

IMPACT OF RACIAL, ETHNIC, AND SOCIOECONOMIC DIVERSITY:  
STUDENT PERCEPTIONS OF EDUCATIONAL OUTCOMES IN A  
NORTHERN VIRGINIA PUBLIC SCHOOL SYSTEM

A Dissertation

Presented to

The Faculty of the School of Education

Liberty University

In Partial Fulfillment

of the Requirements for the Degree of

Doctor of Education

by

Joseph F. Fontanella, Jr.

February 19, 2008

Impact of Racial, Ethnic, and Socioeconomic Diversity:  
Student Perceptions of Educational Outcomes in a  
Northern Virginia Public School System  
by  
Joseph F. Fontanella, Jr.

APPROVED:

COMMITTEE CHAIR

Michelle B. Goodwin, Ed.D.

COMMITTEE MEMBERS

Ellen Lowrie Black, Ed.D.

Barbara Boothe, Ed.D.

CHAIR, GRADUATE STUDIES

Scott B. Watson, Ph.D.

## ABSTRACT

Joseph F. Fontanella, Jr. IMPACT OF RACIAL, ETHNIC, AND SOCIOECONOMIC DIVERSITY: STUDENT PERCEPTIONS OF EDUCATIONAL OUTCOMES IN A NORTHERN VIRGINIA PUBLIC SCHOOL SYSTEM. (Under the direction of Dr. Michelle Goodwin) School of Education, February 2008.

This study examined the relationship between diverse learning environments and students' perceptions of their educational experiences within a large Northern Virginia public school system via quantitative, nonexperimental, survey methods. Five areas reflecting frequently established goals of education were explored: student diversity; curricular diversity; student learning and peer interaction, to include development of critical thinking skills; future educational aspirations; and goals and perceptions of support by the school. Subjects were 11<sup>th</sup>-grade high school students from across a selection of the 10 high schools in the subject school division. Data was derived from the Diversity Assessment Questionnaire (DAQ), an instrument that asked students to rate the value of racial and ethnic diversity experienced in different areas and included questions for students about their classrooms, future goals, educational aspirations, attitudes, and interests. Survey response data was compiled and disaggregated by racial and ethnic groups and by school diversity indices. Analysis of the general benefits of a diverse student body was accomplished by presenting direct responses to the DAQ. Descriptive statistics, specifically median scores and percentages, were used to illustrate and interpret the results. A composite variable was created from questions representing students'

aspirations for higher education, then used as an outcome in several linear regression models designed to complement the disaggregated individual survey question results. The study found that there are high levels of diversity in schools and classrooms in the subject public school system, as well in the curriculum and social exchanges; that higher levels of diversity in the curriculum are related to increased student understanding of points of view different from their own; that students that are placed in settings of higher diversity are more comfortable with members of different racial/ethnic groups and, therefore, more willing to operate in diverse classroom environments; that students that attend more diverse schools expressed a greater desire to live and work in multiracial settings compared to their more segregated peers; that perceived educational goals and aspirations are similar across ethnic, racial, and socioeconomic groups; and that there are high levels of equality between racial/ethnic and socioeconomic groups in perceived educational opportunities for students. Students from all backgrounds reported benefiting from the diversity of their schools, with strong uniformity in response by all groups.

## ACKNOWLEDGEMENTS

First, foremost, and above all, I am most thankful for the guiding hand of the Lord in my life. The many blessings that I have received in my life, especially during my experiences at Liberty, are the results of his grace and love. With that in mind, I must acknowledge a number of special people who walked with, and sometimes carried, me on this journey.

I wish to recognize Mrs. Ronda Heerspink, who truly is the linchpin on the axle of the Department of Graduate Education, for her patience, support, and encouragement. So many students, especially me, owe so much to this special person. I would also like to recognize Dr. Karen Parker, Dr. Scott Watson, and the late Dr. Rebecca Carwile for their mentorship and guidance throughout my doctoral studies; they have done an incredible job in growing Graduate Education and with true servants' hearts. I also wish to recognize and thank the entire Liberty faculty with whom I have worked and studied—they all helped me to grow in my Christian walk and to gain an understanding of the importance of education from a Christian worldview.

Liberty University and Graduate Education also deserve recognition for their support to our military. I was an active-duty Army officer when I began this program, and Liberty provided opportunities for me that I would not have found anywhere else. This support, when combined with my GI bill benefits, made this program affordable. I am also indebted to Dr. Carwile and Dr. John Pantana, who helped ease my burden with

respect to course completion, enrollment, and program timeline when I was deployed to Operation Iraqi Freedom on extremely short notice.

I owe a very special thanks to the members of my dissertation committee. I am truly indebted to Dr. Michelle Goodwin for guiding me through the dissertation process and for her mentorship and to Dr. Ellen Lowrie Black and Dr. Barbara Boothe for their guiding wisdom, insights, and constructive comments. I would also like to extend thanks to Ms. Rosalinde Bethard for her careful editing of the manuscript.

I could not have completed this dissertation without the assistance and cooperation of Prince William County Public Schools. I am grateful to its administrators, faculty, students, and parents for opening their doors to me, for not only allowing me to conduct my research, but for serving as voluntary participants as well. I wish to extend a personal thanks to Dr. Jennifer Cassata, Supervisor of Program Evaluation at Prince William County Public Schools, for coaching and leading me through the process to gain approval to conduct research within the school division, for coordinating with the subject schools, and for supporting the distribution of the research instrument.

A special thanks and debt is owed to Dr. Gary Orfield, Professor of Education and Social Policy and the Director of the Civil Rights Project at Harvard University, as well as the following alumni of the Civil Rights Project: Dr. Michal Kurleander, now at the University of California at Davis, Dr. John Yun of the University of California at Santa Barbara, and Dr. James Kim of the University of California at Irvine. They provided the groundwork that served as the foundation of this study, gave me easy access to

unpublished materials, and allowed me to use the Diversity Assessment Questionnaire as the primary instrument in my research.

I wish to recognize Larry and Eileen Kugler for contributing their combined experience as educational leaders and champions for diverse schools. I am truly thankful to them for allowing me to benefit from their collective experience and for helping me develop the research topic.

My church family at the First Baptist Church of Springfield, Virginia, has also been a constant source of prayer, encouragement, and wisdom during this effort. I wish to specifically acknowledge the support of the Reverend Hammond Coates and my brothers and sisters in Christ, who offered their prayers and assistance as I progressed through my doctoral studies.

The deepest and most loving thanks go to my family, who have always supported and inspired me. I am especially grateful for the support and prayers of my father and mother, Joe and Shirley Fontanella, and my mother and father in-law, Mary and the late Marshall Mabry. All of my parents provided loving examples of Christian values, moral character, and a work ethic and ambition motivated not by personal gain, but by the joy of giving glory to God. I will always be grateful for their love and encouragement.

Finally, the people to whom I owe the greatest thanks are my wife, Sharon, and daughters, Anne and Natalie. I am extremely appreciative of their love, support, encouragement, and, most of all, their patience during this journey. My children are God's greatest gift to me and are my most precious treasure. Lastly, I wish to thank my

loving wife, who inspires me each and every day with her servant's heart. I love her more and more each day.



## TABLE OF CONTENTS

	Page
ABSTRACT .....	iii
ACKNOWLEDGEMENTS.....	v
LIST OF TABLES.....	xii
LIST OF FIGURES .....	xv
CHAPTER	
1 INTRODUCTION .....	1
Background of the Study .....	1
Statement of the Problem.....	3
Purpose of the Study .....	3
Statement of the Hypotheses.....	5
Operational Definitions of Variables and Key Terms .....	9
2 REVIEW OF THE LITERATURE .....	12
Overview .....	12
Segregation, Resegregation, and Demographic Changes in U.S. Public Schools .....	12
Benefits of School Integration and Diverse Learning Environments .....	19
3 METHODOLOGY .....	31
Overview.....	31
Survey Site .....	31

Qualifications of the Researcher .....	40
Subjects .....	41
Instruments.....	42
Procedures .....	45
Approval Processes .....	45
Determining Groups and Proportional Sample Sizes .....	46
Controlling Confounding Variables.....	53
Administering the Instrument .....	54
Data Processing and Analysis.....	56
Data Organization .....	56
Overview of Analytical Methods.....	58
Known Limitations of the Methodology.....	60
4 RESULTS OF THE STUDY .....	63
Overview.....	63
Statistical Procedures .....	63
The Student Sample .....	63
Nonresponse and Responder Bias.....	68
Measures of Reliability.....	68
Variable Descriptions and Their Relationship to the Survey	
Instrument .....	69
Statistical Procedures to Address the Research Questions .....	72

Research Question 1 .....	72
Research Question 2 .....	80
Research Question 3 .....	89
Research Question 4 .....	105
Research Question 5 .....	113
5 SIGNIFICANCE OF THE STUDY AND CONCLUSIONS .....	129
Summary and Conclusions .....	129
Implications for Research .....	133
Limitations of the Study.....	133
Topics for Future Research .....	134
Implications for Practice .....	138
Applications and Recommendations.....	139
REFERENCES .....	142
APPENDIXES	
A DIVERSITY ASSESSMENT QUESTIONNAIRE (DAQ) .....	154
B DIVERSITY ASSESSMENT QUESTIONNAIRE ANSWER SHEET .....	162
C PARENTAL CONSENT FORM.....	164
D INSTRUCTIONS FOR COMPLETING THE DIVERSITY ASSESSMENT QUESTIONNAIRE (DAQ) .....	166
E TABLES AND POSTTABULATIONS .....	167

## LIST OF TABLES

1	Racial/Ethnic Membership in Prince William County Public Schools at 5-Year Intervals from 1995-2006 .....	38
2	Membership in Prince William County Public Schools by Race, Ethnicity, Economic Disadvantaged, and Enrollment in English for Speakers of Other Languages Programs.....	49
3	Prince William County Public High Schools' Racial/Ethnic Diversity and Socioeconomic Rankings .....	50
4	Groups Stratified by Racial/Ethnic Diversity and Socioeconomic Status, Identifying Proportion of Target Population to be Sampled.....	53
5	Racial and Ethnic Composition of the Population .....	64
6	Racial and Ethnic Composition of the Sample as Presented in this Study ....	65
7	Subjects Receiving and Returning Surveys by Race/Ethnicity and Diversity/Socioeconomic Group.....	65
8	Languages Spoken at Home by Diversity/Socioeconomic Group.....	66
9	Language Fluency by Diversity/Socioeconomic Group.....	67
10	Parental Educational Attainment (PARATTAIN) by Racial/Ethnic Group (Father/Mother).....	67
11	Parental Educational Attainment (PARATTAIN) by Diversity/Socioeconomic Group (Father/Mother).....	67
12	Description of Outcome Variable in the Analysis of Diversity Effects.....	69
13	Description of Predictor Variables in the Analysis of Diversity Effects .....	70
14	Student Reports of School Racial Composition by Racial/Ethnic Group.....	75
15	Student Reports of School Racial Composition by Diversity/Socioeconomic Group .....	75
16	Perceptions of Student Diversity (STUDIV) by Racial/Ethnic Group .....	78

17	Perceptions of Student Diversity (STUDIV) by Diversity/ Socioeconomic Group.....	79
18	Perceptions of Curricular Diversity (CURRDIV) by Racial/Ethnic Group...	86
19	Perceptions of Curricular Diversity (CURRDIV) by Diversity/ Socioeconomic Group.....	87
20	Correlation Between Perceptions of Student Diversity (STUDIV) and Curricular Diversity (CURRDIV); First-Order Partial Correlation by Component Variable .....	88
21	Perceptions of Classroom Peer Interaction (CLPEERINT) by Racial/Ethnic Group.....	97
22	Perceptions of Classroom Peer Interaction (CLPEERINT) by Diversity/ Socioeconomic Group.....	99
23	Attitudes About Working in a Multiracial or Multiethnic Setting (PEERINT) by Racial/Ethnic Group .....	101
24	Attitudes About Working in a Multiracial or Multiethnic Setting (PEERINT) by Diversity/Socioeconomic Group .....	103
25	Higher Educational Aspirations (HIEDUCASP) as Reported by Racial/Ethnic Group.....	109
26	Higher Educational Aspirations (HIEDUCASP) as Reported by Diversity/ Socioeconomic Group.....	111
27	Perceptions of Teacher Support of Higher Educational Aspirations and Goals (INTSUP1) by Racial/Ethnic Group .....	122
28	Perceptions of Counselor and Staff Support of Higher Educational Aspirations and Goals (INTSUP2) by Racial/Ethnic Group .....	123
29	Perceptions of Teacher Support of Higher Educational Aspirations and Goals (INTSUP3) by Diversity/Socioeconomic Group .....	124

30	Perceptions of Counselor and Staff Support of Higher Educational Aspirations and Goals (INTSUP4) by Diversity/Socioeconomic Group .....	125
31	Results From Regression Models of Higher Educational Aspirations and Goals (HIEDUCASP) .....	126

## LIST OF FIGURES

1. Location of Prince William County within the Commonwealth of Virginia.	32
2. Prince William County Public Schools high school boundaries .....	35
3. 1999 median household income by 2000 census tracts .....	37
4. Scatterplot illustrating relationship between racial/ethnic diversity and socioeconomic status .....	52

## CHAPTER 1: INTRODUCTION

### Background of the Study

The motto on the great seal of the United States is “*E Pluribus Unum*”—out of many, one. This motto has served as a reminder of America’s daring attempt to make one unified nation of people from many different backgrounds, the challenge of which continues to shape the nation’s history and character. Diversity refers to the variety created in society by the presence of different races, ethnic backgrounds and cultures, as well as differences that emerge from class, age, and ability, with the expectation that each of these concepts, in relation to each other, enriches the meaning and value of the other (Schneider et al., 1995). The effectiveness of democracy is dependent on the most complete possible engagement of all talents and perspectives within a society; embracing diversity in American schools today is not just about righting the wrongs of segregation, it is about preserving the strength of democracy, sustaining the nation’s prosperity, providing for its security and protecting its national interests.

America’s future depends upon the ability of its schools to educate and engage all its children. But the nation’s public schools are changing, leading the way in the impending transformation of American society poised to occur in the next generation. According to the U.S. Census Bureau, the nation’s Hispanic and Asian populations will triple over the next half century and non-Hispanic Whites will represent only about one half of the total population by 2050, compared with 69.4% in 2000 and almost 80% in 1980; by 2050, Hispanics will represent 24.4% of the population as compared to 6% in



2000, Asians will make up 8% and Blacks will represent 14.6% of the United States' overall population (Metropolitan Center for Urban Education, 2004). The changes are the result of a number of factors, to include a surge in non-European immigration, much larger families among Hispanic and Asian populations, and a low birth rate among native Whites (Orfield & Yun, 1999). The changing ethnic and racial composition of public schools in the United States presents a situation of increasing complexity to those in positions of educational leadership.

Exacerbating this complexity is continued racial, ethnic, linguistic, socioeconomic, and physical separation and a trend towards resegregation, perhaps most profound in those regions of the country previously experiencing the highest levels of public school integration. Minority status and low socioeconomic status are closely linked, and schools with high concentrations of disadvantaged students trend towards lower school test score averages, fewer advanced courses, fewer credentialed and experienced teachers, inferior courses and levels of competition, and fewer graduates that pursue goals of higher education (Boger, 2005; Orfield & Lee, 2005; Natriello, McDill, & Palls, 1990; Rothstein, 2004; Schellenberg, 1999). The consequences of attending unequal schools is profound in an era of rising college admissions standards, implementation of mandatory standardized testing, reduction in resources for remediation, and elimination of affirmative action (Civil Rights Project, 1999). As a result, educators, researchers, policymakers, and the public will likely need to address the various issues of educational disparities between ethnic and racial groups, the difficulty in characterizing schools when there are multiple racial and ethnic groups present; and

the likely differing interactions between school composition and policies for students of different racial and ethnic backgrounds (Kurlaender & Yun, 2004).

#### Statement of the Problem

There is little evidence of the educational benefits of diverse learning environments for all students. Determining the educational benefits of diversity for all students is important in order to offer evidence to citizens, teachers, students, and educational leaders and policymakers that enable them to uphold and support the consideration of race, ethnicity, and socioeconomic status in decision making. This problem is especially significant, given recent trends in the nation's courts, which are limiting districts' ability to pursue ethnic and race-conscious policies to integrate schools. Moreover, research aimed at measuring the impact of schools' diversity is also important in that it enables schools and districts the ability to continue to develop and refine diversity initiatives aimed at improving the success of all students.

#### Purpose of the Study

The purpose of this study was to examine the relationship between diverse learning environments and students' perceptions of their educational experiences. Diversity as defined in this study extends to racial, ethnic, cultural, and socioeconomic attributes and not to other factors of diversity, such as disabilities, giftedness, communication style, physical appearance, religion, learning style, speed of learning, comprehension, and so forth.

This research addressed the problem by investigating the impact of ethnically, racially, and socioeconomically diverse schools on students; it specifically examined how diverse public high school learning environments in Prince William County, Virginia,

affect students' perceptions of their educational experience. Specific research questions formulated to address and inform this larger issue included the following:

1. Do students perceive classes in Prince William County high schools to be diverse?
2. Do students perceive lessons in Prince William County high school classrooms to be diverse?
3. Do students perceive diverse settings to be positively related to more comfortable exchanges among students?
4. Are perceived educational goals and aspirations similar across ethnic, racial, and socioeconomic groups?
5. Are perceptions of institutional support towards pursuit of higher education similar across ethnic, racial, and socioeconomic groups?

As anticipated, the varied racial, ethnic, and socioeconomic composition of Prince William County schools provided insights into the relationships of these variables.

The problem was addressed via quantitative, nonexperimental survey methods. Five areas were explored: (a) student diversity, (b) curricular diversity, (c) peer interaction, (d) future educational aspirations and goals, and (e) perceptions of support by the school. These areas were selected as they reflect frequently established goals of education—goals that focus on building essential skills that students need to achieve academic and professional success and to become responsible citizens. It is expected that the findings of this study will contribute to the body of organized knowledge in education; it is important for educators to continue to mark the progress of desegregation policies and examine how their presence or absence affects the educational experience for

all students, especially in view of the changing ethnic and racial composition in the United States and a trend towards resegregation of the nation's schools. Arguments on either side of this controversial issue continue to be based on political, moral, and ideological notions. However, despite the preponderance of literature on the positive effects of integrated educational experiences on Black students, there remains very little empirical research in the K-12 literature that directly links diversity and positive educational outcomes for all students.

As such, this study first looked at the literature describing the nation's state of public school integration as well as results from research focused on the benefits of diverse educational environments. The survey location and study subjects have been described, along with the methods, instruments, and procedures used in data collection, followed by a description of the methods of handling, presenting, and analyzing the data, as well as an outline of the statistical procedures followed. The dissertation concludes with an interpretation of the study's results and findings and follows with a discussion of the study's significance to include implications and applications of the results and recommendations for further study.

#### Statement of the Hypotheses

Student diversity as defined in this study refers to the ethnic, racial, and socioeconomic composition of the student body within a particular educational setting. Conversely, curricular diversity is defined as the presence of learning opportunities in the educational setting where students can come to understand diversity concepts and issues and acquire the knowledge and skills requisite to analyze, explicate, and discuss them. It is recognized that curricular diversity and student diversity may vary not only between educational settings but also within them. For example, a school setting may experience

high student diversity, but classrooms may still remain segregated; this situation is most frequently observed within the higher level course offerings, such as advanced placement, honors, or international baccalaureate classes. Similarly, a school setting may be diverse, but its curriculum may not address issues of diversity. These notions are important, because theories regarding the impacts of diversity in an educational environment are dependent upon a critical factor, which is the actual presence of diversity not only in the school but in the classroom and the curriculum (Kurlaender & Yun, 2001). Gurin (1999) argued that diverse educational environments produce active engagement, establishing more complex forms of learning among students; students exposed to multiple, new, and even contradictory perspectives develop increased levels of critical thinking skills. If educational settings and their curriculum are not diverse, then students are not being exposed to opportunities promoting higher levels of learning.

Do students perceive classes in Prince William County high schools to be diverse? This question was addressed by surveying subjects about their perception of the presence of student diversity in the classroom. Results were subsequently compared across races and related to the level of student diversity in varied educational settings. This question was supported by testing of the following null hypotheses:

H<sub>0</sub>: There is no difference in the perceptions of student diversity between racial and ethnic groups within the educational setting.

H<sub>0</sub>: There is no difference in the perceptions of student diversity between levels of diversity/socioeconomic status in varied educational settings.

Do students perceive lessons in Prince William County high school classrooms to be diverse? This question was addressed by surveying students about the presence of

curricular diversity in the classroom, as well as the presence of learning experiences that promote the type of interactive deliberations and opportunities that can lead to superior learning outcomes. Results were subsequently compared across races and related to the level of student diversity in varied educational settings. The following null hypotheses were tested:

H<sub>0</sub>: There is no difference in the perceptions of curricular diversity between racial and ethnic groups within the educational setting.

H<sub>0</sub>: There is no difference in the perceptions of curricular diversity between levels of diversity/socioeconomic status in varied educational settings.

H<sub>0</sub>: There is no relationship between student perceptions of curricular diversity and level of student diversity within the educational setting.

Do students perceive diverse settings to be positively related to more comfortable exchanges among students? This research question was based on the theory that students who experience diversity in classroom settings are those likely to interact most widely with persons from different backgrounds. This question was addressed by surveying subjects about their attitudes about learning, working, and living in multicultural or multiracial settings. Results were then compared across races and related to the level of student diversity in varied educational settings. This question was supported by testing of the following null hypotheses:

H<sub>0</sub>: There is no difference in peer interaction comfort levels between racial and ethnic groups within an educational setting.

H<sub>0</sub>: There is no difference in peer interaction comfort levels between levels of diversity/socioeconomic status in varied educational settings.

Kulaender and Yun (2001) suggested that if success is defined by equalizing of opportunity, then goals and aspirations, as an indicator of perceived opportunity, may also become more equal in more diverse environments. Are perceived educational goals and aspirations similar across ethnic, racial, and socioeconomic groups? This question was addressed by surveying students about their interest in enrolling in higher level courses while in high school and future plans to pursue postsecondary education. If responses were found to not differ substantially across races, the notion would subsequently be supported that opportunities are perceived to have been equalized. It was expected that a comparison of results between school settings of varied diversity would lead to an understanding of how aspirations differ based on level of integration. The following null hypotheses were tested:

H<sub>0</sub>: There is no difference in perceived educational goals and aspirations between racial and ethnic groups within an educational setting.

H<sub>0</sub>: There is no difference in perceived educational goals and aspirations between levels of diversity/socioeconomic status in varied educational settings.

H<sub>0</sub>: Educational goals and aspirations are independent of race, ethnicity, and the level of diversity in educational settings; therefore the regression coefficient is 0.

Related to students' support of higher educational goals and aspirations is the extent to which the educational setting provides access to higher education. Are perceptions of institutional support towards pursuit of higher education similar across ethnic, racial, and socioeconomic groups? This question was addressed by surveying students about school and teacher support and encouragement to pursue higher education, and then comparing results across races. If responses did not differ substantially across

racess, the notion would be supported that opportunities are perceived to have been equalized. It was expected that a comparison of results between school settings of varied diversity would lead to an understanding of how perceptions of institutional support differ based on level of integration. The following null hypotheses were tested:

H<sub>0</sub>: There is no difference in the perceptions of institutional support between racial and ethnic groups within an educational setting.

H<sub>0</sub>: There is no difference in perceptions of institutional support between levels of diversity/socioeconomic status in varied educational settings.

#### Operational Definitions of Variables and Key Terms

*Classroom peer interactions (CLPEERINT)*: Students' comfort level in working with students from different racial or ethnic backgrounds as measured by subject responses to survey questions (see Tables 21 and 22).

*Curricular diversity (CURRDIV)*: The presence of learning opportunities in the educational setting where students acquire the knowledge and skills requisite to analyze, explicate, and discuss diversity concepts and issues; this variable is measured by subject responses to survey questions regarding course readings/materials and classroom discussions in English and social studies or history classes (see Tables 18 and 19).

*Diversity/socioeconomic group*: A group developed via stratified sampling techniques relating the racial and ethnic diversity index (REDI) and socioeconomic status (SES) of individual schools. The composition of the three stratified groups and their taxonomy for this study include (a) low diversity, high socioeconomic status; (b) medium diversity, medium socioeconomic status; and (c) high diversity, low socioeconomic status (see Table 4 and Figure 4).



*Gender (GEND)*: Gender as indicated by subject survey response (see Table 32).

*Grade (GRADE)*: Grade in high school as indicated by subject survey response.

*Higher educational aspirations and goals (HIEDUCASP)*: Educational aspirations and goals as measured by subject responses to survey questions regarding plans to enroll in higher level courses while in high school and future plans to pursue postsecondary education (see Tables 25 and 26).

*Institutional support (INSTSUP)*: Students' perception of school and teacher support to pursue higher educational goals and aspirations as measured by subject responses to survey questions regarding encouragement to take higher level high school courses, to seek postsecondary educational experiences, and in providing college admissions materials (see Tables 27 through 30).

*Language spoken at home (LINGHOME)*: The primary language spoken in the subject's home as indicated by subject survey response (see Table 8).

*Linguistic diversity (LINGDIV)*: Number of languages spoken fluently by the subject as indicated by survey response (see Table 9).

*Neighborhood diversity (NBRDIV)*: Subject's assessment of neighborhood diversity as measured by subject survey response (see Tables 34 and 35).

*Parental educational attainment (PARATTAIN)*: Highest level of educational attainment by subjects' father and mother as indicated by subject survey response (see Tables 10 and 116).

*Peer interactions (PEERINT)*: Students' attitudes and interest towards working and living in a multiracial or multiethnic setting as measured by subject responses to survey questions (see Tables 23 and 24).

*Period of school district enrollment (TIME):* Period of enrollment in the school district as indicated by subject survey response (see Table 33).

*Race or ethnicity (RACE):* Race and ethnic composition as indicated by subject survey response. Options include Native American/Alaskan (NATAMER), Asian/Pacific Islander (ASIAPAC), Black/African American (BLACK), Hawaiian (HAWAII), Hispanic (HISPANIC), Multiracial (MULTI), Undesignated (UNDESIG), and White (WHITE). Due to the small numbers of students representing certain racial or ethnic groups, it was necessary to aggregate those groups under a category of “other” (OTHER) (see Tables 5 and 6).

*Racial and ethnic diversity (REDI):* A measure of diversity between and within groups that are classified by several qualitative variables, specifically race and ethnicity, with a minimum diversity coefficient of zero and a maximum diversity coefficient of one; the Racial and Ethnic Diversity Index is based on Lieberman’s Index (Gujardo, 1999; see Table 3).

*Socioeconomic status (SES):* A measure of socioeconomic status between and within groups as measured by the percent economic disadvantaged (see Table 3).

*Student diversity (STUDIV):* The ethnic and racial composition of the student body within a particular educational setting as measured by subject responses to survey questions regarding perceived demographics within the school and English, math and social studies, or history classes (see Tables 16 and 17).

## CHAPTER 2: REVIEW OF THE LITERATURE

### Overview

Assessing the impact of diversity on educational outcomes is complicated by the legal, social, political, and educational contexts in which these issues are likely to be challenged. One must look at factors beyond the research questions and examine their interrelationships in order to better understand the scope and significance of this dissertation. As such, the literature review begins by describing the current state of segregation, detailing trends towards resegregation and the demographic changes in the nation's public schools and of the population at large. Second, the current research describing the benefits of school integration and diverse learning environments are summarized. The review of literature concludes with a focus on the three primary categories of positive student outcomes derived from the racially and ethnically diverse classroom: enhanced learning and deeper ways of thinking, higher educational and occupational aspirations, and positive social interactions among members of different racial and ethnic backgrounds.

### Segregation, Resegregation, and Demographic Changes in U.S. Public Schools

It has been over 50 years since the U.S. Supreme Court handed down the historic *Brown v. Board of Education* (Brown v. Board of Education, 1954) decision, outlawing racial segregation in the nation's public schools, instigating initiatives in American school districts to develop and implement desegregation plans. However, there is evidence that the principles espoused in *Brown* are eroding, with increasing economic

and racial isolation in schools (Civil Rights Project, 1999). Research suggests a national trend towards resegregation of our nation's schools, much of it a byproduct of the rapid demographic changes that the schools and the nation are facing (Frankenberg & Lee, 2002; Frankenberg, Lee, & Orfield, 2003; Orfield, Eaton, & The Harvard Project, 1996; Orfield & Yun, 1999). Segregation is a term typically associated with a time gone by, yet the national trend indicates that the United States is in many ways moving backwards in time (Civil Rights Project).

Desegregation reached its crescendo in the late 1980s and now recedes in the face of increased diversity in public school enrollments, which are attributed to changes in the racial composition of communities and school-aged population and the perceived need to no longer keep desegregation plans in place, even in the face of public support of integration (Frankenberg et al., 2003; Orfield et al., 1996). The Southern United States began the journey towards integration with the highest proportion of Black students and the most rigid system of legal segregation; as a result, it was in the South that the most aggressive desegregation plans were implemented. Delays in desegregation plans were ended by the *1964 Civil Rights Act* and a series of subsequent decisions by the Supreme Court, which intensified integration efforts in the South. It is the South, which had become the most stable and integrated region in the United States, that is now the region most rapidly resegregating as courts terminate many successful desegregation orders (Frankenberg et al., 2003). Progress peaked as a result of administration policy changes and court decisions occurring in the late 1980s and the 1990s; these confluences brought enforcement of desegregation to a halt and challenged implementation of new, even voluntary, plans.

The nation is now well into the second decade in which the U.S. Supreme Court is terminating desegregation orders, and a number of relatively recent court decisions have moved school districts from mandatory integration to voluntary policies (Frankenberg et al., 2003; Kurlaender & Yun, 2001). Many school districts have sought and achieved unitary status, thereby relieving them of the burden of directed segregation plans, freeing them to make decisions that have the effect of creating unequal opportunities (Orfield & Yun, 1999). In *Board of Education v. Dowell* (1991), the Supreme Court held that desegregation orders were temporary and that school boards could return to segregated neighborhood schools. In 1992, the Court authorized piecemeal dismantling of desegregation plans in *Freeman v. Pitts* (1992). In *Missouri v. Jenkins* (1995), the Court rejected the effort of a lower court to maintain the Kansas City desegregation and magnet school plan stating that the primary goal of desegregation cases should be to return schools to local control—a dominant theme in all these decisions (Kurlaender & Yun, 2001).

In the early years of desegregation, concerns over race focused almost exclusively on Black and White issues (Reardon & Yun, 2001; Reardon, Yun, & McNulty, 2000); however, today America's school district enrollment shows a large number of students from very different racial, ethnic, and socioeconomic backgrounds (Kurlaender & Yun, 2004). At the dawn of the new century, the United States has become a far more racially and ethnically mixed nation, but in its schools, the color lines of increasing racial and ethnic separation are rising (Orfield & Yun, 1999). The nation's schools are becoming increasingly non-White, as minority student enrollment accounts for nearly 40% of all U.S. public school students—almost twice the proportion of minority school students

during the time of *Brown v. Board of Education*; moreover, in the West and South, almost half of all public school students are minorities (Frankenberg et al., 2003). The most segregated group in the nation's public schools is that of White students; they attend schools, in the national aggregate, where 80% or more of the student body is White (Frankenberg et al., 2003). By contrast, all racial groups except Whites experience considerable diversity in their schools, and Whites remain in overwhelmingly homogenous schools even in regions with large diversity enrollments (Orfield & Yun, 1999). Ironically, the largest countywide school districts that contain both city and suburban schools are located in Southern states—the original focus of initial desegregation efforts. These districts have had more extensive and long-lasting desegregation and more educational opportunities presented to minority students, and it is in the West and South where White students are more likely to attend substantially diverse schools (Frankenberg et al., 2003).

While segregation for African Americans has declined substantially at the national level since the *Brown* era, the situation for Hispanic students is one of steadily rising segregation—and in a context of an increasingly diverse public school enrollment (Frankenberg & Lee, 2002). Along with Asians, the most dramatic growth in enrollment is seen with Hispanic students; Hispanics are the most segregated minority group in the United States, by both race and poverty—and a pattern of linguistic segregation is also emerging (Frankenberg et al., 2003). In contrast, Asians live in integrated communities, experience the greatest integration in school, and experience less linguistic segregation than Hispanics (Frankenberg et al., 2003).

Forty years ago, the nation's largest suburban school systems were all White; now, large and increasing numbers of African American and Hispanic students are enrolled in suburban schools, but are seriously segregated in these communities, particularly in the nation's largest suburban and exurban areas, raising serious challenges for these communities in the face of increased suburban diversity (Orfield & Yun, 1999). Many of the most rapidly resegregating school systems since the mid-1980s are suburban, suggesting that segregation and desegregation issues are no longer the domain of urban areas, but extend to the larger metropolitan regions as well (Frankenberg et al., 2003). As many of these suburban schools edge their way towards resegregation, public officials and educational leaders offer nostalgic ideals of "neighborhood schools" as a way to better serve and educate students; although there are instances where such schools and their related compensatory programs have positive effects for minorities, the evidence indicates that such schools are low performing—they are often the most segregated schools (though not labeled as such) and work towards restricting the options and opportunities for minority students (Frankenberg et al., 2003; Orfield & Yun, 1999). Creation of such neighborhood schools can appear to be a form of educational gerrymandering, where select populations are herded into a school in order to raise its scores or scores of others, a means of subverting state accountability systems (Gallagher, 2004).

Students are thought to learn from those who have very different life experiences from their own, and as such, a number of school districts have recently come to recognize the value of racial and ethnic diversity and its important role on educating American students (Kugler, 2002). This realization comes from the influence of educational leaders

who believe that diversity offers the potential to challenge students and enrich the experience within the learning community (Chang, 2001; Duster, 1993; Moses, 1994). A number of public school districts, as a result, have voluntarily enacted policies and student assignment methods designed to promote racial integration in their schools—not out of legal obligation, but on their own accord, as a core part of their educational mission (NAACP, 2005). They do so in recognition of the critical role schools play in fostering racial and ethnic harmony in preparation for citizenship in an increasingly multiracial, multiethnic society. Voluntary integration is a means of maintaining racial, ethnic, and socioeconomic diversity. However, even voluntary actions are being challenged nationwide. *Belk v. Charlotte-Mecklenburg Board of Education* (2002), *People Who Care v. Rockford Board of Education* (2001), and *Berry v. School District of the City of Benton Harbor* (2002) provide examples of circumstances in which desegregation plans are dissolved by court orders even in communities that want to maintain them; whereas, *Tuttle v. Arlington County School Board* (1999), *Eisenberg v. Montgomery County Public Schools* (1999), and *Wessman v. Gittens*, (1998) provide examples in which federal courts are forbidding even voluntary integration plans (Frankenberg & Lee, 2002).

According to Chang (2001), critics of affirmative action argue that diversity provides no significant educational benefits and therefore is not a legitimate goal of education. Moreover, they argue that policies aimed at promoting diversity have serious negative effects, to include the lowering of academic standards and polarization within the school community. However, with the exception of predominately White schools, research demonstrates that students in racially isolated schools are also likely to be



segregated by class and income and are more likely to experience concentrated poverty (Orfield & Lee, 2005; Rothstein, 2004). Poverty levels are found to be highly correlated with educational inequalities and lower educational achievement; schools with high poverty concentrations tend towards lower school test score averages, fewer advanced courses, fewer credentialed and experienced teachers, inferior courses and levels of competition, and fewer graduates that pursue higher education (Boger, 2005; Natriello et al., 1990; Orfield & Lee, 2005; Rothstein, 2004; Schellenberg, 1999). The consequences of attending unequal schools are significant, given that the path to achievement of one's goals includes access to quality elementary and secondary education.

Given these circumstances, it is reasonable to expect that the increased demand for quality schools will increase, even as the nation becomes more racially and ethnically diverse and minorities begin to represent a larger proportion of the population. This speaks to the importance of Americans not only understanding the advantages of being part of a diverse society, but also in sending their children to high-quality, integrated schools. With this notion in mind, there is evidence of strong public support for providing students diverse learning environments as well as a growing body of literature on attitudes towards integrated schools (Metropolitan Center for Urban Education, 2004).

Orfield et al. (1996) noted that public attitudes towards integration have changed dramatically in the last half century, reporting that Americans supporting the Supreme Court *Brown* decision rose from 63% in the early 1960s to 87% in the mid 1990s; in the Southern United States, where desegregation was the most controversial, only 19% supported the *Brown* ruling in 1954. When surveyed in the 1990s, only 15% said they did not support the ruling. The results of a 2003 survey of adults conducted by the Henry J.

Kaiser Family Foundation, found that 57% believed that going to an integrated school “was better for their children,” with 33% responding that “it made no difference” (Metropolitan Center for Urban Education, 2004). A 2004 poll conducted by Harris Interactive on behalf of *Education Week* noted that the overwhelming majority of teachers and students surveyed believed that racially integrated schooling is important (Harris Interactive, 2004; Reid, 2004). Research conducted by the Metropolitan Center for Urban Education (2004) suggests that Americans support voluntary, rather than government, initiatives to encourage diversity in the public education.

Americans seem to also fully support the idea of their children experiencing diversity in higher education; a 1998 poll conducted by DYG, Inc., for the Ford Foundation found that close to two thirds of Americans surveyed believe it is “very important” that colleges and universities prepare students to participate in a diverse society, with more than 70% responding that students acquiring a diverse educational experience on college and university campuses would help “bring society together” (DYG, Inc., 1998; Orfield et al., 2006). Orfield et al. suggest that the phenomena of support and discussion of diversity in higher education stands in sharp contrast to the lack of discussion of the costs of segregation or the advantages of integration for the nation’s most segregated population—White students. There remains very little empirical research in the K-12 literature that directly links diversity and positive educational outcomes for all students.

#### Benefits of School Integration and Diverse Learning Environments

Researching the educational benefits of diversity is important in order to facilitate the consideration of race, ethnicity, and socioeconomic status in decision making, by

offering evidence to educators, policymakers, lawmakers, and the courts. Moreover, research is needed to assist schools as they continue to develop and further refine diversity initiatives aimed at improving educational outcomes for all students. Prior research has focused on student and faculty perceptions of the educational benefits of diversity, as well as relationships between diversity experiences in educational settings and a variety of benefits to students, to schools, and to society as a whole. Various methods and measures have been used to assess the educational benefits of diversity, to include the analysis of course evaluations, course syllabi, student computer conversations, student papers, questionnaires, journal or diaries, and honor projects (Garcia et al., 2001; Shaw, 2005). Many of the findings from previous research suggest that diversity experienced in higher education results in significant benefits on learning and democracy outcomes; how diversity experiences relate to K-12 educational benefits is less well documented.

A review of the literature suggests a taxonomy of three distinct types of research focused on the educational benefits of diversity (Baez, 2004): the first is the empirical study verifying the educational benefits of diversity; the second is the literature review summarizing empirical findings on the educational benefits of diversity; and the final is the legal study emphasizing the importance of empirical research in this area.

Additionally, there are three principal assessment strategies used in studies aimed at diversity impacts on educational benefits. The first strategy focuses on structural diversity, sometimes called student diversity, which examines the way students interact with others who are from different racial and ethnic backgrounds primarily as a function of the proportional racial/ethnic mix in the school setting (Shaw, 2005). A number of

studies have deemed structural or student diversity as insufficient, when considered alone, in maximizing educational benefits of diversity in the school setting (Antonio, 2001; Chang, 1999, 2002; Gurin, Dey, Hurtado, & Gurin, 2002; Gurin, Nagda, & Lopez, 2004; Hurtado, Milem, Clayton-Pedersen, & Allen, 1998) but also suggest that it is an important component when combined with other factors (Gurin, Dey, Gurin, & Hurtado, 2004; Hurtado et al., 1998). The importance of structural diversity should not be marginalized, however, since courts have required results from this form of research to be presented in consideration of race-in-admissions types of judgments (Shaw, 2005; Terenzini, Cabrera, Colbeck, Bjorklund, & Parente, 2001). Moreover, structural diversity studies have developed evidence suggesting that socializing with peers from other races and discussing racial or ethnic issues positively affects a number of educational benefits, to include retention, school satisfaction, and social self-concept (Astin, 1993a, 1993b; Shaw; Terenzini et al.).

The second and third strategic approaches to assessing diversity impacts on educational benefits relate more to student interactions, either in the institution or through informal interactions with peers. The second strategic approach focuses on the assessment of curricular diversity and looks at how students encounter diversity by examining institutionally structured programs, initiatives, or curricula that assist students in engaging or learning about racial/ethnic or socioeconomically diverse experiences (Gurin et al., 2002; Shaw, 2005). Methods of researching diversity-related initiatives and curricular diversity include examining subjects who have experienced these initiatives or curricula and determine how they affect the students (Springer, Palmer, Terenzini, Pascarella, & Nora, 1996) and examining whether or not these experiences promote

multiethnic and multiracial understanding and democratic responses among students (Chang, 2002; Gurin, Dey et al., 2004; Shaw). Findings from this type of research may help educators create, modify, or improve diversity-related initiatives already in place (Shaw).

The third strategic approach to assessing diversity impacts on educational benefits focuses on diversity interactions or informal interactional diversity and assumes that there is some measurable amount of diversity in the educational setting; this approach operationalizes student encounters with diversity using the frequency or the nature of reported relations and interactions with racially/ethnically different peers (Shaw, 2005; Umbach & Kuh, 2002). Diversity interactions are represented by students' relations with others from different backgrounds, as well as exposure to diverse ideas, concepts, information, and experiences (Shaw; Umbach & Kuh). Research on diversity interactions differ from research on curricular diversity or diversity initiatives in that these methods also take into account personal relationships established between students of different backgrounds, perhaps due to structural diversity, but not necessarily due to school diversity initiatives (Shaw). Several researchers have suggested that regardless of the approach used to study the effects of diversity, that most approaches arrive at similar results showing that diversity experiences in college are tied to many individual, institutional and societal benefits (Gurin et al., 2002; Terenzini et al., 2001).

At the K-12 level, the research literature provides substantial evidence on the educational benefits associated with a diverse learning environment, albeit most of it is focused on the benefits gained by Black students. Given acknowledgment that integrated schools address negative impacts strongly associated with segregated educational

environments, much still needs to be learned about the benefits of diversity for all students—minority and White. The literature would suggest that while the context and demographics within and between school districts vary, it is important to have not only diverse schools, but diverse classrooms within them if the benefits gained from integration are to occur. Three primary categories of positive student outcomes from the racially and ethnically diverse classroom are found in the research literature: enhanced learning and deeper ways of thinking, higher educational and occupational aspirations, and positive social interactions among members of different racial and ethnic backgrounds (Braddock, 1980; Frankenberg et al., 2003; Gurin, 1999; McPartland & Braddock, 1981); Schofield, 1995, 1999; Wells & Crain, 1994).

A short-term benefit of a diverse educational environment is the effect on academic achievement and student learning. Many researchers and educators view a diverse student body as an important resource, arguing that diversity creates a richer experience for learning (Chang, 2001; Rudenstine, 1996; Tien, 1996). Research shows that minority students attending integrated schools demonstrate increased academic achievement over those attending predominantly minority schools (Crain, 1971; Crain & Mahard, 1983; Schofield, 1995, 1999). Other studies suggest that students' achieve higher levels of cognition and improve the quality of critical thinking skills as a result of learning in more diverse educational environments (Gurin, 1999). One notion regarding the educational impact of diversity is that interaction with peers from diverse racial backgrounds, in and out of the classroom, has major educational importance, particularly when the interaction is done in positive ways. The belief is that when schools make, and are perceived by students to make, a significant commitment to diversity, there are

educational gains for all students; moreover, student participation in diversity initiatives contributes to measurable changes in openness to difference, increased commitment to social justice, as well as to cognitive development and academic success (Appel, Cartwright, Smith, & Wolf, 1996). The idea is that students exposed to multiple perspectives learn to think more critically and to understand more complex issues.

This was a finding in the longitudinal studies of students conducted at the University of Michigan (Gurin, 1999) and was the basic educational justification upheld by the Supreme Court as a compelling educational interest in the 1978 *Bakke* decision, which has governed affirmative action in higher education ever since (Kurlaender & Yun, 2002b). Perhaps even more significantly, was the 2003 *Grutter v. Bollinger* Supreme Court decision that supported affirmative action in higher education. Justice Sandra Day O'Connor's majority opinion noted "numerous studies show that student body diversity promotes learning outcomes, and 'better prepares students for an increasingly diverse workforce and society, and better prepares them as professionals'" (Gurin, 1999, p. 3; NAACP, 2005). The benefits of educational diversity the Supreme Court mentioned as critical in the *Grutter v. Bollinger* decision included educational benefits for all students, such as cross-racial understanding and deeper, more complex classroom discussions; better workforce preparation; reducing racial stereotypes; and preparing a racially diverse, representative group of future leaders (NAACP). Although the Supreme Court's *Grutter v. Bollinger* decision affirmed the importance of diversity in higher education, the implications for students in the nation's public elementary and secondary schools have yet to be determined. With a deficiency of explicit guidance from the Supreme Court on the types of actions public schools may take to promote diversity, school districts and

their constituents have been working largely under a cloud of legal uncertainty (NAACP).

Higher student aspirations resulting from diversity in schools are linked to higher expectations of students within these schools; research suggests that schools that are dominated by minority students often transmit lower expectations for students and provide a reduced range of vocational and educational opportunities (Dawkins, 1983; Hoelter, 1982). One of the primary reasons cited for higher achievement among minority students in desegregated schools is the inclusion of middle-class students; these schools are better resourced, with higher qualified, stable, and more experienced teachers (Natriello et al., 1990; Schellenberg, 1999). Decades of research have demonstrated the relationships between individual poverty, school poverty, race, and educational inequality; regardless of background, student achievement is higher in classes where the students' average socioeconomic status is higher (Orfield & Lee, 2005; Rothstein, 2004). So profound is this realization that a North Carolina study recommended that school districts use districting and choice policies to create socioeconomically diverse schools, limiting the concentration of low-income families in any school (Boger, 2005; Kugler, 2002; Orfield & Lee). Minority students in diverse or predominately White schools benefit from informal, integrated, access to better education resources, and higher degrees of competition, which are not available even to the best students in segregated minority schools (Braddock, 1980; Wells & Crain, 1994).

Diverse educational experiences yield not only short-term benefits, such as improved performance on achievement tests, but even more significant long-term, societal benefits. All students educated in diverse settings appear to more readily



participate in a plural society, suggesting that much can be learned about the impact of diversity in secondary educational settings on student experiences with, and attitudes toward, persons of a race or ethnicity different from ones' own (Kurleander & Yun, 2001). The educational environment of a diverse school is believed to create a powerful mechanism by which to teach students the realities of the multiracial world in which they will eventually be living and working (Astone & Nuñez-Wormack, 1990; Chang, 2001; Hall, 1981; Tierney, 1993). A number of research studies have focused on perpetuation theory, a macro-micro theory of racial segregation. These studies have shown that interracial contact in school help minority students overcome perpetual segregation; only when these students receive sustained exposure in diverse environments do they lead more integrated lives as adults (Braddock, 1980; McPartland & Braddock, 1981; Schofield, 1995; Wells & Crain, 1994). As a result, people who experience diverse environments as children tend to live and work in more integrated settings upon reaching adulthood (Schofield). The long term benefit is obvious, as the workplace is a location that includes a wide range of people; coworkers increasingly have to work harder to understand the perspectives, responses, and assumptions of coworkers from different society and cultural contexts. As such, cultural knowledge and sensitivity have become job skills (Schneider et al., 1995).

While there is substantial evidence that diverse educational environments are associated with positive outcomes for Black students, significantly less focus has been placed on the impacts of racial, ethnic, and socioeconomic diversity and desegregation on other minorities or on Whites (Crain, 1971; Kurleander & Yun, 2001; Schofield, 1995, 1999; Tierney, 1993; Trent, 1991). As previously noted, the preponderance of research

focused on diversity benefits for White or non-Black minority students has been conducted at the college and university level (Appel et al., 1996; Astone & Nuñez-Wormack, 1990; Chang, 2001; Duster, 1993; Gurin, 1999; McPartland & Braddock, 1981; Moses, 1994; Schneider et al., 1995; Tien, 1996; Tierney). Of the research conducted at the K-12 level, most of it centers on schools that remain primarily White. In these circumstances, White students are at the very least not harmed academically by integrating schools (NAACP, 2005). As a result, policymakers, educators, and the public still have remarkably little knowledge about the impact of racial integration on the educational experience for all students, despite the fact that it has been a half century since *Brown vs. Board of Education*; as school districts lose their ability to pursue race conscious policies to integrate schools, research to measure the impact of schools' diversity on all students becomes even more critical (Kurlaender & Yun, 2004).

Recognizing this deficit, the Harvard Civil Rights Project led a number of recent research efforts in K-12 education, several of which formed the methodology for this study, that demonstrate both educational and community benefits for all. These studies have or are to be undertaken in collaboration with local school systems in a number of communities, part of a larger series of studies aimed at determining what students in more diverse and more segregated schools learn in certain content areas, as well as how their experience in diverse learning environments prepares them for life after high school. Two of the most recent were undertaken in Cambridge and Lynn, Massachusetts, places where the public schools are considered to be extremely ethnically and economically diverse and have been integrated for many years (Kurlaender & Yun, 2002a, 2002b). The research made use of the Diversity Assessment Questionnaire (DAQ), a survey

instrument developed by experts in school desegregation research, consisting of 70 items that test several different dimensions of experiences and attitudes regarding diversity. Administered to high school seniors in Cambridge's single high school and high school juniors in Lynn's three high schools, the survey results indicated that the majority of students considered themselves well prepared for functioning as adults in a very diverse community, reported that their school experiences increased their level of understanding of points of view different from their own, believed that they had achieved an enhanced understanding of the background of other groups, and felt prepared to work in diverse work settings (Kurlander & Yun). Both of these studies examined pure aggregate data and did not attempt to correlate responses to level of diversity between schools, impossible in the case of Cambridge with only one high school, or to compare desegregated versus segregated schools in the same district. Moreover, these studies examined interactions in settings with primarily White majority and Black and Hispanic minorities.

Results from Kurlander and Yun's (2001) earlier study in metropolitan Louisville-Jefferson County, Kentucky, yielded similar results. The Louisville site was chosen as the largest urban area in the nation's most integrated state, having implemented city-suburban desegregation in 1975 and having "kept a desegregation plan in place without a court order for more than 20 years" (Frankenberg et al., 2003, p. 13). The study sampled students in the junior class across the Jefferson County School district, finding high levels of diversity in both curricular and social interactions and high levels of equality between races with respect to perceived educational opportunities for all students (Kurlander & Yun, 2001). The study found that both African American and White

students benefited from diversity in their schools, with respect to critical thinking skills, future educational goals, and citizenship. The research included methods to determine level of diversity within classroom settings based upon survey results, in each case concluding that the classroom samples were indeed diverse, thereby satisfying the validity criteria of the research. However, despite sampling each of the district's high schools, the study did not attempt to compare results between schools of varying diversity, nor between districts or schools with differing levels of integration; as such, student responses could not be attributed directly to the district's desegregation plan or to varying degrees of diversity between schools. Moreover, this particular research examined interactions in settings that were primarily White majority and Black minorities, with other minorities representing less than 12% of the sample. No immigration data was presented with any of the studies.

Kurlaender and Yun's (2001, 2002a, 2002b) work is provocative and offers some insight into the manner in which interactions in diverse classroom settings affects students' perceptions of their educational experience, but additional study is needed. The Louisville study (Kurlaender & Yun, 2001) examined a large sample, but one that was primarily Black and White. The Cambridge and Lynn, Massachusetts, studies (Kurlaender & Yun, 2002a, 2002b) examined other minority populations, but drew from a small sample. The lack of response data on Hispanics—which represents a population in which current resegregation trends are most profound—and Asians—a minority population that is performing equal to or outperforming Whites—represents a research gap. Moreover, none of these studies examined individual school racial, ethnic, or

socioeconomic composition, or diversity level as a variable in determining student responses.

Even though school districts across the nation are facing the challenges associated with racially and ethnically changing neighborhoods and communities, there has been little research or technical assistance available for a third of a century; in the two largest educational innovations of the past two decades—standards-based reform and school choice—the issue of segregation and its consequences has been ignored (Frankenberg et al., 2003). Moreover, recent court decisions that have removed diversity from school assignment plans suggests that desegregation has exhausted its appeal as a compelling educational need (Kurlaender & Yun, 2001). There is a need to determine whether or not America's increasing racial and ethnic diversity is a national asset and helpful to the education of its students. This study attempts to fill this research void and provide evidence that may serve to further inform future decisions about the value of diverse educational environments.

## CHAPTER 3: METHODOLOGY

### Overview

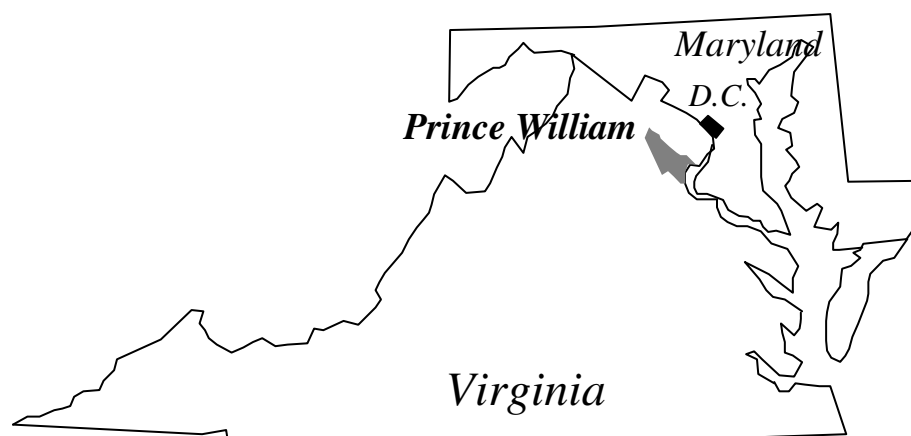
The problem was addressed via quantitative, nonexperimental, cross-sectional survey methods, exploring the intangible areas of (a) student diversity; (b) curricular diversity; (c) student learning and peer interaction, including development of critical thinking skills; (d) future educational aspirations and goals; and (e) perceptions of support by the school. Data used to support hypotheses testing was derived from a survey about student experiences with diversity in their schools and classroom. The subsequent discussion of methodology details (a) the survey site and the target population of interest; (b) qualifications of the researcher; (c) a description of the study subjects; (d) the survey instrument; and (e) procedures used in data collection, including sampling procedures, methods used to determine groups and proportional sample sizes, controlling of confounding variables, instrument administration procedures, known limitations of the proposed methodology, and data organization.

### Survey Site

Located just south of the nation's capital (see Figure 1), Prince William County, Virginia, offered an important place for study because of its size and exponential growth in the last half century; racial, ethnic, linguistic, and socioeconomic diversity; neighborhood demographics and varying levels of integration between schools; and levels of achievement for all students as well as its commitment to improving minority achievement.

Prince William County was established in 1731, drawing its name from Prince William Augustus of England. Historically, it is well known for its significance in the Civil War as host to the First and Second Battles of Manassas (Bull Run). From the end of the Civil War until after World War II, the county sustained slow growth and maintained its rural character. The population doubled in the 1950s and more than doubled again in the 1960s as housing developments were built. As of September 2007, the population is estimated at 383,644, representing a population density of approximately 1,135 persons per square mile and a 77.9% increase since 1990; the county is projected to grow to more than 555,000 persons by 2030 (Prince William County, 2007b). Today the county is a suburban community linked to the Washington metropolitan area.

*Figure 1.* Location of Prince William County within the Commonwealth of Virginia and its proximity to the Greater Washington, DC, area.



Source: Public domain map courtesy of <http://www.lib.utexas.edu/> The General Libraries, The University of Texas at Austin, modified to show counties.

Records indicate that free, public schools were established in Prince William County in 1869, which were operated by magisterial districts until 1923 when the Prince William County School Board was created (Prince William County Public Schools, 2002). As with much of Virginia and the South, desegregation in Prince William County was delayed. Up until the time of the Supreme Court's *Brown vs. Board of Education* decision, African American students had the option of commuting to a vocational training center in Manassas, Virginia, or crossing into Washington, DC, to attend one of its schools (Duke, 2005).

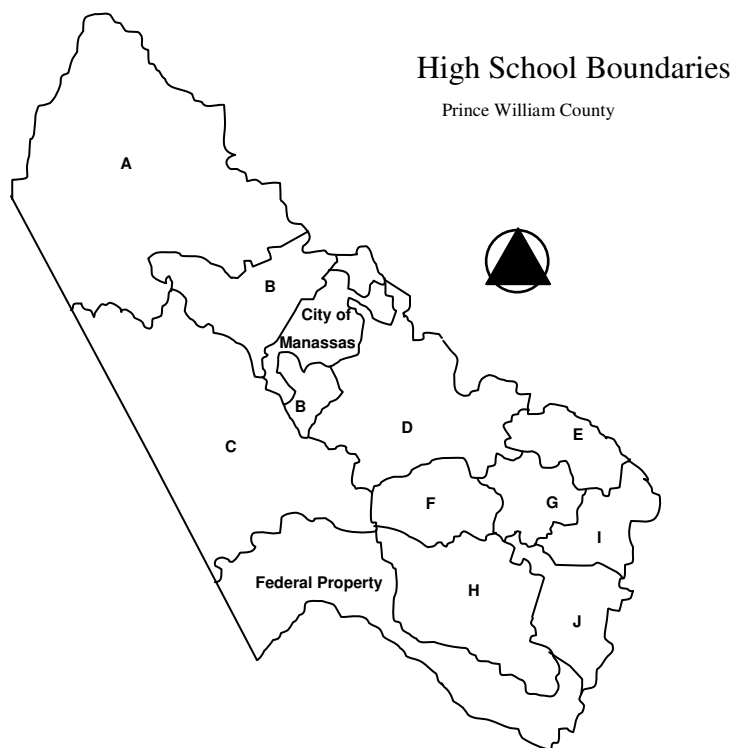
The language in Virginia's *Annual Report of the Superintendent of Public Instruction* for 1953-1954 helped shape the official Commonwealth's position that would lead to the doctrine of massive resistance. It made it plain that Virginia's political and education leaders had no intention of leaving the decision of whether or not to desegregate to the localities (Duke, 2005; Virginia Department of Education, 1954). In August and September 1956, Virginia's General Assembly, with the backing of U.S. Senator Harry F. Byrd, adopted a series of bills that became known as the Stanley Plan, named after Governor Thomas B. Stanley. Stanley's views on desegregation promoted outright rebellion towards the Court's decision; as such, the plan served as the cornerstone of the massive defiance doctrine. The Stanley Plan called for creation of a statewide Pupil Placement Board that was to handle all local requests for student transfers between schools, but whose chief purpose was to stonewall integration efforts (Duke, 2005). To their credit, Northern Virginia legislators opposed the Stanley Plan and massive resistance, but it would be pure speculation to suggest how rapidly Prince William and other systems would have moved to implement desegregation had control



been left to local jurisdictions (Duke, 2005; Ely, 1976). Since that time, Prince William County has become a different multiracial, multiethnic society, one that has been shaped by developments in immigration, economic factors, and the public schools.

As of 2006, Prince William County Public Schools is the third largest school division in Virginia, with an enrollment of 70,476 students representing nearly 1% of the total state population (Prince William County Public Schools, 2007b). The school district is divided into four areas, each led by an associate superintendent and comprising two to three high schools or secondary schools and their feeder elementary and middle schools. There are a total of 85 schools in the district: 53 elementary schools, 14 middle schools, 10 high schools, 2 alternative high schools, 4 special education schools, and 2 specialty schools. High school boundaries are shown in Figure 2. The district employs 9,466 full-time employees; the approved budget for 2006 was \$739,693,085 with an average of \$10,496 being spent per student (Prince William County Public Schools, 2007a).

Figure 2. Prince William County Public Schools high school boundaries.



Source: Prince William County Demographic Mapper, 2007. Names removed to protect anonymity.

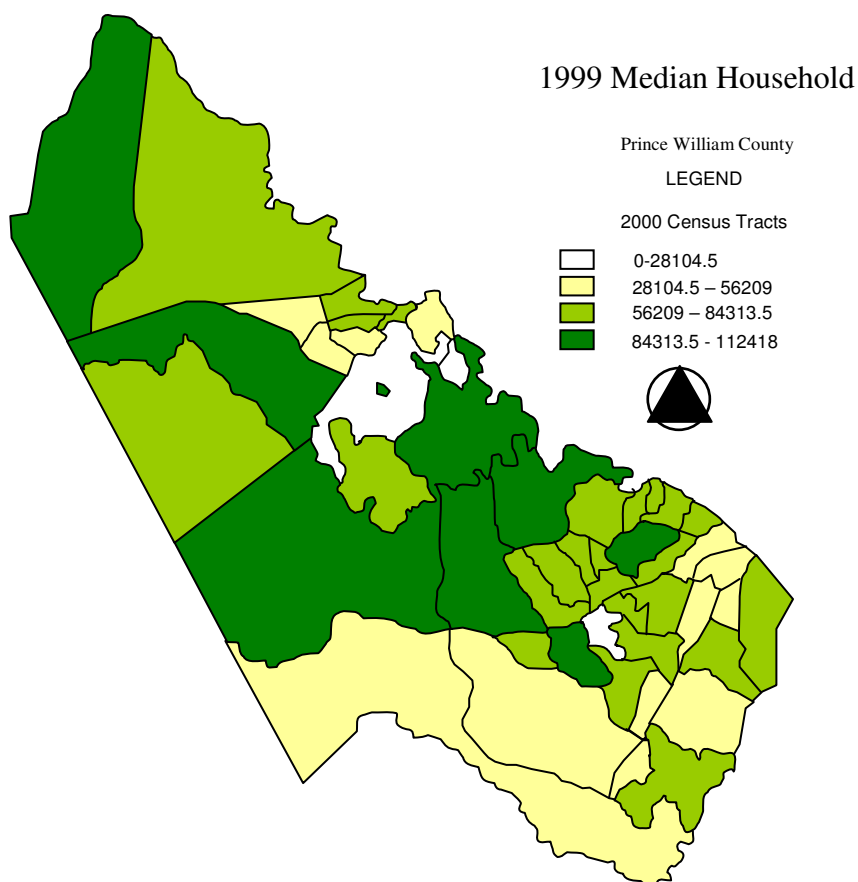
The district serves what is rapidly becoming a heavily populated, diverse, and thriving suburban county, hosting an extensive commercial office market—a major employment center. The county is the third most populous jurisdiction in the state and associated metropolitan area. The county’s median household income of over \$80,763 is tenth highest in the nation, whereas the poverty rate of 5.0% is well below the Virginia rate of 9.6% and the U.S. rate of 13.3% (United States Census Bureau, 2007). In Prince William County, 36.7% of adults have at least a 4-year college degree or higher attainment, compared to 27.0% in the United States as a whole (Prince William County, 2007).

Despite Prince William County’s growing reputation as a wealthy suburb, there is evidence of significant economic disadvantage, especially among the county’s immigrant

and minority population. Job growth across all economic sectors has created occupational diversity within the county, generating employment opportunities for both skilled and unskilled workers; as a result the county has seen an expanding population of both the wealthy and the impoverished. Students eligible for free or reduced lunch programs have increased by almost 63% since 2001; as of 2006, over 17, 800 students, representing 25.3% of Prince William's school-aged population were eligible for free or reduced-price school lunches (Prince William County Public Schools, 2007b). An increasing number of low-income families live in Prince William County, and the disparities between the affluent and the poor are significant. In comparing two census-designated places (CDPs) within Prince William County, the 2000 median household income in Montclair of \$88,496 exceeded Triangle's median income of \$38,844 by \$49,652.

There is also a geographic component to socioeconomic diversity in the county, with upper-income families living in western and central Prince William County, surrounding the City of Manassas in recently developed areas, and the less affluent and poorer regions found in the southern and eastern region in the older parts of the county along the Interstate 95 corridor. Figure 3 displays the differences between the wealthiest (darker colors) regions in the county and the poorest (lighter colors).

Figure 3. 1999 median household income by 2000 census tracts.



Source: U.S. Census Bureau, U.S. Census of Population and Housing, 2000.

Household income levels determine access to more expensive housing markets, which determines where families live and children attend school. As a result, Prince William County Public Schools is the institution that most likely captures and reflects the demographic changes that have reshaped Prince William County in the last two decades.

Beginning in the 1990s, a rapid influx of immigrants as well as domestic migration turned Prince William County into a multiethnic, multiracial society. Between 1990 and 2000, the population of African Americans more than doubled (from 25,078 persons to 52,691 persons) and the Hispanic population nearly tripled (from 9,662

persons to 27,338 persons). According to the U.S. Census Bureau's *2006 American Community Survey*, 59.7% of the county's population was White, 18.6% was African American, 7.6% was Asian or Pacific Islander, 0.3% was Native American, 10.9% were of other races, and 2.8% were multiracial, whereas approximately 19.1% of the population was of Hispanic Origin (any race). Minority students now account for nearly one half of the entire student enrollment in Prince William County Public Schools (see Table 1).

Table 1

*Racial/Ethnic Membership in Prince William County Public Schools at 5-Year Intervals from 1995-2006*

	Native American/ Alaskan		Asian/ Pacific Islander		Black/ African American		Hispanic		Undesignated		White		Total No.
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
1995-1996	0	0.0	1,641	3.5	9,758	20.7	2,822	6.0	-	-	32,544	69.1	47,072
2000-2001	259	0.5	2,267	4.1	13,506	24.7	5,693	10.4	-	-	32,921	60.2	54,646
2005-2006	204	0.3	4,579	5.9	15,276	19.5	15,372	19.7	2,430	3.1	40,341	51.6	78,202

Source: Virginia Department of Education, Division of Technology, Office of Educational Information Management, Statistical Report, *Reports of Student Membership by Ethnic Groups*, October 15, 2007

The high level of international immigration, especially from Latin America, has contributed significantly to the racial and ethnic diversification of Prince William County Schools and to a dramatic increase in enrollment in English for Speakers of Other Languages (ESOL) programs. The percentage of the county's population that was born outside of the U.S. increased dramatically during the 1990s and trends suggest a continued rise in the 2000s. As of 2006, 21.9% of Prince William County's population was foreign-born, compared to 6.2% of the population in 1990, the largest portion of which hails from Latin America (United States Census Bureau, 2007). The 2006 *American Community Survey* also revealed that 29.2% of Prince William County's population speaks a language other than English at home; this figure has risen

appreciably from 9.0% in 1990 and 16.3% in 2000. Moreover, in 2006, 14.5% of the population indicated that they speak English less than “very well”; this figure has increased significantly from 3.1% in 1990 and 6.7% in 2000.

As a result, regular education student enrollment has been outpaced by student enrollment in non-English-speaking programs. The number of students receiving English-for-Speakers-of-Other-Languages (ESOL) services has increased by 274% since 2000, with expectations that the program will continue to increase at a rate of 15-20% per year (Prince William County Public Schools, 2007b). As of 2006, the district’s English for Speakers of Other Languages (ESOL) Program supported over 11.3% of students enrolled in elementary, middle, high, transitional, and alternative schools (Prince William County Public Schools, 2007a).

Achievement is relatively high in the district, but educators are not without challenges. Students and student clubs, teams, and groups routinely earn honors and awards in all academic, extracurricular, and athletic areas in regional, state, and national competitions. In 2005-06, 48% of the district’s graduates earned advanced diplomas, and approximately a third of the district’s 11<sup>th</sup>- and 12<sup>th</sup>-grade students were enrolled in Cambridge advanced placement (AP) or international baccalaureate courses; conversely, the district dropout rate at 1.7% remained well below the state and national average (Prince William County Public Schools, 2006a). Eighty-five percent of the district’s Class of 2006 went on to some form of postsecondary education following graduation (Washington Area Boards of Education, 2006). However, results on the 2007 Scholastic Aptitude Test (SAT) were disappointing, following a national downward trend in scores.

The average combined SAT score of 1492 for the district's seniors who took the SAT in 2007 was below the state average of 1520 and the national average of 1511.

Achievement has been more elusive for minorities, especially for Black and Hispanic students. Issues of poverty or socioeconomic status as the major influence on student achievement, regardless of race, continue to frustrate the county's attempts to close the achievement gap.

A standing objective of Prince William County Public Schools is to decrease the achievement gap for economically disadvantaged students, limited English proficient students, minority students and students with disabilities (Prince William County Public Schools, 2006b). Programs and policies originating from this objective have led to some gains in achievement for students in these categories; for example, in the number of underrepresented minority and low-income students participating in the gifted and talented (GT) programs, as well as honors, AP and international baccalaureate courses (Prince William County Public Schools, 2006b). A recurrent theme in each of the district's strategic documents relates to the confluence of multiple social conditions of race, ethnicity, and poverty; altogether, these social conditions reflect the neighborhoods in which students live and the schools they attend. Despite shortfalls in significant improvements, Prince William County persists in its efforts to address minority achievement.

#### Qualifications of the Researcher

At the time of the study, the researcher was a candidate for the degree of Doctor of Education at Liberty University, with a concentration in curriculum and instruction and a cognate in educational foundations. A retired Army Colonel, the researcher was

employed as a Research and Technical Program Integrator and served as the Deputy Director of a United States Army Corps of Engineers Laboratory. The researcher had previously served as an Associate Professor of Geography at the United States Military Academy, where he directed the academic program in Mapping, Charting, and Geodesy and developed and taught undergraduate-level courses in cartography, plane surveying, Geographic Information Systems, physical geography, remote sensing, and analytical photogrammetry. The researcher has over 28 years of progressive domestic and international experience in program and project management, strategic and operational planning, and organizational and educational leadership. In addition to serving in a variety of technical, military, and veterans' organizations, he is a member of the Association for Supervision and Curriculum Development and the National Science Teachers Association.

### Subjects

The subjects in this study were drawn from the target population of 11<sup>th</sup>-grade public high school students within the Prince William County Public School system. High school 11<sup>th</sup>-grade juniors were chosen for several reasons: their experience in the high school setting as compared to younger students; an expectation that they possess greater maturity and more critical thinking skills than younger students and therefore are better able to relate their educational experience to their attitudes and perceptions; and because they are still meeting core curriculum requirements. Twelfth-grade students pursuing the standard diploma would have satisfied all core curriculum requirements excepting English and history or social science and, therefore, would be less likely to complete all questions on the survey instrument.



The study expected to sample approximately 150 students from selected schools stratified by levels of racial and ethnic diversity and socioeconomic status or class. This required sample size was based on both margin of error and the size of the target population, using a formula developed by Krejcie and Morgan (1970) for the United States Office of Education. A sample size of 150 was chosen based on the targeted margin of error of  $\pm 5\%$ , assuming a 95% confidence level, a  $p$  of 0.50, and a targeted population of 4,992 students. Although a larger sample size would reduce the margin of error, the sample size was adequate for the research design and the statistical analysis planned for the survey data, and represents approximately 3.0% of the total target population. Moreover, a primary consideration in determining sample size was the potential disruption of the instructional program and of potential administrative responsibilities borne by Prince William County Public Schools. The research plan and its associated instruments were approved via Liberty University's Institutional Review Board procedures. Consent was obtained from Prince William County Public Schools and the parents or guardians of all subjects (see Appendix C). A total of 199 students were eventually sampled.

### Instruments

The instrument used, with minor demographic adaptations, was the Diversity Assessment Questionnaire (DAQ), a survey derived by the Civil Rights Project at Harvard University in collaboration with the National School Boards Association's Council of Urban Boards of Education. The survey was composed of 71 items developed to test several different dimensions of experiences and attitudes regarding diversity and included questions for students about their experiences in their classrooms and in their

school, as well as questions about their future goals, educational aspirations, attitudes, and interests (see Appendix A).

The survey questionnaire consisted of five sections, making use of 4-6 point Likert-scale questions that asked students to rate the value of racial and ethnic diversity experienced in different areas. The first section requested standard demographic information from the subjects surveyed, which was used to establish subgroups and to control threats to validity. The second section of the questionnaire asked subjects to describe the demographics of their school and their core curriculum classrooms, assess the extent to which racial issues were discussed and explored and affected their understandings of diversity, and to assess the extent to which their teachers and counselors have encouraged them to aspire to higher educational goals and objectives. The third section addressed subjects' classroom experiences, asking them to assess their comfort level working with and engaging others in settings that are racially and ethnically diverse, as well as to assess how their educational experiences affected their perceptions. Section four addressed interests and future goals and asked students to clarify their higher educational aspirations and to assess their preparation for and intention to function in racially and ethnically diverse settings. The fifth and final section requested subjects to provide information about how their experiences in the educational setting have influenced interest in civil participation.

A committee of experts in school desegregation research developed the questionnaire, conducted successful reliability assessments via pretesting through focus groups at two different high schools and five different classrooms, each with different racial compositions, and piloted it in the Jefferson County School District in Louisville,

Kentucky (Kurlander & Yun, 2001). Constructs derived from survey responses were subjected to Cronbach's alpha reliability and confirmatory principal component analysis to determine their homogeneity and utility (Kurlander & Yun).

Despite the instrument's history of use, three potential threats to validity of the data derived from it were addressed. The first threat was a matter of internal validity and dealt with the manner in which the DAQ is administered. A script and instructions were used in distributing the questionnaire to assure that the distribution and administration process itself did not result in different subject approaches to the questions (Appendix D).

The second, and more significant, threat related to differential selection of subjects, also a concern of internal validity, but which relates to a larger concern of population external validity. Random assignment of subjects by name was not possible; as a result, entire classes representing intact groups were used in the sample. One means to control this threat was through homogenous selection; as such, the instrument was distributed only through high school English classes. Unlike math, science, and social studies, English cannot be taken out of sequence. Since all students must take English by grade level, it was determined that English classes were most representative of the target population. Alternately, history or social studies classes would have been an acceptable venue for distribution and administration of the instrument, since 4 years are also required for a standard diploma; however, these courses are more likely to be taken out of sequence and may include students from other grade levels. Grade level, as with other variables associated with the subjects themselves—such as gender, linguistic diversity, educational attainment of parents, grades, enrollment in honors, AP, or international baccalaureate courses—were built into the instrument and thus could be controlled.

The third threat dealt with the truthfulness of subject responses. The research plan called for anonymous responses, not only addressing concerns about privacy issues, but also increasing the likelihood that greater truthfulness would be obtained, especially since personal assessments about the school and others were being requested.

### Procedures

A number of procedures were followed in order that the hypothesized relationships could be observed and the study executed. Approval processes, methods used to determine groups and proportional sample sizes, methods to control confounding variables, the administration of the test instrument, obstacles and contingencies to deal with them, and known limitations of the proposed methodology are described in detail in the following pages.

### *Approval Processes*

A number of approvals were required prior to execution of the study. The instrument was copyrighted by the Harvard Civil Rights Project, and a copyright release was obtained. Additionally, Liberty University required that any research by faculty or students involving the use of human subjects be approved by its Institutional Review Board, unless the study met the criteria of an exemption. Although the research methodology did not exceed minimal risk, its use of survey procedures with minors, who were considered vulnerable research subjects, did not qualify it for exemption under the Liberty University Institutional Review Board exemption criteria. As such, the study proposal was submitted to the committee for review, who found it in order regarding the ethical implications and protection of the human participants.

Perhaps most importantly, permission had to be obtained from the Prince William County Public Schools, the subjects, and the subjects' parents. Research studies conducted in Prince William County Public Schools are approved by the Superintendent, with applications submitted through the district's Office of Program Evaluation, who reviews and assesses the studies, makes recommendations and approves sponsors (Prince William County Public Schools, 2003).

The study was approved subject to the Prince William County Public Schools guidelines for research studies and data collection activities, specifically that participation in research studies by students, parents, and staff members would be voluntary, that parents were to be provided the opportunity to inspect any survey requesting personal information about students and opt out before students participate, and that no individual or school names would be identified in any summary reports (Prince William County Public Schools, 2003). Additionally, the district's Office of Program Evaluation requested that the survey's first question regarding country of birth be struck from the instrument; this request was due to concern over a controversial immigration bill adopted by Prince William County in July 2007 that would require immigration status be checked before an individual could access public service, to include schools. Notices and protections for the privacy rights of students, parents, and staff members were provided in accordance with applicable state and federal laws and regulations.

#### *Determining Groups and Proportional Sample Sizes*

There were a number of factors that divided the population into subgroups—such as race, ethnicity, and probability of exposure to other races and ethnic groups within diverse educational environments—and it was expected that the measurement of interest

would vary among these subgroups. Since it was not practical to survey every student in the target population, and since the population consisted of subgroups that were believed to differ in the characteristics being studied, proportional stratified sampling techniques were employed. The advantage of this technique was that it facilitated the study of those differences that were expected to exist between various subgroups of the population, and it guaranteed representation of defined groups in the population.

Stratification of the target population by racial composition or racial and ethnic diversity required a means of representation. Researchers have accomplished this in a number of ways. Kurlaender and Yun (2004) cited the most frequently used measures as a ratio of Blacks to Whites (or minorities to Whites); the deviation in absolute value of a school from a particular reference point, such as the district average; the percentage of each racial group; and the absolute number of each group, controlling for school size. The emphasis on White enrollment measures was dismissed because it overemphasizes the importance of White groups in any form of analysis and was not likely to characterize the diversity of schools with varied ethnic and racial compositions. Likewise, deviation in value from a reference point, or proximity indexing, was also discarded since it implies an ideal racial mix based on some established “norm” or average. Measures that would have equated color with diversity fail to measure heterogeneity; moreover, percentages or relative absolute numbers within racial groups would not have been useful measures, as they do not support ordinal ranking of composite levels of diversity.

However, the research literature in public personnel administration offered some solutions. Since the measurement of diversity between and within organizations is important to determine the extent to which women and minority group members are

incorporated and promoted within their workforces, means to measure these variables in the public sector have become an important area of research in public personnel administration (Guajardo, 1999). Workforce diversity in public organizations is often measured by using various diversity indices such as the *Lieberson* index ( $D$ ), which is calculated by using the following:

$$D = \frac{1 - \sum X_i^2}{1 - \frac{1}{K}}$$

where  $X$  represents the proportion of individuals possessing the qualitative variable (or variables) of interest (e.g., varied racial/ethnic background) and  $K$  represents the number of groups. This index measures diversity between and within groups that are classified by one or more qualitative variables, with a minimum diversity coefficient of zero and a maximum diversity coefficient of one (Guajardo).

Table 2 summarizes 2005-2006 student membership in Prince William County High Schools by ethnicity and race, to include eligibility for programs for the economically disadvantaged, as well as enrollment in English for Speakers of Other Languages Programs.

Table 2

*Membership in Prince William County Public Schools by Race, Ethnicity, Economic Disadvantaged, and Enrollment in English for Speakers of Other Languages Programs*

High School	Total Enrollment	Economically Disadvantaged	ESOL	Asian/Pacific Islander	Black/African American	Hispanic	Other	White
School 1	1203	4.1%	0.7%	4.2%	5.7%	7.7%	4.7%	77.8%
School 2	2622	9.5%	5.3%	4.7%	11.9%	12.0%	2.7%	68.6%
School 3	1806	7.2%	4.4%	10.5%	10.4%	8.9%	2.6%	67.6%
School 4	2372	14.5%	4.2%	4.2%	28.0%	9.9%	3.1%	54.8%
School 5	1397	26.0%	8.8%	7.5%	46.1%	13.5%	3.4%	29.5%
School 6	2571	20.7%	9.1%	6.6%	22.3%	20.1%	3.2%	47.8%
School 7	2271	15.9%	7.5%	5.9%	30.8%	17.3%	2.5%	43.9%
School 8	1454	42.5%	20.4%	6.4%	33.0%	38.9%	1.9%	19.7%
School 9	2303	23.8%	13.5%	7.6%	20.1%	27.4%	3.0%	41.9%
School 10	1972	31.8%	15.9%	7.9%	30.3%	27.9%	3.0%	30.8%
Totals	19,971	19.05%	9.10%	6.50%	23.60%	18.60%	3.00%	48.30%

Sources: *School Data Profiles Report, 2005-2006* (Prince William County Public Schools, 2006a).

Table 3 summarizes the *Racial and Ethnic Diversity Index* (REDI) for high schools within the Prince William County Public School system and associated ranking, as well as the socioeconomic status (SES) ranking of each school, based on the proportion of those students eligible for programs for the economically disadvantaged. School names are removed to ensure anonymity, per agreement with Prince William County Public Schools. Variables used in computation of the REDI include the proportions of five racial or ethnic groups of students: Asian/Pacific Islander, Black/African American, Hispanic, Other, and White.



Table 3

*Prince William County Public High Schools' Racial/Ethnic Diversity and Socioeconomic Rankings*

High School	Racial/Ethnic Diversity Index	Economic Disadvantaged %	Diversity Rank	Socio-economic Status Rank
School 1	0.227	4.1	10	1
School 2	0.372	9.5	9	3
School 3	0.391	7.2	8	2
School 4	0.511	14.5	7	4
School 5	0.594	26	6	8
School 6	0.595	20.7	5	6
School 7	0.598	15.9	4	5
School 8	0.621	42.5	3	10
School 9	0.628	23.8	2	7
School 10	0.660	31.8	1	9
Average	0.589	19.05		

Notes: Racial and Ethnic Diversity Index (REDI) computations are based on data obtained from the *School Data Profiles Report, 2005-2006* (Prince William County Public Schools, 2006a).

A scatterplot illustrating the relationship between racial and ethnic diversity and socioeconomic status is found in Figure 4. Since the desire was to reflect the diversity of the student population within Prince William County Public Schools, the intent was to specifically seek to include participants of various racial, ethnic, and socioeconomic groups, based on their proportionality to the total population. In this regard, a stratified sample would claim to be more representative of the population than a simple random sample. As such, the study drew its sample of subjects from the three diversity /socioeconomic groups represented in Figure 4 and Table 4. The total enrollment of 11th grade students within Prince William County Public Schools, which represents the target population, was not readily available and is estimated by dividing the total student population at each school by four. Magnet and alternative schools were not included in any group; due to their unique and sometimes highly selective, admissions qualifications, they were not deemed representative of the target population.

When population with several strata is sampled, it is generally required that the proportion of each stratum in the sample should be the same as in the population. Table 4 illustrates the composition of the three stratified groups and their taxonomy: (a) low diversity, high socioeconomic status; (b) medium diversity, medium socioeconomic status; and (c) high diversity, low socioeconomic status. Ideally, schools would be sampled based on the proportionality of their 11<sup>th</sup>-grade enrollment to the target population as shown, by school, in Table 4. However, drawing samples from every individual school was not feasible and would not have been supported by Prince William County Public Schools; moreover, small samples would not lend strength or meaning to the statistics that were used to make comparisons between schools, nor would they likely have captured the proportional racial and ethnic diversity. As such, a proportional sample from within each collective diversity/socioeconomic group was drawn by sampling a school from within each group, as opposed to every high school. Since results were aggregated by diversity/socioeconomic group, this approach also protected the anonymity of each school, thereby meeting a Prince William County Public Schools requirement (Prince William County Public Schools, 2003).

Figure 4. Scatterplot illustrating relationship between racial/ethnic diversity and socioeconomic status.

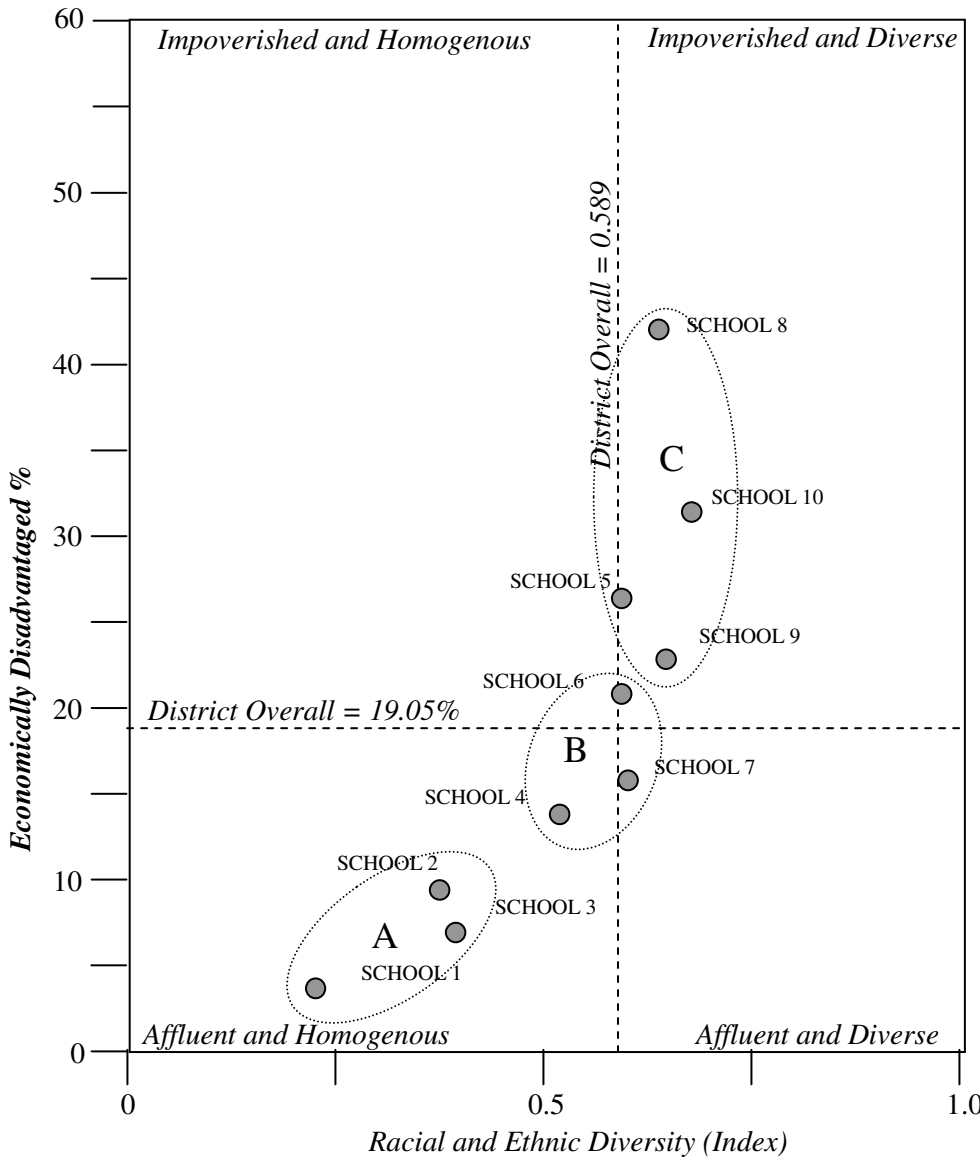


Table 4

*Groups Stratified by Racial/Ethnic Diversity and Socioeconomic Status, Identifying Proportion of Target Population to be Sampled*

High School	Racial/Ethnic Diversity Index	Economic Disadvantaged %	Diversity Rank	Socio-economic Status Rank	Total Enrollment	Estimated Enrollment 11th Grade	Number of Target Population to be Sampled (Req'd/Actual)
Group A: Low diversity, high socioeconomic status							
School 1	0.227	4.1	10	1	1203	301	
School 2	0.372	9.5	9	3	2622	656	
School 3	0.391	7.2	8	2	1806	451	
Total					5631	1408	42 / 74
Group B: Medium diversity, medium socioeconomic status							
School 4	0.511	14.5	7	4	2372	593	
School 6	0.595	20.7	5	6	2571	643	
School 7	0.598	15.9	4	7	2271	566	
Total					7214	1802	54 / 58
Group C: High diversity, low socioeconomic status							
School 8	0.621	42.5	3	10	1454	364	
School 5	0.594	26	6	8	1397	350	
School 9	0.628	23.8	2	7	2303	576	
School 10	0.660	31.8	1	9	1972	492	
Total					7126	1782	54 / 67

Notes: REDI computations are based on data obtained from the *School Data Profiles Report, 2005-2006* (Prince William County Public Schools, 2006a).

### *Controlling of Confounding Variables*

Confounding variables are typically controlled through manipulation, statistical control and randomization. Manipulation was applied to the confounding variable *maturity and experience*. This variable addressed not only the age and maturity of the subjects, which related to their ability to critically think and respond to the survey questions, but also to their exposure in their educational environment, which allowed them the sufficient base of experience to respond to the survey. The effect of this variable was reduced by not allowing it to vary, therefore not producing any change in the other variables. The confounding variable *maturity and experience* was controlled by selecting only high school juniors to participate in the survey.

A number of confounding variables existed that were captured in the survey instrument and built into the research design as additionally measured variables, rather than forcing their values to be constant. Many of these have already been enumerated. In summary, they are race, gender, grade, linguistic diversity, parental level of educational attainment, period of school district enrollment, neighborhood diversity, group racial and ethnic diversity index, and group socioeconomic status. The advantage of the statistical control process is that it yielded additional information about the relationship between the control variable and the other variables.

Randomization is a method of controlling for confounding variables that involves random assignments of the subjects to groups or conditions. The rationale for this approach is simple: any confounding variables will have their effects spread evenly across all groups; therefore, they will not produce any consistent effects that can be confused with the effect of the independent variable. As has previously been discussed, random sampling by name was not possible. Instead, entire classrooms were surveyed. However, as has already been suggested, limiting the administration of the survey to English classes achieves some of the same effect of randomization, since it is these classes that are most representative of the target population, and it is in these classes that one would expect the effects of confounding variables to be spread evenly throughout.

#### *Administering the Instrument*

The data was collected using both paper and Web-based means, all administered outside of the classroom via distributed “take-home” instructions. This multimode technique was chosen to maximize response rates, to reach subjects who would otherwise be inaccessible via a single mode, thereby reducing non-coverage error, and to ensure

participation of sufficient numbers necessary for the statistical analysis. According to Could-Silva and Sadoski (1987), return rates on mailed educational survey instruments are typically in the 40-60% range. It would have been reasonable to expect approximately the same percentage for a take-home survey. The exact numbers of those participating via take-home method was negotiated with Prince William County Public Schools. Using a combination of paper and Web-based survey methods, it was determined that a minimum of 320 surveys would need to be distributed to achieve the number of responses that was minimally adequate to reflect the perceptions of the target population (Dillman, 1978, 1991).

Both versions were self-administered outside the classroom via detailed instructions issued to each subject. The paper version was designed for students with limited computer access; for this version, questionnaires were assembled in survey booklet format. Sufficient quantities were reproduced to ensure no reuse during administration in a single school setting; this step was taken to assure that students' responses were not cued by previous subjects' markings. Answer sheets (see Appendix B) were inserted inside each booklet prior to distribution to subjects. The Web-based version included both an instruction sheet and the uniform resource locator (URL) needed to access the survey site.

The survey instrument was preliminarily administered to 10 subjects to determine the time required to complete the survey and to ensure subjects would have no difficulty understanding the instructions. It was estimated that approximately 15 minutes were required for each subject to complete the questionnaire.

The Liberty University Institutional Review Board guidelines prohibit use of classroom time for survey administration and data collection; as such, direct-administration methods could not be used. Teacher participation was therefore limited to distribution and collection of consent forms and questionnaires. Survey packets were assembled and distributed to participating Prince William County Public Schools and staged with teachers of selected English classes. Each packet contained instructions (see Appendix D), two parent consent forms (one to return and one for the parent/guardian's records; see Appendix C), the Diversity Assessment Questionnaire (see Appendix A), and an answer sheet (two pages, front/back; see Appendix B). Guidance to the administering faculty included requesting to have each student's parent or guardian read and complete the parent consent form; instructing students to not complete the survey until the parent or guardian had agreed to allow the student to participate and signed the consent form; and advising students that they could complete the survey online or on paper by filling out an answer sheet. Subsequently, surveys were self-administered by paper or electronically via instructions sent home with students (see Appendix D). Subjects were given researcher contact information in the event of questions. Completed survey answer sheets and the surveys were returned to the issuing teacher. Upon completion of the survey response collection, questionnaires with incomplete responses, or those in which the instructions were not followed, were set aside.

### Data Processing and Analysis

#### *Data Organization*

Data was maintained by the researcher in digital spreadsheet format amenable to manipulation with statistical software and coded and systematically organized to facilitate

analysis. Scoring of survey responses was greatly facilitated by the standardized nature of the instrument, yet still required translation into codes. Data was handled immediately in coded form to protect anonymity. The records of the study were kept private. No information was included that would make it possible to identify any subject or school in any report subsequently published. Research records were securely stored and only the principal investigator retained access to the records. All paper copy records and digital media were stored in locked cabinets, while all Web-based and computer records were password-protected.

Subjects' names and information were collected on consent forms and not on answer sheets in either paper or web-based formats. Web-based surveys had no mechanism by which to collect subject names. Subjects using paper surveys were instructed to make no marks on the survey and to not place their name anywhere on the answer sheet so that all student responses remained anonymous. As such, the signed consent form was the only record linking the subject and the research, but there was no link between the subject and subject responses. Consent forms were separated from the data and stored in locked cabinets.

The integrity of the research project was maintained by keeping accurate, permanent, and auditable records of all experimental protocols, data, and findings. Research records and data were permanently stored by the principal investigator in locked cabinets. Data that may be used for future research purposes remains subject to constraints imposed by Prince William County Public Schools. Data that was deemed no longer needed for analysis or for future research purposes, to include computer sheets and other papers, were destroyed by shredding.



Different kinds of data were collected from each respondent, to include a mixture of nominal demographic data and ordinal data in response to Likert-scaled questions. As such, both variable names and the actual data were coded. Respondent survey submissions were given unique identification numbers. Nominal or categorical data was coded numerically based on the number of groups to facilitate rearrangement of data by subgroups. Likert-scaled responses to questions was coded numerically (low to high) based on the inherent order and number of each category.

For example, the responses “strongly discouraged, somewhat discouraged, neither encouraged nor discouraged, somewhat encouraged, and strongly encouraged” were assigned scores 1 through 5. Composite variables were formed from responses to specific questions; these were mapped to the questionnaire and summative scores for each respondent were developed and assigned for these variables. Development and analysis of composite variables from questions related to the same issue not only made it easier and more meaningful to report survey results, but also improved the reliability of the scores themselves; in general, the more terms in the composite variable, the higher the reliability (Gay & Airasian, 2003). All results were compiled in summary data sheets and tabulated.

#### *Overview of Analytical Methods*

It is accepted by some that survey research does not require complex statistical analyses, and data analysis may simply or solely consist of determining the frequencies and percentages of responses for the questions of the study (Ary, Jacobs, Razavieh, & Sorensen, 2006; Gay & Airasian, 2003). This study went beyond this level of analysis. However, the first step in the data analysis was to summarize the data through descriptive

statistics. Response rates for each item on the questionnaire were calculated as well as the total sample size and overall percentage of returns. Percentage of responders who selected each alternative response for each question was calculated, and comparisons were made by examining the responses of different subgroups in the sample.

Explanations for attitudes and perceptions were explored by identification of factors that appear related to the responses in subsequent sections of this chapter. Cross-tabulations (cross-tabs) were used to show the differences in survey responses between and among various groups and subgroups, as well as relationships that existed among variables in the study. Cross-tabs developed for this purpose were populated by survey data and can be found throughout Chapter 4 and in Appendix E.

Data analysis was conducted using two Systat Software, Incorporated, statistics and analytical graphics software packages, Systat and SigmaStat. These products were chosen for their ease of use, the researcher's familiarity with their protocols, ability to ingest and manipulate data from a variety of sources, and data interpretation and visualization tools.

Analysis of the general benefits of a diverse student body was accomplished by presenting direct responses to the DAQ. Using frequencies of subject responses, a series of chi-square ( $\chi^2$ ) tests were performed to determine whether or not systematic relationships existed between race/ethnicity and, alternately, between diversity/socioeconomic group and student perceptions. A composite variable was created from questions representing students' aspirations for higher education. This composite was used as an outcome in several regression models designed to complement the disaggregated individual survey question results. The impact of perceived curricular

diversity, institutional student support, and student diversity were investigated via an ordinary least squares regression analysis estimating the relationships between these three constructs and the outcome of student educational aspirations and goals, controlling for race, gender, group racial and ethnic diversity index, and group socioeconomic status.

#### *Known Limitations of the Methodology*

There were several limitations of the methodology: (a) the predictive validity of survey research, (b) data collection methods and the ability to address nonresponders, and (c) the type and strength of procedures that could be applied in the analysis. The first relates to the nature of survey research. While it was expected that the results of the study would provide knowledge about how diverse public high school learning environments affect students' perceptions of their educational experience, it must be understood that survey responses are not necessarily predictive of future behavior. In some areas, such as voting, the literature suggests that there is a close correspondence between how subjects say they will behave and their subsequent behavior. In other areas, especially related to attitudes, the discrepancy between what people say and what they do is greater (Tartar, 1969). This is an issue of validity that cannot be completely addressed without correlating subject response to actual behavior—a topic outside the scope of this study.

Although the data collection methods, paper and Web-based, restricted to some extent where and when data was collected, it did assure a higher response rate. Nonetheless, prospective subjects who chose to opt out or nonrespond presented limitations. Nonresponse or opting out was a concern if these decisions were correlated with variables in the study, such as race and ethnicity, and could have represented bias in the study. As such, it was important to learn about responders and nonresponders and the

extent to which they differed from the population. However, because of the anonymous nature of the instrument, the voluntary nature of participation, the need to obtain subject and parent consent, and privacy concerns of Prince William County, the ability to deal with nonresponse was limited. One technique in addressing nonresponse was to compare the demographics of respondents with nonrespondents; however, this data was not available. As such, the study was limited to comparing respondents to the general population. If respondents were found to differ from the population, the ability to generalize from the respondents to the total sample would be limited; conversely, if differences were not found between the two groups, then responses could be generalized to the larger population of 11<sup>th</sup>-grade students (Borg & Gall, 1989). This notion is further explored in Chapter 4.

The type of data collected and levels of measurement were related to the class of statistic (binomial or normal theory) and could have limited the type and strength of procedures that can be applied in the analysis. This is an important consideration, since there has been some debate in the psychometric literature on the classification of Likert scales, which figure prominently in the survey instrument used in this study. Likert scales are either ordinal or interval. Many psychometricians have argued that they are interval scales because, when well constructed, there is equal distance between each value (Newman, 2003). Likert scales are very commonly used with interval procedures, recognizing that the fewer the number of points, the more likely the departure from the assumption of normal distribution that is required for many tests. Some researchers have noted that this assumption of equidistance between intervals is so common in research reports that it is rarely even mentioned. Newman (2003) recommended that ordinal

variables with three categories be considered “categorical” and variables with more than three levels as “continuous.” There was evidence that this assumption would not significantly impact results; regarding the use of procedures that assume interval data with ordinal Likert-scale items, Jaccard and Wan (1996) found that even severe departures from intervalness in many statistical tests did not seem to affect Type I and Type II errors dramatically. Accordingly, if a Likert scale was used as a dependent variable in an analysis, as was done in this study and in the earlier work of Kurlaender and Yun (2001, 2002a, 2002b, 2004), the assumption could be made that the intervals are equally spaced and that normal theory statistics could be used.

## CHAPTER 4: RESULTS OF THE STUDY

### Overview

This chapter establishes how quantitative measures were used to examine and draw conclusions about the ways in which diverse public high school learning environments affected students' perceptions of their educational experience. Means to process and analyze data as discussed in the previous chapter are followed with a description of statistical procedures. The student sample is described, as well as methods used to address nonresponse and responder bias and measures of reliability. Means by which research questions and hypotheses were cast as variables, operationalized, and mapped to the survey questions are shown. Methods and statistical techniques used are described, as well as inferences that were drawn from them.

### Statistical Procedures

#### *The Student Sample*

The research study targeted upper-division high school students in the 11<sup>th</sup> grade. Prince William County Public Schools administered the survey in September through October 2007. The district drew a representative sample of classes in which to administer the survey, spanning proportional levels of academic achievement (basic through honors, AP, or international baccalaureate) within each participating school. High schools representing each of the diversity/socioeconomic groups participated. Survey response data was compiled and disaggregated by racial and ethnic groups and by school diversity

indices; a breakdown comparison of the population and each of its component groups is shown in Table 5.

Table 5

*Racial and Ethnic Composition of the Population*

Diversity/Socioeconomic Group	Total	Asian/ Pacific Islander/ Hawaiian	Black/ African American	Hispanic	Other	White	Racial/ Ethnic Diversity Index (REDI)
	No.	%	%	%	%	%	
Group A: Low diversity, high socioeconomic status	5631	6.4%	10.1%	10.1%	3.1%	70.3%	0.350
Group B: Medium diversity, medium socioeconomic status	7214	5.6%	26.8%	15.9%	2.9%	48.8%	0.598
Group C: High diversity, low socioeconomic status	7126	7.4%	30.7%	27.2%	2.9%	31.8%	0.660
Total	19,971	6.5%	23.6%	18.6%	3.0%	48.3%	0.589

All of the results were computed in simple frequency tables and then converted to percentages by ethnic/racial group and by diversity/socioeconomic group. Nearly all students who responded to each question were included as the objective was to obtain the maximum number of opinions in each table. As such, the number of students responding to each question varied by a few respondents. The number of responses on any given question was less than 2%, resulting in a total sample size for each question ranging from 186 to 189.

It was recognized that there were small numbers of students in the general population from Native American/Alaskan, Hawaiian, multiracial, and undesignated backgrounds. While this data was collected, it was necessary to aggregate these groups under other categories or in a new category of “other” for purposes of data analysis. Table 6 illustrates the aggregation. Results were tabulated in Table 7 to show total number of surveys distributed, number returned by racial breakdown and by group, and number discarded because of incomplete or erroneous data.

Table 6

*Racial and Ethnic Composition of the Sample as Presented in this Study*

Diversity/Socioeconomic Group	Total	Asian/ Pacific Islander/ Hawaiian	Black/ African American	Hispanic	Other	White	Racial/ Ethnic Diversity Index (REDI)
	No.	%	%	%	%	%	
Group A: Low diversity, high socioeconomic status	71	7%	17%	10%	4%	62%	0.473
Group B: Medium diversity, medium socioeconomic status	56	4%	21%	18%	9%	48%	0.604
Group C: High diversity, low socioeconomic status	62	10%	29%	26%	6%	29%	0.688
Total	189	7%	22%	17%	6%	47%	0.617

Note: Data on subjects identified as Hawaiian are combined with Asian/Pacific Islanders; subjects identified as American Indian/Alaskan, Multiracial, or undesignated are combined as “Other.”

Students came from linguistically diverse backgrounds. Although the majority of respondents primarily spoke English at home, this percentage varied greatly across diversity/socioeconomic groups (see Table 8). Language fluency also varied across groups, with the greatest fluency associated with the most diverse schools (Table 9).

Table 7

*Subjects Receiving and Returning Surveys by Race/Ethnicity and Diversity/Socioeconomic Group*

Diversity/Socioeconomic Group	Sent		Retained				Total	Discarded
	No.	Asian/ Pacific Islander/ Hawaiian	Black/ African American	Hispanic	Other	White	No.	No.
		No.	No.	No.	No.	No.		
Group A: Low diversity, high socioeconomic status	200	5	12	7	3	44	71	3
Group B: Medium diversity, medium socioeconomic status	200	2	12	10	5	27	56	2
Group C: High diversity, low socioeconomic status	200	6	18	16	4	18	62	5
Total	600	13	42	33	12	89	189	10

Note: Data on subjects identified as Hawaiian are combined with Asian/Pacific Islanders; subjects identified as American Indian/Alaskan, Multiracial, or undesignated are combined as “Other.”

Students came from families with varied levels of education; approximately one quarter of the respondents’ parents had graduate degrees, yet over one fifth had not



completed high school. The highest levels of parental educational attainment were found in Asian/Pacific Islander and White families, respectively, and the lowest levels amongst Hispanics, with 39% reported not having completed high school. There was also a dramatic difference in parental educational attainment when comparing responses by diversity/socioeconomic group. The majority of respondents whose parents had not completed high school were found in the high diversity/low socioeconomic status group; conversely the highest levels of parental educational attainment were found in the low diversity/high socioeconomic status group. Tables 10 and 11 illustrate parental educational attainment by racial/ethnic group and by diversity/socioeconomic group.

Tables 32 through 35 (see Appendix E) illustrate other demographic data about the sample: gender, student reports of neighborhood ethnic and racial composition, and period of enrollment in the school district.

Table 8

*Languages Spoken at Home by Diversity/Socioeconomic Group*

Diversity/Socioeconomic Group	English	Spanish	Middle Eastern Language/Dialect	Asian Language/Dialect	African Language/Dialect	European Language/Dialect	Other
	%.	%	%	%	%	%	%
Group A: Low diversity, high socioeconomic status	82%	10%	3%	5%	-	-	-
Group B: Medium diversity, medium socioeconomic status	73%	16%	-	2%	5%	4%	-
Group C: High diversity, low socioeconomic status	65%	24%	6%	2%	3%	-	-
Total	74%	16%	3%	3%	3%	1%	-

Table 9

*Language Fluency by Diversity/Socioeconomic Group*

Diversity/Socioeconomic Group	1 language	2 languages	3 languages	More than 3 languages
	%	%	%	%
Group A: Low diversity, high socioeconomic status	75%	21%	3%	1%
Group B: Medium diversity, medium socioeconomic status	55%	41%	4%	-
Group C: High diversity, low socioeconomic status	56%	41%	3%	-
Total	63%	33%	3%	>1%

Table 10

*Parental Educational Attainment (PARATTAIN) by Racial/Ethnic Group (Father/Mother)*

Highest Level of Education Completed	Asian/ Pacific Islander /Hawaiian	Black/ African American	Hispanic	Other	White
	%	%	%	%	%
Some high school	-	12% / 2%	39% / 39%	8% / 8%	6% / 3%
High school graduate	- / 15%	26% / 21%	27% / 24%	33% / 8%	26% / 24%
Some college (Less than 4 years)	31% / 31%	21% / 26%	9% / 15%	17% / 17%	20% / 24%
College graduate (with bachelor's degree)	23% / 46%	29% / 36%	15% / 15%	33% / 58%	31% / 30%
College graduate (i.e., master's, law, Ph.D., M.D.)	48% / -	12% / 15%	10% / 7%	9% / 9%	15% / 17%
Not sure/no answer	8% / 8%	-	-	-	2% / 2%

Table 11

*Parental Educational Attainment (PARATTAIN) by Diversity/Socioeconomic Group (Father/Mother)*

Highest Level of Education Completed	Group A: Low diversity, high socioeconomic status	Group B: Medium diversity, medium socioeconomic status	Group C: High diversity, low socioeconomic status
	%	%	%
Some high school	6% / 3%	13% / 4%	21% / 21%
High school graduate	17% / 18%	20% / 27%	35% / 23%
Some college (less than 4 years)	25% / 20%	13% / 23%	18% / 26%
College graduate (with bachelor's degree)	32% / 38%	38% / 32%	13% / 24%
College graduate (i.e., master's, law, Ph.D., M.D.)	17% / 18%	16% / 14%	11% / 4%
Not sure/no answer	3% / 3%	-	2% / 2%

### *Nonresponse and Responder Bias*

As has been previously suggested, nonresponse, opting out, and responder bias were concerns if these decisions or responses were correlated with variables in the study, such as race and ethnicity. Nonresponse was addressed by comparing racial/ethnic and gender characteristics of the total respondents to the target population. A chi-square ( $\chi^2$ ) analysis comparing response and population counts by race/ethnicity resulted in a value of 7.321 with 4 degrees of freedom and a  $p$  value of 0.120. As such, the characteristics of the population and the sample were found to not be significantly different. Since respondents were generally found to be typical of the population with respect to these characteristics, it was assumed that the respondents were representative of the target population, and generalizations could then be made from the respondents to the total sample, recognizing limitations due to potential selection bias. The differences between responders and the population are shown in Tables 5 through 7.

### *Measures of Reliability*

Measurements of the impact of diversity on educational outcomes were modeled after the earlier Kurlaender and Yun (2001, 2002a, 2002b, 2004) studies and based on composite variables created from various indicators generated from the DAQ. Kurlaender and Yun (2001) created these variables for use in regression analysis and determined their homogeneity and utility through Cronbach's alpha reliability and confirmatory principal component analysis. Using variables similar to the ones in the previous studies allowed for comparison of results, supported verification of earlier findings, and increased the extent to which the research findings could be generalized. As such, the ones used in the earlier Kurlaender and Yun efforts were again used in this study.

Additionally, several new composite variables were subject to the same internal-consistency measures of reliability used in the earlier studies.

All of the composite variables were constructed in the same manner; component items in the DAQ were examined and questions representing appropriate constructs were identified. From the Cronbach's alpha reliability, it was clear that all component questions were highly correlated with one another; the larger the overall alpha coefficient, the more likely that the component questions contributed to a reliable scale. Nunnally and Bernstein (1994) suggest 0.70 as an acceptable reliability coefficient; smaller reliability coefficients are seen as inadequate. None of the prospective constructs showed reliability below 0.71. Variable descriptions, component DAQ responses, and their associated Cronbach's alpha coefficient may be found in Tables 12 and 13.

*Variable Descriptions and Their Relationships to the Survey Instrument*

Variable descriptions and corresponding DAQ responses are found in Tables 12 and 13 and throughout this chapter. It is important to note that all research questions and hypotheses were covered by survey questions; conversely, there were few survey questions that were not directly related to at least one research question or hypothesis or were not established as a controlling variable.

Table 12

*Description of Outcome Variable in the Analysis of Diversity Effects*

Variable	Description	Corresponding Questions (Answer choices provided)
HIEDUCASP Cronbach's $\alpha =$ 0.771	Higher Education Aspirations	How interested are you in the following: ( <i>Very interested – Interested – Somewhat Interested – Not Interested</i> ) Taking a foreign language after high school? (Q.47) Taking an honors, AP, or IB mathematics course? (Q.48) Taking an honors, AP, or IB English course? (Q.49) Going to a community college? (Q.50) Going to a 4-year college? (Q.51)

Table 13

*Description of Predictor Variables in the Analysis of Diversity Effects*

Variable	Description	Corresponding Questions (Answer choices provided)
INSTSUP Cronbach's $\alpha$ = 0.731	Sense of school and teacher support to pursue higher educational goals and aspirations	To what extent have your teachers encouraged you to attend college? (Q.25) ( <i>Strongly Encouraged – Somewhat Encouraged – Neither Encouraged nor Discouraged – Somewhat Discouraged – Strongly Discouraged</i> )
		To what extent have your counselors encouraged you to attend college? (Q.26) ( <i>Strongly Encouraged – Somewhat Encouraged – Neither Encouraged nor Discouraged – Somewhat Discouraged – Strongly Discouraged</i> )
		How much college admissions information have your teachers given you? (Q.27) ( <i>A Lot – Some – A Little – None</i> )
		How much college admissions information have your counselors given you? (Q.28) ( <i>A Lot – Some – A Little – None</i> )
		To what extent have your teachers encouraged you to take honors and/or AP or IB classes? (Q.29) ( <i>Strongly Encouraged – Somewhat Encouraged – Neither Encouraged nor Discouraged – Somewhat Discouraged – Strongly Discouraged</i> )
		To what extent have your counselors encouraged you to take honors and/or AP or IB classes? (Q.30) ( <i>Strongly Encouraged – Somewhat Encouraged – Neither Encouraged nor Discouraged – Somewhat Discouraged – Strongly Discouraged</i> )
CURRDIV Cronbach's $\alpha$ = 0.784	Curricular diversity in English and social studies classes as measured by course readings/materials and classroom discussion	At least one of my teachers takes a strong interest in me. (Q.33) ( <i>Strongly Agree – Somewhat Agree – Neither Agreed nor Disagree – Somewhat Disagree – Strongly Disagree</i> )
		In your English class, how often do you read about the experiences of many different cultures and racial and ethnic groups? (Q.14) ( <i>At least 3 Times a Month – Once or Twice a Month – Less than Once a Month – Never</i> )
		During classroom discussions in your English class how often are racial issues discussed and explored? (Q.15) ( <i>At least 3 Times a Month – Once or Twice a Month – Less than Once a Month – Never</i> )
		During classroom discussions in your social studies or history class how often are racial issues discussed and explored? (Q.18) ( <i>At least 3 Times a Month – Once or Twice a Month – Less than Once a Month – Never</i> )
		To what extent do you believe that these discussions have changed your understanding of different points of view? (Q.19) ( <i>Not at All – A Little – Quite a Bit – A Lot</i> )

Table 13 (Continued)

*Description of Predictor Variables in the Analysis of Diversity Effects*

Variable	Description	Corresponding Questions (Answer choices provided)
STUDIV	Student ethnic and racial diversity as measured by demographics in school, English, social studies and math classes	How many students in your school are from racial or ethnic groups that are different from your own? (Q. 11) (A Few – Quite a Few, But Less Than Half – About Half – Most)
Cronbach's $\alpha = 0.837$		How many students in your English class are from racial or ethnic groups that are different from your own? (Q.13) (A Few – Quite a Few, But Less Than Half – About Half – Most)
		How many students in your social studies or history class are from racial or ethnic groups that are different from your own? (Q.17) (A Few – Quite a Few, But Less Than Half – About Half – Most)
		How many students in your math class are from racial or ethnic groups that are different from your own? (Q. 21) (Few – Quite a Few, But Less Than Half – About Half – Most)

In order to examine research questions relative to outcomes of educational aspirations, three composite predictor variables were used (see Table 13) and one outcome variables (see Table 12), *higher education aspirations* (HIEDUCASP). The HIEDUCASP variable was used to summarize student responses to questions about their educational aspirations and goals.

The first predictor, *institutional student support* (INSTSUP), was a composite variable based on perceptions of level of support students receive from staff and faculty with respect to higher education aspirations. The second predictor, perceived *curricular diversity* of the school (CURRDIV), was a composite variable based on level of diversity in the curricula of English and social studies classes as reported by students. The third predictor, perceived racial and ethnic diversity (STUDIV), was a composite variable based on level of *student diversity* or structural diversity in the school and in English, social studies, and math classes as reported by the students.

*Statistical Procedures to Address the Research Questions*

*Research Question 1:* Do students perceive classes in Prince William County high schools to be diverse?

A fundamental theory behind this question was the idea that students exposed to multiple perspectives learn to think more critically and to understand more complex issues. This was the basic educational justification in the 1978 *Regents of California v. Bakke* and the 2003 *Grutter v. Bollinger* Supreme Court decisions, both of which relate to higher education (Gurin, 1999; Kurlaender & Yun, 2002b). These decisions affirmed the importance of diversity in higher education, leading to implications for students in the nation's schools, which have yet to be determined. The theory was that diverse learning environments produced active engagement and required students to think in more complex ways; students exposed to multiple, new, varied, and even conflicting viewpoints developed enlarged levels of critical thinking skills (Gurin).

Theories regarding the impact of diversity in an educational environment become therefore dependent upon a critical factor, which is the actual presence of diversity in the classroom and the curriculum (Kurlaender & Yun, 2001, 2002b). As such, the survey instrument asked subjects about the presence of diversity in their educational settings in order to determine if students were being exposed to the opportunities that theoretically promote higher levels of learning and better educational outcomes. Specific questions addressed ways in which subjects experienced diversity in the classroom, in the curriculum, and in working with other students from different backgrounds.

*Student diversity* (STUDIV) was defined as the perceived ethnic, racial, and socioeconomic composition of the student body as measured by subject responses to

survey questions regarding perceived demographics within the school and English, math and social studies, or history classes. Subjects were asked to rate their perceptions of the racial/ethnic diversity of their school and classes using categorical responses along a Likert scale. Category responses were converted to numeric values using a 4-point scale, with the higher number representing the greatest diversity. Results were presented in two ways, by comparing responses by subject race/ethnicity and by diversity/socioeconomic group. Descriptive statistics, specifically median scores and percentages, were used to illustrate and interpret the results, and are shown in Tables 14 through 17. Using frequencies of subject responses, the chi-square ( $\chi^2$ ) test was used to determine whether or not a systematic relationship existed between race/ethnicity and perceptions of student diversity and, alternately, between diversity/socioeconomic group and perceptions of student diversity. It was expected that perceptions of student diversity, as measured by questions asking students to assess how many students in the educational environment were from racial or ethnic groups different from their own, would differ significantly between races and would also likely differ between varied groups of diversity/socioeconomic status. The following hypotheses were subject to chi-square testing:

H<sub>0</sub>: There is no difference in the perceptions of student diversity between racial and ethnic groups within an educational setting.

H<sub>0</sub>: There is no difference in the perceptions of student diversity between levels of diversity/socioeconomic status in varied educational settings.

Students were asked to describe the level of diversity in their school and classes.

Tables 14 and 15 illustrate the extent to which students reported that their school



environment was diverse. Among the White and Hispanic students in the survey, nearly three quarters reported that “quite a few” or “about half” of the students in their schools were from other racial or ethnic groups. Over 83% of Black/African American students reported that “quite a few” or “about half” of the students were from other racial or ethnic groups. These results were not unexpected, as Black/African American and Hispanic students represented the largest minorities in the Prince William County Public Schools.

Also not unexpected, a large percentage of students from other racial or ethnic groups, including Asians/Pacific Islanders and Other students, reported that “about half” or “most” of the students were from other racial or ethnic groups different from their own. In a diverse school environment, one would have expected the perceptions of students from each racial/ethnic group to vary with respect to their perceived dissimilarity from other students. This expectation was confirmed by the results of chi-square testing; student reports of school racial composition by racial/ethnic group suggests that significant differences in the perceptions of student diversity existed between racial and ethnic groups.

Table 14

*Student Reports of School Racial Composition by Racial/Ethnic Group*

In my school:	Asian/ Pacific Islander /Hawaiian %	Black/ African American %	Hispanic %	Other %	White %
A FEW students are from racial or ethnic groups different from my own	-	-	15.2%	8.3%	3.4%
QUITE A FEW, BUT LESS THAN HALF the students are from racial or ethnic groups different from my own	15.4%	16.7%	9.1%	-	20.2%
ABOUT HALF the students are from racial or ethnic groups different from my own	7.7%	38.1%	33.3%	41.7%	46.1%
MOST of the students are from racial or ethnic groups different from my own	76.9%	45.2%	42.4%	50.0%	30.3%

The proportions of observations in different rows of the contingency table vary from column to column. With 12 degrees of freedom and a chi-square of 26.519, the characteristics that define the contingency table are significantly related ( $P = 0.009$ ).

Table 15

*Student Reports of School Racial Composition by Diversity/Socioeconomic Group*

In my school:	Group A: Low diversity, high socioeconomic status %	Group B: Medium diversity, medium socioeconomic status %	Group C: High diversity, low socioeconomic status %
A FEW students are from racial or ethnic groups different from my own	2.8%	8.9%	3.3%
QUITE A FEW, BUT LESS THAN HALF the students are from racial or ethnic groups different from my own	26.8%	3.6%	14.5%
ABOUT HALF the students are from racial or ethnic groups different from my own	33.8%	55.4%	30.6%
MOST of the students are from racial or ethnic groups different from my own	36.6%	32.1%	51.6%

The proportions of observations in different rows of the contingency table vary from column to column. With 6 degrees of freedom and a chi-square of 22.185, the characteristics that define the contingency table are significantly related ( $P = 0.009$ ).

It was expected that students' perception of diversity would vary by schools' racial/ethnic and socioeconomic demography. When disaggregated by diversity /socioeconomic group (see Table 15), students from the medium diversity/medium SES and high diversity/low SES groups reported the highest level of diversity. Over half of

the students from the high diversity/low SES group reported alone that “most” students were from other racial or ethnic groups; whereas over half of the students from the medium diversity/medium SES group reported that “about half” of the students represented other racial or ethnic groups. Reports from these two groups contrasted with the low diversity/high SES group; at 30%, nearly a third of the students from this group reported that “fewer” or “less than half” of students represented other racial or ethnic groups. When comparing school environments of varied diversity, it was expected that the perceptions of students from different diversity/socioeconomic groups would vary with respect to their perceived dissimilarity from other students. Again, this notion is supported by the results of chi-square testing; student reports of school racial composition by diversity/socioeconomic group yielded significant differences in the perceptions of student diversity between levels of diversity/socioeconomic status.

Perceptions of the level of diversity in the classroom were somewhat different from perceptions of school level diversity. Tables 16 and 17 illustrate results from a series of survey questions that addressed the extent to which students reported that their classrooms were diverse. Most students reported slightly higher levels of segregation by race within classrooms than by school in three subject areas (English, social studies, and math). This was evident in that only a small number of students from any racial or ethnic group reported “a few” or “less than half” of the students in their school were from other racial or ethnic groups (see Q.11 responses in Table 16); however, this frequency increased when the same question was asked regarding English, social studies or history, and math classes. White students in particular reported fewer students to be from different racial or ethnic groups in their classrooms than they in the overall school

environment. The study did not explore the reasons for this pattern, which could range from academic tracking to increased ESOL participation.

Regardless, very few students reported that their classes lack a sizeable presence of other racial or ethnic groups. As previously suggested, one would have expected the perceptions of students from each racial/ethnic group and from different diversity/socioeconomic groups to vary with respect to their perceived dissimilarity from other students. Again, this notion is supported by the results of chi-square testing; student reports of classroom racial composition by racial/ethnic and by diversity/socioeconomic groups yielded significant differences in the perceptions of student diversity between these groups in nearly every instance. As such, both null hypotheses were rejected. While classrooms may be less diverse than schools as a whole, it was accepted that students perceived their classes in Prince William County high schools to be diverse, and that this study indeed examined the experiences of students attending diverse schools with diverse classrooms.

Table 16

*Perceptions of Student Diversity (STUDIVI) by Racial/Ethnic Group*

Q11. How many students in your school are from racial or ethnic groups different from your own?

Response/score	Asian/ Pacific Islander/ Hawaiian %	Black/ African American %	Hispanic %	Other %	White %	<i>df</i>	$\chi^2$
A few (1)	-	-	15.2%	8.3%	3.4%	12	26.519
Quite a few, but less than half (2)	15.4%	16.7%	9.1%	-	20.2%		
About half (3)	7.7%	38.1%	33.3%	41.7%	46.1%		
Most (4)	76.9%	45.2%	42.4%	50.0%	30.3%		
$\bar{x}$ median (score)	4	3	3	3	3		

The proportions of observations in different rows of the contingency table vary from column to column. The characteristics that define the contingency table are significantly related ( $P = 0.009$ ). Power of performed test with alpha = 0.050: 0.958.

Q13. How many students in your English class are from racial or ethnic groups different from your own?

Response/score	Asian/ Pacific Islander/ Hawaiian %	Black/ African American %	Hispanic %	Other %	White %	<i>df</i>	$\chi^2$
A few (1)	7.7%	14.3%	18.2%	33.3%	30.3%	12	31.419
Quite a few, but less than half (2)	15.4%	28.6%	12.1%	8.3%	31.5%		
About half (3)	7.7%	16.7%	21.2%	25.1%	23.6%		
Most (4)	69.2%	40.4%	48.5%	33.3%	14.6%		
$\bar{x}$ median (score)	4	3	3	3	2		

The proportions of observations in different rows of the contingency table vary from column to column. The characteristics that define the contingency table are significantly related ( $P = 0.002$ ). Power of performed test with alpha = 0.050: 0.985.

Q17. How many students in your social studies/history class are from racial or ethnic groups different from your own?

Response/score	Asian/ Pacific Islander/ Hawaiian %	Black/ African American %	Hispanic %	Other %	White %	<i>df</i>	$\chi^2$
A few (1)	7.7%	19.1%	15.2%	8.3%	25.8 %	12	30.645
Quite a few, but less than half (2)	7.7%	30.9%	15.2%	41.7%	32.7%		
About half (3)	7.7%	11.9%	15.2%	16.7%	23.6%		
Most (4)	76.9%	38.1%	54.4%	33.3%	17.9%		
$\bar{x}$ median (score)	4	3	4	3	2		

The proportions of observations in different rows of the contingency table vary from column to column. The characteristics that define the contingency table are significantly related ( $P = 0.002$ ). Power of performed test with alpha = 0.050: 0.982.

Q21. How many students in your math class are from racial or ethnic groups different from your own?

Response/score	Asian/ Pacific Islander/ Hawaiian %	Black/ African American %	Hispanic %	Other %	White %	<i>df</i>	$\chi^2$
A few (1)	15.4%	14.3%	24.3%	25.0%	38.2%	12	36.722
Quite a few, but less than half (2)	7.7%	16.7%	12.1%	8.3%	29.3%		
About half (3)	-	26.1%	12.1%	25.0%	14.6%		
Most (4)	76.9%	42.9%	51.5%	41.7	17.9%		
$\bar{x}$ median (score)	4	3	4	3	2		

The proportions of observations in different rows of the contingency table vary from column to column. The characteristics that define the contingency table are significantly related ( $P = <0.001$ ). Power of performed test with alpha = 0.050: 0.995.

Table 17

*Perceptions of Student Diversity (STUDIV2) by Diversity/Socioeconomic Group*

Q11. How many students in your school are from racial or ethnic groups that are different from your own?

Response/score	Group A: Low diversity, high SES %	Group B: Medium diversity, Medium SES %	Group C: High diversity, low SES %	df	$\chi^2$
A few (1)	2.8%	8.9%	3.3%	6	22.185
Quite a few, but less than half (2)	26.8%	3.6%	14.5%		
About half (3)	33.8%	55.4%	30.6%		
Most (4)	36.6%	32.1%	51.6%		
$\bar{x}$ median (score)	3	3	4		

The proportions of observations in different rows of the contingency table vary from column to column. The characteristics that define the contingency table are significantly related ( $P = 0.001$ ). Power of performed test with  $\alpha = 0.050$ : 0.968.

Q13. How many students in your English class are from racial or ethnic groups that are different from your own?

Response/score	Group A: Low diversity, high SES %	Group B: Medium diversity, medium SES %	Group C: High diversity, low SES %	df	$\chi^2$
A few (1)	26.8%	21.4%	20.9%	6	7.111
Quite a few, but less than half (2)	30.9%	25.0%	17.7%		
About half (3)	19.7%	16.1%	25.8%		
Most (4)	22.6%	37.5%	35.6%		
$\bar{x}$ median (score)	2	3	3		

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.311$ ). Power of performed test with  $\alpha = 0.050$ : 0.806.

Q17. How many students in your social studies or history class are from racial or ethnic groups that are different from your own?

Response/score	Group A: Low diversity, high SES %	Group B: Medium diversity, medium SES %	Group C: High diversity, low SES %	df	$\chi^2$
A few (1)	22.5%	19.6%	17.7%	6	19.007
Quite a few, but less than half (2)	42.3%	23.2%	16.1%		
About half (3)	8.5%	26.8%	20.9%		
Most (4)	26.7%	30.4%	45.3%		
$\bar{x}$ median (score)	2	3	3		

The proportions of observations in different rows of the contingency table vary from column to column. The characteristics that define the contingency table are significantly related ( $P = 0.004$ ). Power of performed test with  $\alpha = 0.050$ : 0.933.

Q21. How many students in your math class are from racial or ethnic groups that are different from your own?

Response/score	Group A: Low diversity, high SES %	Group B: Medium diversity, medium SES %	Group C: High diversity, low SES %	df	$\chi^2$
A few (1)	43.7%	21.4%	16.1%	6	27.128
Quite a few, but less than half (2)	28.2%	12.5%	19.4%		
About half (3)	9.9%	17.9%	24.2%		
Most (4)	18.2%	48.2%	40.3%		
$\bar{x}$ median (score)	2	3	3		

The proportions of observations in different rows of the contingency table vary from column to column. The characteristics that define the contingency table are significantly related ( $P < 0.001$ ). Power of performed test with  $\alpha = 0.050$ : 0.991.

*Research Question 2:* Do students perceive lessons in Prince William County high school classrooms' to be diverse?

*Curricular diversity* (CURRDIV) was defined as the presence of learning opportunities that enable students to acquire the knowledge and skills requisite to analyze, explain, and discuss diversity concepts and issues, as measured by subject responses to survey questions regarding the extent of course readings/materials and classroom discussions in English and social studies or history classes, and the perceived extent to which these readings and discussions have influenced their understanding of different viewpoints. Subjects were asked to rate the extent to which diversity concepts and issues were being discussed in their classes, as well as the extent to which those discussions have influenced their thinking using categorical responses along a Likert scale. Again, responses were converted to numeric values using a 4-point scale in order to facilitate calculation of median scores and percentages, with the higher number representing the greatest frequency or influence. Results were again presented by subject race/ethnicity and by diversity/ socioeconomic group and are shown in Tables 18 and 19.

Examination of the results facilitated an understanding of how different racial groups perceived the level and impact of curricular diversity and how these perceptions vary between diversity/socioeconomic groups. Using frequencies of subject responses, the chi-square ( $\chi^2$ ) test was used to determine whether or not a systematic relationship existed between race/ethnicity and perceptions of curricular diversity and, alternately, between diversity/socioeconomic group and perceptions of curricular diversity. It was expected that perceptions of curricular diversity would not differ significantly between races, nor would it likely differ between varied groups of diversity/socioeconomic status.

This is because students within the same educational setting should be exposed to the same level of curricular diversity, regardless of race. Conversely, only if curricular diversity was related to the level of diversity of a school setting and the socioeconomic status of its students would it be expected to be different in various settings. The following hypotheses were subject to chi-square testing:

H<sub>0</sub>: There is no difference in the perceptions of curricular diversity between racial and ethnic groups within an educational setting.

H<sub>0</sub>: There is no difference in the perceptions of curricular diversity between levels of diversity/socioeconomic status in varied educational settings.

The predominance of theories about how diversity functions in the educational environment rely on the actual presence of diversity, not just with respect to the demographics of the student body, but rather with the classroom and curriculum. In order to address the question of how diversity affected the educational experience of students in Prince William County, the DAQ asked about the presence of diversity in the classroom, and about those learning experiences that could contribute to discussions and opportunities leading to improved educational outcomes.

Tables 18 and 19 include the results from a string of questions that addressed the level of diversity in the English and social studies curriculum and the extent to which students perceived the curriculum as having influenced or contributing to their understanding of different points of view. Several key observations were made from the student responses.

Overall, students reported that racial and cultural issues were explored fairly frequently during classroom discussions. In substantially diverse schools as found in



Prince William County, students were provided opportunities to interact with members of many other racial and ethnic groups and to understand not only the differences in experiences and perceptions by race but also the diversity that exists within each of these varied groups.

Second, it was noted that students reported a greater level of diversity in the social studies curriculum than in the English curriculum. Over 72% of the social studies students reported that they discussed and explored racial issues on a frequent basis (reported as either “once or twice a month” or “at least three times a month”) as opposed to only 46% of the English students. This finding suggests that the faculty has been taking advantage of important learning opportunities in multiracial and ethnically diverse classrooms.

Third, students from all racial groups reported approximately the same level of diversity in the curriculum, which is clearly illustrated in Table 18. Results were similar when disaggregated by diversity/socioeconomic group (see Table 19). This observation was supported by the results of chi-square testing. Reports of students’ perceptions of curricular diversity by racial/ethnic group and diversity/socioeconomic group suggested no significant difference between these groups in nearly every instance; as such, both null hypotheses were accepted.

A more profound question related to the impact of the curriculum’s diversity on the students’ understanding of different points of view. Over 78% of students from all racial/ethnic and diversity/socioeconomic groups reported that exposure in the curriculum to different cultures and experiences helped them in some way to better understand viewpoints different from their own; nearly half indicated that this exposure had a

significant impact on the way they think (categorized as either “quite a bit” or “a lot”). The ability to understand differing points of view may be viewed as critical to functioning both socially and economically, particularly as many future economic opportunities will involve interactions with others who are from different cultures and who may hold divergent worldviews (Kurlaender & Yun, 2001). In a county where the demographics are shifting towards no clear majority group among the school-age population, and where there is increasing diversity and immigration, the ability to understand others’ perspectives and differing points of view will be an important asset for future success. Clearly, the diversity in subject classes was high and thus the prerequisite for diversity existed. In subsequent sections, the manner in which diversity may hold influence over student educational outcomes is explored.

Do diverse schools produce the diverse classrooms and curricular experiences that are expected to facilitate more critical thinking and complex learning? Intuitively, one would think that this would be so. But it must be recognized that schools with diverse student bodies may be internally segregated or that their curriculum may not uniformly address issues of diversity. The previous chi-square testing revealed something about student diversity and curricular diversity, but nothing about how strongly they were related if at all; therefore, Spearman’s rho ( $\rho$ ) was used to calculate a coefficient of correlation in order to test the following null hypothesis:

H<sub>0</sub>: There is no relationship between student perceptions of curricular diversity and level of student diversity in educational settings.

Subject summative scores were determined for each of the variables and were used in the correlation calculation. In addition to calculating a correlation for the entirety

of the sample, a series of first-order partial correlations was also conducted. Partial correlation is typically used to determine what correlation remains between two variables when the effect of a third is eliminated. In this circumstance, the interest was between student diversity and curricular diversity, both of which were related to the level of diversity/socioeconomic status in an educational setting. As such, it was considered that scores on student diversity and curricular diversity may have correlated with each other because of this relationship.

Table 20 includes the results of correlations for the entirety of the sample, plus a series of first-order partial correlations between perceptions of student diversity and curricular diversity by component variable. Overall, there existed a statistically significant correlation between student diversity (STUDIV) and curricular diversity (CURRDIV) causing rejection of the null hypothesis, however, this significance eroded when component variables were decomposed and tested against one another.

Significant relationships existed between the composite variable STUDIV (as measured by demographics within the school and in the classrooms) and curricular diversity of classes (as measured by frequency of course readings and classroom discussions focused on cultural and racial issues in English and social studies classes, shown as CURRDIV-READ, CURRDIV-ENGDIS, and CURRDIV-SSDIS), but not between STUDIV and the perceived impact of curricular diversity on students' point of views (CURRDIV-IMPACT).

Additional observations were made when the composite variable STUDIV was further decomposed. Partial correlations showed no significant relationship between student perceptions of student diversity of schools as whole (STUDIV-SCHOOL) and

any composite or component variable of curricular diversity; however, significant relationships did exist between the student diversity of individual classes (STUDIV-ENGCL, STUDIV-SSCL) and the experiences within them, specifically, readings about different cultures and exploration and discussions about racial issues. This relationship suggests that the experiences that diverse students brought to the classroom engendered and added value to these discussions.

A final observation dealt not with the relationship between student diversity and curricular diversity, but rather between the curricular diversity of classes (CURRDIV-READ, CURRDIV-ENGDIS, and CURRDIV-SSDIS) and the perceived impact of discussions and explorations on respondents' understanding of diverse points of view (CURRDIV-IMPACT). Significant relationships existed when curricular impact (CURRDIV-IMPACT) was paired with each of the classroom variables, suggesting again that the frequency of class readings, discussions, and interactions about cultural and racial issues had a positive impact on student points of views. Therefore, it can be concluded that Prince William County Public Schools produced the diverse classrooms and curricular experiences that were expected to facilitate more critical thinking and complex learning.

Table 18

*Perceptions of Curricular Diversity (CURRDIV1) by Racial/Ethnic Group*

Q14. How often do you read about the experiences of different cultures and racial and ethnic groups in your English class?

Response/score	Asian/ Pacific Islander/ Hawaiian %	Black/ African American %	Hispanic %	Other %	White %	<i>df</i>	$\chi^2$
At least 3 Times a Month (4)	23.1%	16.6%	33.3%	8.3%	15.7%	12	16.090
Once or Twice a Month (3)	53.8%	50.0%	42.5%	25.0%	44.9%		
Less than Once a Month (2)	7.7%	28.6%	12.1%	41.7%	23.7%		
Never (1)	15.4%	4.8%	12.1%	25.0%	15.7%		
$\bar{x}$ median (score)	3	3	3	2	3		

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.187$ ). Power of performed test with alpha = 0.050: 0.801.

Q15. During classroom discussions in your English class how often are racial issues discussed and explored?

Response/score	Asian/ Pacific Islander/ Hawaiian %	Black/ African American %	Hispanic %	Other %	White %	<i>df</i>	$\chi^2$
At least 3 Times a Month (4)	-	2.4%	15.2%	16.7%	12.4%	12	9.807
Once or Twice a Month (3)	53.8%	42.9%	33.3%	16.7%	33.7%		
Less than Once a Month (2)	23.1%	33.3%	27.3%	33.3%	30.3%		
Never (1)	23.1%	21.4%	24.2%	33.3%	23.6%		
$\bar{x}$ median (score)	3	2	3	2	2		

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.633$ ). Power of performed test with alpha = 0.050: 0.886 .

Q18. During classroom discussions in your social studies or history class how often are racial issues discussed and explored?

Response/score	Asian/ Pacific Islander/ Hawaiian %	Black/ African American %	Hispanic %	Other %	White %	<i>df</i>	$\chi^2$
At least 3 Times a Month (4)	53.8%	30.9%	24.1%	58.3%	43.8%	12	13.114
Once or Twice a Month (3)	23.1%	45.3%	45.5%	16.7%	26.9%		
Less than Once a Month (2)	7.7%	16.7%	15.2%	16.7%	19.1%		
Never (1)	15.4%	7.1%	15.2%	8.3%	10.2%		
$\bar{x}$ median (score)	4	3	3	4	3		

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.361$ ). Power of performed test with alpha = 0.050: 0.842.

Q19. To what extent do you believe that these discussions have changed your understanding of different points of view?

Response/score	Asian/ Pacific Islander/ Hawaiian %	Black/ African American %	Hispanic %	Other %	White %	<i>df</i>	$\chi^2$
Not at all (1)	15.3%	9.5%	33.3%	33.3%	23.6%	12	20.707
A little (2)	38.5%	38.1%	27.3%	41.7%	37.1%		
Quite a bit (3)	38.5%	50.0%	36.4%	25.0%	24.7%		
A lot (4)	7.7%	2.4%	3.0%	-	14.6%		
$\bar{x}$ median (score)	2	3	3	2	2		

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.055$ ). Power of performed test with alpha = 0.050: 0.880 .

Table 19

*Perceptions of Curricular Diversity (CURRDIV2) by Diversity/Socioeconomic Group*

Q14. How often do you read about the experiences of different cultures and racial and ethnic groups in your English class?

Response/score	Group A: Low diversity, high SES %	Group B: Medium diversity, medium SES %	Group C: High diversity, low SES %	<i>df</i>	$\chi^2$
At least 3 Times a Month (4)	14.1%	21.4%	22.6%	6	11.957
Once or Twice a Month (3)	39.4%	41.1%	54.8%		
Less than Once a Month (2)	28.2%	19.6%	19.4%		
Never (1)	18.3%	17.9%	3.2%		
$\bar{x}$ median (score)	3	3	3		

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.063$ ). Power of performed test with  $\alpha = 0.050$ : 0.834.

Q15. During classroom discussions in your English class how often are racial issues discussed and explored?

Response/score	Group A: Low diversity, high SES %	Group B: Medium diversity, medium SES %	Group C: High diversity, low SES %	<i>df</i>	$\chi^2$
At least 3 Times a Month (4)	5.6%	16.4%	9.7%	6	13.433
Once or Twice a Month (3)	29.6%	34.5%	45.1%		
Less than Once a Month (2)	32.4%	23.6%	33.9%		
Never (1)	32.4%	25.5%	11.3%		
$\bar{x}$ median (score)	2	3	3		

The proportions of observations in different rows of the contingency table vary from column to column. The characteristics that define the contingency table are significantly related ( $P = 0.037$ ). Power of performed test with  $\alpha = 0.050$ : 0.813.

Q18. During classroom discussions in your social studies or history class how often are racial issues discussed and explored?

Response/score	Group A: Low diversity, high SES %	Group B: Medium diversity, medium SES %	Group C: High diversity, low SES %	<i>df</i>	$\chi^2$
At least 3 Times a Month (4)	38.0%	44.6%	38.7%	6	5.798
Once or Twice a Month (3)	26.8%	30.4%	40.3%		
Less than Once a Month (2)	21.1%	17.9%	11.3%		
Never (1)	14.1%	7.1%	9.7%		
$\bar{x}$ median (score)	3	3	3		

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.446$ ). Power of performed test with  $\alpha = 0.050$ : 0.880.

Q19. To what extent do you believe that these discussions have changed your understanding of different points of view?

Response/score	Group A: Low diversity, high SES %	Group B: Medium diversity, medium SES %	Group C: High diversity, low SES %	<i>df</i>	$\chi^2$
Not at all (1)	26.8%	23.2%	16.1%	6	7.296
A little (2)	40.8%	30.4%	38.7%		
Quite a bit (3)	28.2%	32.1%	37.1%		
A lot (4)	4.2%	14.3%	8.1%		
$\bar{x}$ median (score)	2	2	2		

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.294$ ). Power of performed test with  $\alpha = 0.050$ : 0.878.

Table 20

*Correlation Between Perceptions of Student Diversity (STUDIV) and Curricular Diversity (CURRDIV); First-Order Partial Correlations by Component Variable*

Student Diversity (STUDIV)	Curricular Diversity (CURRDIV)				
	CURRDIV (Composite) Coefficient P-Value	CURRDIV -READ Coefficient P-Value	CURRDIV-ENGDIS Coefficient P-Value	CURRDIV -SSDIS Coefficient P-Value	CURRDIV -IMPACT Coefficient P-Value
STUDIV (Composite)	0.258	0.241	0.155	0.218	0.128
Samples: 189	0.000	0.000	0.0329	0.00257	0.0793*
- STUDIV-SCHOOL (Component)	0.0497	0.0230	0.0609	-0.00631	0.389
	0.497*	0.753*	0.405*	0.931*	0.595*
- STUDIV-ENGCL (Component)	0.212	0.200	0.107	-	0.103
	0.00346	0.00590	0.142*		0.156*
- STUDIV-SSCL (Component)	0.213	-	-	0.211	0.626
	0.00345			0.00368	0.393*
CURRDIV-IMPACT (Component)	0.771	0.686	0.783	0.631	-
	0.000	0.000	0.000	0.000	

Pairs of variables with positive correlation coefficients and P values below 0.050 tend to increase together. For the pairs with negative correlation coefficients and P values below 0.050, one variable tends to decrease while the other increases.

\*For pairs with P values greater than 0.050, there is no significant relationship between the two variables.

Variable Name	Type	Definition
STUDIV	Composite	Student ethnic and racial diversity as measured by demographics in school, English, social studies and math classes
- STUDIV-SCHOOL	Component	Student ethnic and racial diversity measured by school demographics (Q.11)
- STUDIV-ENGCL	Component	Student ethnic and racial diversity measured by English class demographics (Q.13)
- STUDIV-SSCL	Component	Student ethnic and racial diversity as measured by social studies class demographics (Q.17)
- STUDIV-MATH	Component	Student ethnic and racial diversity as measured by math class demographics (Q.21)
CURRDIV	Composite	Curricular diversity in English and social studies classes as measured by course readings/materials and classroom discussion
- CURRDIV-READ	Component	Frequency of exposure to varied cultures and racial and ethnic groups via reading experiences in English Classes (Q.14)
- CURRDIV-ENGDIS	Component	Frequency of classroom discussions and explorations focused on racial issues as experienced in English classes(Q.15)
- CURRDIV-SSDIS	Component	Frequency of classroom discussions and explorations focused on racial issues as experienced in English classes(Q.18)
- CURRDIV-IMPACT	Component	Perceived impact of discussions and explorations on respondents understanding of diverse points of view(Q.19)

*Research Question 3:* Do students perceive diverse settings to be positively related to more comfortable exchanges among students?

Up to this point, the study examined factors of opportunity—the diversity of school settings and classrooms and the presence of student exchanges that were expected to facilitate more critical thinking. But would students act on these opportunities; were students comfortable and, therefore, willing to operate in diverse classroom environments? *Classroom peer interactions* (CLPEERINT) was defined as students' comfort level in working with peers from different racial or ethnic backgrounds in the classroom as measured by subject responses to survey questions. Subjects were asked to rate their comfort level with various degrees of peer interaction in the classroom with respect to issues of race and ethnicity, to include their degree of comfort in working with and learning about others whose racial/ethnic/linguistic and national origins are different from their own. Subjects selected categorical responses along a Likert scale, which were again converted to numeric values using a 5-point scale. Median scores and percentages were calculated, with the higher number representing the greatest comfort level. Results were again presented by subject race/ethnicity and by diversity/socioeconomic group and are shown in Tables 21 and 22.

Examination of the results facilitated an understanding of how diverse subjects considered their peer interactions to be, how comfortable different subject racial and ethnic groups were in interacting with one another, and how these peer interactions varied between diversity/socioeconomic groups. Using frequencies of subject responses, the chi-square ( $\chi^2$ ) test was used to determine whether or not a systematic relationship existed between race/ethnicity and classroom peer interactions and, alternately, between



diversity/socioeconomic group and peer interactions. It was expected that comfort levels of classroom peer interaction would not differ significantly between races, but would likely differ between varied groups of diversity/socioeconomic status. This is based on the theory that higher levels of exposure to diversity in the educational setting would increase one's comfort level in interacting with peers from different backgrounds. If comfort in peer interactions between students of different backgrounds was related to the level of diversity of a school setting and the socioeconomic status of its students, then comfort would be expected to differ in various settings. The following hypotheses were subject to chi-square testing:

H<sub>0</sub>: There is no difference in peer interaction comfort levels between racial and ethnic groups within an educational setting.

H<sub>0</sub>: There is no difference in peer interaction comfort levels between levels of diversity/socioeconomic status in varied educational settings.

Tables 21 and 22 include the results from a series of questions that asked students to describe their comfort level with varying degrees of peer interaction in the classroom surrounding issues of diversity and race.

Ninety-five percent of all races and ethnic groups felt comfortable or very comfortable in learning about differences between people from other racial and ethnic groups; only a few White and Other students registered any discomfort with this task at all. This was perhaps the most innocuous task, as it did not necessarily involve personal interaction with others and reported high comfort levels were expected.

However, students also reported that they were not reticent in confronting controversial issues with their peers. At 88%, the majority of students from all racial and

ethnic groups reported being comfortable or very comfortable discussing controversial issues related to race. Black/African American students reported the least amount of discomfort in these discussions at 5% while Other students reported the highest amount of discomfort at 25%.

Similarly, 89% of students from all racial and ethnic groups reported being comfortable or very comfortable working with students from different racial and ethnic backgrounds on group projects. Asian/Pacific Islander, Hispanic and White students reported the highest comfort levels at 100%, 97%, and 92%, respectively, whereas Black/African American and Other students reported the highest discomfort levels at approximately 17%.

Eighty-five percent of students from all racial and ethnic groups reported being comfortable or very comfortable working with students from other language backgrounds; Asian/Pacific Islanders and Hispanic students expressed the highest degree of comfort at approximately 93 to 94%. Likewise, 88% of all students reported being comfortable or very comfortable working with students from different countries, and Asian/Pacific Islanders and Hispanic students again expressed the highest degree of comfort at approximately 92 and 94%, respectively.

Although there were slight differences in responses between racial and ethnic groups in each of these series of responses, chi-square testing indicated that no systematic relationship existed between race/ethnicity and classroom peer interactions; therefore, the null hypothesis was accepted. These results strongly suggest that students in the Prince William County Public School system were very comfortable with peer interactions

across races and that there was no difference in peer interaction comfort levels between racial and ethnic groups.

It has been established that different subject racial and ethnic groups were comfortable interacting with one another, but how did these peer interactions vary between diversity/socioeconomic groups? Table 22 includes the results from the same series of questions that asked students to describe their comfort level with varying degrees of peer interaction disaggregated by diversity/socioeconomic group. Unlike comparison of responses by racial/ethnic group, chi-square testing indicated that several systematic relationships existed between diversity/socioeconomic group and classroom peer interactions. As such, the null hypothesis was rejected; there were differences in peer interaction comfort levels between levels of diversity/socioeconomic status.

At 92%, the majority of students from the high diversity/low SES group reported being comfortable or very comfortable discussing controversial issues related to race. Similarly, 89% of students from the medium diversity/medium SES group reported being comfortable or very comfortable when posed the same question. This number dropped significantly to approximately 75% when the question was posed to the low diversity/high SES group.

When asked about comfort levels in working with students from different racial and ethnic backgrounds on group projects, over 90% of the high diversity/low SES and medium diversity/medium SES groups responded that they were comfortable or very comfortable, whereas only 72% of the low diversity/high SES group responded in the same manner, again generating statistically significant differences. Even the most innocuous task, regarding comfort level in learning about differences between people

from other racial and ethnic groups, generated significant differences between groups; the high diversity/low SES and medium diversity/medium SES groups reported comfort levels of 92 and 100%, respectively, while the low diversity/high SES group reported a comfort level of 86%.

The two questions related to linguistic and country-of-origin diversity were the only ones that did not generate statistically significant results; however, the direction of the responses remained the same with highest comfort levels rendered by the high diversity/low SES group and the lowest comfort levels rendered by the low diversity/high SES group. It should also be noted that the power of the tests in both of these cases was less than the desired power; as such there was a likelihood of not detecting a statistically significant difference when one existed.

These results have profound implications. It is clear that Prince William County school settings and classrooms were diverse and that they provided opportunities for diverse student exchanges that were expected to facilitate more critical thinking. Across races and ethnic groups, students were equally willing to engage with their peers and possessed a high comfort level in doing so. However, the results also suggest that students that were placed in settings of higher diversity were more comfortable, and therefore more willing, to operate in diverse classroom environments.

Up to this point, the research question has focused on the willingness and likelihood that students would have acted on the opportunities presented to them in diverse classrooms. If students placed in settings of higher diversity were more willing to operate in diverse classrooms, than by extension, how did diversity experienced at the

school level impact students' interest in learning, working, and living in multicultural or multiracial settings?

As has previously been suggested, America's schools are leading the way in the impending racial and ethnic transformation of the nation set to occur in the next half century. As America becomes more diverse, it is important to understand how education plays a part in preparing students to operate in environments where people are different from themselves (Kurlaender & Yun, 2001). Students who experience diversity in classroom settings may be those most likely to interact most widely with persons from different races and ethnic backgrounds (Gurin, 1999; Kurlaender & Yun, 2001, 2002a, 2002b).

*Peer interactions* (PEERINT) were defined as students' attitudes and interest towards working and living in multiracial or multiethnic settings as measured by subject responses to survey questions. Subjects were asked to assess their comfort level with, preparation for, and intention to function in settings that were racially and ethnically diverse. Subjects selected categorical responses along a Likert scale, which were again converted to numeric values using a 5-point scale. Median scores and percentages were calculated, with the higher number representing the greater level of likelihood or preparedness. Results were again presented by subject race/ethnicity and by diversity/socioeconomic group and are shown in Tables 23 and 24.

Ninety-six percent of all races and ethnic groups felt prepared or very prepared to work in a job setting with people of different racial or ethnic backgrounds. Only a small percentage of Black/African American, White, and Other students registered any level of concern over preparedness at all.

Seventy-eight percent of all races and ethnic groups indicated that their school experiences “helped somewhat” or “helped a lot” with their ability to work in these multiracial environments. Just over 2% of Black/African Americans and just over 1% of White students indicated that their experiences did not help at all. Over 81% of all students indicated that they expected to go to a college with students from different racial/ethnic backgrounds, and over 95% indicated that they thought it likely or very likely that they would work with people of different races. Similarly, over 95% of all students indicated that they would be comfortable or very comfortable working for a supervisor from a different race or ethnicity.

Although there were slight differences in responses between racial and ethnic groups in each of these series of responses, chi-square testing indicated that no systematic relationship existed between race/ethnicity and classroom peer interactions; therefore, the null hypothesis was accepted. These results corroborate findings that students in the Prince William County Public School system were very comfortable with peer interactions across races and that there was no difference in attitudes about working in multiracial/ethnic settings between racial and ethnic groups.

Table 24 includes the results from the same series of questions, in this circumstance, disaggregated by diversity/socioeconomic group. Unlike comparison of responses by racial/ethnic group, chi-square testing indicated that several systematic relationships existed between diversity/socioeconomic group and peer interactions.

Student responses to questions did not vary significantly between diversity/socioeconomic groups when asked about preparedness to work in multiracial job settings, about comfort with working for a supervisor from a different racial or ethnic

background, or with respect to beliefs about how school experiences might affect the ability to work with members of other races.

Statistically significant differences did surface when the question was posed about the likelihood of attending a college of different racial and ethnic backgrounds. This difference was likely due to the high percentage of students from the high diversity/low SES group that responded that they did not plan to go to college, presumably for financial reasons, as subsequent results showed that their educational aspirations were similar to those of other groups.

The other question that yielded statistically significant differences related to the likelihood of working with people of differing racial and ethnic backgrounds. One hundred percent of the high diversity/low SES group responded that this was likely or very likely, where 3.6% of the medium diversity/medium SES and nearly 10% of the low diversity/high SES groups responded that this was unlikely or very unlikely.

As has been suggested, if students believe they are better prepared to work within diverse environments and are able to work more cooperatively with other racial and ethnic groups, then the national implications are profound (Kurlaender & Yun, 2001). These results would seem to further corroborate the notion that students who attend more diverse schools are more comfortable with members of different racial/ethnic groups and express a greater desire to live and work in multiracial settings as compared to their more segregated peers; these benefits naturally flow to the surrounding community.

Table 21

*Perceptions of Classroom Peer Interaction (CLPEERINT) by Racial/Ethnic Group*

Q38. How comfortable are you discussing controversial issues related to race?

Response/score	Asian/ Pacific Islander/ Hawaiian %	Black/ African American %	Hispanic %	Other %	White %	<i>df</i>	$\chi^2$
Very comfortable (5)	38.4%	69.0%	48.4%	50.0%	44.9%	16	23.554
Comfortable (4)	46.2%	26.2%	36.4%	25.0%	35.9%		
Uncomfortable (3)	15.4%	-	9.1%	8.3%	14.6%		
Very uncomfortable (2)	-	4.8%	6.1%	16.7%	1.1%		
Does not apply (1)	-	-	-	-	3.5%		
$\bar{x}$ median (score)	4	5	5	5	5		

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.100$ ). Power of performed test with alpha = 0.050: 0.889.

Q39. How comfortable are you working with students from different racial and ethnic backgrounds on group projects?

Response/score	Asian/ Pacific Islander/ Hawaiian %	Black/ African American %	Hispanic %	Other %	White %	<i>df</i>	$\chi^2$
Very comfortable (5)	69.2%	71.4%	87.9%	50.0%	67.4%	12	17.182
Comfortable (4)	30.8%	11.9%	9.1%	33.3%	21.3%		
Uncomfortable (3)	-	16.7%	3.0%	16.7%	7.9%		
Very uncomfortable (2)	-	-	-	-	-		
Does not apply (1)	-	-	-	-	3.4%		
$\bar{x}$ median (score)	5	5	5	5	5		

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.143$ ). Power of performed test with alpha = 0.050: 0.802.

Q40. How comfortable are you learning about the differences between people from other racial and ethnic groups?

Response/score	Asian/ Pacific Islander/ Hawaiian %	Black/ African American %	Hispanic %	Other %	White %	<i>df</i>	$\chi^2$
Very comfortable (5)	76.9%	85.7%	84.8%	66.4%	70.8%	16	21.947
Comfortable (4)	23.1%	14.3%	15.2%	16.3%	21.3%		
Uncomfortable (3)	-	-	-	-	4.6%		
Very uncomfortable (2)	-	-	-	16.3%	2.2%		
Does not apply (1)	-	-	-	-	1.1%		
$\bar{x}$ median (score)	5	5	5	5	5		

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.145$ ). Power of performed test with alpha = 0.050: 0.859.

Q41. How comfortable are you working with students from other language backgrounds?

Response/score	Asian/ Pacific Islander/ Hawaiian %	Black/ African American %	Hispanic %	Other %	White %	<i>df</i>	$\chi^2$
Very comfortable (5)	61.5%	45.2%	75.8%	41.7%	42.7%	16	25.374
Comfortable (4)	30.8%	35.7%	18.2%	41.7%	39.3%		
Uncomfortable (3)	7.7%	19.1%	3.0%	-	7.9%		
Very uncomfortable (2)	-	-	3.0%	8.3%	4.5%		
Does not apply (1)	-	-	-	8.3%	5.6%		
$\bar{x}$ median (score)	5	4	5	4	4		

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.063$ ). Power of performed test with alpha = 0.050: 0.917.



Table 21 (continued)

*Perceptions of Classroom Peer Interaction (CLPEERINT) by Racial/Ethnic Group*

Q42. How comfortable are you working with students from different countries?

Response/score	Asian/ Pacific Islander/ Hawaiian %	Black/ African American %	Hispanic %	Other %	White %	<i>df</i>	$\chi^2$
Very comfortable (5)	69.2%	64.3%	78.8%	66.7%	55.2%	16	24.346
Comfortable (4)	23.1%	21.4%	15.2%	25.0%	30.3%		
Uncomfortable (3)	7.7%	2.4%	6.0%	8.3%	8.9%		
Very uncomfortable (2)	-	11.9%	-	-	1.1%		
Does not apply (1)	-	-	-	-	4.5%		
$\bar{X}$ median (score)	5	5	5	5	5		

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.082$ ). Power of performed test with alpha = 0.050: 0.902.

Table 22

*Perceptions of Classroom Peer Interaction (CLPEERINT) by Diversity/Socioeconomic Group*

Q38. How comfortable are you discussing controversial issues related to race?					
Response/score	Group A: Low diversity, high SES %	Group B: Medium diversity, medium SES %	Group C: High diversity, low SES %	<i>df</i>	$\chi^2$
Very comfortable (5)	42.3%	64.3%	48.5%	8	22.862
Comfortable (4)	32.4%	25.0%	43.5%		
Uncomfortable (3)	19.7%	3.6%	4.8%		
Very uncomfortable (2)	4.2%	7.1%	-		
Does not apply (1)	1.4%	-	3.2%		
$\bar{x}$ median (score)	4	5	5		
The proportions of observations in different rows of the contingency table vary from column to column. The characteristics that define the contingency table are significantly related (P = 0.004). Power of performed test with alpha = 0.050: 0.955.					
Q39. How comfortable are you working with students from different racial and ethnic backgrounds on group projects?					
Response/score	Group A: Low diversity, high SES %	Group B: Medium diversity, medium SES %	Group C: High diversity, low SES %	<i>df</i>	$\chi^2$
Very comfortable (5)	52.1%	71.5%	79.0%	6	15.340
Comfortable (4)	26.8%	19.6%	11.3%		
Uncomfortable (3)	19.7%	8.9%	6.5%		
Very uncomfortable (2)	-	-	-		
Does not apply (1)	1.4%	-	3.2%		
$\bar{x}$ median (score)	5	5	5		
The proportions of observations in different rows of the contingency table vary from column to column. The characteristics that define the contingency table are significantly related (P = 0.018). Power of performed test with alpha = 0.050: 0.855.					
Q40. How comfortable are you learning about the differences between people from other racial and ethnic groups?					
Response/score	Group A: Low diversity, high SES %	Group B: Medium diversity, medium SES %	Group C: High diversity, low SES %	<i>df</i>	$\chi^2$
Very comfortable (5)	60.6%	85.7%	80.6%	8	17.860
Comfortable (4)	25.4%	14.3%	11.4%		
Uncomfortable (3)	8.5%	-	1.6%		
Very uncomfortable (2)	1.4%	-	1.6%		
Does not apply (1)	4.1%	-	4.8%		
$\bar{x}$ median (score)	5	5	5		
The proportions of observations in different rows of the contingency table vary from column to column. The characteristics that define the contingency table are significantly related (P = 0.022). Power of performed test with alpha = 0.050: 0.878.					

Table 22 (continued)

*Perceptions of Classroom Peer Interaction (CLPEERINT) by Diversity/Socioeconomic Group*

Q41. How comfortable are you working with students from other language backgrounds?					
Response/score	Group A: Low diversity, high SES %	Group B: Medium diversity, medium SES %	Group C: High diversity, low SES %	<i>df</i>	$\chi^2$
Very comfortable (5)	45.1%	44.6%	61.3%	8	0.012
Comfortable (4)	35.2%	44.6%	29.0%		
Uncomfortable (3)	11.3%	7.2%	4.8%		
Very uncomfortable (2)	4.2%	3.6%	1.7%		
Does not apply (1)	4.2%	-	3.2%		
$\bar{x}$ median (score)	4	4	5		
The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.341$ ). Power of performed test with $\alpha = 0.050$ : 0.626.					
Q42. How comfortable are you working with students from different countries?					
Response/score	Group A: Low diversity, high SES %	Group B: Medium diversity, medium SES %	Group C: High diversity, low SES %	<i>df</i>	$\chi^2$
Very comfortable (5)	57.7%	64.2%	74.2%	6	7.483
Comfortable (4)	26.8%	26.8%	20.9%		
Uncomfortable (3)	11.3%	3.6%	3.3%		
Very uncomfortable (2)	4.2%	5.4%	1.6%		
Does not apply (1)	-	-	-		
$\bar{x}$ median (score)	5	5	5		
The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.278$ ). Power of performed test with $\alpha = 0.050$ : 0.689.					

Table 23

*Attitudes about Working in a Multiracial or Multiethnic Setting (PEERINT) by Racial/Ethnic Group*

Q35. After high school, how prepared do you feel to work in a job setting where people are of a different racial or ethnic background than you are?

Response/score	Asian/ Pacific Islander/ Hawaiian %	Black/ African American %	Hispanic %	Other %	White %	<i>df</i>	$\chi^2$
Very prepared (4)	38.5%	61.9%	81.8%	58.4%	64.0%	12	16.166
Prepared (3)	53.8%	33.3%	15.2%	33.3%	32.6%		
Somewhat unprepared (2)	7.7%	-	3.0%	-	2.2%		
Very unprepared (1)	-	4.8%	-	8.3%	1.2%		
$\bar{x}$ median (score)	3	4	4	4	4		

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.184$ ). Power of performed test with alpha = 0.050: 0.809.

Q36. How do you believe your school experiences will affect your ability to work with members of other races and ethnic groups?

Response/score	Asian/ Pacific Islander/ Hawaiian %	Black/ African American %	Hispanic %	Other %	White %	<i>df</i>	$\chi^2$
Helped a lot (5)	38.5%	57.1%	51.5%	33.3%	31.4%	16	16.320
Helped somewhat (4)	38.5%	26.2%	33.3%	50.0%	40.4%		
Had no effect (3)	23.0%	14.3%	12.2%	16.7	27.0%		
Did not help (2)	-	2.4%	-	-	1.2%		
Hurt my ability (1)	-	-	-	-	-		
$\bar{x}$ median (score)	4	5	5	4	4		

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are significantly related ( $P = 0.431$ ). Power of performed test with alpha = 0.050: 0.960.

Q45. How likely are you to go to a college that has students of different racial and ethnic backgrounds?

Response/score	Asian/ Pacific Islander/ Hawaiian %	Black/ African American %	Hispanic %	Other %	White %	<i>df</i>	$\chi^2$
Very likely (5)	46.1%	38.1%	42.4%	41.7%	43.8%	16	16.320
Likely (4)	38.5%	31.0%	30.3%	41.7%	46.2%		
Unlikely (3)	-	2.4%	6.1%	-	2.2%		
Very unlikely (2)	-	9.5%	3.0%	-	2.2%		
I do not plan to go to college (1)	15.4%	19.0%	18.2%	16.6%	5.6%		
$\bar{x}$ median (score)	4	4	4	4	4		

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.431$ ). Power of performed test with alpha = 0.050: 0.792.

Table 23 (continued)

*Attitudes about Working in a Multiracial or Multiethnic Setting (PEERINT) by Racial/Ethnic Group*

Q46. How likely do you think it is that you will work with people of racial and ethnic backgrounds different from your own?

Response/score	Asian/ Pacific Islander/ Hawaiian %	Black/ African American %	Hispanic %	Other %	White %	<i>df</i>	$\chi^2$
Very likely (4)	76.9%	69.0%	75.8%	58.4%	62.9%	12	5.335
Likely (3)	23.1%	23.8%	21.2%	33.3%	32.6%		
Unlikely (2)	-	4.8%	3.0%	8.3%	3.4%		
Very unlikely (1)	-	2.4%	-	-	1.1%		
$\bar{x}$ median (score)	4	4	4	4	4		

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.946$ ). Power of performed test with  $\alpha = 0.050$ : 0.857.

Q37. How comfortable would you be with a work supervisor who was of a different racial or ethnic background than you?

Response/score	Asian/ Pacific Islander/ Hawaiian %	Black/ African American %	Hispanic %	Other %	White %	<i>df</i>	$\chi^2$
Very comfortable (4)	69.2%	64.3%	60.6%	58.3%	69.7%	12	8.843
Comfortable (3)	30.8%	28.6%	39.4%	41.7%	22.5%		
Somewhat uncomfortable (2)	-	7.1%	-	-	6.7%		
Very uncomfortable (1)	-	-	-	-	1.1%		
$\bar{x}$ median (score)	4	4	4	4	4		

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.716$ ). Power of performed test with  $\alpha = 0.050$ : 0.837.

Table 24

*Attitudes about Working in a Multiracial or Multiethnic Setting (PEERINT) by Diversity/Socioeconomic Group*

Q35. After high school, how prepared do you feel to work in a job setting where people are of a different racial or ethnic background than you are?

Response/score	Group A: Low diversity, high SES %	Group B: Medium diversity, medium SES %	Group C: High diversity, low SES %	<i>df</i>	$\chi^2$
Very prepared (4)	66.2%	60.7%	66.1%	6	1.810
Prepared (3)	31.0%	32.1%	30.6%		
Somewhat unprepared (2)	1.4%	3.6%	1.6%		
Very unprepared (1)	1.4%	3.6%	1.6%		
$\bar{x}$ median (score)	4	4	4		

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.936$ ). Power of performed test with alpha = 0.050: 0.833.

Q36. How do you believe your school experiences will affect your ability to work with members of other races and ethnic groups?

Response/score	Group A: Low diversity, high SES %	Group B: Medium diversity, medium SES %	Group C: High diversity, low SES %	<i>df</i>	$\chi^2$
Helped a lot (5)	32.4%	41.1%	48.4%	8	10.237
Helped somewhat (4)	39.4%	35.7%	27.4%		
Had no effect (3)	22.5%	23.2%	24.2%		
Did not help (2)	4.2%	-	-		
Hurt my ability (1)	1.4%	-	-		
$\bar{x}$ median (score)	4	4	4		

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.249$ ). Power of performed test with alpha = 0.050: 0.792.

Q45. How likely are you to go to a college that has students of different racial and ethnic backgrounds?

Response/score	Group A: Low diversity, high SES %	Group B: Medium diversity, medium SES %	Group C: High diversity, low SES %	<i>df</i>	$\chi^2$
Very likely (5)	53.6%	41.1%	30.7%	8	54.524
Likely (4)	39.4%	50.0%	29.0%		
Unlikely (3)	1.4%	1.8%	4.8%		
Very unlikely (2)	4.2%	7.1%	-		
I do not plan to go to college (1)	1.4%	-	35.5%		
$\bar{x}$ median (score)	5	4	1		

The proportions of observations in different rows of the contingency table vary from column to column. The characteristics that define the contingency table are significantly related ( $P = <0.001$ ). Power of performed test with alpha = 0.050: 1.000.

Table 24 (continued)

*Attitudes about Working in a Multiracial or Multiethnic Setting (PEERINT) by Diversity/Socioeconomic Group*

Q46. How likely do you think it is that you will work with people of racial and ethnic backgrounds different from your own?

Response/score	Group A: Low diversity, high SES %	Group B: Medium diversity, medium SES %	Group C: High diversity, low SES %	<i>df</i>	$\chi^2$
Very likely (4)	54.9%	67.9%	80.6%	6	13.997
Likely (3)	35.3%	28.5%	19.4%		
Unlikely (2)	7.0%	3.6%	-		
Very unlikely (1)	2.8%	-	-		
$\bar{x}$ median (score)	4	4	4		

The proportions of observations in different rows of the contingency table vary from column to column. The characteristics that define the contingency table are significantly related ( $P = 0.030$ ). Power of performed test with  $\alpha = 0.050$ : 0.813.

Q37. How comfortable would you be with a work supervisor who was of a different racial or ethnic background than you?

Response/score	Group A: Low diversity, high SES %	Group B: Medium diversity, medium SES %	Group C: High diversity, low SES %	<i>df</i>	$\chi^2$
Very comfortable (4)	62.0%	69.6%	67.7%	6	3.848
Comfortable (3)	31.0%	26.8%	27.4%		
Somewhat uncomfortable (2)	7.0%	3.6%	3.3%		
Very uncomfortable (1)	-	-	1.6%		
$\bar{x}$ median (score)					

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.697$ ). Power of performed test with  $\alpha = 0.050$ : 0.853.

*Research Question 4: Are perceived educational goals and aspirations similar across ethnic, racial, and socioeconomic groups?*

The theory behind this research question was the notion that levels of diversity in the educational setting affect students' educational goals and aspirations. *Higher educational aspirations and goals* (HIEDUCASP) were measured by subject responses to survey questions regarding interest in enrolling in higher level courses while in high school and future plans to pursue postsecondary education. Subjects were asked to select categorical responses along a Likert scale, which were converted to numeric values using a 4-point scale. Median scores and percentages were calculated, with the higher number representing the highest level of interest. Results were presented by subject race/ethnicity and by diversity/socioeconomic group and are shown in Tables 25 and 26.

Comparing responses between racial/ethnic groups could lead to a greater understanding of how aspirations differ within a school setting. Kurlaender and Yun (2001) defined successful integration as the equalizing of opportunity. Under this definition, it was likely that aspirations, as an indicator of perceived opportunity, may also become more equal in more diverse environments. The idea is that opportunities are perceived to have been equalized if responses do not differ substantially between races and is referred to as the perceived opportunity hypothesis (Kurlaender & Yun).

Comparing results between more and less racially and ethnically diverse school settings provided an understanding of how aspirations differ based on level of integration. The following hypotheses were subject to chi-square testing:

H<sub>0</sub>: There is no difference in perceived educational goals and aspirations between racial and ethnic groups within an educational setting.



H<sub>0</sub>: There is no difference in perceived educational goals and aspirations between levels of diversity/socioeconomic status in varied educational settings.

Tables 25 and 26 include the results from a series of questions that asked respondents about their potential placement in a number of subject areas that lead to college entrance; inquiries were designed to assess the educational aspirations of the students. The responses disclosed similarities by racial and ethnic group that imply an equality of perceived opportunity, perhaps fostered by the level of diversity throughout the school system. As an example, approximately 52% of students from all racial and ethnic groups suggested that they were “very interested” or “interested” in taking honors, AP, or international baccalaureate English courses, while 38% of all students reported a similar level of interest in advanced mathematics courses.

Statistically insignificant differences also existed with respect to reported student interest in attending college. An encouraging 91% of students across all racial and ethnic groups reported that they were “interested” or “very interested” in going to a 4-year college, while less than 3% reported no interest at all. There was significantly less interest in attending a community college, which was likely offset by students’ desire to attend a 4-year college or university.

Of the five questions asked, only one question related to interest in taking a foreign language after high school yielded statistically significant differences between racial/ethnic groups. In this instance, only 34% of students across all racial and ethnic groups responded as either “interested” or “very interested,” it is likely that the significant difference in this particular test was due to the high frequency of responses by Hispanic students, of which 60% responded with high levels of interest. As such, the null

hypothesis, otherwise known as the perceived opportunity hypothesis, was accepted as there was no difference in perceived educational goals and aspirations between racial and ethnic groups.

The consistency of responses across racial and ethnic groups was significant and frames the question “how did results compare across schools with varying levels of diversity/socioeconomic status?” Table 26 helps explore this query with results from the same series of questions that asked students about their potential placement in a number of subject areas that lead to college entrance, this time disaggregated by diversity/socioeconomic group. Responses to questions regarding educational aspirations in Table 26 again disclosed similarities, this time between diversity/socioeconomic groups, which again imply an equality of perceived opportunity. In every single instance, student responses yielded insignificant differences between groups, and the null hypothesis was accepted; there was no difference in perceived educational goals and aspirations between diversity/socioeconomic groups.

However, despite acceptance of the null and lack of statistical significance between groups, there were some observations worth noting. With respect to interest in taking honors, AP, or IB courses or a foreign language after high school, the high diversity/low SES group yielded a higher, albeit statistically insignificant, interest than did the low diversity/high SES group. Similarly, the high diversity/low SES group yielded a higher interest, again statistically insignificant, than did the low diversity/high SES group in attending either a 4-year or community college.

Providing access to higher education is a crucial goal for high schools. Chances for mobility in the job market and the likelihood of a lifetime of low or uncertain incomes

are higher for those who have not received a postsecondary education. Qualification and preparation for college are important goals for students and their families. If an indicator of success is defined as equalizing opportunity among different racial and ethnic groups and among varying groups of socioeconomic status, then raising the educational aspirations of all students is a first step (Kurlaender & Yun, 2001). Educators hope, that regardless of background or attendance at any particular school students would have similar aspirations for higher education. The results should help dispel the notion that increased diversity and lower socioeconomic status of the student population have an adverse affect on student aspirations; it would suggest, at least, that the level of diversity in schools has no effect on students' perceived educational opportunities. More importantly, it lends credibility to the notion that student aspirations, as an indicator of perceived opportunity, are equalized in more diverse environments.

Table 25

*Higher Educational Aspirations (HIEDUCASP) as Reported by Racial/Ethnic Group*

Q47. How interested are you in taking a foreign language after high school?

Response/score	Asian/ Pacific Islander/ Hawaiian %	Black/ African American %	Hispanic %	Other %	White %	<i>df</i>	$\chi^2$
Very interested (4)	-	19.1%	33.3%	33.3%	14.6%	12	28.644
Interested (3)	23.1%	19.1%	24.2%	16.7%	7.9%		
Somewhat interested (2)	30.8%	30.9%	33.3%	16.7%	24.7%		
Not interested (1)	46.1%	30.9%	9.2%	33.3%	52.8%		
$\bar{x}$ median (score)	2	2	3	2	1		

The proportions of observations in different rows of the contingency table vary from column to column. The characteristics that define the contingency table are significantly related ( $P = 0.004$ ). Power of performed test with alpha = 0.050: 0.972.

Q48. How interested are you in taking an honors, AP, or IB mathematics course?

Response/score	Asian/ Pacific Islander/ Hawaiian %	Black/ African American %	Hispanic %	Other %	White %	<i>df</i>	$\chi^2$
Very interested (4)	46.1%	19.1%	24.2%	25.0%	19.1%	12	10.855
Interested (3)	23.1%	21.4%	15.2%	16.7%	12.4%		
Somewhat interested (2)	15.4%	21.4%	12.1%	25.0%	22.5%		
Not interested (1)	15.4%	38.1%	48.5%	33.3%	46.0%		
$\bar{x}$ median (score)	3	2	2	2	2		

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.541$ ). Power of performed test with alpha = 0.050: 0.838.

Q49. How interested are you in taking an honors, AP, or IB English course?

Response/score	Asian/ Pacific Islander/ Hawaiian %	Black/ African American %	Hispanic %	Other %	White %	<i>df</i>	$\chi^2$
Very interested (4)	46.1%	23.8%	18.2%	25.0%	25.8%	12	16.185
Interested (3)	23.1%	21.4%	18.2%	41.6%	30.4%		
Somewhat interested (2)	15.4%	38.1%	24.2%	16.7%	17.9%		
Not interested (1)	15.4%	16.7%	39.4%	16.7%	25.9%		
$\bar{x}$ median (score)	3	2	2	3	3		

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.183$ ). Power of performed test with alpha = 0.050: 0.904.

Table 25 (continued)

*Higher Educational Aspirations (HIEDUCASP) as Reported by Racial/Ethnic Group*

Q50. How interested are you in going to a community college?							
	Asian/ Pacific Islander/ Hawaiian %	Black/ African American %	Hispanic %	Other %	White %		
Response/score						<i>df</i>	$\chi^2$
Very interested (4)	-	14.3%	21.2%	16.7%	12.4%	12	11.081
Interested (3)	30.8%	21.4%	24.2%	16.7%	21.3%		
Somewhat interested (2)	7.7%	14.3%	27.3%	25.0%	15.7%		
Not interested (1)	61.5%	50.0%	27.3%	41.6%	50.6%		
$\bar{X}$ median (score)	1	2	2	2	1		
The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.522$ ). Power of performed test with alpha = 0.050: 0.749.							
Q51. How interested are you in going to a four-year college?							
	Asian/ Pacific Islander/ Hawaiian %	Black/ African American %	Hispanic %	Other %	White %		
Response/score						<i>df</i>	$\chi^2$
Very interested (4)	69.2%	76.2%	60.6%	66.7%	68.5%	12	14.543
Interested (3)	23.1%	21.4%	27.3%	25.0%	20.2%		
Somewhat interested (2)	7.7%	2.4%	3.0%	-	10.1%		
Not interested (1)	-	-	9.1%	8.3%	1.2%		
$\bar{X}$ median (score)	4	4	4	4	4		
The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.267$ ). Power of performed test with alpha = 0.050: 0.800.							

Table 26

*Higher Educational Aspirations (HIEDUCASP) as Reported by Diversity/Socioeconomic Group*

Q47. How interested are you in taking a foreign language after high school?					
Response/score	Group A: Low diversity, high SES %	Group B: Medium diversity, medium SES %	Group C: High diversity, low SES %	<i>df</i>	$\chi^2$
Very interested (4)	18.3%	21.4%	17.7%	6	7.848
Interested (3)	11.3%	16.1%	17.7%		
Somewhat interested (2)	21.1%	35.7%	27.4%		
Not interested (1)	49.3%	26.8%	37.2%		
$\chi^2$ median (score)	2	2	2		
The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.249$ ). Power of performed test with alpha = 0.050: 0.812.					
Q48. How interested are you in taking an honors, AP or IB mathematics course?					
Response/score	Group A: Low diversity, high SES %	Group B: Medium diversity, medium SES %	Group C: High diversity, low SES %	<i>df</i>	$\chi^2$
Very interested (4)	22.6%	16.1%	27.4%	6	10.812
Interested (3)	19.7%	10.7%	16.1%		
Somewhat interested (2)	26.8%	21.4%	11.3%		
Not interested (1)	30.9%	51.8%	45.2%		
$\chi^2$ median (score)	2	1	2		
The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.094$ ). Power of performed test with alpha = 0.050: 0.880.					
Q49. How interested are you in taking an honors, AP or IB English course?					
Response/score	Group A: Low diversity, high SES %	Group B: Medium diversity, medium SES %	Group C: High diversity, low SES %	<i>df</i>	$\chi^2$
Very interested (4)	23.9%	25.0%	23.6%	6	9.217
Interested (3)	23.9%	35.7%	19.4%		
Somewhat interested (2)	29.6%	25.0%	12.9%		
Not interested (1)	22.6%	14.3%	45.1%		
$\chi^2$ median (score)	2	3	2		
The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.162$ ). Power of performed test with alpha = 0.050: 0.829.					

Table 26 (continued)

*Higher Educational Aspirations (HIEDUCASP) as Reported by Diversity/Socioeconomic Group*


---

Q50. How interested are you in going to a community college?

Response/score	Group A: Low diversity, high SES %	Group B: Medium diversity, medium SES %	Group C: High diversity, low SES %	<i>df</i>	$\chi^2$
Very interested (4)	16.9%	8.9%	14.5%	6	8.499
Interested (3)	14.1%	26.8%	27.4%		
Somewhat interested (2)	22.5%	10.7%	17.7%		
Not interested (1)	46.5%	53.6%	40.4%		
$\bar{x}$ median (score)	2	1	2		

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related (P = 0.204). Power of performed test with alpha = 0.050: 0.852.

---

Q51. How interested are you in going to a four-year college?

Response/score	Group A: Low diversity, high SES %	Group B: Medium diversity, medium SES %	Group C: High diversity, low SES %	<i>df</i>	$\chi^2$
Very interested (4)	67.6%	71.4%	67.7%	6	7.412
Interested (3)	19.7%	25.0%	22.6%		
Somewhat interested (2)	11.3%	-	6.5%		
Not interested (1)	1.4%	3.6%	3.2%		
$\bar{x}$ median (score)	4	4	4		

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related (P = 0.284). Power of performed test with alpha = 0.050: 0.798 .

---

*Research Question 5: Are perceptions of institutional support towards pursuit of higher education similar across ethnic, racial, and socioeconomic groups?*

Related to students' support of higher educational goals and aspirations is the extent to which the educational setting provides access to higher education. Did subjects report adequate support and access to information about higher education and was the access uniform across all racial and ethnic groups? *Institutional support* (INSTSUP) was defined as students' perception of school and teacher support to pursue higher educational goals and aspirations as measured by subject responses to survey questions regarding teacher expressions of personal interest in them, encouragement to take higher level high school courses, to seek postsecondary educational experiences, and in providing college admissions materials. Subjects selected categorical responses along a Likert scale, which were converted to numeric values using a 4- to 5-point scale. Median scores and percentages were calculated, with the higher number representing the highest level of interest. Results were presented by subject race/ethnicity and by diversity/socioeconomic group and are shown in Tables 27 through 30. The following hypotheses were subject to chi-square testing:

H<sub>0</sub>: There is no difference in the perceptions of institutional support between racial and ethnic groups within an educational setting.

H<sub>0</sub>: There is no difference in perceptions of institutional support between levels of diversity/socioeconomic status in varied educational settings.

While over 90% of all groups of students reported a desire to attend a 4-year college or university, it was still important to understand the extent to which students' aspirations were supported in their schools. Tables 27 through 30 include the results from



a series of questions that asked students to describe the extent to which teachers, counselors, and staff encouraged and supported their educational aspirations.

Responses to questions regarding educational aspirations in Table 27 and 28 disclose similarities by racial and ethnic group that implied an equality of perceived institutional support by teachers, staff, and counselors. As an example, approximately 82% of students from all racial and ethnic groups suggested they were “strongly or somewhat encouraged” by their teachers to attend college, while 87% of all students reported a similar level of encouragement by school staff and counselors.

Slight, statistically insignificant differences between racial and ethnic groups existed with respect to reported levels of encouragement in attending college, either by teachers or by counselors and staff. White students reported slightly higher levels of encouragement, while Hispanics consistently reported the lowest levels. The level of encouragement students reported receiving from teachers appeared to be approximately the same as the level of encouragement received from counselors; no pattern of differences emerged by racial or ethnic group. In general, it was concluded that school faculty and staff generally encouraged student aspirations.

Also important is access to early information about college admissions requirements in order to adequately prepare for postsecondary education. Again, statistically insignificant differences between racial and ethnic groups existed with respect to access to college admissions information, either by teachers or by counselors and staff. Approximately 58% of all students reported receiving either “some” or “a lot” of information about college admissions from teachers, while 65% reported a similar level of information from counselors and staff. Less than 16% of all students reported

having received no college admissions information at all. Asian/Pacific Island and White students reported slightly higher access to college admissions information, while Black/African American students consistently reported the lowest levels. Counselors and staff appeared to have provided more access to college admissions materials than did teachers, but again, no pattern emerged by racial or ethnic group. It should be noted that the survey was administered to high school juniors at the beginning of the academic year; had it been administered later in the academic year, these percentages might have been higher.

This study had previously examined students' interest in enrollment in a number of subject areas that lead to college entrance, specifically honors, AP, or international baccalaureate classes. It was found that similarities existed between racial and ethnic groups implying an equality of perceived opportunity. In terms of aspirations, the differences between racial and ethnic groups were insignificant, but what about encouragement to enter these courses?

An important question is whether or not teachers and counselors encouraged students across all ethnic and racial groups to take demanding, advanced classes—the type of work that provides an excellent foundation for college. Students did not report statistically significant differences in the levels of encouragement to enroll in advanced courses by racial or ethnic group. This was a positive observation, as it would suggest an equality of perceived encouragement.

It should be recalled that approximately 52% of students from all racial and ethnic groups indicated that they were “very interested” or “interested” in taking honors, AP, or international baccalaureate English courses, while 38% of all students reported a similar

level of interest in advanced mathematics courses. By comparison, approximately 66% of students from all racial and ethnic groups suggested they were “strongly” or “somewhat” encouraged in enrolling in advanced courses by their teachers, while 63% of all students reported a similar level of encouragement from their counselors. A negative observation is that while encouragement to attend college in the district was high, students reported far less encouragement by teachers and counselors to take challenging courses.

Another important issue for students’ success is whether or not they believe that their teachers care about their academic success. The survey asked about students’ perceptions regarding the extent to which their teachers take a special interest in them; with respect to this question, students reported statistically significant variations of expressed special interest by racial/ethnic group. Approximately 67% of both White and Black/African American students either “somewhat” or “strongly” agreed that at least one of their teachers expressed a strong interest in them, contrasting sharply to approximately 55% of Hispanics, 39% of Asian/Pacific Islanders, and 25% of all other students. It should be noted that Hispanic students were well represented in the sample, while Asian/Pacific Islanders were not, a circumstance that may have contributed somewhat to this difference. Nonetheless, in terms of encouragement to attend college, to take demanding courses, and in provision of college admissions information, the differences between racial and ethnic groups were insignificant. Whereas, with respect to teachers taking special interest in students, more important differences existed.

With the exception of one question, perceptions of institutional support towards pursuit of higher education were similar across ethnic and racial groups, but what of diversity/socioeconomic groups? Comparing results between school settings of varied

diversity would lead to an understanding of how perceptions of institutional support differed based on level of integration. This is an important question, as it sought to determine whether students' perception of levels of institutional support was different for schools with varying types of racial and socioeconomic composition. If it were determined that perceptions were related to school composition, then it could imply that interventions aimed to increase support for higher educational aspirations could potentially have different effects in schools with different levels of diversity/socioeconomic status. Responses to questions regarding educational aspirations shown in Tables 29 and 30 also disclosed similarities by diversity/socioeconomic group that imply an equality of perceived institutional support by teachers, staff, and counselors. Nevertheless, there were some observations worth noting.

With respect to perceptions of counselor or staff support, in terms of encouragement to attend college, enrollment in advanced classes, or by providing college admissions material, the high diversity/low SES group yielded a higher, albeit statistically insignificant, value than either of the other two groups. A similar pattern did not emerge with respect to teacher support, except to observe that the high diversity/low SES group did not yield the lowest results in any case.

However, in every single instance, student responses failed to yield significant differences between groups, and the null hypothesis was accepted; there was no difference in perceived institutional support between diversity/socioeconomic groups. Therefore, the evidence supports the notion that institutional support acted similarly across schools of varying composition.

Educators would expect that students would have similar aspirations for higher education, regardless of background or attendance at any particular school. Similarly, students and families would expect that schools would support and encourage students' aspirations by providing equal opportunity in pursuit of their goals. Overall, students reported that Prince William County Public Schools provided adequate support and access to information regarding opportunities for higher education. These results should help dispel the notion that race, ethnicity, or the diversity and socioeconomic status of school populations are negatively related to the support and encouragement that students receive. Perhaps more importantly, the findings suggest that while there was racial, ethnic, and socioeconomic uniformity in the interest to pursue postsecondary education, that encouragement and access to information was also equally uniform for all students, regardless of race, ethnicity, socioeconomic status, or school setting.

In order to supplement the results in Tables 27 to 30, an ordinary least squares (OLS) regression analysis was conducted to determine if there were substantial and significant differences in educational aspirations across variables such as race and gender. Furthermore, the regression analysis facilitated an understanding on how predictor variables—such as *institutional support* (INSTSUP), *curricular diversity* (CURRDIV) and *student diversity* (STUDIV)—interacted to encourage aspirations to pursue higher education. By creating dummy variables for different racial/ethnic categories, it was possible to test whether these predictors were different based on race. Dummy variables were a way of adding the values of a nominal or ordinal variable to a regression equation; multiple regression with dummy variables yields the same inferences as multiple analysis of variance (MANOVA), to which it is statistically equivalent (Garson, 2006). As an

example, if the interaction between HISPANIC and INSTSUP generated a statistically significant and negative coefficient, it would have suggested that at higher levels of institutional support, Hispanic students had lower levels of educational aspirations than other students.

Conversely, if this interaction term generated a statistically insignificant coefficient, it would support an argument that there is no difference on the effect of institutional support between Hispanic students and those of other racial/ethnic groups; as such, it would be suggested that similar levels of support would lead to similar levels of higher educational aspirations. Such a finding would lend credibility to what Kurleander and Yun (2001) termed the “perceived opportunity” theory. In addition, potential differences by race towards higher education were tested. Finally, the intersections between race and institutional support, as well as race and curricular diversity, were tested to determine if the effect of these constructs differ for students in the district. The equations used in the analyses of the various models generally took the following form:

$$HIEDUCASP = \alpha + \beta_1(INSTSUP) + \beta_2(CURRDIV) + \beta_3(STUDIV) + \beta_4(GEND) + \beta_5(RACE - DUMMY) + \beta_6(GROUP - DUMMY) + \beta_n(DUMMY) + \dots + \gamma$$

Results from the various regression models were captured in Table 31. Regression coefficients, standard error, and those relationships identified as significant were indicated. The following null hypothesis was offered:

H<sub>0</sub>: Educational goals and aspirations are independent of race, ethnicity, and the level of diversity in educational settings, therefore the regression coefficient is 0.

Results from the regression analysis combined with tabulated student responses to the survey questions demonstrated several important findings regarding higher educational aspirations. Table 31 outlines the fit of a series of models expected to

estimate the effect of curricular diversity (CURRDIV) and institutional support (INSTSUP) on students' higher educational aspirations. Models 1-8 shown in Table 31 reveal that institutional support, as measured by students' perception of school and teacher support to pursue higher educational goals and aspirations, had a positive impact on Prince William County students' higher educational aspirations.

First, the composite variable INSTSUP was statistically significant to the  $p < .01$  level, when controlling for students' ethnic and gender characteristics, as well as for curricular diversity and student diversity (Model 1). This significance continued, when paired with other variables, throughout all 24 models. Second, curricular diversity had a statistically significant impact only when controlling for all other variables, and then only at the  $p < .10$  level (Model 2). This significance eroded in all other models. It should be noted that gender did not appear to have a statistically significant impact on higher education aspirations.

Models 9-18 (Table 31) illustrate the results of testing potential differences by race towards higher educational aspirations. It was found that among minority students, there was no significant relationship between race and higher education aspirations. Models 17-18 reveal that the same held true for White students; these models suggest that at higher levels of institutional support, all racial/ethnic groups had higher levels of educational aspirations.

Finally, Models 19-24 (Table 31) illustrate the results of testing potential differences by diversity/socioeconomic status group; again, it was found that membership in any of these groups appeared to not have a statistically significant impact on higher education aspirations. These models suggest that at higher levels of institutional support,

all diversity/socioeconomic groups had higher levels of educational aspirations.

Regression results corroborated initial findings based on students' direct responses to the survey. Institutional support towards higher education had a positive impact, but educational goals and aspirations were independent of race, ethnicity, and the level of diversity in educational settings; the null hypothesis was accepted.



Table 27

*Perceptions of Teacher Support of Higher Educational Aspirations and Goals (INSTSUP1) by Racial/Ethnic Group*

Q25. To what extent have your teachers encouraged you to attend college?							
Response/score	Asian/ Pacific Islander/ Hawaiian %	Black/ African American %	Hispanic %	Other %	White %	<i>df</i>	$\chi^2$
Strongly encouraged (5)	46.2%	50.0%	39.4%	58.3%	60.7%	12	14.321
Somewhat encouraged (4)	23.1%	31.0%	33.3%	25.0%	25.8%		
Neither encouraged nor discouraged (3)	30.8%	14.3%	27.3%	16.7%	13.5%		
Somewhat discouraged (2)	-	-	-	-	-		
Strongly discouraged (1)	-	4.7%	-	-	-		
$\bar{x}$ median (score)	4	5	5	5	5		
The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.281$ ). Power of performed test with alpha = 0.050: 0.892.							
Q27. How much information about college admissions have your teachers given you?							
Response/score	Asian/ Pacific Islander/ Hawaiian %	Black/ African American %	Hispanic %	Other %	White %	<i>df</i>	$\chi^2$
A lot (4)	23.1%	19.1%	15.2%	41.7%	13.5%	12	16.189
Some (3)	38.4%	33.4%	27.3%	33.3%	49.4%		
A little (2)	23.1%	19.0%	36.4%	8.3%	22.5%		
None (1)	15.4%	28.5%	21.1%	16.7%	14.6%		
$\bar{x}$ median (score)	3	3	2	3	3		
The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.183$ ). Power of performed test with alpha = 0.050: 0.860.							
Q29. To what extent have your teachers encouraged you to take Honors and/or AP or IB classes?							
Response/score	Asian/ Pacific Islander/ Hawaiian %	Black/ African American %	Hispanic %	Other %	White %	<i>df</i>	$\chi^2$
Strongly encouraged (5)	53.8%	26.2%	21.2%	25.0%	32.6%	16	20.851
Somewhat encouraged (4)	15.4%	31.0%	42.4%	58.3%	36.0%		
Neither encouraged nor discouraged (3)	30.8%	35.7%	30.3%	16.7%	29.2%		
Somewhat discouraged (2)	-	-	6.1%	-	1.1%		
Strongly discouraged (1)	-	7.1%	-	-	1.1%		
$\bar{x}$ median (score)	5	4	4	4	4		
The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.184$ ). Power of performed test with alpha = 0.050: 0.834.							
Q33. At least one of my teachers takes a special interest in me.							
Response/score	Asian/ Pacific Islander/ Hawaiian %	Black/ African American %	Hispanic %	Other %	White %	<i>df</i>	$\chi^2$
Strongly agree (5)	7.7%	28.6%	39.4%	16.7%	36.0%	16	40.835
Somewhat agree (4)	30.8%	38.1%	15.2%	8.3%	31.4%		
Neither agree nor disagree (3)	53.8%	31.0%	18.2%	41.7%	28.1%		
Somewhat disagree (2)	7.7%	2.3%	12.1%	25.0%	1.1%		
Strongly disagree (1)	-	-	15.1%	8.3%	3.4%		
$\bar{x}$ median (score)	3	4	4	3	4		
The proportions of observations in different rows of the contingency table vary from column to column. The characteristics that define the contingency table are significantly related ( $P = <0.001$ ). Power of performed test with alpha = 0.050: 0.996.							

Table 28

*Perceptions of Counselor and Staff Support of Higher Educational Aspirations and Goals (INSTSUP2) by Racial/Ethnic Group*

Q26. To what extent have your counselors or other adults in the school encouraged you to attend college?

Response/score	Asian/ Pacific Islander/ Hawaiian %	Black/ African American %	Hispanic %	Other %	White %	<i>df</i>	$\chi^2$
Strongly encouraged (5)	69.2%	42.9%	48.6%	58.3%	62.9%	16	20.395
Somewhat encouraged (4)	15.4%	38.1%	24.2%	25.1%	22.5%		
Neither encouraged nor discouraged (3)	15.4	14.3%	24.2%	8.3%	13.5%		
Somewhat discouraged (2)	-	-	3.0%	8.3%	1.1%		
Strongly discouraged (1)	-	4.7%	-	-	-		
$\bar{x}$ median (score)	5	4	5	5	5		

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.203$ ). Power of performed test with alpha = 0.050: 0.823.

Q28. How much information about college admissions have your counselors or other adults in the school given you?

Response/score	Asian/ Pacific Islander/ Hawaiian %	Black/ African American %	Hispanic %	Other %	White %	<i>df</i>	$\chi^2$
A lot (4)	38.4%	28.6%	24.2%	41.7%	22.5%	12	10.335
Some (3)	46.2%	38.1%	36.4%	33.3%	39.3%		
A little (2)	-	11.9%	24.2%	25.0%	22.5%		
None (1)	15.4%	21.4%	15.2%	-	15.7%		
$\bar{x}$ median (score)	3	3	3	3	3		

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.587$ ). Power of performed test with alpha = 0.050: 0.812.

Q30. To what extent have your counselors or other adults in the school encouraged you to take Honors and/or AP or IB classes?

Response/score	Asian/ Pacific Islander/ Hawaiian %	Black/ African American %	Hispanic %	Other %	White %	<i>df</i>	$\chi^2$
Strongly encouraged (5)	46.1%	38.1%	21.2%	33.3%	30.3%	16	11.263
Somewhat encouraged (4)	23.1%	28.6%	39.4%	33.3%	30.3%		
Neither encouraged nor discouraged (3)	30.8%	28.6%	36.4%	25.1%	36.1%		
Somewhat discouraged (2)	-	-	3.0%	-	2.2%		
Strongly discouraged (1)	-	4.7%	-	8.3%	1.1%		
$\bar{x}$ median (score)	4	4	4	4	4		

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.793$ ). Power of performed test with alpha = 0.050: 0.895.

Table 29

*Perceptions of Teacher Support of Higher Educational Aspirations and Goals (INSTSUP3) by Diversity/Socioeconomic Group*

Q25. To what extent have your teachers encouraged you to attend college?

Response/score	Group A: Low diversity, high SES %	Group B: Medium diversity, medium SES %	Group C: High diversity, low SES %	df	$\chi^2$
Strongly encouraged (5)	53.5%	55.3%	51.6%	6	9.778
Somewhat encouraged (4)	29.6%	19.6%	37.1%		
Neither encouraged nor discouraged (3)	16.9%	21.5%	11.3%		
Somewhat discouraged (2)	-	-	-		
Strongly discouraged (1)	-	3.6%	-		
$\bar{x}$ median (score)	5	5	4		

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.134$ ). Power of performed test with alpha = 0.050: 0.797.

Q27. How much information about college admissions have your teachers given you?

Response/score	Group A: Low diversity, high SES %	Group B: Medium diversity, medium SES %	Group C: High diversity, low SES %	df	$\chi^2$
A lot (4)	12.7%	14.3%	25.8%	6	6.610
Some (3)	42.3%	44.6%	33.9%		
A little (2)	21.1%	23.2%	25.8%		
None (1)	23.9%	17.9%	14.5%		
$\bar{x}$ median (score)	3	3	3		

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.358$ ). Power of performed test with alpha = 0.050: 0.833.

Q29. To what extent have your teachers encouraged you to take Honors and/or AP or IB classes?

Response/score	Group A: Low diversity, high SES %	Group B: Medium diversity, medium SES %	Group C: High diversity, low SES %	df	$\chi^2$
Strongly encouraged (5)	31.0%	25.0%	33.9%	8	12.101
Somewhat encouraged (4)	32.4%	44.6%	32.3%		
Neither encouraged nor discouraged (3)	33.8%	25.0%	30.6%		
Somewhat discouraged (2)	-	5.4%	-		
Strongly discouraged (1)	2.8%	-	3.2%		
$\bar{x}$ median (score)	4	4	4		

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.147$ ). Power of performed test with alpha = 0.050: 0.884.

Q33. At least one of my teachers takes a special interest in me.

Response/score	Group A: Low diversity, high SES %	Group B: Medium diversity, medium SES %	Group C: High diversity, low SES %	df	$\chi^2$
Strongly agree (5)	26.8%	37.5%	32.3%	8	5.904
Somewhat agree (4)	29.6%	30.4%	25.8%		
Neither agree nor disagree (3)	36.6%	19.6%	30.6%		
Somewhat disagree (2)	2.8%	7.1%	6.5%		
Strongly disagree (1)	4.2%	5.4%	4.8%		
$\bar{x}$ median (score)	4	4	4		

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.658$ ). Power of performed test with alpha = 0.050: 0.793.

Table 30

*Perceptions of Counselor and Staff Support of Higher Educational Aspirations and Goals (INSTSUP4) by Diversity/Socioeconomic Group*

Q26. To what extent have your counselors or other adults in the school encouraged you to attend college?

Response/score	Group A: Low diversity, high SES %	Group B: Medium diversity, medium SES %	Group C: High diversity, low SES %	<i>df</i>	$\chi^2$
Strongly encouraged (5)	59.2%	53.6%	54.8%	8	8.637
Somewhat encouraged (4)	23.9%	23.1%	30.7%		
Neither encouraged nor discouraged (3)	16.9%	16.1%	12.9%		
Somewhat discouraged (2)	-	3.6%	1.6%		
Strongly discouraged (1)	-	3.6%	-		
$\bar{x}$ median (score)	5	5	5		

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.374$ ). Power of performed test with alpha = 0.050: 0.804.

Q28. How much information about college admissions have your counselors or other adults in the school given you?

Response/score	Group A: Low diversity, high SES %	Group B: Medium diversity, medium SES %	Group C: High diversity, low SES %	<i>df</i>	$\chi^2$
A lot (4)	19.7%	21.5%	38.7%	6	7.968
Some (3)	43.7%	37.5%	33.9%		
A little (2)	21.1%	21.4%	14.5%		
None (1)	15.5%	19.6%	12.9%		
$\bar{x}$ median (score)	3	3	3		

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.240$ ). Power of performed test with alpha = 0.050: 0.820.

Q30. To what extent have your counselors or other adults in the school encouraged you to take Honors and/or AP or IB classes?

Response/score	Group A: Low diversity, high SES %	Group B: Medium diversity, medium SES %	Group C: High diversity, low SES %	<i>df</i>	$\chi^2$
Strongly encouraged (5)	29.6%	30.4%	35.5%	8	8.207
Somewhat encouraged (4)	32.4%	28.6%	32.3%		
Neither encouraged nor discouraged (3)	36.6%	37.4%	25.8%		
Somewhat discouraged (2)	-	3.6%	1.6%		
Strongly discouraged (1)	1.4%	-	4.8%		
$\bar{x}$ median (score)	4	4	4		

The proportions of observations in different rows of the contingency table do not vary from column to column. The characteristics that define the contingency table are not significantly related ( $P = 0.414$ ). Power of performed test with alpha = 0.050: 0.780.

Table 31

*Results from Regression Models of Higher Educational Aspirations and Goals (HIEDUCASP)*

	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)	Model (7)	Model (8)
CONSTANT	8.871 <i>1.150***</i>	11.237 <i>0.739***</i>	8.181 <i>1.265***</i>	8.985 <i>1.242***</i>	8.376 <i>1.315***</i>	8.732 <i>1.215***</i>	7.981 <i>1.339***</i>	8.177 <i>1.389***</i>
INSTSUP	0.141 <i>0.0444**</i>		0.132 <i>0.0488**</i>	0.142 <i>0.0477**</i>	0.133 <i>0.0450**</i>	0.143 <i>0.0450**</i>	0.135 <i>0.0453**</i>	0.136 <i>0.0455**</i>
CURRDIV		0.120 <i>0.0693~</i>	0.0888 <i>0.0687</i>		0.0977 <i>0.0693</i>		0.0913 <i>0.0691</i>	0.100 <i>0.0710</i>
STUDIV				-0.0128 <i>0.0514</i>	-0.0293 <i>0.0578</i>			-0.0288 <i>0.0527</i>
FEMALE						0.136 <i>0.720</i>	0.176 <i>0.378</i>	0.171 <i>0.379</i>
N	189	189	189	189	189	189	189	189
Analysis of Variance:								
F-stat.	10.067	2.983	5.886	5.039	4.013	5.075	3.979	3.048
R-squared	0.0511	0.0157	0.0595	0.0514	0.0611	0.0517	0.0606	0.0621
P	0.002**	0.086~	0.003**	0.007**	0.009**	0.007**	0.009**	0.018**

Notes: Coefficients shown over Standard Errors, which are in italics.  
Significance levels: ~p < .10; \*p < .05; \*\*p < .01; \*\*\*p < .001

Table 31 (continued)

*Results from Regression Models of Higher Educational Aspirations and Goals  
(HIEDUCASP)*

	Model (9)	Model (10)	Model (11)	Model (12)	Model (13)	Model (14)	Model (15)	Model (16)
CONSTANT	8.871 <i>1.149***</i>	8.299 <i>1.391***</i>	8.710 <i>1.162***</i>	8.034 <i>1.395***</i>	8.534 <i>1.16***7</i>	7.916 <i>1.392***</i>	8.844 <i>1.150***</i>	8.144 <i>1.389***</i>
INSTSUP	0.139 <i>0.0444**</i>	0.134 <i>0.0455**</i>	0.143 <i>0.0455**</i>	0.140 <i>0.0456**</i>	0.149 <i>0.0446**</i>	0.145 <i>0.0457**</i>	0.140 <i>0.0444**</i>	0.134 <i>0.0455**</i>
CURRDIV		0.101 <i>0.0710</i>		0.0994 <i>0.0710</i>		0.103 <i>0.0708</i>		0.107 <i>0.0713</i>
STUDIV		-0.0415 <i>0.0538</i>		-0.0359 <i>0.0532</i>		0.0424 <i>0.0532</i>		-0.0324 <i>0.0528</i>
FEMALE		0.157 <i>0.379</i>		0.208 <i>0.585</i>		0.166 <i>0.377</i>		0.154 <i>0.379</i>
ASIAPAC	0.798 <i>0.727</i>	0.876 <i>0.744</i>						
BLACK			0.428 <i>0.443</i>	0.465 <i>0.450</i>				
HISPANIC					0.730 <i>0.486</i>	0.787 <i>0.493</i>		
OTHER							0.701 <i>0.754</i>	0.803 <i>0.760</i>
N	189	189	189	189	189	189	189	189
Analysis of Variance:								
F-stat.	5.642	2.721	5.499	2.653	6.193	2.968	5.462	2.663
R-squared	0.0572	0.0692	0.0588	0.0676	0.0624	0.0750	0.0555	0.0678
P	0.004**	0.021*	0.005**	0.024*	0.002**	0.013*	0.005**	0.024*

Notes: Coefficients shown over Standard Errors, which are in italics.  
Significance levels: ~p < .10; \*p < .05; \*\*p < .01; \*\*\*p < .001

Table 31 (continued)

*Results from Regression Models of Higher Educational Aspirations and Goals (HIEDUCASP)*

	Model (17)	Model (18)	Model (19)	Model (20)	Model (21)	Model (22)	Model (23)	Model (24)
CONSTANT	8.892 <i>1.146***</i>	8.372 <i>1.388***</i>	8.834 <i>1.152***</i>	8.121 <i>1.392***</i>	8.816 <i>1.167***</i>	8.151 <i>1.397***</i>	8.868 <i>1.153***</i>	8.171 <i>1.398***</i>
INSTSUP	0.137 <i>0.0443**</i>	0.132 <i>0.0454**</i>	0.140 <i>0.0445**</i>	0.135 <i>0.0455**</i>	0.142 <i>0.0446**</i>	0.137 <i>0.0457**</i>	0.141 <i>0.0447**</i>	0.136 <i>0.0457**</i>
CURRDIV		0.103 <i>0.0708</i>		0.102 <i>0.0712</i>		0.0992 <i>0.0713</i>		0.101 <i>0.0717</i>
STUDIV		-0.0459 <i>0.0536</i>		-0.0306 <i>0.0528</i>		-0.0297 <i>0.0530</i>		-0.0284 <i>0.035</i>
FEMALE		0.131 <i>0.378</i>		0.186 <i>0.380</i>		0.169 <i>0.380</i>		0.172 <i>0.380</i>
WHITE	1.028 <i>0.679</i>	1.117 <i>0.695</i>						
GROUP A (Low Diversity, high SES)			0.392 <i>0.543</i>	0.437 <i>0.546</i>				
GROUP B (Medium Diversity, medium SES)					0.117 <i>0.404</i>	0.0931 <i>0.407</i>		
GROUP C (High Diversity, low SES)							0.0295 <i>0.394</i>	-0.0206 <i>0.405</i>
N	189	189	189	189	189	189	189	189
Analysis of Variance:								
F-stat.	6.215	2.976	5.281	2.562	5.051	2.436	5.010	2.426
R-squared	0.0626	0.0752	0.0537	0.0654	0.0515	0.0624	0.0511	0.0622
P	.002**	.013*	0.006**	0.029*	0.007**	0.036*	0.008**	0.037*

Notes: Coefficients shown over Standard Errors, which are in italics.  
Significance levels: ~p < .10; \*p < .05; \*\*p < .01; \*\*\*p < .001

## CHAPTER 5: SIGNIFICANCE OF THE STUDY AND CONCLUSIONS

### Summary and Conclusions

As the nation becomes increasingly diverse, it is important to understand the role that school's racial, ethnic, and socioeconomic composition play in preparing students for success. While there is substantial evidence that integrated schooling is associated with positive educational outcomes for minority students, there remains little evidence of the impact of diversity on White students (Crain, 1971; Crain & Mahard, 1983; Trent, 1991; Schofield, 1999; Kurlaender & Yun, 2001). Moreover, recent moves by school districts to achieve unitary status, trends towards resegregation, and recent court decisions that fail to support race in school assignment plans all point to the notion that integration and diversity in the nation's schools is no longer considered a compelling educational need (Kurlaender & Yun, 2001, 2002a, 2002b, 2004; Reardon et al., 2000; Reardon & Yun, 2001; Orfield & Lee, 2005, 2006).

Previous studies by Kurlaender and Yun (2001, 2002a, 2002b) fall short in addressing this research gap because each considered only wholly racially diverse educational settings in and of themselves, without an ability to compare results with less diverse settings; moreover, these studies primarily looked at the dichotomies between Black and White students. This study is different in that Prince William County not only provided a significantly more racially and ethnically diverse population than sampled in the previous Kurlaender and Yun studies, but it is also more diverse in terms of the varied levels of integration and diversity achieved within the 10 high schools within its school



district. As such, this study addressed a significant research void, providing additional empirical evidence needed to inform future decisions about the value of diversity in educational settings.

This study explored how diverse public high school learning environments affect students' perceptions of their educational experience, addressing five specific research questions:

1. Do students perceive classes in Prince William County high schools to be diverse?
2. Do students perceive lessons in Prince William County high school classrooms to be diverse?
3. Are diverse settings positively related to more comfortable exchanges among students?
4. Are perceived educational goals and aspirations similar across ethnic, racial, and socioeconomic groups?
5. Are perceptions of institutional support towards pursuit of higher education similar across ethnic, racial, and socioeconomic groups?

The study found that there are high levels of diversity in Prince William County schools and classrooms, as well in the curriculum and social exchanges; that higher levels of diversity in the curriculum are related to increased student understanding of points of view different from their own; that students that are placed in settings of higher diversity are more comfortable with members of different racial/ethnic groups and, therefore, more willing to operate in diverse classroom environments; that students that attend more diverse schools expressed a greater desire to live and work in multiracial settings

compared to their more segregated peers; that perceived educational goals and aspirations are similar across ethnic, racial, and socioeconomic groups; and that there were high levels of equality between racial/ethnic and socioeconomic groups in perceived educational opportunities for students. Students from all backgrounds reported benefiting from the diversity of their schools, with strong uniformity in response by all groups.

Analysis of data showed that Prince William County public school schools and classrooms are diverse. As expected the perceptions of students from each racial/ethnic group and diversity/socioeconomic group varied significantly with respect to perceived dissimilarities with other students. This was a prerequisite condition for determining if and how diversity affects educational outcome. However, it was also determined that perceptions of curricular-level diversity were not the same as school-level diversity. Results from a number of reports on minority student achievement suggest that there is a higher percentage of segregation by race in subject areas, and this study uncovered this discrepancy in Prince William County. White students in particular reported fewer students to be from different backgrounds in their classrooms than in the school environment. However, students still reported a substantial presence of other racial and ethnic groups in their classes and therefore the prerequisite of diversity existed, lending credibility to the study's findings.

Analysis of data indicated that diversity as related to school and classroom variables, such as curriculum and student body composition, were associated with better educational outcomes with respect to preparation of students for productive lives beyond high school. The study corroborated the notion that students who attended more diverse schools were more comfortable with members of different racial/ethnic groups; by

extension, it would be expected that these benefits would naturally flow to the surrounding community.

Analysis of data also helped determine that diverse school environments provide an equal opportunity of success for all students. As opportunity is equalized, then higher educational aspirations as an indicator of perceived opportunity should become equal between racial and ethnic groups in a school setting. Similarities between racial and ethnic groups and between diversity/socioeconomic groups imply an equality of perceived opportunity across Prince William Public Schools. This condition lends credibility to the argument that opportunity is perceived to be more equal in diverse environments.

The manner and extent to which students are encouraged to achieve higher educational goals was examined, and it was determined that perceptions of encouragement were important in matters of educational aspirations. Moreover, similarities in perceptions by students from all racial and ethnic groups and between diversity/socioeconomic groups imply an equality of perceived institutional support by teachers, staff, and counselors. Generally, faculty and staff highly encourage student aspirations in Prince William County; however, there were some discrepancies.

In terms of encouragement to attend college, to take demanding courses, and in provision of college admissions information, the differences between groups were insignificant, whereas with respect to teachers taking special interest in students, more important differences exist, especially with respect to Hispanic students. Moreover, although students reported that they were highly encouraged to attend college, they reported far less encouragement by teachers and counselors to take challenging courses.

The implication is that measures must be undertaken to address these differences in an effort to close the achievement gap.

### Implications for Research

#### *Limitations of the Study*

Several limitations of the study that led to recommendations about future research are related to the representative and predictive validity of survey research and data collection methods. The first limitation is a function of survey research. While the results of the study provide knowledge about how diverse public high school learning environments affect students' perceptions of their educational experience, it must be recognized that survey responses are not necessarily representative of current or predictive of future behavior. The literature suggests that in areas related to attitudes, there are sometimes large discrepancies between what people say and what they do (Tartar, 1969). This is an issue of validity that can be more completely addressed by correlating subject response to actual behavior, a topic outside the scope of this study, but worth considering in future studies. Of those students who registered an interest in enrolling in demanding courses, attending college, or living and working in multiracial/multiethnic environments, how many actually followed through with these intentions? Of those who indicated that they expected their high school experiences would help them understand different perspectives and points of view, how many found this to be true in their college and work experiences? Future research could examine the relationship between diverse learning environments and former students' perceptions of those impacts on their posteducational experiences.

Data collection methods and limitations imposed by the Liberty University Institutional Review Board (IRB) and Prince William County Public Schools restricted to some extent where, when, and from whom the data was collected. The anonymous nature of the instrument, the voluntary nature of participation, the need to obtain subject and parent consent, privacy concerns of Prince William County, and Institutional Review Board restrictions on use of classroom time to administer the instrument impacted response rates, may have introduced selection bias, and impacted representativeness of the sample. Expanding the size and coverage of the data to include all schools and all students in 11<sup>th</sup>- and even 12<sup>th</sup>-grade classes would reduce some of the school-level selection bias that may have been introduced, gain a much wider perspective especially among smaller minority and multiracial groups, and expand the extent to which results can be generalized not only to Prince William County, but to the nation as a whole.

#### *Topics for Future Research*

The first recommendation is oriented on expanding the current study with an additional research question. As designed, this study examined the idea that diversity in classroom settings is related to the likelihood of students interacting with persons from different races and ethnic backgrounds; however, it did not pursue the relationship between diverse educational experiences and the likelihood of becoming engaged in various forms of civic participation. Can diversity experienced at the school level change student attitudes about citizenship? As designed, the DAQ surveys subjects about how their educational experiences contribute to their interest in a set of democratic principles and civic actions, all of which are “central to the mission of public schooling in a democracy” (Kurlander & Yun, 2001, p. 130). Future research could use techniques

similar to those employed in this study, aimed at determining if there are differences in perceptions of the educational influence on attitudes about civic participation between racial and ethnic groups within an educational setting and between levels of diversity/socioeconomic status in varied educational settings.

Findings from this research topic would further clarify the ways in which diversity as related to school and classroom variables help prepare students for productive lives beyond high school. It would corroborate the notion that students who attend more diverse schools do not only express a greater desire to live and work in multiracial settings, but whether or not they are more likely to develop a higher sense of civic duty compared to their more segregated peers.

A second recommendation is focused on expanding the research beyond traditional public schools and their classrooms. An underlying premise of this research was that determining the educational benefits of diversity provides evidence that enables citizens, teachers, students, educational leaders, and policymakers to uphold and support the consideration of diversity in decision making and that it facilitates the continued development and refinement of diversity initiatives aimed at improving the success of all students. Because this theme resonates most with those in the public sector, the focus of much of the research in the area of diversity benefits has been oriented towards public schools.

As with others, this study was limited to examining traditional public high schools, however, there are possible findings that can be drawn and applied by expanding the study to other schools, such as magnets, charters, private, and Christian schools. These types of schools are not always limited by geographic boundary lines and

neighborhood demographics, many are operated or sponsored by philanthropic or religious groups committed to equality of opportunity, some recruit students from all racial backgrounds, others provide services for immigrant students, and in some instances they provide free transportation for those who choose to come. As such, there are numerous variables that can be included in future studies of the benefits of diversity by expanding the study beyond traditional public schools.

A final recommendation is to conduct research focused on the value of integrating students by economic status at both the elementary and secondary levels. A major difference between this study and earlier ones (Kurlaender & Yun, 2001, 2002a, 2002b) is that it examined dichotomies between multiple racial and ethnic groups, used methods to compare results between settings of differing racial/ethnic diversity, and introduced the variable of socioeconomic diversity. Findings would suggest that the factors of socioeconomic status, and perhaps linguistic diversity, given the geometric increase in ESOL enrollment in the county, need to be considered in future studies aimed at examining the benefits of diverse educational experiences.

One implication of the research study is that Prince William County, and by extension other large school districts, would benefit from further analysis of the economic diversity in their schools as they strive to educate each student. The achievement gap has been most frequently expressed along racial lines, but can also be recognized along socioeconomic parameters.

This study examined the impacts of diverse high school settings on students' educational experiences. While this study recognized that Prince William County high schools are currently economically diverse, they are likely to become more so in the

future. Over the past 5 years, student membership growth in the free/reduced lunch program has grown over 63% (Prince William County Public Schools, 2007c). While only one of the 10 high schools in Prince William County had a very high poverty rate with over 40% of the students classified as economically disadvantaged, this is not the case with elementary and middle schools. Nineteen of the 53 elementary schools and 5 of the 14 middle schools have enrollments with 40% or more categorized as economically disadvantaged; 7 elementary schools and 1 middle school have rates exceeding 60% (Prince William County Public Schools, 2006a).

There are a number of reasons that elementary and middle schools would have higher rates of economic disadvantage than high schools. Elementary and middle schools tend to be smaller than high schools; parents of students are younger and less financially secure and more likely to apply for free or reduced lunches for younger children than for older ones. However, the smaller size of elementary and middle schools, combined with their neighborhood orientation and the economic and racial/ethnic segregation characteristic of residential housing patterns, means that they are often populated by homogeneous groups of students (Clotfelter, Ladd, Vigdor, & Wheeler, 2006). As a result, students may not benefit from the value of diversity in their learning experiences until later in their secondary education.

Patterns of segregation along lines of race and ethnicity are related to factors of immigrant status and linguistic diversity; these factors are again related to segregation by poverty and poverty concentrations to unequal opportunities and outcomes (Frankenberg & Lee, 2002). It is therefore important to understand at the school and school district level the ways in which race and economic disadvantage interconnect and how they



impact students. Future studies could examine the value of integrating students by economic status at both the elementary and secondary levels, using case studies of school districts where this concept has been implemented.

### Implications for Practice

The implication of the research outcomes is that all students of all races share in the long-term benefits of diverse educational environments and would suggest that school diversity can narrow the perception gap between races towards living and working in multiracial environments. By extending this argument, it could be concluded that students in more diverse schools may exhibit more racial tolerance and have more cross-racial friendships and interactions than their peers in less-integrated ones; these findings would lend credence to the argument that diverse settings can reduce stereotypes and promote cross-racial understanding, viewpoints which will become more and more important in an increasingly racially diverse society.

In addition, there are important externalities for American society that may result from race-conscious policies arising as a result of this study's findings. Public schools play a fundamental role in American democracy by providing a place where all young members of the society can collect together in one institution. However, support of the public school system requires not only investment in, but also attendance by, all members of the community. By demonstrating that diverse schools provide educational benefits to all students, White flight from what might otherwise be minority schools—a phenomenon that serves to perpetuate residential segregation—may be halted. Moreover, future employers may embrace decisions focused on increasing school diversity in that they

enjoy the resultant benefits of a workforce that is both comfortable and experienced in working across racial, ethnic, and socioeconomic status lines.

### Applications and Recommendations

There is value in having districts and schools evaluate their current diversity programs and policies with regard to faculty recruitment, curricular planning, and resource allocation in order to best shape institutional planning and policy (Garcia et al., 2001). Some schools may seek public support for using diversity to achieve academic excellence and, therefore, need to not only assess their efforts but also report their findings to their public (Shaw, 2005). Some settings may need to justify the importance of the consideration of race, ethnicity, and socioeconomic status or the maintaining of structural diversity in the face of policy or enrollment decisions. This research may do more than provide empirical evidence for decision makers; it may also provide information that enables educational leaders to make changes to diversity initiatives that are both evocative and principled. In this regard, not only does institutional assessment of diversity provide educators a means of documenting the progress their schools have made but also helps ensure that schools and districts accept accountability (McTighe-Musil et al., 1999).

Schools that conduct and utilize research on the educational benefits of diversity are seizing the opportunity to not only improve their climate of learning, but also to improve society at large. Whether or not the application of this study's finding is used to provide support for affirmative action, create or defend institutional policies, assess or improve the educational climate for diversity, or evaluate the success of current school

and district diversity initiatives, it is hoped that it positively contributes to the body of knowledge that informs the educational practice.

It is also hoped that the study results will provide impetus to Prince William County Public Schools' challenge to redefine integration and achieve a balance of diversity across all schools in future years. Its findings could support a district need to focus efforts on achieving a racially balanced student body across its schools, given current and expected demographic trends. Study results would suggest that this new archetype of school integration should consider not only multiracial/multiethnic enrollment issues but other dimensions as well that address issues such as curricular diversity and institutional support.

Integration efforts in the past have focused exclusively on dimensions of race; however, that is likely to be insufficient in the future. This study has demonstrated both similarities and differences in student perceptions of educational outcomes between schools of varied diversity and socioeconomic status. This finding would suggest that other factors, such as socioeconomic status and linguistic diversity, need to be included in county integration policies, perhaps the most profound of which are decisions on school boundaries; it is these types of decisions that shape the demographics of individual schools and, in turn, the educational outcomes for students. With the continued influx of residents and new development on the county's fringes, recurrent boundary decisions will continue to be a way of life for Prince William County Public Schools and, in this regard, provide numerous opportunities to shape school populations. Achieving diversity in Prince William County Public Schools may be seen as a preventive measure in a racially, ethnically, linguistically, and economically changing entity that has the financial

resources to halt the kind of “decay, abandonment and division that plagues many central city school districts” (Kim, 1998, p. 5). How Prince William County faces these challenges may serve as a model for demographically similar school systems across the nation that will ultimately face similar issues.

## REFERENCES

- Antonio, A. L. (2001). Diversity and the influence of friendship groups in college. *The Review of Higher Education*, 25(1), 63-89.
- Appel, M., Cartwright, D., Smith, D. G., & Wolf, L. E. (1996). *The impact of diversity on students: A preliminary review of the research literature*. Washington, DC: Association of American Colleges and Universities.
- Ary, D., Jacobs, L. C., Razavieh, A. & Sorensen, C. (2006). *Introduction to research in education* (7<sup>th</sup> ed.). Canada: Wadsworth Publishing.
- Astin, A. W. (1993a). *What matters in college: Four critical years revisited*. San Francisco, CA: Jossey-Bass.
- Astin, A. W. (1993b). Diversity and multiculturalism on the campus: How are students affected? *Change*, 25(2), 44-49.
- Astone, B., & Nuñez-Wormack, E. (1990). *Pursuing diversity: Recruiting college minority students*. Washington, DC: George Washington University, School of Education and Human Development.
- Baez, B. (2004). The study of diversity: The “knowledge of difference” and the limits of science. *The Journal of Higher Education*, 75(3), 285-306.
- Belk v. Charlotte-Mecklenburg Board of Education, 269 F.3d 305 (4th Cir. 2001), cert. denied, 122 S.Ct. 1538 (2002).
- Berry v. School District of the City of Benton Harbor, 195 F.Supp.2d 971 (W.D. Mich. 2002).
- Board of Education of Oklahoma City v. Dowell, 498 U.S. 237 (1991).

- Boger, C. (2005). *The socioeconomic composition of the public schools: A crucial consideration in student assignment policy*. Chapel Hill, NC: Center for Civil Rights.
- Borg, W. R. & Gall, M. D. (1989). *Educational research*. New York: Longman.
- Braddock, J. H. (1980). The perpetuation of segregation across levels of education: A behavior assessment of the contact-hypothesis. *Sociology of Education*, 53(3), 178-186.
- Brown v. Board of Education of Topeka, 347 U.S. 483 (1954).
- Chang, M. J. (1999). Does racial diversity matter? The educational impact of a racially diverse undergraduate population. *Journal of College Student Development*, 40(4), 377-395.
- Chang, M. J. (2001). The positive educational effects of racial diversity on campus. In G. Orfield & M. Kurlaender (Eds.), *Diversity challenged: Evidence on the impact of affirmative action* (pp. 175-186). Cambridge, MA: Harvard Educational Publishing Group.
- Chang, M. J. (2002). Preservation or transformation: Where's the real educational discourse on diversity? *The Review of Higher Education*, 25(2), 125-140.
- Civil Rights Act of 1964, PL 88-352 (1964).
- Clotfelter, C., Ladd, H. F., Vigdor, J., & Wheeler, J. (2006). *High poverty schools and the distribution of teachers and principals*. Working paper, National Center for Analysis of Longitudinal Data in Educational Research.
- Could-Silva, C., & Sadoski, M. (1987). Reading teachers' attitudes toward basal reader use and state adoption policies. *Journal of Educational Research*, 81(1), 5-16.

- Crain, R. L. (1971). School integration and the academic achievement of Negroes. *Sociology of Education*, 44(1), 1-26.
- Crain, R. L., & Mahard, R. E. (1983). The effect of research methodology on desegregation achievement studies: A meta-analysis. *American Journal of Sociology*, 88(5), 839-854.
- Dawkins, M. P. (1983). Black students' occupational expectations: A national study of the impact of school desegregation. *Urban Education*, 18(1), 98-113.
- Dillman, D. (1978). *Mail and telephone surveys: The total design method*. New York: John Wiley and Sons.
- Dillman, D. (1991). The design and administration of mail surveys. *Annual Review of Sociology*, 17 (1), 225-249.
- Duke, D. L. (2005). *Education empire: The evolution of an excellent suburban school system*. Albany, NY: State University of New York Press.
- Duster, T. (1993). The diversity of California at Berkely: An emerging reformulation of "competence" in an increasingly multicultural world. In B. W. Thompson & S. Tyagi (Eds.), *Beyond the dream deferred: Multicultural education and the politics of excellence*. Minneapolis: University of Minnesota Press.
- DGY, Inc. (1998). *National poll on campus diversity: Survey commissioned by the Ford Foundation*. Danbury, CT: Author.
- Eisenberg v. Montgomery County Public Schools, 197 F.3d 123 (4th Cir. 1999), cert. denied, 529 U.S. 1019 (1999).
- Ely, J. W. (1976). *The crisis of conservative Virginia: The Byrd organization and the politics of massive resistance*. Knoxville, TN: University of Tennessee Press.

- Frankenberg, E. & Lee, C. (2002). *Race in American public schools: Rapidly resegregating school districts*. Cambridge, MA: Harvard Educational Publishing Group.
- Frankenberg, E., Lee, C., & Orfield, G. (2003). *A multiracial society with segregated schools: Are we losing the dream?* Cambridge, MA: Harvard Educational Publishing Group.
- Freeman v. Pitts (89-1290), 498 US 1081 (1992).
- Gallagher, C. (2004). Turning the accountability tables: Ten progressive lessons from one “backward” state. *Phi Delta Kappan*, 85(5), 352-360.
- Garcia, M., Hudgins, C. A., McTighe-Musil, C., Nettles, M. T., Sedlacek, W. E., & Smith, D. G. (2001). *Assessing campus diversity initiatives: A guide for campus practitioners*. Washington, DC: Association of American Colleges & Universities.
- Garson, G. D. (2006). *Multiple regression*. Retrieved May 30, 2006, from <http://www2.chass.ncsu.edu/garson/PA765/regress.htm>
- Gay, L. R., & Airasian, P. (2003). *Educational research: Competencies for analysis and applications* (7th ed.). Upper Saddle River, NJ: Merrill Prentice Hall.
- Guajardo, S. A. (1999). Workforce diversity: Monitoring employment trends in public organizations. *Public Personnel Management*, 28(1), 63-86.
- Gurin, P. (1999). *Expert report: The compelling need for diversity in higher education*, prepared for *Gratz et al. v. Bollinger et al.* (No 97-75231 E.D. Mich., filed 1997) and *Grutter et al. v Bollinger et al.* (No 97-75928 E.D. Mich., filed 1997).



- Gurin, P., Dey, E. L., Gurin, G., & Hurtado, S. (2004). The educational value of diversity. In P. Gurin, J. S. Lehman, & E. Lewis (Eds.), *Defending diversity: Affirmative action at the University of Michigan* (pp. 97–188). Ann Arbor, MI: The University of Michigan.
- Gurin, P., Dey, E. L., Hurtado, S., & Gurin, G. (2002). Diversity and higher education: Theory and impact on educational outcomes. *Harvard Educational Review*, 72(3), 330–366.
- Gurin, P., Nagda, B. A., & Lopez, G. E. (2004). The benefits of diversity in education for democratic citizenship. *Journal of Social Issues*, 60(1), 17-34.
- Hall, S. (1981). Teaching race. In A. James & R. Jeffcoate (Eds.), *The school in the multicultural society* (pp. 58-69). London: Harper.
- Harris Interactive. (2004). Brown vs. Board of Education: 50 years later. *Trends and Tudes*, 3(6), 1-3.
- Hoelter, J. W. (1982). Segregation and rationality in Black status aspiration processes. *Sociology of Education*, 55(1), 31-39.
- Hurtado, S., Milem, J. F., Clayton-Pedersen, A. R., & Allen, W. R. (1998). Enhancing campus climates for racial/ethnic diversity: Educational policy and practice. *The Review of Higher Education*, 21(3), 279–302.
- Jaccard, J., & Wan, C. K. (1996). *LISREL approaches to interaction effects in multiple regression*. Thousand Oaks, CA: Sage Publications.
- Kim, J. S. (1998). *Racial change in Fairfax County, and its implications for the public schools*. Unpublished manuscript, Harvard University.

- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement, 30*(3), 607-610.
- Kugler, E. G. (2002). *Debunking the middle-class myth: Why diverse schools are good for all kids*. Lanham, MD: Scarecrow Press, Inc.
- Kurlaender, M., & Yun, J. T. (2001). Is diversity a compelling educational interest? Evidence from Louisville. In G. Orfield & M. Kurlaender (Eds.), *Diversity Challenged: Evidence on the Impact of Affirmative Action* (pp. 111-141). Cambridge, MA: Harvard Educational Publishing Group.
- Kurlaender, M. & Yun, J. T. (2002a). *The impact of racial and ethnic diversity on educational outcomes: Lynn, MA School District*. Cambridge, MA: Harvard Educational Publishing Group.
- Kurlaender, M., & Yun, J. T. (2002b). *The impact of racial and ethnic diversity on educational outcomes: Cambridge, MA School District*. Cambridge, MA: Harvard Educational Publishing Group.
- Kurlaender, M., & Yun, J. T. (2004). School racial composition and student educational aspirations: A question of equity in a multi-racial society. *Journal of Education for Students Placed at Risk, 9*(2), 143-168.
- McPartland, J. M., & Braddock, J. H. (1981). Going to college and getting a good job: The impact of desegregation. In W. D. Hawley (Ed.), *Effective School Desegregation: Equality, Quality and Feasibility*. London: Sage.
- McTighe-Musil, C., García, M., Hudgins, C. A., Nettles, M. T., Sedlacek, W. E., & Smith, D. G. (1999). *To form a more perfect union: Campus diversity initiatives*. Washington, DC: Association of American Colleges & Universities.

- Metropolitan Center for Urban Education (2004). *With all deliberate speed: Achievement, citizenship and diversity in American education*. New York: Steinhardt School of Education, New York University.
- Missouri v. Jenkins, 515 U.S. 70 (1995).
- Moses, Y. T. (1994). Quality, excellence, and diversity. In D. G. Smith, L. E. Wolf, & T. Levitan (Eds.), *Studying diversity in higher education*. San Francisco: Jossey-Bass.
- NAACP Legal Defense and Educational Fund, Inc. (2005). *Looking to the future: Voluntary K-12 integration, a manual for parents, educators & advocates*. New York: LDF Communications. Contributors: The Civil Rights Project at Harvard University & The Center for Race and Law at the University of Virginia Law School.
- Natriello, G., McDill, E. L., & Palls, A. M. (1990). *Schooling disadvantaged children: Racing against catastrophe*. New York: Teachers College Press.
- Newman, J. T. (2003). *Types of scales and levels of measurement: Web lectures, notes, and handouts on introductory graduate-level statistics*. Retrieved May 18, 2006 from <http://www.upa.pdx.edu/IOA/newsom/pa551/lecture1.htm>
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3<sup>rd</sup> ed.). New York: McGraw-Hill.
- Orfield, G., Eaton, S. & The Harvard Project on School Desegregation (Eds.). (1996). *Dismantling desegregation: The quiet reversal of Brown v. Board of Education*. New York: New Press.

- Orfield, G., & Lee, C. (2005). *Why segregation matters: Poverty and educational inequality*. Cambridge, MA: The Civil Rights Project at Harvard University.
- Orfield, G., & Lee, C. (2006). *Racial transformation and the changing nature of segregation*. Cambridge, MA: The Civil Rights Project at Harvard University.
- Orfield, G., & Yun, J. T. (1999). *Resegregation in American schools*. Cambridge, MA : The Civil Rights Project at Harvard University.
- People Who Care v. Rockford Board of Education School District No. 205, 246 F.3d 1073 (7<sup>th</sup> Cir. 2001).
- Prince William County. (2007). *Prince William County demographic fact sheet, third quarter, 2007*. Retrieved October 15, 2007, from <http://www.pwcgov.org/docLibrary/PDF/001823.pdf>
- Prince William County Public Schools. (2002). *History*. Retrieved May 15, 2007, from <http://www.pwcs.edu/admin/infoguide/history.html>
- Prince William County Public Schools. (2003). *Program evaluation and research activities: Research/surveys/evaluations*, Regulation 612.1. Prince William County, VA: PWCS Office of Program Evaluation.
- Prince William County Public Schools. (2006a). *School data profiles report, 2005-2006, as of November 29, 2006*. Retrieved May 14, 2007 from <http://www.pwcs.edu/departments/Accountability/Profiles/SchoolProfiles.html>
- Prince William County Public Schools. (2006b). *Strategic plan report*. Retrieved October 15, 2007, from <http://www.pwcs.edu/departments/accountability/strategic/StrategicPlanReport11-06.pdf>

- Prince William County Public Schools. (2007a). *Profile of excellence*. Retrieved May 15, 2007, from <http://www.pwcs.edu/departments/community/profileofexcellence.pdf>
- Prince William County Public Schools. (2007b). *Superintendent's proposed budget executive summary*. Retrieved October 15, 2007, from <http://www.pwcs.edu/departments/finance/budget/summary07.pdf>
- Prince William County Public Schools. (2007c). *Superintendents proposed budget, 2007*. Retrieved December 27, 2007, from <http://www.pwcs.edu/News/story46/SBPresentation07.pdf>
- Reardon, S., & Yun, J. (2001). Suburban racial change and suburban school segregation, 1987-1995. *Sociology of Education*, 74(2), 79-101.
- Reardon, S., Yun, J., & McNulty, T. (2000). The changing structure of school segregation: Measurement and evidence of multi-racial metropolitan-area school segregation, 1989-1995. *Demography*, 37, 351-364.
- Regents of California v. Bakke, 438 U.S. 265 (1978).
- Reid, K. S. (2004). Survey probes views on race. *Education Week*. Retrieved May 23, 2006, from <http://www.edweek.org/ew/ewstory.cfm?slug=36brownpoll.h23>
- Rothstein, R. (2004). *Class and schools: Using social, economic, and educational reform to close the Black-White achievement gap*. Washington, DC: Economic Policy Institute.
- Rudenshtine, N. L. (1996). The uses of diversity. *Harvard Magazine*, 98(4), 48-62.
- Schellenberg, S. (1999). Concentration of poverty and the ongoing need for Title I. In G. Orfield & E. DeBray (Eds.), *Hard work for good schools* (pp. 130-146). Cambridge, MA: Harvard Educational Publishing Group.

- Schneider, C., Wong, F. F., Butler, J., Gutiérrez, R., Musil, C. M., & Knefelkamp, L. (1995). *The drama of diversity and democracy: Higher education and American commitments*. Washington, DC: Association of American Colleges and Universities.
- Schofield, J. W. (1995). Review of research on school desegregation's impact on elementary and secondary school student. In J. A. Banks & C. M. Banks (Eds.), *Handbook of Research on Multicultural Education* (pp. 597-616). New York: Simon & Schuster MacMillan.
- Schofield, J. W. (1999). Maximizing the benefits of student diversity: Lessons from school desegregation research. In G. Orfield & M. Kurlaender (Eds.), *Diversity challenged: Evidence on the impact of affirmative action* (pp. 99-110). Cambridge, MA: Harvard Educational Publishing Group.
- Shaw, E. J. (2005). *Researching the educational benefits of diversity*. New York: College Entrance Examination Board (College Board Research Report No. 2005-4).
- Springer, L., Palmer, B., Terenzini, P. T., Pascarella, E. T., & Nora, A. (1996). Attitudes towards campus diversity: Participation in a racial or cultural awareness workshop. *The Review of Higher Education*, 20(1), 53-68.
- Tartar, D. (1969). Toward prediction of attitude-action discrepancy. *Social Forces* 4(4), 398-404.
- Terenzini, P. T., Cabrera, A. F., Colbeck, C. L., Bjorklund, S. A., & Parente, J. M. (2001). Racial and ethnic diversity in the classroom. *The Journal of Higher Education*, 72(5), 509-529.

- Tien, C. (1996). *Racial preferences? Promoting diversity in higher education: Perspectives on affirmative action and its impact on Asian Pacific Americans*. Los Angeles: LEAP Asian Pacific American Public Policy Institute.
- Tierney, W. G. (1993). *Building communities of difference: Higher education in the twenty-first century*. Westport, CT: Bergin & Garvey.
- Trent, W. (1991). *Desegregation analysis report*. New York: Legal and Defense Education. Fund.
- Tuttle v. Arlington County School Board, 195 F.3d 698 (4th Cir. 1999), cert. dismissed, 529 U.S. 1050 (2000).
- Umbach, P. D., & Kuh, G. D. (2002, January). *Student experiences with diversity at liberal arts colleges: Another claim for distinctiveness*. Paper presented at the 43rd Annual Forum for the Association for Institutional Research, Tampa, FL.
- United States Census Bureau. (2007). *Income, earnings and poverty data from the 2006 American community survey*. Retrieved October 15, 2007, from <http://www.census.gov/prod/2007pubs/acs-08.pdf>
- Virginia Department of Education. (1954). Annual report of the Superintendent of Public Instruction of the Commonwealth of Virginia, 1953-1954. In D. L. Duke, *Education Empire: The Evolution of an Excellent Suburban School System* (pp. 17-18). Albany, NY: State University of New York Press.
- Virginia Department of Education. (2007). Division of Technology, Office of Educational Information Management, Statistical Report, *Reports of Student Membership by Ethnic Groups*. Retrieved October 15, 2007, from [http://www.doe.virginia.gov/VDOE/Publications/rep\\_page.htm](http://www.doe.virginia.gov/VDOE/Publications/rep_page.htm)

- Washington Area Boards of Education. (2006). *Washington area boards of education guide*. Retrieved October 15, 2007, from <http://pwcs.edu/Finance/budget/WABE.pdf>
- Wells, A. S., & Crain, R. L. (1994). Perpetuation theory and the long-term effects of school desegregation. *Review of Educational Research*, 64(4), 531-555.
- Wessman v. Gittens, 160 F.3d 790 (1st Cir. 1998).



## APPENDIX A

## DIVERSITY ASSESSMENT QUESTIONNAIRE (DAQ)

**PLEASE MARK ALL OF YOUR CHOICES ON THE SEPARATE ANSWER SHEET.**

*ALL RESPONSES ARE STRICTLY CONFIDENTIAL. NO NAMES WILL BE ATTACHED TO THESE SURVEYS.*

In this study, we define racial and ethnic minority groups as Native American/Alaskan, Asian/Pacific Islander, Black/African American, Hawaiian, Hispanic, Multiracial, Undesignated, and White.

**Section 1: Tell Us About Yourself:**

**Question 1** Were you born in this country? (THIS QUESTION DELETED) a. Yes b. No

**Question 2** What is your race/ethnicity?

- a. Native American/Alaskan
- b. Asian/Pacific Islander
- c. Black/African American
- d. Hawaiian
- e. Hispanic
- f. Multiracial
- g. Undesignated
- h. White

**Question 3** Are you: a. Male b. Female

**Question 4** What grade are you in: a. 9th b. 10th c. 11th d. 12th

**Question 5** What is the main language your family speaks at home?

- a. English
- b. Spanish
- c. A Middle Eastern Language
- d. An Asian Language
- e. An African Language
- f. An European Language
- g. Other

**Question 6** How many languages do you speak fluently? a. 1 b. 2 c. 3 d. More than 3

**Question 7** How many students in your home **NEIGHBORHOOD** are from racial or ethnic groups that are **different** from your own?

- a. A few
- b. Quite a few, but less than half
- c. About half
- d. Most

**Question 8** Please indicate your Mother or female guardian's highest level of education (Choose one):

- a. Some high school
- b. High school graduate
- c. Some College (less than 4 years)
- d. College graduate (with Bachelors degree)
- e. Graduate degree (such as a masters, law, M.D, Ph.D.)

**Question 9** Please indicate your Father or male guardian's highest level of education (Choose one):

- a. Some high school
- b. High school graduate
- c. Some College (less than 4 years)
- d. College graduate (with Bachelors degree)
- e. Graduate degree (such as a masters, law, M.D, Ph.D.)

**Question 10** Please indicate your how long you have been in this school district:

- a. Since elementary school
- b. Since middle/junior high school
- c. Since high school

### **Section 2: Your School and Classes**

**Question 11** How many students in your **SCHOOL** are from racial or ethnic groups that are **different** from your own?

- a. A few
- b. Quite a few, but less than half
- c. About half
- d. Most

**Question 12** Which best describes your **ENGLISH** class? (If you have more than one, pick the one that is required by your school.)

- a. Basic
- b. College Preparatory
- c. Honors or AP/IB
- d. A Mix of Levels
- e. Don't Know

**Question 13** How many students in your **ENGLISH CLASS** are from racial or ethnic groups that are **different** from your own?

- a. A few
- b. Quite a few, but less than half
- c. About half
- d. Most

**Question 14** In your **ENGLISH** class, how often do you read about the experiences of many **different** cultures and racial and ethnic groups?

- a. At least 3 times a Month
- b. Once or Twice a Month
- c. Less than Once a Month
- d. Never

**Question 15** During classroom discussions in your **ENGLISH** class, how often are racial issues discussed and explored?

- a. At least 3 times a Month
- b. Once or Twice a Month
- c. Less than Once a Month
- d. Never

**If you are not currently taking a SOCIAL STUDIES or HISTORY class, skip to question #20.**

**Question 16** Which best describes your **SOCIAL STUDIES** or **HISTORY** class? (If you have more than one, pick the one that is required by your school.)

- a. Basic
- b. College Preparatory
- c. Honors or AP/IB
- d. A Mix of Levels
- e. Don't Know

**Question 17** How many students in your **SOCIAL STUDIES** or **HISTORY** class are from racial or ethnic groups that are **different** from your own?

- a. A few
- b. Quite a few, but less than half
- c. About half
- d. Most

**Question 18** During classroom discussions in your **SOCIAL STUDIES** or **HISTORY** class, how often are racial issues discussed and explored?

- a. At least 3 times a Month
- b. Once or Twice a Month
- c. Less than Once a Month
- d. Never

**Question 19** To what extent do you believe that these discussions have changed your understanding of different points of view?

- a. Not at all
- b. A little
- c. Quite a bit
- d. A lot

**If you are not currently taking a MATH class, skip to question #22.**

**Question 20** Which best describes your **MATH** class? (If you have more than one, pick the one that is required by your school.)

- a. Basic
- b. College Preparatory
- c. Honors or AP/IB
- d. A Mix of Levels
- e. Don't Know

**Question 21** How many students in your **MATH** class are from racial or ethnic groups that are **different** from your own?

- a. A few
- b. Quite a few, but less than half
- c. About half
- d. Most

**Question 22** How would you rate your grades this year? (In all your classes)

- a. Mostly A's
- b. Mostly B's
- c. Mostly C's
- d. Mostly D's
- e. Mostly F's

**Question 23** Have you ever taken the PSAT, SAT, ACT or any other college admissions Exam? a. Yes b. No

**Question 24** Which best describes your **FOREIGN LANGUAGE** class?

- a. First Year
- b. Second Year
- c. Third Year
- d. Fourth Year or AP/IB
- e. I am not taking a foreign language class

**Question 25** To what extent have your **TEACHERS** encouraged you to attend college?

- |                        |                        |                                       |                         |                         |
|------------------------|------------------------|---------------------------------------|-------------------------|-------------------------|
| a. Strongly Encouraged | b. Somewhat Encouraged | c. Neither Encouraged Nor Discouraged | d. Somewhat Discouraged | e. Strongly Discouraged |
|------------------------|------------------------|---------------------------------------|-------------------------|-------------------------|

**Question 26** To what extent have your **COUNSELORS** encouraged you to attend college?

- |                        |                        |                                       |                         |                         |
|------------------------|------------------------|---------------------------------------|-------------------------|-------------------------|
| a. Strongly Encouraged | b. Somewhat Encouraged | c. Neither Encouraged Nor Discouraged | d. Somewhat Discouraged | e. Strongly Discouraged |
|------------------------|------------------------|---------------------------------------|-------------------------|-------------------------|

**Question 27** How much information about college admissions have your **TEACHERS** given you? (such as SAT, ACT, financial aid, college fairs, college applications information)

- a. A lot      b. Some      c. A little      d. None

**Question 28** How much information about college admissions have your **COUNSELORS** given you? (such as SAT, ACT, financial aid, college fairs, college applications information)

- a. A lot      b. Some      c. A little      d. None

**Question 29** To what extent have your **TEACHERS** encouraged you to take Honors, and/or AP/IB classes?

- a. Strongly Encouraged      b. Somewhat Encouraged      c. Neither Encouraged Nor Discouraged      d. Somewhat Discouraged      e. Strongly Discouraged

**Question 30** To what extent have your **COUNSELORS** encouraged you to take Honors, and/or AP/IB classes?

- a. Strongly Encouraged      b. Somewhat Encouraged      c. Neither Encouraged Nor Discouraged      d. Somewhat Discouraged      e. Strongly Discouraged

### Section 3: Your Classroom

**Please choose the letter that best indicates your level of agreement or disagreement with each statement.**

**Question 31** If I try hard I can do well in school:

- a. Strongly Agree      b. Somewhat Agree      c. Neither Agree nor Disagree      d. Somewhat Disagree      e. Strongly Disagree

**Question 32** My teachers administer punishment fairly:

- a. Strongly Agree      b. Somewhat Agree      c. Neither Agree nor Disagree      d. Somewhat Disagree      e. Strongly Disagree

**Question 33** At least one of my teachers takes a special interest in me:

- a. Strongly Agree      b. Somewhat Agree      c. Neither Agree nor Disagree      d. Somewhat Disagree      e. Strongly Disagree

**Question 34** My teachers encourage me to work with students of other racial/ethnic backgrounds:

- a. Strongly Agree      b. Somewhat Agree      c. Neither Agree nor Disagree      d. Somewhat Disagree      e. Strongly Disagree

**Question 35** After high school, how prepared do you feel to work in a job setting where people are of a different racial or ethnic background than you are?

- a. Very Prepared      b. Somewhat Prepared      c. Somewhat Unprepared      d. Very Unprepared

**Question 36** How do you believe your school experiences will affect your ability to **WORK** with members of other races and ethnic groups?

- a. Helped a lot  
b. Helped somewhat  
c. Had no effect  
d. Did not help  
e. Hurt my ability

**Question 37** How comfortable would you be with a work supervisor who was of a different racial or ethnic background than you?

- a. Very comfortable  
b. Somewhat comfortable  
c. Somewhat uncomfortable  
d. Very uncomfortable

**Please indicate how comfortable you are with each of the following in your classes:**

		Very comfortable	Somewhat comfortable	Somewhat uncomfortable	Very uncomfortable	Does not apply
<b>Question 38</b>	Discussing controversial issues related to race	a.	b.	c.	d.	e.
<b>Question 39</b>	Working with students from different racial and ethnic backgrounds in group projects	a.	b.	c.	d.	e.
<b>Question 40</b>	Learning about the differences between people from other racial and ethnic groups	a.	b.	c.	d.	e.
<b>Question 41</b>	Working with students from other language backgrounds	a.	b.	c.	d.	e.
<b>Question 42</b>	Working with students from different countries	a.	b.	c.	d.	e.
<b>Question 43</b>	Debating current social and political issues	a.	b.	c.	d.	e.

- Question 44** How much tension exists in your school between students of different racial or ethnic groups?
- None
  - Very little
  - Some
  - Quite a bit
  - A lot

#### **Section 4: Your Interests and Future Goals**

- Question 45** How likely are you to go to a college that has students of different racial and ethnic backgrounds?
- Very likely
  - Likely
  - Unlikely
  - Very unlikely
  - I do not plan to attend college
- Question 46** How likely do you think it is that you will work with people of racial and ethnic backgrounds different from your own?
- Very likely
  - Likely
  - Unlikely
  - Very unlikely

**Please indicate how interested you are in the following:**

	Very interested	Interested	Somewhat Interested	Not Interested
<b>Question 47</b> Taking a foreign language after high school	a.	b.	c.	d.
<b>Question 48</b> Taking an honors or AP/IB mathematics course	a.	b.	c.	d.
<b>Question 49</b> Taking an honors or AP/IB English course	a.	b.	c.	d.
<b>Question 50</b> Going to a community college	a.	b.	c.	d.
<b>Question 51</b> Going to a four-year college	a.	b.	c.	d.
<b>Question 52</b> Taking a computer science course	a.	b.	c.	d.
<b>Question 53</b> Taking a course focusing on other cultures after high school	a.	b.	c.	d.
<b>Question 54</b> Traveling outside the United States	a.	b.	c.	d.
<b>Question 55</b> Attending a racially/ethnically diverse college	a.	b.	c.	d.
<b>Question 56</b> Living in a racially/ethnically diverse neighborhood when you are an adult	a.	b.	c.	d.
<b>Question 57</b> Working in a racially/ethnically diverse setting when you are an adult	a.	b.	c.	d.

- Question 58** How do you believe your school experiences will affect your ability to **UNDERSTAND** with members of other races and ethnic groups?
- Helped a lot
  - Helped somewhat
  - Had no effect
  - Did not help
  - Hurt my ability

### Section 5: Your School and Your Community

**NOTE:** In this section, we are interested in how your experiences in high school have influenced your interest in your community and the world. We understand that your family and friends may have also had a great impact in these areas, but, for this survey, we ask that you focus on the impact of your school on these topics. In the following items indicate to what extent classroom or extracurricular activities offered through your high school changed your interest in:

		Greatly increased	Somewhat increased	No effect	Somewhat decreased	Greatly decreased
<b>Question 59</b>	Current events.	a.	b.	c.	d.	e.
<b>Question 60</b>	Reading about what is happening in other parts of the world.	a.	b.	c.	d.	e.
<b>Question 61</b>	Volunteering in your community.	a.	b.	c.	d.	e.
<b>Question 62</b>	Joining a multi-cultural club.	a.	b.	c.	d.	e.
<b>Question 63</b>	Participating in elections.	a.	b.	c.	d.	e.
<b>Question 64</b>	Staying informed about current issues facing your community and country.	a.	b.	c.	d.	e.
<b>Question 65</b>	Taking leadership roles in your school.	a.	b.	c.	d.	e.
<b>Question 66</b>	Living in a racially/diverse setting when you are an adult.	a.	b.	c.	d.	e.
<b>Question 67</b>	Working to improve relations between people from different backgrounds.	a.	b.	c.	d.	e.
<b>Question 68</b>	Running for public office some time in the future.	a.	b.	c.	d.	e.
<b>Question 69</b>	Taking leadership roles in your community.	a.	b.	c.	d.	e.
<b>Question 70</b>	Voting for a Senator or President from a minority racial/ethnic group.	a.	b.	c.	d.	e.

**Which Prince William County High or Secondary School do you currently attend?**

- Question 71** Select from the following choices: a.(Removed to protect school anonymity) b.(Removed to protect school anonymity) c.(Removed to protect school anonymity)



APPENDIX B  
DIVERSITY ASSESSMENT QUESTIONNAIRE ANSWER SHEET

*Do not write your name anywhere on this answer sheet.*

<b>Section 1: Tell us about yourself</b>										
Question 1	A	B								
Question 2	A	B	C	D	E	F	G	H		
Question 3	A	B								
Question 4	A	B	C	D						
Question 5	A	B	C	D	E	F	G			
Question 6	A	B	C	D						
Question 7	A	B	C	D						
Question 8	A	B	C	D	E					
Question 9	A	B	C	D	E					
Question 10	A	B	C							
<b>Section 2: Your school and classes</b>										
Question 11	A	B	C	D						
Question 12	A	B	C	D	E					
Question 13	A	B	C	D						
Question 14	A	B	C	D						
Question 15	A	B	C	D						
Question 16	A	B	C	D	E					
Question 17	A	B	C	D						
Question 18	A	B	C	D						
Question 19	A	B	C	D						
Question 20	A	B	C	D	E					
Question 21	A	B	C	D						
Question 22	A	B	C	D	E					
Question 23	A	B								
Question 24	A	B	C	D	E					
Question 25	A	B	C	D	E					
Question 26	A	B	C	D	E					
Question 27	A	B	C	D						
Question 28	A	B	C	D						
Question 29	A	B	C	D	E					
Question 30	A	B	C	D	E					
<b>Section 3: Your classroom</b>										
Question 31	A	B	C	D	E					
Question 32	A	B	C	D	E					
Question 33	A	B	C	D	E					
Question 34	A	B	C	D	E					
Question 35	A	B	C	D						
Question 36	A	B	C	D	E					
Question 37	A	B	C	D						
Question 38	A	B	C	D	E					
Question 39	A	B	C	D	E					
Question 40	A	B	C	D	E					
Question 41	A	B	C	D	E					
Question 42	A	B	C	D	E					
Question 43	A	B	C	D	E					
Question 44	A	B	C	D	E					

**Instructions:** Mark the letter corresponding to your choice in the appropriate block.

**Instructions:** Mark the letter corresponding to your choice in the appropriate block.

*Do not write your name anywhere on this answer sheet*

**DIVERSITY ASSESSMENT QUESTIONNAIRE ANSWER SHEET (Page 2)**

***Do not write your name anywhere on this answer sheet***

<b>Section 4: Your Interests and Future Goals</b>					
Question 45	A	B	C	D	E
Question 46	A	B	C	D	
Question 47	A	B	C	D	
Question 48	A	B	C	D	
Question 49	A	B	C	D	
Question 50	A	B	C	D	
Question 51	A	B	C	D	
Question 52	A	B	C	D	
Question 53	A	B	C	D	
Question 54	A	B	C	D	
Question 55	A	B	C	D	
Question 56	A	B	C	D	
Question 57	A	B	C	D	
Question 58	A	B	C	D	E
<b>Section 5: Your School and Your Community</b>					
Question 59	A	B	C	D	E
Question 60	A	B	C	D	E
Question 61	A	B	C	D	E
Question 62	A	B	C	D	E
Question 63	A	B	C	D	E
Question 64	A	B	C	D	E
Question 65	A	B	C	D	E
Question 66	A	B	C	D	E
Question 67	A	B	C	D	E
Question 68	A	B	C	D	E
Question 69	A	B	C	D	E
Question 70	A	B	C	D	E
Question 71	A	B	C		

**Instructions:** Mark the letter corresponding to your choice in the appropriate block.

***Do not write your name anywhere on this answer sheet***

**When you have completed the survey, place your answer sheet inside the booklet and return it to the survey administrator or your teacher.**

## APPENDIX C

## PARENTAL CONSENT FORM

**PARENT CONSENT FOR PARTICIPATION**

*Impacts of Racial, Ethnic and Socioeconomic Diversity on  
Educational Outcomes in Prince William County Public Schools*

Joseph F. Fontanella, Jr.  
Liberty University School of Education

Dear Parent,

This letter is to ask permission for your child to take part in a research study that addresses the impacts of racial, ethnic and socioeconomic diversity on educational outcomes in the Prince William County Public Schools. This study is being done together by your school and Joseph F. Fontanella, Jr., a doctoral candidate in the School of Education at Liberty University. We ask that you read this form and ask any questions you may have before agreeing to be in the study.

**Background Information – Why am I being asked?**

The purpose of this study is to explore how diverse public high school learning environments in Prince William County, Virginia affect students' perceptions of their educational experience. Your child was selected as a possible participant because of past and current experiences as a student in the Prince William County Public School system.

**Procedures – What will your child be asked to do?**

If you agree to allow your child to participate in this study, we would ask that your student complete a Diversity Assessment Questionnaire (DAQ), which is a survey derived by the Civil Rights Project at Harvard University in collaboration with the National School Boards Association's Council of Urban Boards of Education. The survey is made up of 71 questions about student experiences in their classrooms and in their school, as well as questions about their future goals, educational aspirations, attitudes and interests. It is expected that the survey will take approximately 15 minutes to complete.

**Risks and Benefits of being in the Study:**

Risks of participating in this survey are no more than would be encountered in everyday life. Students benefit by providing feedback about their educational experience to be used in a report that could potentially be used to help shape future decisions by the Prince William County Public Schools.

**Privacy and Confidentiality:**

The records of this study will be kept private. We will not include any information that will make it possible to identify your child in any report published. Research records will be stored securely and only researchers will have access to the records. No names will be attached to the survey and so all student responses will be completely anonymous. Consent forms will be separated from survey answer forms upon receipt and there will be no way to connect student responses to student names.

**Voluntary Nature of the Study/Withdrawal:**

Participation in this study is voluntary. You can choose whether your child will be in this study or not. If you decide to allow your child to be in the study, you may withdraw at any time with no consequences of any kind. Furthermore, your decision whether or not to allow your child to participate will not affect your or your child's current or future relations with the Liberty University. If you decide to allow your child to participate, your child is free to not answer any question or withdraw at any time with out affecting those relationships.

**Contacts and Questions:**

The researcher conducting this study is Joseph F. Fontanella. You may contact him to ask any questions you may have prior to signing the consent form. If you have questions later, or if you would like a summary of the study's findings at a later date, you are encouraged to contact him in Springfield, VA at (703) 451-4680, or at, jffontanella@liberty.edu. Additionally, you may contact his faculty advisor, Dr. Michelle B. Goodwin at (434) 582-2265, or at mbgoodwin@liberty.edu.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, you are encouraged to contact the Human Subject Office, 1971 University Blvd, Suite 2400, Lynchburg, VA 24502 or email at fgarzon@liberty.edu.

**Statement of Consent:**

I have read this consent form and understand the information about the study. All my questions about the study and my participation in it have been answered.

We are giving you two copies of this form. One is for you to keep and the other is for you to return.

\_\_\_\_\_  
Name of child (print)

\_\_\_\_\_ I agree to allow my child be in the study.

\_\_\_\_\_ I do not agree for my child to be in the study.

\_\_\_\_\_  
Parent name printed

\_\_\_\_\_  
Parent signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Joseph F. Fontanella, Principal Investigator

September 4, 2007

\_\_\_\_\_  
Date

## APPENDIX D

INSTRUCTIONS FOR COMPLETING THE DIVERSITY ASSESSMENT  
QUESTIONNAIRE (DAQ)***Background information:***

The purpose of this study is to explore how diverse public high school learning environments in Prince William County, Virginia affect students' perceptions of their educational experience. The study is being done together by your school and Joseph F. Fontanella, Jr., a doctoral candidate in the School of Education at Liberty University. You were selected as a possible participant because of your past and current experiences as a student in the Prince William County Public School system.

***What you'll be asked to do:***

If you choose to participate, you will complete a Diversity Assessment Questionnaire (DAQ), which is made up of 71 questions about your experiences in your classrooms and in school, as well as questions about your future goals, educational aspirations, attitudes and interests. It is expected that the survey will take approximately 15 minutes to complete.

Please do not write your name anywhere on the answer sheet or on the survey. This is to ensure that all student responses remain completely anonymous. The records of this study will be kept private. We will not include any information that will make it possible to identify you in any report published. Research records will be stored securely and only the researcher will have access to the records. Consent forms will be separated from survey answer forms upon receipt and there will be no way to connect student responses to student names.

Participation in this study is voluntary. If you decide to participate in the study, you may withdraw at any time with no consequences of any kind. Furthermore, your decision whether or not to participate will not affect your current or future relations with the Liberty University. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

***What do I do next?***

Ask your parent or guardian to read and complete the parent consent form, which is included in the survey folder. You should not complete the survey until your parent or guardian has agreed for you to participate and signed the consent form. You can complete the survey online or on paper by filling out an answer sheet.

If you are taking the "hard-copy" paper survey - Please complete the survey and return the answer sheet, survey and the signed parent consent form to your teacher during the next class meeting.

If you are taking the web-based survey - The survey may be accessed by typing the following address into your web browser: <http://www.pwdaq.com> . Please complete the survey online, then print out the completion notice and return it and the signed parent consent form to your teacher during the next class meeting.

***Questions?***

The researcher conducting this study is Joseph F. Fontanella. You may contact him to ask any questions you may have prior or during the conduct of the survey. If you have questions later, you are encouraged to contact him in Springfield, VA at (703) 451-4680, or at, [jffontanella@liberty.edu](mailto:jffontanella@liberty.edu).

## APPENDIX E

## TABLES AND POSTTABULATIONS

Table 32

*Gender Composition of the Sample (illustrated as Percent Female)*

Diversity/Socioeconomic Group	Total	Asian/ Pacific Islander/ Hawaiian	Black/ African American	Hispanic	Other	White
	No.	%	%	%	%	%
Group A: Low diversity, high socioeconomic status	40	60%	50%	43%	67%	59%
Group B: Medium diversity, medium socioeconomic status	34	50%	58%	70%	60%	59%
Group C: High diversity, low socioeconomic status	36	75%	44%	62%	75%	61%
Total	110	62%	50%	64%	67%	60%

Note: Data on subjects identified as Hawaiian are combined with Asian/Pacific Islanders; subjects identified as American Indian/Alaskan, Multiracial or undesignated are combined as "Other."

Table 33

*Period of Enrollment in the School District by Diversity/Socioeconomic Group*

Diversity/Socioeconomic Group	Since Elementary School	Since Middle School	Since High School
	%	%	%
Group A: Low diversity, high socioeconomic status	69%	21%	10%
Group B: Medium diversity, medium socioeconomic status	57%	20%	23%
Group C: High diversity, low socioeconomic status	58%	23%	19%
Total	62%	20%	18%

Table 34

*Student Reports of Neighborhood Racial Composition by Racial/Ethnic Group*

In my neighborhood:	Asian/ Pacific Islander /Hawaiian %	Black/ African American %	Hispanic %	Other %	White %
A FEW students are from racial or ethnic groups different from my own	8%	21%	42%	33%	45%
QUITE A FEW, BUT LESS THAN HALF the students are from racial or ethnic groups different from my own	15%	7%	12%	22%	15%
ABOUT HALF the students are from racial or ethnic groups different from my own	8%	26%	18%	22%	24%
MOST of the students are from racial or ethnic groups different from my own	69%	46%	28%	33%	16%

Table 35

*Student Reports of Neighborhood Racial Composition by Diversity/Socioeconomic Group*

In my neighborhood:	Group A: Low diversity, high socioeconomic status %	Group B: Medium diversity, medium socioeconomic status %	Group C: High diversity, low socioeconomic status %
A FEW students are from racial or ethnic groups different from my own	46%	30%	27%
QUITE A FEW, BUT LESS THAN HALF the students are from racial or ethnic groups different from my own	13%	14%	11%
ABOUT HALF the students are from racial or ethnic groups different from my own	13%	34%	23%
MOST of the students are from racial or ethnic groups different from my own	28%	22%	39%