective Engagement* is demonstrated when students are able to form meaningful relationships with peers and their teachers (Fredericks, Blumenfeld, & Paris, 2004). Risk factors relating to low engagement include high rates of absenteeism, behavior problems, poor academic performance and grade retention (Reschly & Christenson, 2006).

Overall, most of the literature on engagement and academic achievement has examined one aspect of school climate such as teacher school relationships, or safety or classroom management (Emmer & Stout, 2001; Lankfoerd, Loeb & Wyckoff, 2002; Milam, Furr-Holden & Leaf, 2010). However, a study on school climate does suggest improving the overall health by examining both feelings of cohesiveness in

school and aspects of climate (Stewart, 2008). Results indicate that both aspects of climate (teacher-child, parent-teacher relationship) as well as feelings of cohesiveness in school predicts to successful student outcome. Also, the abundance of literature concentrating on individual-level factors shows a need in the literature to have a more cohesive exploration of the multilevel factors that impact academic achievement and engagement. The present study examined climate as a whole versus the individual factors of climate (i.e., teacher expectation and peer influence). By doing so, the analysis was able to further understand why and where there could be potential variability in achievement and engagement when schools share similar levels of diversity, urbanicity and SES.

Assessment of School Climate in other States

Similar to Rhode Island Department of Education (RIDE), states like California, Georgia, and Iowa have administered and reported on their school level assessment of school climate. Different states have used different measures to assess climate in schools. The most common way is by administering climate surveys to parent, teachers, and students and then creating an aggregate for each school. For example, Georgia State presents their school climate report by giving each school a 5-star rating scale based on school climate surveys administered to parents, teachers, and students (Georgia Department of Education, 2018). In California, schools administer the School Climate Index (SCI), which is a state normed school-level descriptions of non-academic factors that influence achievement. Each school receives a score for the SCI, which ranges from 100 to 500 (O'Mailey & Hanson,

2012). In this way, the schools will then have access to these reports created by the state in order to improve the school quality and improve the schools' quality of life.

School climate, student engagement and academic achievement in relation to SES, diversity and urbanicity

There is a wide range of variability in school climate among low-income schools. For example, one series of studies show schools situated in low-income areas to have low ratings of school climate (Haynes, Emmons, & Solomon, 2003; Kozol, 2005; Schaps & Solomon, 2003). The schools that have the lowest ratings also tend to have high rates of absenteeism (Bernstein, 1992), high rates of drug use (Haynes, Emmons & Solomon, 2003) and low academic achievement scores (Kozol, 2005). In contrast, research conducted by Cole-Henderson in 2000 points out the school level characteristics that exert a positive influence in serving low-income African American children. For example, this study found that these schools have very stable principals with good direction and missions for their school, there is a sense of cohesiveness between all staff members and students, and a continuous commitment for improvement regardless of teacher turnover and student mobility, which was considerably low in this study. Therefore, the study suggest that regardless of having higher number of students coming from diverse backgrounds, there are school level factors, which could improve climate and eventually improve academic achievement in urban schools, which aligns with the research questions of the current study.

There also have been studies that have looked into the relationship between socioeconomic status and academic achievement. A meta-analysis conducted by Sirin in 2005 reviewed the literature on socioeconomic status and academic achievement in

journal articles published between 1990 and 2000. The study included 101,157 students, 6,871 schools and 128 school districts gathered from 75 independent samples. The review's findings suggest that family SES sets the stage for children by directly providing resources at home and as well as providing a social network (connection with staff, peers and teachers) that is needed in schools. This finding is in line with past findings, which suggest that low SES schools typically struggle in terms of instructional arrangements, materials, teacher experience, and teacher-student ratio (Wenglinsky, 1998). However, there also is recent evidence that positive school climate can be a protective factor for students at risk of school failure (Hopson & Lee, 2011; O'Mailey et al, 2015).

One study in particular conducted by Brown and Medway (2006) at an elementary school in South Carolina found high achievement outcomes among poor and minority students. This study examined the roles of school climate, teacher expectations and instructional practices. The study measured school climate and student behavior through teacher interviews and classroom observations via videotaping. The study found that the school, which emphasized high expectations of students, school staff cohesiveness, engaging instruction, high parent involvement, and multicultural instructional practices led to high achievement. The authors interpreted the findings relative to several themes, including an "all students can learn" mindset, which means when students entered classroom they were told that they would succeed. Further, the second theme was peer support during assignments, and another major theme was teachers' incorporated parental input and increased parent-school communication.

In summary, existing evidence suggests that school climate may serve as a moderator variable in diverse schools with high proportions of students at risk for low academic achievement and school dropout. The present study focused on the variability in student self-reported engagement in school, relative to diversity, SES, and urbanicity. In addition, the relationships between student engagement, school climate, and academic achievement were examined.

Purpose of the Study

The purpose of the current study was to examine patterns of student engagement within a set of schools differing in levels of diversity, SES, urbanity and aspects of school climate. There are correlational studies looking at school climate and engagement and SES and engagement/academic achievement but within group variability has not been examined. A concept map of the proposal and its variables has been presented in the Appendix A as Figure 1.

Research Question and Hypothesis

Question 1: *To what extent have enrolled students in participating high schools completed surveys of student engagement?*

Hypothesis 1: School participation is expected to be high in all High Schools.

Question 2: *To what extent is student engagement heterogenous or homogenous across high schools in Rhode Island varying in school diversity, Urbanicity and Socioeconomic status?*

Hypothesis 1: Student engagement is predicted to be heterogeneous across different high schools in Rhode Island varying in school diversity, urbanity and socioeconomic status

Question 3: *To what extent does student engagement vary as a function of student rated pride/culture ,value of school and safety?*

Hypothesis 1: Student engagement is predicted to vary as a function of student rated pride/culture, value of school and safety.

Question 4: *To what extent do climate and student engagement moderate and/or mediate student academic achievement in low socioeconomic schools?*

Hypothesis 1: It is predicted that Climate (i.e., pride/culture, valuing of schools and safety) will be a stronger predictor among low SES schools while examining academic achievement.

Chapter Two

Methodology

This chapter begins with an introduction of the sample used for the study. Then the different independent and dependent variables that were used throughout the study and their source of data are explained. The chapter then goes onto explaining the analytic process used in the research for each question.

Sample

The study is a cross-sectional, quasi-experimental design using publicly available, state representative data and databases. The dataset includes 64 high schools from the state. Of these 64 high schools only 59 of them had full student data on engagement, participation and the focus aspects of schools climate. Therefore, only 59 of the schools were used in the analyses and these schools are further described in the result section.

Source of Data

Data for this study came from one main source, the Rhode Island Department of Education's (RIDE) InfoWorks! Website.

<http://ride.ri.gov/InformationAccountability/RIEducationData/SurveyWorks.aspx>

Independent Variables

Demographic Variables. The data for the demographic variables were taken from Rhode Island Department of Education's Infoworks website where the demographic percentages were available for each high school in Rhode Island. For each included school, the dataset included the raw number of students in the school, percentage of

students eligible for subsidized lunch, percentage of students from various racial/ethnic backgrounds, percentage students receiving ESL/bilingual and percentage of students receiving special education.

The present study focused on and utilized three main variables. The variables were **-percentage of students from various racial/ethnic backgrounds, the percentage of students enrolled in free and reduced lunch and the location of the school.**

School Climate Variables. Data for school climate variables were taken from the Rhode Island Department of Education InfoWorks website. The school climate variables that were used for the study were pride/culture, safety and valuing of the school. All three variables are considered to be aspects of climate and had unique items relating to each of them. The items for each aspect (i.e., pride/culture, safety and valuing of the school) are found in Table 1 of Appendix B. These surveys were administered to students through the Panorama Education survey, a vendor company used by RIDE to administer their surveys and report findings. A description of the Panorama Education surveys is given below.

Panorama Education surveys. This company work with students, schools, districts, and charter networks to administer the Panorama student survey. Panorama also provides interactive results and analytics for each school. The survey was designed by a group of researchers at the Harvard Graduate School of Education (Panorama Education, 2015).

The developers established the reliability and validity of Panorama education survey via two large-scale pilot studies. When reliability was assessed through the

coefficient alpha, the estimates for each scale was found to be .70 or greater (DeVellis, 2003). Confirmatory factor analysis was used to measure if a given scale is measuring a single construct rather than an exploratory factor analysis where the scale is using more than one factor (Farbinger, Wegener, MaCallum, & Stranhan, 1999).

Panorama Education's student surveys consisted of responses based on types of schools and student's perception on anxiety in school, pride and culture, risk/protective outcomes, school climate, school engagement, school learning strategies, school rigorous expectations, school safety, school student-teacher relationships and valuing of school.

Dependent Variables

Student Engagement. School engagement data were collected through the SurveyWorks website on RIDE which includes every high school in Rhode Island. RIDE used the Panorama Education student surveys to obtain data on school engagement. This sub-scale included five items on a five point Likert scale answered by the students. The responses from the questions were available in percentages for students that were engaged, which included students who were always engaged and often engaged for all schools. All questions for the student engagement are presented in Table 1 of Appendix B.

Academic Achievement. Academic achievement is another dependent variable for which data were collected from the Infoworks website where accountability information is posted for the academic year 2016-2017. The achievement tests included school level reading proficiency percentage and math proficiency percentage along with the school level attendance rate.

Power

Power calculations for the proposed regression analyses with three predictors (power set at .80, alpha = .05, medium effect size $f^2 = .15$) suggested that a sample size of 77 would be adequate. However since we do not have 77 schools and for $n = 59$, and still assuming a medium effect size of $f\text{-sq} = .15$, power drops to .67.

Data Analysis

Descriptive statistics were run for all variables that were used in this study.

Question 1: *What percentage of enrolled students completed the survey of student engagement across participating schools?*

For this question, the schools were categorized based on student demographics. For example, 59 high schools in Rhode Island were divided in categories of high, low or medium levels of diversity and SES. However, the already established definition of urbanicity by RIDE was used to categorize schools into urban, urban ring and suburban. The variability of student participation rate in the student engagement survey for each level of the demographic variable was examined.

The participation rate was calculated by dividing the total number of high school students **responding** to the surveys (provided by Panorama student survey) with the total number of students **enrolled** in the high school (provided by Infoworks website). Any outlier or missing data was reported and a visual representation of the result has been shown in bar graphs.

Question 2: *To what extent is school engagement heterogenous or homogenous across different high schools in Rhode Island varying in school diversity, Urbanicity and Socioeconomic status?*

Similar to the first question, the schools were again categorized using student demographic information. For example, 59 high schools in Rhode Island were divided in categories of high, low or medium levels of diversity and SES. However, the already established definition of urbanicity by RIDE was used to categorize schools into urban, urban ring and suburban. The variability of student engagement was examined in each of the levels of the independent variable (SES, diversity and urbanicity).

Bar graphs have been used to depict the variability in each of the levels of the independent variable. The bar graph also shows the distribution of the data. An ANOVA was conducted to examine the group differences within each category. In the event that the ANOVA was significant, a post-hoc Tukey test was conducted to determine where the differences lie within the sub-category. The results are also reported in a table format.

Question 3: *To what extent does school engagement vary as a function of student rated pride/culture, value of school and safety?*

Three different Pearson bivariate correlations were conducted between the aspects of school climate (i.e., pride/culture of school, value of school and safety) and the dependent variable (i.e., school engagement). For example, pride/culture was first correlated with student engagement, followed by value of school and engagement and then safety of schools was correlated with engagement. These correlations were

calculated in order to examine the type of association between the aspects of climate and student engagement.

Question 4: *To what extent do climate and school engagement moderate and/or mediate student academic achievement in low socioeconomic schools?*

A path analysis was conducted separately looking at engagement and academic achievement only for schools considered as low SES. However, mediating school climate variables were then added (i.e., pride/culture of school, value of school and safety) to assist in further understanding the relationship between academic achievement and student engagement in low SES high schools with and without the aspects of school climate.

Chapter Three

Results

Introduction

This section begins with a summary of the participating high schools in this study, including information regarding missing data. Then a presentation of the results is provided organized around the project's research questions.

Data Summary

The Rhode Island Department of Education considers 64 schools in Rhode Island to be high schools. Of these 64 high schools 59 of them had complete student data on student engagement, participation and the aspects of schools climate (i.e., pride/culture, safety and value of schools) of interest to the researcher. Therefore, these 59 Rhode Island high schools were used in the analyses and are further explained in the sections below.

Research Questions

Question 1. What percentage of enrolled students completed the survey of student engagement across participating high schools?

This question mainly focuses on the participation rate of students in the student engagement survey administered by the school. This survey is an optional survey for the students to complete.

Before dividing the data into three groups, an overall participation data was examined to see the overall participation rate of the high schools in Rhode Island in the student engagement surveys. The bar graph below depicts the participation rate amongst the high schools in Rhode Island.

Figure 1. Overall participation rate in the student engagement survey

To further examine this question, the data was divided into three categories to examine the rate of student participation across the schools in the school engagement data set. The three categories were urbanicity- referring to school location, SES- referring to average household income of families served by a school, and diversity - referring to the breakdown of a school's student population by race and ethnicity. Student participation rates were examined for each of these categories in the figures below. Furthermore, these three categories were divided into 3 sub-categories. The sub-categories are described below.

Urbanicity

Urbanicity was the first category that was examined for participation. The urbanicity categories were divided into three sub-categories derived by the Rhode Island Department of Education. The categories were urban, urban ring and suburban.

The participation rate within these categories is presented in the bar graphs that follow.

Figure 2. Distribution of student participation rates in student engagement surveys according to Urbanicity.

Of the four rows in the bar graph within each urbanicity category (e.g., urban, urban ring and suburban), the front row of bars represents the lowest rate of student participation while the farthest row in the back of the graph represents the highest rate of student participation in the student engagement survey. For the first sub-category, urban, there were 25 schools in total, two of the schools had 26% to 50% participation rate. The majority of the schools in this category, 14, had between 51% and 75% participation rate and nine of the schools had the highest possible rate of student participation, between 75% and 100%.

The second sub-category, urban ring, consisted of eight high schools. Out of the eight high schools, one of the schools had fewer than 50% participation rate, while five schools had more than 51% participation rate. Finally, two of the urban ring schools had more than 75% participation rate.

The third sub-category, suburban, consisted of 26 high schools. Out of these 26 high schools, one school had a less than 25% participation rate, two schools had a participation rate between 26%-50%, eight schools had more than 51% participation rate. The majority of the schools in this category, 15, had more than 75% participation rate in the school engagement survey.

In summary, examination of student participation rates by urbanicity, or location type, indicates that across all schools student participation was mainly, but not exclusively above 50%. For suburban schools, participation rates were above 75% for the majority of schools in this category. And, for urban and urban ring schools, participation rates for the majority of schools were in the 51%-75% range. For both of these latter categories of schools, the next highest occurring rate of participation found were the above 75% rate.

Socioeconomic Status

Student participation rates were also examined in the context of a second categorization of schools, namely socioeconomic status (SES). Here, SES was determined using free and reduced lunch as a proxy for household income (National Center for Educational Statistics, 2015). For this category, the schools were categorized into three sub-categories, high SES schools had fewer than 25% of students enrolled in free and reduced lunch, medium SES schools had between 26%

to 75% of students enrolled in free and reduced lunch, and low SES schools had more than 75% of their students enrolled in free and reduced lunch. The participation rates for these categories of schools are presented in the bar graph below.

Figure 3. Distribution of student participation rate in student engagement surveys according to school SES.

Of the four rows in the bar graph within the school SES category (e.g., high, medium and low) category, the front row of bars represents the lowest rate of student participation while the farthest back row represents the highest rate of student participation in the student engagement survey. The first sub-category that was examined was, high SES, this category consists of 16 high schools. Of the 16 schools, one school had a less than 25% engagement rate, seven schools had 26% to 50% participation rate and eight schools had more than 75% participation rate in school engagement.

The second sub-category, medium SES, consisted of 28 high schools. Of the 28 schools two schools had between 26% and 50% participation rate, 13 schools had more than 50% but less than 75% and 13 schools had more than 75% participation rate.

The third sub-category, low SES, consisted of 15 schools. Of the 15 schools, one school had between 26% and 50% participation rate. 10 schools in this category had more than 50% participation rate and four schools had more than 75% participation rate.

In summary, the examination of student participation rates by SES type indicates that across all schools student participation was mainly, but not exclusively above 50%. For low SES schools, participation rates were mostly in the 51% to 75% range. And, for medium and high SES, participation rates for the majority of schools were almost equally distributed in both 51% to 75% and 76% to 100% participation rate.

Race/Ethnic Diversity

Next, student participation rates were examined by school diversity, based on information about enrolled students' the race and ethnicity. The schools in this category were divided into three sub-categories- low diversity, medium diversity and high diversity. The Gini index was used to define the schools as high levels diversity to low levels of diversity. This index has been used in the past to measure inequality in a distribution (Gini, 1912). The Gini index has also been revised over the years since its inception and since then has been used in sociology (Blau, 1977), linguistics (Bachi, 1956) and biology (Simpson, 1949).

This index generates the probability of two or more individuals from different sub-groups from a particular population. For example, in a school population of 100 people, if 25% students are Hispanic, 30% students are White, 10% students are Asians and 35% students are African-American, with the help of the Gini index, a single number can be generated for the level of diversity of the school. For this particular school in the example, the Gini index would be, $(1 - .25^2 - .30^2 - .10^2 - .35^2) = 0.715$, indicating high levels of diversity when the number is closer to 1.

Using the Gini index to categorize schools then, three sub-categories of race and diversity were created. The variability of student participation rate in these three sub-categories is shown in Figure 4.

Figure 4. Distribution of student participation rate in student engagement surveys according to diversity.

Of the four rows in the bar graph within the school diversity category (e.g., high, medium and low) category, the front row of bars represents the lowest rate of

student participation while the back row represents the highest rate of student participation in the student engagement survey. The first category, low diversity, consisted of 16 schools. Of the 16 schools, one school had less than 25% participation rate. Six schools had more than 50% but less than 75% participation rate. And, nine schools had more than 75% participation rate.

The second sub-category, medium diversity, consisted of 28 schools. Three schools had more than 25% but less than 50%, 13 schools had between 51% to 74% participation rate and 12 schools had more than 75% participation rate.

The third sub-category, high diversity, consisted of 15 schools. Of the 15 schools, one of them had 26% to 50% participation rate, eight of them had 51% to 75% participation rate and six of them have more than 75% participation rate.

In summary, the examination of student participation in all three categories by diversity type indicates that across all schools student participation was mainly, but not exclusively above 50%. Overall, across all demographic aspects (urbanicity, SES and diversity), majority of the schools have more than 50% participation rate. This indicates that high school students of Rhode Island from different SES levels, diversity and urbanicity are represented in the surveys.

Question 2. To what extent is student engagement, as indicated by student responses on the student engagement surveys, heterogeneous or homogenous across high schools in Rhode Island overall, and by sub-categories of schools based on school diversity, urbanicity and socioeconomic status?

This particular question focuses on the variability of student engagement within different categories such as urbanicity, diversity and socioeconomic status.

Emphasizing the heterogeneity of student engagement within these demographic categories of urbancity, SES and diversity. Participating schools were divided into three sub-categories based on the school's rate of engagement. Schools having a less than 50% student engagement rate were categorized into the low engagement schools, schools that had 50% to 74% of student engagement were categorized into moderately engaged schools and 75% and schools having above 75% student engagement rate were categorized into highly engaged schools.

Before examining the extent of heterogeneous or homogeneous nature of school engagement, the internal consistency (Cronbach's alpha) was calculated for all items relating to school engagement, with strong reliability scored found within School Engagement with High Schools ($\alpha = .96$).

Urbanicity

In the same manner as with question 1, schools were divided into 3 sub-categories of urbanicity: urban, urban ring, and suburban. The first sub-category examined was the urban category; this category consisted of 25 schools. Of the 25 schools 23 of the schools had low levels of engagement while two schools had moderate levels of engagement.

The second sub-category, urban ring, consisted of eight schools. All eight schools in this category had low levels of engagement. The third sub-category, suburban, consists of 26 schools. Of the 26 schools, 25 of the schools had low levels of engagement and only one school had moderate engagement.

In summary, all participating schools had low levels of engagement, below 50%, within each sub-category of school. This indicates a homogenous nature of

engagement within the urbanicity category. A visual description of the distribution of student engagement is shown below.

Figure 5. Distribution of student engagement rate within a urbanicity across different high schools in Rhode Island.

To further examine the relationship between different locations of RI and student engagement, a one-way ANOVA and a post-hoc Tukey test was conducted to see where the difference lies. The analysis of variance (ANOVA) on these engagement scores yielded significant variation among the different locations, $F(2,56)=14.79, p < .05$. A Post hoc Tukey test showed that the urban ring and suburban schools significantly differed from urban schools in engagement at $p < .05$. However, the suburban group did not significantly differ from the urban ring schools in engagement. Table 1. The effect size for this ANOVA was omega-sq (ω^2) = .319

[90% CI = .168, .467]. Table 1 provides an illustration of the results of the ANOVA and Tukey test.

Table 1.

<i>ANOVA Comparisons of Engagement in different Urbanicity</i>					
Group	<i>n</i>	Mean	<i>SD</i>	Tukey's HSD Comparisons	
				Urban	Urban ring
Urban	25	32.52	9.00		
Urban Ring	8	20.00	3.96	<.05	
Suburban	26	21.54	7.70	< .05	.88

In summary, while the bar graph in Figure 5 indicates that most schools have low engagement, further analysis with an ANOVA and the Tukey test indicate that there is a statistically significant difference in student reported school engagement between urban schools ($M=32.52$, $SD=9$) and suburban schools ($M=23.54$, $SD=7.70$). This finding indicates that schools in the suburban area such as Barrington, Coventry, Narragansett were found to have lower levels of student engagement than schools in the urban areas such as Warwick, Providence, Cranston and Woonsocket.

Socioeconomic Status

The next category examined was school level socioeconomic status. As described in the section regarding Question 1, categories within this group were created using Free and Reduced Lunch as a proxy for family household income.

Figure 6. Distribution of student engagement rate within a across different school SES in Rhode Island.

The first sub-category examined, high SES, consists of 16 schools. Of the 16 schools, 15 of the schools had low levels of engagement and only one school had moderate levels of engagement.

The second category examined, medium SES, consisted of 28 schools. Of the 28 schools, 26 schools had low levels of engagement, it ranged between 13% and 49% and only two schools had moderate levels of engagement, between 50% and 74%. The third category, low SES, consists of 15 schools. Of the 15 schools, all schools have low levels of engagement.

To further examine the relationship between different levels of SES and Student Engagement, a one-way ANOVA and a Post Hoc-Tukey test was conducted to examine where the difference lies. The analysis of variance (ANOVA) on these engagement scores yielded significant variation among the different locations, $F(2,56)=4.64, p < .05$. A Post hoc Tukey test showed that the High SES and Medium

SES schools significantly differed from low SES schools in engagement at $p < .05$ level. However, the Medium SES group did not significantly differ from the High SES schools in engagement. The effect size for this ANOVA was omega-sq (ω^2) = .0113 [90% CI = .018, .265]. Table 2. Below provides the results of the ANOVA and Tukey test.

Table. 2

ANOVA Comparison of Engagement in levels of Socio-economic Status

Group	<i>n</i>	Mean	<i>SD</i>	Tukey's HSD Comparisons	
				High SES	Medium SES
High SES	16	23.43	8.82		
Medium SES	28	24.57	10.03	.915	
Low SES	15	32.26	6.69	<.05	<.05

In summary, the data in Table 2 indicate that schools in low SES ($M=32.26$, $SD= 8.82$) have higher student reported engagement in comparison to the high SES ($M=23.43$, $SD= 6.69$) and medium SES ($M=25.57$, $SD= 10.03$) schools. This result indicates that schools with higher levels of enrollment in free and reduced lunch had students reporting more engagement in their schooling than did students in schools with low levels of enrollment in free and reduced lunch programs.

Diversity

School diversity was the third category examined relative to student reported engagement in schooling. This category was subdivided into three sub categories, low, medium and high. The GINI Index was used to make the decision for the

categories, as mentioned in the first question as well. The distribution of student variability is seen in student engagement is presented below.

Figure 7 Distribution of student engagement rate within a level of diversity across different high schools in Rhode Island.

In Figure 7, the first category that was examined is the schools with the low levels of diversity. The low diversity category consists of 16 schools. All of the 16 schools had low levels of engagement.

The second category, medium diversity, consists of 28 schools. Of the 28 schools 26 of them had low levels of engagement and two of them had moderate levels of engagement. The third category, consisted of 15 schools, 14 of them had low levels of engagement, between 13% to 49% and one of them had moderate levels of engagement, between 50% and 74% of student reported engagement in schooling.

To further examine the relationship between different levels of diversity and student engagement, a one-way ANOVA and a Post Hoc-Tukey test was conducted to see where the difference lies. The analysis of variance (ANOVA) on these engagement scores yielded significant variation among the different locations, $F(2,56)=4.23, p < .05$. A Post hoc Tukey test showed that the Low Diversity schools are significantly different from medium and high diversity schools in engagement at $p < .05$ level. However, the High Diversity schools did not significantly differ from the medium diversity schools in engagement. The effect size for this ANOVA was $\omega^2 = .099$ [90% CI = .012, .252]. Table 3. provides data from the ANOVA and Tukey test.

Table 3

ANOVA Comparison of Engagement in levels of Diversity

Group	<i>n</i>	Mean	<i>SD</i>	Tukey's HSD Comparisons	
				Low	High
Low	16	20.31	2.75		
Medium	28	28.32	10.78	<.05	
High	15	27.67	10.15	.07	.97

In summary, these results indicate that schools with medium levels of diversity were found to have the highest level of student engagement ($M=28.32, SD=10.78$). However, though not statistically significant, schools with higher levels of diversity had very similar levels of student reported engagement.

Overall, these results provide evidence that the Urban schools, high SES schools and schools with medium levels of diversity had higher levels of student reported engagement in schooling. However, it is important to note that the mean overall student reported engagement ranges from 20% to 32%. This indicates that

even though there may be differences within the categories of urbanicity, diversity and SES, engagement is mainly homogenous across schools in Rhode Island, with extremely low levels of student reported engagement across participating high schools.

Question 3: *To what extent does school engagement vary as a function of student rated pride/culture, value of school and safety?*

For this particular question, Pearson Bivariate correlations were conducted to examine the varying degrees and association between the three school climate variables (i.e., pride/culture, valuing of school and safety) and the dependent variable student engagement. The questions that RIDE has selected for students to respond to for Pride/Culture category are- *“How proud are you to be a member of your school?”* *“How much is your language respected in your schools”*, *“How much of your language is reflected in your schools”* and *“How much of your culture is respected/reflected in your schools”*.

Pride/Culture and School Engagement

Pearson Bivariate Correlation indicated that there was a positive moderate correlation between Pride/Culture and School engagement, $r = .693$, $p < .001$ with an effect size (r^2) of .481. The positive moderate correlation explains that there are higher rates of school engagement when students feel as though their culture is respected and reflected by their schools. The effect size of .481 means that 48% of the total variance in school engagement is explained by pride and culture of the students.

This finding indicates that pride/culture played an important role in student engagement in school. That is, variables such as pride, respect of language and culture are vital contributors to students' engagement.

Valuing of School and School Engagement

Pearson Bivariate Correlation indicated that there was a positive moderate correlation between valuing of school and school engagement, $r = .962, p < .001$ with an effect size (r^2) of .925. The highly positive correlation indicates that rates of school engagement were highly correlated with student reported feelings of valuing education and their schools. The correlation is so high that this result suggests that valuing of school and school engagement might potentially are just differing ways of measuring the same concept. The effect size 92.5% indicates school engagement can be explained through students' values in school.

The questions that RIDE has selected for students to respond to for Valuing of Schools category are- *"How interesting do you find the things you learn in school"*, *"How useful do you think the classes are for your future"*, *"How much do you see yourself as someone who appreciates the school"* etc.

The effect size is very large in this independent variable, this means that students who believe their classes are useful for their futures and those (students) who appreciate school are more likely to be engaged in schooling/classes.

Safety and Student Engagement

Pearson Bivariate Correlation indicated that there was a positive low correlation between student reported safety of the school and student engagement, $r = .399, p < .001$ with an effect size (r^2) of .159. The positive low correlation explains

that there is an association between safety and school engagement; however, it is not as strong as value of school or pride/culture. The effect size means that 16% of the total variance in school engagement is explained by how safe the students feel in the school.

The questions that RIDE has selected for students to respond to for Safety category are- *“How proud are you of your School”*, *“how often are students bullied in school”*, *“How often do you worry about violence in your school”* etc.

This correlation tells us, somewhat counter intuitively, that students do not need to feel safe, emotionally or physically, to be engaged in school. Since only 16% of engagement is explained by student feelings of safety in school. In conclusion, this result shows that the effect is, while by no means large, is also not trivial.

Overall, this question shows that the most important aspect of climate for student engagement is students' valuing their schools. This is followed in magnitude of importance by students' feeling their culture is respected in the school and lastly, physical and emotional safety playing a role but not as much as pride/culture and value of schools.

Question 4: *To what extent do climate and school engagement moderate and/or mediate student academic achievement in low socioeconomic schools?*

The adequacy of the hypothesized model was evaluated by examining several fit indices: the root mean square error of approximation (RMSEA; Steiger, 1990) and, the comparative fit index (CFI; Bentler, 1990) and the R-square. The RMSEA assesses the closeness of fit with preferred values < 0.05 , and values between .05-.08 considered a moderate fit, and values between 0.08 - 0.10 an adequate fit (Browne &

Cudeck, 1993). The CFI, an incremental fit index, suggested rule of thumb for determining goodness of fit is a CFI value > 0.95 (Hu & Bentler, 1999). The goodness of fit model was assessed for the first model (Figure 7) and the full model (Figure 11). The models are also highly sensitive to the sample size.

For this question, a path analysis was conducted on SPSS-AMOS to examine the effect of the aspect of school climate in academic achievement in low SES schools only. Since this question only has 15 schools included, the goodness of fit is not the best with CFI = .351, RMSEA = 0.541 90% CI [0.348-0.713], R-Sq = .121. Figure 8 (below) shows the direct relationship between school engagement and academic achievement before adding the latent variables into the model in low SES schools.

For each of the moderating variables, a path analysis was conducted separately to see the effect it had on the direct pathway. The first variable that was examined as a moderator was valuing of school in low SES schools. The pathway is shown in Figure 9 (below), which shows the effect that valuing of school has on school engagement and academic achievement. This pathway analysis shows that when valuing of school is added into the relationship between School Engagement

and Academic Engagement, the direct relationship has a slight negative impact where $r = -.017$. The direct path now is not significant, whereas it was in the base model shown in figure 7. This is what is predicted if a mediating variable actually does serve as the mediator. Its addition to the model should reduce the path from significant to non-significant.

The second moderating variable that was examined was the pride/culture of school. The pathway is depicted in Figure 10, which shows the effect that Valuing of school has on school engagement and academic achievement. This pathway analysis shows that when pride/culture is added into the relationship between school engagement and academic engagement, the direct relationship has almost no impact on the relationship, $r = .040$.

The third moderating variable that was examined was the Safety in schools. The pathway is diagrammed in Figure 11, which shows the effect that Safety has on school engagement and academic achievement. This pathway analysis shows that when pride/culture is added into the relationship between school engagement and academic engagement, the direct relationship has a small but positive impact on the relationship, $r = .351$. In this model, the direct relationship is almost the same as the baseline (Figure 8). Thus, Safety does not appear to serve as a mediator to the same extent as Pride/Culture and Valuing of School.

However, when all three moderating variables are combined, the model shows that the relationship between engagement and achievement only strengthens when all three variables are put into the model at the same time. However, an increase in the joint model should not occur and this potentially occurred here due to the “over fitting” of the model-which occurs when there is a very small sample size in comparison to model parameters. Therefore, the last model might not be trustworthy due to extremely low sample sizes. The goodness of fit is not adequate in the full model with CFI = 0.592, RMSEA = 0.68 90% CI [0.419-0.923], R-Sq = .441.

However, another path analysis with the mediation was conducted without the direct path between student engagement and academic engagement, which is called the mediated model, and it showed to have a better fit comparing it to the full

pathway analysis. The goodness of fit was comparatively more adequate than the previous direct path model (Figure 12) which is not adequate in the full model with $CFI = 0.981$, $RMSEA = 0.259$ 90% CI [0.00-0.78], $R-Sq = .359$.

SPSS and AMOS (SPSS statistics, 2015) software was used to conduct the path analysis. The path analysis indicates that aspects of climate variables better predict engagement when they are all present in the model, as the relationship between engagement and academic achievement strengthens. This last analysis in Figure 11 indicates that the mediating variables are inter-related with each other and better predicts achievement and student engagement as compared to each aspect of climate independently.

Chapter 4

Discussion

Introduction

This section includes a discussion of the findings of the present study in relation to its research questions and hypotheses. This information is followed by how previous research findings relate to the current work. Then, implications for policy makers and educators will be discussed. Lastly, this section will conclude with limitations and future directions.

Purpose of the study

As mentioned in the first chapter, the primary purpose of the current study was to examine if patterns of school engagement vary within a subset of schools differing in 1.) Levels of diversity, SES, Urbanicity and 2.) In aspects of school climate such as pride/culture, valuing of schools and school safety. In addition, the third and the fourth questions examined associations between engagement and aspects of climate and the relationship between student engagement and achievement explained by the three mediating variables of school climate in low SES schools.

Research question 1. The first question examined the participation rates of high school students in school engagement surveys across all high schools in Rhode Island. The majority of participating Rhode Island High Schools were found to have student participation rates of 50% or higher on the student engagement surveys across differing urbanicity, diversity and SES categories. The data examined for this study, thus can be considered representative of the participating schools.

The data examined here suggest that from every level of urbanicity, diversity and SES, the majority of high school students in Rhode Island completed the student

engagement survey. Out of 59 schools in Rhode Island, 54 of them had more than 50% participation rate across all categories of urbanicity, SES and diversity. This finding indicates that the participation rate is not skewed towards one type of urbanicity, or levels of diversity or levels of SES. The data used for the study reflects all levels of diversity, SES and urbanicity. The findings support the hypothesis that school participation would be high in all high schools.

Previous research on school climate and school engagement has used a mixture of reporting styles on student participation rate or school participation rate on surveys. For example, the studies that report on student participation in surveys have calculated the participation rate by dividing the number of responses by the total number of students (Jia, Konald, & Cornell, 2015). Alternatively, studies examining school participation have divided the number of schools that responded with total number of schools (Gottfredson, Gottfredson, Payne, & Gottfredson, 2005). However, other studies would only report on the number of students or school they were able to recruit during their time of study.(Reinhert & Espelage, 2015; Spaulding, Irvin, Horner, May, Emeldi, Tobin, & Sugai, 2010).

Research Question 2. This question examined the variability of student engagement rate across all high schools in Rhode Island. The majority of participating Rhode Island High Schools were found to have student engagement rates of 50% or lower on the student engagement surveys across differing urbanicity, SES, and diversity categories. The data examined for the study suggests that student engagement is low across all participating schools in Rhode Island.

Out of 59 schools in Rhode Island, 56 schools had student engagement rates summarized as between 13% and 49%. This finding indicates that the schools are heavily clustered into one group, that is the low engagement group, across all high schools in Rhode Island. This finding does not support the hypothesis made in chapter one that student engagement is predicted to be heterogeneous across different high schools in Rhode Island varying by school diversity, urbanicity and socioeconomic status.

Previous research has widely examined the relationship between SES, urban schools and student engagement (Dalton, Elias & Wandersman, 2007; Kozol, 2005; Wilson, 1996). The results from previous findings have shown that children who are attending schools in urban, low SES schools are likely to experience unpredictable curricula, too few teachers that expect students to do well in class and inadequate resources (Kozol, 2005; Wilson, 1996). However, findings from the current study suggest that in Rhode Island, regardless of the level of SES, diversity or urbanicity, majority of the schools have low levels of engagement.

Data available for the present study did not allow for examination of the potential reasons behind the general finding of students having low levels of engagement across participating schools. Therefore, recommendations for increasing student rates of engagement must necessarily be generic to start. One way to increase student engagement is for schools to get parents more involved in schools and education. This is because previous research suggests that when parents and teachers have better relationships, it leads to higher school satisfaction among students, which eventually leads to better school outcomes (Hill & Taylor, 2004). Another way that

Rhode Island high schools could increase engagement is by emphasizing in teacher training programs, how to develop and communicate high expectations for students. For example, a study of a high achieving school in South Carolina comprised of mostly low SES students suggested that students performed better when the teachers had high expectations for all students (Brown & Medley, 2007).

Another recommendation for Rhode Island high schools is to work toward increasing the diversity of teachers in the state, such that teacher and student demographics would be more closely aligned. Studies suggest that when there are teachers speaking the same language as the students or appear similar to the students, the students are able to form better connections which lead to positive student outcomes (Egalite, Kisida & Winters, 2015).

Research question 3. This question examined the associations between reported aspects of school climate (i.e., valuing of school, pride/culture and safety) and student engagement. Of the three variables mentioned above, valuing of school had the highest correlation with student engagement followed by pride/culture and then safety. The data examined in this question suggests that when students value the school and if the students report the school has high levels of pride and culture, the students are more likely to be engaged. The findings align with the stated hypothesis that student engagement is predicted to highly vary as a function of student rated pride/culture, value of school and safety.

The results from this section indicate that the aspects of school climate, valuing of school, pride/culture and safety are positively associated with student engagement. That is, when students value their school, this valuing seems to positively

influential school engagement. Here, valuing is represented by the students' feelings' of having their culture represented in school and the students' feelings of safety. This result aligns with previous research on school climate that indicates connectedness, belonging and feeling appreciated in school is one of the most powerful predictors of school success (McNeely, Nonnemaker, & Blum, 2002; Whitlock, 2006; Ruus et al., 2007).

Research Question 4. This question examined the relationship between student engagement and academic achievement with mediating variables such as pride/culture, valuing of school and safety among low SES schools. The results indicate that the relationship between student engagement and academic achievement becomes strongest when all three aspects of climate are included in the prediction model. This finding supports the hypothesis that school engagement and academic achievement have the strongest relationship when all aspects of climate- pride/value, valuing of school and safety, are combined and examined together in low SES schools.

These findings suggest it is important to look at school climate globally, a recommendation consistent with previous research indicating climate as a variable that includes aspects of safety, culture, relationships and resources. A more recent study also detailed the importance of studying all aspects of climate such as relationships in schools, parent-school ties, connectedness in schools and instructional guidance in ways that support positive student outcomes and for large-scale school evaluations (Bryk & Schneider, 2002). One review of school climate assessment measures suggests that school climate is a multidimensional concept that includes many different domains such as school safety, school discipline, connectedness,

social relationships, academic outcomes and school facilities (Zullig, Koopman, Patton, & Ubbes, 2010). Taken together, these domains of climate better predict school outcomes and indicates that looking at school climate globally will let us evaluate the health of the school on a macro-level.

However, it seems reasonable to suggest that for individual schools there needs to be more research conducted on the value of efforts to improve each aspect of climate individually toward increasing students' school engagement. For example, an intervention study completed at a high poverty urban school showed that students did better academically, socially and behaviourally post-intervention as compared with pre-intervention when the intervention focused mainly on improving teacher student relationships (Murray & Malmgren, 2005). In summary, future work should continue to examine school climate globally to understand its contributions to student engagement and success, as well as continue to examine sub-components of school climate for understanding manipulable influences on student engagement at a smaller scale (i.e., individual school).

Limitations

Although this research has reached its aims, this section discusses some of the unavoidable limitations of the current study. First, because of the nature of the secondary data used, the current research study did not have access to individual student level data. Of most importance in this regard is that the study did not have the opportunity to examine relationships between engagement and academic achievement for individual students. Rather, the unit of analysis was the school, therefore, a direct relationship between engagement, aspects of climate and achievement could not be

examined in an individual level. Future work would benefit from the collection of primary specific data to examine variables at a direct individual student level. This would allow the development of more insight on the relationships between student engagement, school climate and academic achievement. Such work will help us better understand the relationships between the variables and could lead to effective change strategies to improve school outcomes.

Second, the current study was only able to examine school engagement and school climate from the students' perspectives. As defined earlier in chapter one, parents, staff, and teachers are all contributors to a student's positive school outcome. Thus, not being able to examine data on school climate and school engagement from parents, teachers, and important others necessarily limits our overall understanding of the variables of interest. In addition, there was no opportunity to follow-up with students on queries that originated from the current study.

Third, the data used in the study were generated by a survey whose questions were developed and administered at the state-level. The resulting data can be summarized and understood at both a state level, and a school by school level. However, this "top down" process prevents the development and use of questions and target areas that are school specific, and/or generated by students and staff of a specific school (i.e., a bottom up process). That is, each school might have different needs that should be examined first to better understand and improve the particular school needs, issues, and perspectives on climate, engagement, and achievement. Future work should consider how best to combine top-down and bottom-up

approaches, including the use of alternative assessment methods and strategies, to better contribute to school improvement efforts regarding the variables of concern.

Implications of the results and future direction

Measurement

The purpose of the current study was to assess student engagement; school climate and academic engagement to better understand how these variables relate to each other and contribute to positive school outcomes. According to Salvia and Yssleddyke (2004), school-based assessments can be used to make several types of decisions. Two of these are using data for program planning purposes and for program evaluation purposes. For example, in the area of program planning information from the current study suggests student engagement is uniformly low across Rhode Island high schools. These data could be used to help teachers understand, discuss, and strengthen the non-academic factors (i.e., encouragement in class, positive relationships in school with peers, classroom management, value of their work and their culture) that influence positive school outcomes.

The second type of decision, program evaluation, can be seen here as an approach where we examine the school as a unit and emphasize whether or not the school is meeting its goals for student engagement. The current data set can help the schools to set goals and monitor school progress through repeated administration of student surveys, and surveys of others. This approach, for example, could support different strategies within a school, and/or comparing results across schools to determine if certain teaching practices or curriculums are more effective than others.

Collaboration

According to the National Association of School Psychologists (NASP) Practice Model best practices at both a system level and a student level include databased decision-making and collaboration to enhance student/school outcomes (National Association of School Psychologists, 2010). According to the model, the practice of using data to make decisions and collaboration will better inform programs and interventions created to support students' success. By doing so tailored interventions will be provided to the students to improve their performance.

In addition to tailored intervention strategies, collaboration with empirical findings and key informants will facilitate the design and delivery of the curriculum and provide strategies that promote positive school outcomes. On the other hand, for a systems level development, when data based decision making is combined with consultation and collaboration with teachers, staff and family there will be more understanding of the factors that influence learning and behavior outcomes for students, both within classroom as well as outside classrooms. Such collaborative understandings are likely to lead to positive school outcomes.

Action

The current study was more of a descriptive and exploratory study to learn more deeply about school engagement, school climate and academic achievement in high schools in Rhode Island. After examining this data, the findings should help generate more prospective studies to further demonstrate and understand how school climate, engagement and academic achievement are related. Further research should

examine when and how to intervene with aspects of student engagement and school climate.

Conclusion

The findings of this study suggest there are high levels of student participation from most of the schools in the school climate survey responding to questions of student engagement. In contrast, the school engagement surveys, regardless of urbanicity, diversity and SES, showed low levels of reported student engagement across all participating schools in Rhode Island. The results also indicate that school climate plays a critical part in student engagement and academic achievement. Examination and discussion of these results suggest the information collected yields a variety of opportunities for further decision-making, opportunities for collaboration and opportunities to take further action in order to improve the student outcomes and school level outcomes.

Appendix A Figure 1. *Concept map of project proposal*

Appendix B

Table 1 *Operationalization of School Climate, Student Engagement and Academic*

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*School Climate

Variables:

1.) Pride/Culture	1.) How proud are you to be a member of your school? 2.) How much of your language is respected in your learning environment? 3.) How much of your language is reflected in your learning environment? 4.) How much is your culture respected in your learning environment? 5.) How much of your culture is respected in your learning environment?
2.) Safety:	1.) How often are people disrespectful to others at your school? 2.) If a student is bullied in school, how difficult is it for him or her to get help from an adult? 3.) How likely is it that someone from your school will bully you online? 4.) How often do you worry about violence at your school? 5.) At your school, how unfairly do the adults treat the students? 6.) How often do students get into physical fights at your school?
3.) Valuing of school:	1.) How interesting do you find the things you learn in your classes? 2.) How useful do you think school will be to you in the future? 3.) How important is it to you to do well in your classes? 4.) How much do you see yourself as someone who appreciates school? 5.) How often do you use ideas from school in your daily life?
-

*Student Engagement Questions:

- 1.) How excited are you about going to your classes?
  - 2.) In your classes, how eager are you to participate?
  - 3.) How often do you get so focused on classes that you lose your sense of time?
  - 4.) When you are not in school, how often do you think about ideas from your school?
  - 5.) Overall, how interested are you in your classes?
-

**Academic Achievement

Proficiency Percentage of the school in English Language Arts and Mathematics.

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*Note: Table produced using information from Rhode Island Department of Education's SurveyWorks website(<https://secure.panoramaed.com/ride/understand>) **Academic Achievement data is from Rhode Island Dept. of Education's Accountability data

Appendix C

Figure 12. Student engagement before adding student who self-reported themselves as “somewhat engaged”

Figure 13. Student engagement after adding student who self-reported themselves as “somewhat engaged”

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