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# Examination of Factors Contributing to the Achievement Gap of Native American Students in Select School Districts in Michigan

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# An Examination of Factors Contributing to the Achievement Gap of Native American Students in Select School Districts in Michigan

by

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## Dedication

Over the past 29 years, I have been given the greatest gift of friendship with my wife, Gina Harwood. Along with my two children, Joseph and Sara, my family has been a solid foundation of my personal and professional success. This work is dedicated to Gina Harwood, Joseph Harwood, and Sara Harwood for their continuous support and patience in the many hours devoted to the completion of this research.

## Acknowledgements

In the fall of 1997, I was accepted into the Educational Leadership and Counseling Doctoral Program at Eastern Michigan University. It was a very exciting time for my family as we moved into a new home in Rochester Hills, we were expecting our second child, and I was beginning my first year as the elementary principal at Peck Elementary in Centerline Public Schools.

As my 1997 cohort prepared to begin the program that fall, Dr. James Berry coordinated the opportunity to come together as a team and had my colleagues in the 1997 cohort participate in a rope course activity for the day. This team building activity set forth the guiding path that would lead us on our journey of learning, respect, and communication over the next few years. What I remember most about that day was the connections that were made and facilitated by Dr. Berry. But most of all, I remember climbing a telephone pole to stand on the top and jump to a trapeze bar hanging from another tree. I climbed up the pole with support from below and reached a point on the pole where there were no more stakes to grab onto and I would now need to independently pull myself up to stand, without support, on top of this pole. I stood there and looked at how far away the trapeze bar seemed to be from me. However, with a strong leap, I reached out and grabbed the bar and was gently lowered to the ground. What I took away from that one event and what I have experienced as an educational administrator is the fact that there are times in your professional and personal experiences where you have to steady yourself while taking risks without the supports to guide you and that when you take the risk and address the challenge, the solution may be closer than what you originally believed.

It has been 14 years since that sunny and cool day in the fall of 1997. I have been fortunate to advance my professional journey over those years and I am now the superintendent of schools for the Grosse Pointe Public School System. I have met some incredible colleagues along the way and I wish to acknowledge them and thank them for the engaging, insightful, and supportive conversations we had the opportunity to experience in each and every one of our classes at Eastern Michigan University.

From the continuous support of Dr. James Berry, Dr. William Price, Dr. Jaclynn Tracy, and Dr. Derrick Fries, I have been able to stay connected with my lifelong educational pursuit toward the completion of my doctoral work. They have allowed me to learn the core and style of true leadership to pave a path that will allow me to share my skills with so many others in the field of education.

Without my initial meetings with Dr. William Price over a warm cup of coffee to review my original documents, this dissertation would not be complete. He had the courage to facilitate a difficult conversation with me that has inspired me to be a better research clinician and writer. During this time, he has faced his own courageous medical battle with dignity and hope. I wish to thank him for the time over these many years.

I have a very supportive network at my office with the encouragement and efforts of Catherine Heffner who assisted in my work in formatting this document. Both she and so many others at my work setting have been extremely beneficial in helping organizing data and materials for me.

And most of all, I want to acknowledge and thank my wife, Gina, for her understanding, love, patience, and encouragement each and every day. She has taken on many monumental tasks in our family as I have grown professional over these past

several years.  My ability to succeed is only a reflection of the strength and dedication she has within her soul and I feel blessed to have spent so many years with my best friend.

## Abstract

Most of the studies on student achievement gaps involve the Black-White achievement gap due to the availability of significant sample populations in order to draw scientific conclusions from the analysis of the student achievement data. However, there are few empirical quantitative studies that analyze a similar gap in achievement between the Native American student and their White cohort. Such studies have been limited due to a small and isolated Native American population in regions across the nation. In Michigan, less than 1% of the student population in the schools is Native American. This study identified 20 select school districts (both urban and rural) in the state of Michigan where the total student population was 26,659 and 4,388 (16.5%) were Native American. School districts in the study were selected based on a total Native American population greater than 50. A large scale quantitative study analyzed the financial status, student assessment, socioeconomic status, and special education rates of the selected districts to determine the presence of a significant achievement gap over a period from 2008 to 2011. The sample population in the study involved disaggregation of data by school district, school buildings, grade, subgroup population, core subject areas assessed by the state (Michigan Educational Assessment Program and Michigan Merit Exam), and socioeconomic status. An analysis of the variance that existed between the Native American cohort and White cohort was performed using a t-test measure with significance at $p \leq .05$. The key findings from this study indicate the presence of an achievement gap between Native American student assessments on state measures and those of their White peer group. Statistical significance between the two subgroups was commonly represented when comparing students scoring in the top level category of

proficiency on the assessment measures. There is a strong correlation with student performance and socioeconomic factors as demonstrated through correlation analysis of free and reduced lunch eligibility and state performance ranking of the school building. An inconsistent lower identification of Native American students who are receiving special education services was also demonstrated when compared to their White peer group.

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## Chapter 1: Introduction and Background

The educational success of all students is the cornerstone of an American democracy. The activities of political and school reform movements are often responses to the concerns raised by the statistical data that demonstrate that a continuous achievement gap exists between low-income and minority students and their corresponding White cohort members. The financial and human investment in the daily education of students across the United States is extensive, and the cost/benefit return on this investment is being carefully observed, analyzed, and assessed even greater today. With the implementation of the No Child Left Behind Act of 2001, the stakes and importance of providing high quality educational programming and services to each student every day becomes even more evident. President Obama has continued a bipartisan approach to continuous development of standards and assessments to insure that programs are in place to provide effective instruction at the local level to ensure individual success and a competitive labor pool in a global society.

The task of looking at contributing variables to an achievement gap that are evident in the research literature is extensive. There are several studies over several years that have attempted to capture the key elements that can result in an achievement gap for so many low socioeconomic and minority students. The impact of segregation of minority students was addressed in the 1966 Coleman study (Coleman, 1966). This study also addressed the impact of socioeconomic factors on student academic performance. Rumberger and Palardy (2005), Mickelson and Heath (1999), and Orfield (2001) continued the research on segregation and socioeconomic status and the impact on

student achievement for minority students. Research studies have also identified additional contributing factors associated with the student achievement gap. There are additional contributing factors that are noted in the research literature, such as teacher training (Finn, Gerber, & Boyd-Zaharias, 2005), class size (Finn & Achilles, 1990), access to rigorous curriculum (Knapp, 2001; Becker & Luthar, 2002), access to before/after school programs (Hertert & Teague, 2003), and access to early childhood programs (Clark & Kirk, 2000; Cryan, Sheehan, Wiechel, & Bandy-Hedden, 1992).

The student achievement data and student demographic data from the KewalRamani, Gilbertson, and Provasnik (2007) study included several factors affecting the achievement gap between Whites and their minority cohorts. Studies of these factors presented previously should involve further analysis and review in regard to their impact on student achievement for Native American student populations as well.

**Diversity of the Population**

Culturally based studies by Demmert and Towner, 2003; Castagno, McKinley, and Brayboy (2008); and Lomawaima and McCarty (2002) suggested further study as the diversity of the population in school districts impacts cultural norms and academic settings. The desegregation and diversity of the population may have an impact on student achievement for the Native American and minority population (Coleman, 1966; Rumberger & Palardy, 2005; Lomawaima & McCarty, 2002; Lindeen, 2005). English as a second language would also fall under this heading, and a review of the impact of diversity within the school setting and how schools are implementing strategies to address these changes are worthy of further research (Wilson & Hughes, 2006; and Anstrom, 1996).

**Families with Children Living in Poverty**

A number of studies addressed the impact of poverty on student performance and student achievement (KewalRamani, Gilbertson, & Provasnik, 2007; Michigan Department of Community Health, 2010; Murphy, 2009; Hertert & Teague, 2003; Porter, 2006; McCall et al., 2006; Barnett, Daugherty, & Wieder, 2009; Rumberger & Palardy, 2005; Braun, Chapman, & Vezzu, 2010; Harris & Herrington, 2006). This area also includes the variables of family structure, cultural heritage/norms, and educational background /school experiences (Grissmer & Eiseman, 2008; Hart & Risley, 1995; Lee, 2002). The student's eligibility for free and reduced-lunch would be a dependent variable for consideration when correlating educational programs and services and their impact on student achievement.

**Access and Enrollment in Early Childhood**

There are significant published studies on the benefits of early childhood programs and their impact on long-term social, emotional, and academic growth (Clark & Kirk, 2000; Cryan, Sheehan, Wiechel, & Bandy-Hedden, 1992; Weikart, Rogers, Adcock, & McClelland, 1971; Schweinhart, Barnes, & Weikart,1993; Schweinhart & Weikart, 1997; Schweinhart, 2003).

**School/Percentage of Students Absent from School**

The National Center for Education Statistics (2003) study provided significant data and information in regard to the impact of being absent from school and the effects of reduced exposure to the educational environment on a consistent basis.

## Urban versus Rural Settings/Permanent Residence on a Reservation Setting versus Permanent Residence off a Reservation Setting

For the Native American student, the primary residence tends to be in a rural setting with limited access to educational support programs. There are additional published studies that demonstrated the relationship of academic performance and program access for a student in a rural setting versus an urban setting (Hamm, J. V.; Farmer, T. W.; Robertson, D.; Dadisman, K. A.; Murray, A.; J. L., & Song, S. Y., 2010; National Center for Rural Early Childhood Learning Initiatives, 2006).

## Statement of the Problem

Based on the random and limited numbers of concentrated students in the school systems who are Native Americans, limited attention has been given to this subgroup population when addressing the achievement gap concerns. It appears that most of the literature on achievement gap tends to center on the Black-White achievement gap, given the larger concentration of the minority group in desegregated settings across the United States. The subgroup population of Native Americans may experience as great an achievement gap as that observed between the Black and the White cohort.

Studies on Native American academic achievement can occur with two different groups of students. Native American students in a neighborhood public school setting may be identified as a primary group for study of academic achievement. The secondary group of Native American students studied for academic achievement would involve the students who attend a tribal, charter, or Bureau of Indian Affairs (BIA) schools with different achievement expectations and different cultural and curriculum standards.

This study will analyze several contributing factors to the achievement gap that exists between the Native American students and their White cohort group within selected

school settings in the state of Michigan. Differences and contributing factors in achievement by the Native Americans may occur within the district, and differences and contributing factors may emerge per a comparison between districts. Demmert and Towner (2003) conducted a literature review of studies conducted on Native American student achievement. Upon reviewing more than 100 studies, the authors noted only four studies that could be considered experimental with quantitative data demonstrating statistical significance in Native American student performance. This study will add to the research literature in providing a statistical analysis of Native American student performance when compared to a White cohort group in school districts that provide a larger and more consolidated Native American student population in the state of Michigan.

**Purpose and Objective of the Study**

The intent of the study is to provide further analysis and significance to a small racial and ethnic Native American student population where there is a student achievement gap when compared to their White cohort. Student achievement gap studies in the literature tend to focus on the larger subject pool of Black-White achievement gap; however, the achievement gap that exists between Native American and White cohorts can be just as significant. In Michigan, there are regions and districts where a larger number of Native American students are educated. These districts may serve as the basis of comparison to identify the presence or absence of educational structures, supports, and programs that may hinder or assist the Native American student in obtaining student achievement growth.

**Significance of the Study**

As Demmert and Towner (2003); Lindeen (2005), and Apthorp, D'Amoto, and Richardson (2003) noted in their review of the literature, they were able to identify only case studies and regionally/geographically limited studies due to a diverse, small subject pool and broadly dispersed Native American student population. This study is intended to extend the research literature on educational programs and student achievement outcomes for Native American students in select Michigan school districts. This study will involve a comparative analysis of descriptive data and outcome measures through the collection of data and information related to student achievement outcomes and related demographic variables from 20 different school districts in Michigan. The 20 school districts selected provide educational programs and services to more than 4,000 Native American students or approximately 31% of the total Native American student population in the state of Michigan. The study will serve to analyze the diverse set of variables within each district and correlate any significant variables to state and national student achievement (Michigan Merit Exam/ACT) outcomes.

As noted in the 2009-2010 student enrollment data (Michigan Department of Education/CEPI, 2009), there were 14,153 Native American students attending public schools or public school academies (PSA) in the state of Michigan. During that school year, the total Native American student population represented 0.88% of the total student population across the state. However, as indicated by McCarty (2009); Lindeen, (2005); and Apthorp, D'Amoto, and Richardson (2003) and upon further analysis of the student data from the State of Michigan/CEPI site, there are larger regions and/or a larger subgroup of Native American students in select schools in the state of Michigan. Out of

the 552 local school districts and 229 public school academies that serve the total Native American student population of 14,153, there are sixteen public schools and four public school academies/charter schools that serve 4,388 (31%) of this total Native American student population.

The student population of the 20 school districts ranges from serving 106 total students (Ojibwe Charter School) to 4,747 total students (Carman-Ainsworth Community Schools). The 20schools selected had a Native American student population greater than 50 students.

The school districts are

- Both urban and rural,
- Commonly receive the base foundation funding grant per student,
- Tend to be areas with lower socioeconomic status,
- Have an association with a federally recognized tribe,
- Have Native American students who live on and off the reservation, and
- Have a corresponding larger White comparison subgroup.

This study will analyze several contributing factors to the achievement gap that exists between the Native American students and their White cohort group within these selected twenty school settings in the state of Michigan. Differences and contributing factors in achievement by the Native Americans may occur within the district, and differences and contributing factors may emerge through a comparison of district-to-district. Demmert and Towner (2003) conducted a literature review of studies conducted on Native American student achievement. Upon reviewing more than 100 studies, the authors noted only four studies that could be considered experimental with quantitative data

demonstrating statistical significance in Native American student performance. This study will add to the research literature in providing a statistical analysis of Native American student performance when compared to a White cohort group in school districts that provide a larger and more consolidated Native American student population in the state of Michigan.

**Research Questions**

The study addressed two primary research questions:

1. What is the comparison between districts in regard to the financial support and human resources that exist to enhance additional academic programs for students who are Native American?
2. How do the districts compare in regard to Native American students in specific academic and demographic areas, such as higher education enrollment/college readiness, state/national student assessment measures, and special education identification rates?

**Definition of Terms**

**Academic skills** include reading (phonetic skills, sight vocabulary, and reading comprehension), spelling, writing, mathematics (basic numerical operations, mathematical reasoning), academic fluency (speed of reading, writing, calculating) listening comprehension, oral expressive skills. (http://www.psych-ed.ca/html/what_is_a_psycho-educational_a.html)

**Achievement gap**

The achievement gap is defined as "a persistent, pervasive, and significant disparity in educational achievement and attainment among groups of students as determined by a standardized measure. (http://www.lycos.com/info/the-gap--children.html)

**Adequate Yearly Progress**

The goal of No Child Left Behind is that all students will be proficient in reading and mathematics by the year 2014. To meet this goal, each school is required to make Adequate Yearly Progress (AYP) every year. Schools meet AYP by having all the identified AYP student groups -- including American Indian, African American, Asian, Hispanic, White, English Language Learners (ELL), students with disabilities (receiving special education services) and students living in poverty -- meet a set of standards each year. The standards include proficiency in reading and mathematics, student attendance, and other indicators set by the state. Failure to make AYP over multiple years results in increasing sanctions for the school and additional requirements for its district. (http://mdk12.org/process/cfip/Assessment_Literacy_Glossary.html)

**Annual Measurable Objective**

The Annual Measurable Objectives (AMOs) are performance objectives or targets of student achievement for schools. AMOs have been set for each year between 2002-03 and 2013-14 to measure progress in moving toward the 100% proficiency in reading and mathematics that is required of schools in 2013-14 by No Child Left Behind. The AMOs increase each year requiring schools to improve incrementally. Having every student group meet the AMO in reading and mathematics each year is a key to making AYP (See "Adequate Yearly Progress").
(http://mdk12.org/process/cfip/Assessment_Literacy_Glossary.html)

**Census**

A census is a collection of the demographic factors associated with every member of a population. (businessdictionary.com)

**Charter Schools**

Charter schools are nonsectarian public schools of choice. Publicly funded and open to all students with no admission testing or screening where each school has a charter, or performance contract detailing its program, goals, and methods of assessment. Charter schools operate with increased autonomy in exchange for accountability. They are accountable for both academic results and fiscal practices to several groups: the authorizer that grants the charter, the parents who choose to send their children, and the public that funds them.
(http://www.mdcharternetwork.org/csi_what.html)

**Concentrated Poverty**

Poor populations clustered into very poor communities.

**Correlation**

A correlation is a statistical index that demonstrates whether or not a relationship exists between two variables and provides an indication of the strength of that relationship. Correlations range from negative one (-1), indicating that a perfect negative relationship exists between the variables (when one variable is high, the other is low), to positive one (+1), indicating a perfect positive relationship exists between the variables (when one variable is high, the other is high). A correlation of zero means there is no relationship between the two variables. It is important to keep in mind that a relationship between two variables does not mean that one caused the other.
(http://mdk12.org/process/cfip/Assessment_Literacy_Glossary.html)

**Cultural Dissonance**

Cultural dissonance is a phenomenon that may present itself when an individual that participates in multiple cultures is faced with situations where s/he perceives conflicts between a set of rules from one culture and the rules of another. This phenomenon may even appear in the "same" culture (across time and across "sub-cultures."
(http://multispective.wordpress.com/2007/04/29/cultural-dissonance/)

**Cultural Norms**

Social norms are the behavioral expectations and cues within a society or group. This sociological term has been defined as "the rules that a group uses for appropriate and inappropriate values, beliefs, attitudes and behaviors. These rules may be explicit or implicit.
(en.wikipedia.org/wiki/Cultural_norms)

**Cutscores**

The cut score is the score on a criterion-referenced test that determines pass/fail or the level of proficiency. For a test that assigns only pass or fail status, there will be one cut score. Students who score at or above the cut score will pass; those scoring below the cut score will fail. Other tests may use several cut scores. For example, to classify students into one of three groups, such as advanced, proficient or basic.
(http://mdk12.org/process/cfip/Assessment_Literacy_Glossary.html)

**Demographic Factors**

Statistical socio-economic characteristics or variables of a population, such as age, sex, education level, income level, marital status, occupation, religion, birth rate, death rate, average size of a family, average age at marriage.
(businessdictionary.com)

**Disproportionate**

A subgroup population that is too large or too small in comparison to another subgroup population.

**Ethnomathematics**

Ethnomathematics is the study of mathematical techniques used by identifiable cultural groups in understanding, explaining, and managing problems and activities arising in their own environment.
(http://www.ethnomath.org/resources/ISGEm/078.htm)

**Federal Funding (Title I – Part A, Title II – Teacher and Principal Training, and Title VI, Part B Rural & Low Income School Program)**

The federal mandate of No Child Left Behind (NCLB) provides funding to school districts for disadvantaged students. Funding is based on the number of low-income students in the school and supplemental funding is intended for enhance and support programs and services to these students.

**Free and Reduced-Price Lunch Support**

The National School Lunch Program (NSLP) is a federally assisted meal program operating in public and nonprofit private schools and residential child care institutions. It provides nutritionally balanced, low-cost or free lunches to children each school day. The program was established under the National School Lunch Act, signed by President Harry Truman in 1946. (http://www.fns.usda.gov/cnd/lunch/)

**Head Start**

Head Start programs promote school readiness by enhancing the social and cognitive development of children through the provision of educational, health, nutritional, social and other services to enrolled children and families. They engage parents in their children's learning and help them in making progress toward their educational, literacy and employment goals. Significant emphasis is placed on the involvement of parents in the administration of local Head Start programs
(http://www.acf.hhs.gov/programs/ohs/about/index.html#mission)

**Indian Reservations**

An Indian reservation is an area of land managed by a Native American tribe under the United States Department of the Interior's Bureau of Indian Affairs.

**Limited-English-Proficient (LEP) Students**

State and federal laws require that students in our public schools who do not speak English or whose native language is not English and who currently cannot perform ordinary classroom work in English receive instruction that is specifically designed to assist them both in learning English and in learning subject matter content. These students are often referred to as limited English proficient (LEP) students. They are also referred to as English language learners (ELLs).
(http://www.doe.mass.edu/ell/sei/identify_lep.html)

**National Assessment of Educational Progress**

The National Assessment of Educational Progress (NAEP) is the largest nationally representative and continuing assessment of what America's students know and can do in various subject areas. Assessments are conducted periodically in mathematics, reading, science, writing, the arts, civics, economics, geography, and U.S. history.

Since NAEP assessments are administered uniformly using the same sets of test booklets across the nation, NAEP results serve as a common metric for all states and selected urban districts. The assessment stays essentially the same from year to year, with only carefully documented changes. This permits NAEP to provide a clear picture of student academic progress over time.

NAEP provides results on subject-matter achievement, instructional experiences, and school environment for populations of students (e.g., all fourth-graders) and groups within those populations (e.g., female students, Hispanic students). NAEP does not provide scores for individual students or schools, although state NAEP can report results by selected large urban districts. NAEP results are based on representative samples of students at grades 4, 8, and 12 for the main assessments, or samples of students at ages 9, 13, or 17 years for the long-term trend assessments. These grades and ages were chosen because they represent critical junctures in academic achievement
(http://nces.ed.gov/nationsreportcard/about/)

**No Child Left Behind Act of 2001**

The federal government passed the *No Child Left Behind Act* (NCLB), a complex piece of legislation that includes higher standards for teachers and yearly assessments to demonstrate progress for individual students. Although the legislation is specific and prescriptive, each state designs its own program components, such as content standards, performance standards, and assessments, which are then approved by the federal government.
(http://mdk12.org/process/cfip/Assessment_Literacy_Glossary.html)

**Poverty**

The poverty threshold, or poverty line, is the minimum level of income deemed necessary to achieve an adequate standard of living in a given country. (http://en.wikipedia.org/wiki/Poverty_threshold)

**Proficiency Scores**

Proficiency score standards associate each of four scale score ranges with a specific proficiency category. Cut-scores divide scale scores into the four categories. The advanced and proficient levels are the long term educational goals for all students. Statewide standardized test scores are reported by proficiency category (http://mdk12.org/process/cfip/Assessment_Literacy_Glossary.html)

**Psychoeducational Assessment**

A psychoeducational assessment would involve testing by trained clinicians of psychological aspects of learning and of academic skills. Psychological aspects include intelligence, language skills, memory, verbal and visual learning, attention / concentration, eye-hand coordination for paper-and-pencil tasks, planning ability, and reflective / impulsive response style.

**Rigorous Curriculum**

A rigorous curriculum is an inclusive set of intentionally aligned components, clear learning outcomes with matching assessments, engaging learning experiences, and instructional strategies organized into sequenced units of study that serve as both the detailed road map and the high-quality delivery system for ensuring that all students achieve the desired end. (http://www.leadandlearn.com/sites/default/files/Rigorous_Curriculum_Design_-_Chapter_1_Excerpt.pdf)

**Scale Score**

A scale score is a linear transformation of a raw score. Scale scores are equal interval scores. This means that the distance between any scale score and the next scale score is the same. Therefore, regardless of where the score falls on the scale (top, middle or bottom), distances between scores are equal and can be compared. Scale scores are used to make sure that the expectations on a test remain the same over time. (http://mdk12.org/process/cfip/Assessment_Literacy_Glossary.html)

**School Segregation**

The exclusion on the basis of race or ethnic status from particular schools, or the assignment of different racial or ethnic groups to separate schools. (http://www.education.com/definition/school-segregation/)

**Socioeconomic Status**

Socioeconomic factors are the social and economic experiences and realities that help mold one's personality, attitudes, and lifestyle. The factors can also define regions and neighborhoods.
(http://www.ehow.com/about_5370269_definition-socioeconomic-factors. Ehow.com)

**Standardized Assessment Measures**

An assessment that is standardized consists of a set of items administered to students under the same conditions, scored in the same way, and with results interpreted in the same way. Since every tested student is treated in exactly the same way, the test is said to be "standardized." These standardized conditions allow comparisons to be made between students and groups of students
(http://mdk12.org/process/cfip/Assessment_Literacy_Glossary.html)

**Federal Funding (Title I – Part A, Title II – Teacher and Principal Training, and Title VI, Part B Rural & Low Income School Program)**

The federal mandate of No Child Left Behind (NCLB) provides funding to school districts for disadvantaged students. Funding is based on the number of low-income students in the school and supplemental funding is intended for enhance and support programs and services to these students.

**Top to Bottom School Rankings**

The Top to Bottom list ranks all schools in the state of Michigan based on student proficiency, achievement, academic growth and achievement gap in math, reading, writing, science, and social studies; and also graduation rate for high school buildings.
(http://www.michigan.gov/mde/0,4615,7-140-37818-261321--,00.html)

**Tribal Sovereignty**

Tribal sovereignty refers to the right of American Indian tribes to determine their own future. American Indian tribes through elected tribal governments have the right to operate as self-governing nations.
(http://www.nativevillage.org/Messages%20from%20the%20People/Sovereignty-%20Teacher%20Background%20Information.htm)

**White Flight**

The departure of Caucasian people: the movement of white people that sometimes occurs from neighborhoods where members of other groups are settling, especially because of racism. (http://encarta.msn.com/dictionary_1861712886/white_flight.html)

**Organization of Chapters 2-5**

This study is separated into six chapters and outlines the purpose, design, findings, and relevance of this research. In Chapter 2, a review of the literature on related research on student achievement gaps with minority students compared to their White cohort group is presented. Critical factors associated with the achievement gap, as noted in the research studies, are summarized. These critical factors that contribute to student academic performance and achievement gap differences may also generalize to the Native American student population when compared to their White cohort group. In the review of the literature found in Chapter 2, the study summarized findings in the relevant empirical research studies that addressed significant factors associated with contributing to and/or improving the Native American student performance when compared to a White cohort group. Chapter 3 describes the research methodology and framework for collecting the data. This chapter describes the purpose of collecting these data for the purpose of further analysis for significant factors and significant differences in student academic achievement performance when compared to a White cohort group within each school district and when compared between school districts. Chapter 4 presents the results of the findings from the study and summarizes the data through tables and figures to demonstrate significant differences in student academic achievement on assessment measures. Chapter 4 also provides an analysis of the data and an interpretation of the findings to demonstrate significant factors that are present when comparing cohort subgroups within the school district and between school districts. In Chapter 5, a summary of the findings from this study occurs with conclusions and recommendations for future research studies.

**Limitations of the Study**

This study involved the analysis of a large amount of data available on Michigan's Department of Education website regarding student assessment information by school district, individual school building, grade level, subgroup population, and core subject area. Given the large quantity of information available on state assessment results for the current year and for past years, the study was limited to collecting local assessment data that may be available. Such local assessment measures may include the use of the Northwest Evaluation Association (NWEA) testing instrument or the Iowa Test of Basic Skills. A massive study would be involved in an attempt to correlate the local assessment performance with the state assessment data for each student in this study. However, the information would be useful to demonstrate the reliability of the findings from the study to support the conclusion of the presence or absence of an achievement gap between the Native American student and their White cohort.

The sample population in this study involved 20 selected school districts with a larger Native American student population across the identified school district. The school district would have a Native American population greater than 50. However, in the charter school performance at the 11$^{th}$ grade level in comparison to the traditional public school performance of 11$^{th}$ grades, the sample size of 11$^{th}$ graders from the charter schools who took the Michigan Merit Exam (MME) was much smaller than the sample size of the 11$^{th}$ graders in the traditional public school setting. A few students who do not perform with proficiency on the state test in the charter schools may skew the mean of the performance significantly as compared to the performance of the 11$^{th}$ grade students in

the traditional setting. Therefore, the degrees of freedom would warrant further analysis to determine the reliability of the measures when concluding significance.

The study may be limited in regard to future comparability analysis of student performance on the Michigan assessment measures given the fact that such measures of determining proficiency are changing in the upcoming school year. The cut scores to determine level of performance and proficiency are increasing, and that will likely result in fewer students meeting the performance standards for proficiency. Therefore, in comparing prior years to upcoming years, the percent of students who are proficient is anticipated to decrease dramatically. An analysis of the gap could still exist, but the trend line of performance would be changing.

Student data and information are now more readily available through state databases. However, the limitation of time with this study and the time frame limited the expansive scope of the analysis of all data that may impact Native American student performance in the selected school settings. This study was based on quantitative measures only, and additional qualitative measures with each school district may further enhance the study findings.

## Chapter 2: Review of the Literature

The focus of school reform for at least the past 60 years has been a common theme of continuous improvement in student achievement as measured by common assessment standards and performance criteria. For educational policy leaders and researchers, the greatest concern and challenge is the achievement gap that exists between minority students and their white cohorts. The academic progress and growth of all students in all educational settings is at the core of the strategic plans, goals, and responsibilities of any educational entity in the United States. The measurement of student learning and academic progress has been in place for several years. From the time that such measures have been in place, the achievement gap between the White cohort group and the minority groups became immediately evident and continues to be a concern today by all who are invested in the educational achievement of students.

In 1969, the initial introduction of the National Assessment of Educational Progress (NAEP) was administered in the area of science to 9-, 13-, and 17-year-old students across the nation. Since that time, the NAEP test is also administered to students in math and reading. The data are analyzed to determine student performance in the areas of science, math, and reading and also disaggregated in regard to racial/ethnic, socioeconomic, and gender factors. When the test was originally presented in the early 1970s, the results showed that the different subgroup populations (Black, Hispanic, and Native American/Alaskan Native) were performing significantly below the White subgroup. During the 1970s and the 1980s, the achievement gap began to narrow based on performance by the subgroups on the NAEP. However, in the 1990s, that gap widened again and continues to be present today (Lee, 2002; Wenglinsky, 2004).

In addressing the critical components that contribute to the minority achievement gap, a review of achievement gaps that exist between minorities and their White cohorts needs to occur. A summary of achievement data from the National Center for Education Statistics published by KewalRamani, Gilbertson, and Provasnik (2007) will assist in this gap analysis. There are also demographic factors that require consideration in such areas as family structure, socioeconomic status, and parent educational background. And finally, an analysis of factors contributing to an achievement gap must also include the following: accessibility of early childhood programs, socioeconomic status of the school in relation to the number of students receiving free and reduced-lunch support, segregation of high minority students in high poverty schools, percentage of limited English proficient (LEP) students, rates of students retained in a grade, and absences from school including suspension and expulsion. Each of these areas is reviewed in regard to the disaggregated statistics per the total population and per each individual minority subgroup in comparison to the White subgroup cohort.

Relevant empirical studies are documented in the literature and demonstrate the effects of the previously identified factors on student achievement. The empirical studies reflect how each factor may contribute to the gap that exists between the academic performances of minority students in comparison to their White cohort.

### National Center for Educational Statistics, 2007: What is the Status of Minority Performance Today?

In September 2007, KewalRamani, Gilbertson, and Provasnik (2007) published a document through the National Center for Education Statistics (IES) entitled *Status and Trends in the Education of Racial and Ethnic Minorities.* As the authors clearly state, this document "examines the educational progress and challenges that racial and ethnic

minorities face in the United States. This report shows over time that larger numbers of minorities have completed high school and continued their education in college. Despite these gains, progress has varied, and differences persist among Hispanics, Black, American Indian/Alaska Native, Native Hawaiian or Other Pacific Islander, and White students on key indicators of educational performance" (KewelRamani, Gilbertson, & Provasnik, 2007, p. iii).

**Overall Areas of Achievement Gap Between a White Cohort Subgroup and Minority Cohort Subgroups**

In Chapter 3 of the IES report (2007), the authors addressed and summarized achievement data and trends in the data for 9-, 13-, and 17-year-old students based on performance on the National Assessment of Educational Progress (NAEP). Indicators of academic achievement are also reviewed through analysis of the percentages of high school students who completed "low academic" and "advanced academic" courses. This information is important as a review of the accessibility and completion of more rigorous course offerings to all subgroup populations. An additional achievement indicator is the performance by subgroups on college entrance exams (SAT and ACT). As the authors of the IES report reviewed the achievement data, the information is also disaggregated in regard to the "status and trends" in the educational performance of racial and ethnic minorities. The achievement data represented in this report reflected the disparities that existed between the academic student achievements of the White cohort group versus other race/ethnic groups.

**Summary of Achievement Differences and Trends on the NAEP in Reading for 9-, 13-, and 17-Year-Olds**

The IES report (2007) reflected reading scale score data from 1975 to 2004 for 9-, 13-, and 17-year-old students who were administered the NAEP reading assessment. In 1975, the average reading scale score for 9-year-old Whites was 217. For that same age group, the Black students had an average reading scale score of 181 and the Hispanic students had an average reading scale score of 183. The gap in the average scale score in 1975 of White students compared to Black students was 36 points. Upon review of the trend data, the gap between the White students and Black students fluctuated over time and did begin to narrow by 1988 where the difference in average reading scale score was 24 points. In 2004, the average reading scale score gap between 9-year-old White students and Black students on the NAEP was 21 points (206 versus 185).

A similar trend appeared with the average reading scale scores for 13-year-olds and 17-year-olds over this same period of time. For the 13-year-old student population taking the NAEP reading assessment, the achievement gap between White students and Black students went from a difference of 36 points in 1975 to 22 points in 2005 (262 vs. 226 in 1975; 266 vs. 244 in 2004). For the 17-year-old student population taking the NAEP reading assessment, the achievement gap between White students and Black students went from a difference of 52 points in 1975 to 29 points in 2005 (293 vs. 241 in 1975; 293 vs. 264 in 2004).

The reading skills of students were further reviewed in the IES report per analysis of the $4^{th}$, $8^{th}$, and $12^{th}$ grade NAEP reading achievement levels in 2005 by total population performance and race/ethnic group performance. The performances of students on the NAEP reading assessment are divided into four different levels: "Below

basic," "at basic," "at or above proficient," and "at advanced." For 4th grade students who scored in the "below basic" achievement level, the White subgroup had 24% of the students at this level compared to the Black subgroup at 58%, Hispanic subgroup at 54%, and the American Indian/Alaska Native subgroup at 52%. The Asian/Pacific Islander subgroup had 27% of the students perform at a "below basic" achievement level. At the upper end of the performance on the 4th grade NAEP reading assessment by subgroup, 51% of the 4th grade White students performed "at or above proficient/at advanced" achievement level compared to 15% of the Black subgroup, 19% of the Hispanic subgroup, and 21% of the American Indian/Alaska Native subgroup. The Asian 4th grade subgroup had 55% of the students perform at this achievement level.

The achievement gap on the 2005 NAEP reading assessment continued for 8th grade and 12th grade students. On the 4th grade reading assessment, 86% of White students performed "at basic" or above compared to 44% of Black students. On the 8th grade reading assessment, 86% of White students performed "at basic" or above compared to 53% of Black students. And on the 12th grade reading assessment, 85% of the White students performed "at basic" or above compared to 55% of Black students. Similar differences appeared when comparing White students (at all three grade levels) to Hispanic students and White students (at all three grade levels) to American Indian/Alaska Native students.

**Summary of Achievement Differences and Trends on the NAEP in Mathematics for 9-, 13-, and 17-Year-Olds**

The NAEP mathematic assessment of 9-, 13-, and 17-year-olds demonstrated a similar gap in the achievement performance at each age level when comparing White students with their cohort of Black, Hispanic, and American Indian/Alaska Native

students. The IES report (2007) displayed trend data on the NAEP mathematics assessment from 1973 to 2004. In 1973, the average 9-year-old White student received a mathematics scale score of 225. The Black cohort group of the same age received an average mathematics scale score of 190. The difference in the scores in 1973 was 35 points. In 2004, the difference between the average 9-year-old mathematics scale score for White students and Black students was 23 points (247 versus 224). Based on 2004 assessment results, this difference is also observed with the 13-year-old group (average White scores of 288 versus Black scores of 262) and with the 17-year-old group (average White scores of 313 versus Black scores of 285). Similar differences also occur between the White subgroup and the Hispanic subgroup.

Upon review of the performance levels of 4th, 8th, and 12th grade students on the 2005 NAEP mathematics assessment, the results reflected continued achievement gaps when comparing the White subgroup with the Black, Hispanic, or American Indian/Alaska Native subgroups. At the 4th grade level, 10% of the White subgroup performed on the assessment at the "below basic" level as compared to 40% of the Black subgroup, 32% of the Hispanic subgroup, and 32% of the American Indian/Alaska Native subgroup. The Asian/Pacific Islander subgroup also had 10% perform at the "below basic" level. This performance differential at the "below basic" level also occurred at the 8th grade level (White subgroup at 20% versus Black at 58%, Hispanic at 48%, and American Indian/Alaska Native at 47%) and at the 12th grade level (White subgroup at 30% versus Black at 70%, Hispanic at 60%, and American Indian/Alaska Native at 58%). The Asian/Pacific Islander group followed similar results of the White cohort group with

19% of the 8th grade population and 27% at the 12th grade population with "below basic" level performance.

At the upper level of performance (at or above proficient/at advanced) on the 2005 NAEP mathematics assessment, 54% of the 4th grade White students performed at this level compared to 14% of Black students, 20% of Hispanic students, and 23% of American Indian/Alaska Native students. At the 8th grade level, 47% of White students scored "at or above proficient/at advanced" compared to 10% of Black students, 14% of Hispanic students, and 16% of American Indian/Alaska Native students. This trend was also evident at 12th grade, with 32% of the White students performing at the advanced level compared to 6% for Black students, 8% for Hispanic students, and 7% for American Indian/Alaska Native students. At all levels, the Asian/Pacific Islander students performed on a level with their White peer group.

**Highest Coursework Completion in the Areas of Mathematics, Science, and English**

School systems are taking a closer look at the rigor of the course offerings and the core curriculum components they offer students to ensure a higher quality educational system. Equal opportunity and access to such a rigorous curriculum should be available to all students regardless of race or ethnicity. In the scheduling and placing of each student on a track for academic achievement, an indicator that can measure a student's access and engagement in a rigorous curriculum can be found in the percentage of students who completed a higher level course by subject.

Based on information from the U.S. Department of Education, the 1998 and 2000 High School Transcript Studies (HSTS), and the Education Longitudinal Study of 2002 (ELS: 2002/2004), "High School Transcript Study," the authors of the IES report (2007)

captured the distribution and percentage of high school students who completed "no mathematics or non-academic," "low academic," "middle academic" (Algebra I/Geometry/Algebra II), or "advanced academic" classes (Trigonometry/Pre-calculus/Calculus). In the area of mathematics during the 2004 school year, 2.4% of the White subgroup of high school students did not take a mathematics course or completed a non-academic mathematics course. For the remaining White high school students, 2.6% completed a "low academic" mathematics course, 41.0% completed a "middle academic" course, and 54.3% completed an "advanced academic" course. For the Black high school student, 3.8% completed a "low academic" course, 51.3% completed a "middle academic" course, and 41.7% completed an "advanced academic" course. It was the American Indian/Alaska Native subgroup that tended toward completion at the lower end of the academic scale of mathematic courses, where 4.5% completed a "lower academic" course (compared to the White subgroup at 2.4%), 62.9% completed a "middle academic" course (compared to the White subgroup at 41.0%), and 21.8% completed an "advanced academic" course (compared to the White subgroup at 54.3%). In the completion of the most advanced course of calculus, 16% of the White students achieved this task compared to 4.7% of Black students, 6.8% of Hispanic students, and 5.6% of American Indian/Alaska Native students.

A similar analysis in the IES report was conducted on the completion of high school course offerings in the science area. The academic levels were grouped in "no science," "low academic," "general biology," and "advanced academic" (Chemistry I/Physics I/Chemistry II/Physics II/Advanced biology). For the White high school student attending school in 2004, 5.0% completed a "low academic" level science course,

23.9% completed a general biology course, and 70.7% completed an "advanced academic" level science course. In comparing the other ethnic subgroups, 5.0% of Black high school students completed a "low level" science course, which is equal to the percentage of the White subgroup. However, 63.0% of the Black high school student population completed an "advanced academic" science course compared to the 70.7% of White students. In the case of the American Indian/Alaska Native, only 47.8% completed an "advanced academic" level science course.

In the area of English course offerings at the high school level, the different categories are "No English," "low academic," "regular English," and "advanced academic" levels. In 2004, 7.5% of White high school students completed a "low academic" level course compared to 15.4% of Black high school students, 21.1% of Hispanic high school students, and 16.1% of American Indian/Alaska Native high school students. At the "advanced academic" level, 17.6% of White high school students completed 75-100% of all English courses offered at the school as compared to 9.4% of Black high school students completed 75-100% of English courses offered.

**Results of College Entrance Exams**

One measure of the exposure to several learning opportunities and the depth of knowledge and understanding of educational concepts is the standardized assessment measures used by colleges and universities to determine how prepared a student is for the rigors of a college education. Most colleges require the high school student to take either the SAT or the ACT college entrance exam as part of their application process. As demonstrated with other academic achievement areas, there also existed a disparity between the performance on such standardized assessment measures of the White

students and the minority students. Based on information from SAT (2005) as presented in the IES report for the 2006 school year, 12th grade SAT test-takers who were White had an average Verbal score of 527 and a mathematics score of 536. In that same year, the average 12th grade Black student had a Verbal score of 434 and a mathematics score of 429.

Based on information from the American College Testing Program (ACT, 2005) and as summarized in the IES report, the average ACT score in 2005 for a White student in both English and mathematics was 21.5. During that same year, for a Black student, the average ACT score in English was 16.2 and in mathematics, 16.8. On the ACT, scores for both English and mathematics run from 0 to 36.

## Demographic Factors That May Affect Achievement Gap

The IES report (2007) also summarizes several demographic factors of the different subgroup populations. As each area is presented, there are disparities that exist between the White cohort population and minority subgroup populations. There are also disproportionate representations of some minority subgroups that have implications for an increased potential for academic achievement gaps between the White subgroup and minority subgroups, and there is the potential likelihood for long-term and sustaining effects on academic and social/behavioral performance.

### Diversity of the Population

The IES report collected information from the Census data (U.S. Department of Commerce, 2004). From the Census 2000 estimate data and projection data for 2005, minorities represented 33% of the U.S. population. The Hispanics were the largest subgroup, representing 14% of the total population. The estimates for 2005 identified the

total U.S. population as 12% Blacks, 4% Asians/Pacific Islanders, 1% American Indians/Alaska Natives, and 1% being from more than one race.

**Families with Children Living in Poverty**

Based on the 2005 estimates, approximately 16% of 38.1 million families with children under the age of 18 in the United States live in poverty. Thirty percent of Black families with children under 18 live in poverty as compared to 10% of White families. The most alarming statistic in the report is the number of Hispanic female-only households (no husband present) where the poverty rate is estimated to be 46.5% of such families with children under the age of 18, for Black female-only households at 44.2%, and for American Indian/Alaska Native female-only households at 44.0%. The same statistic for White female-only households is estimated to be 30.7%.

**Differences in Family Structure**

Upon further analysis of the family structure by different ethnic groups, the percentage of White households with a married couple is estimated at 74.3%. In comparison, only 36.4% of Black households are identified as "married couple." There is an additional gap in the category of "female households with no husband present" where 19.0% of White families compared to 55% of Black families have such a female-only household configuration.

**Differences in Educational Background/Degree Status**

The estimated findings from the IES report included the "educational attainment" level of the parent per race/ethnicity subgroups. There are recognized gaps that also existed between the subgroups when analyzing the mother's bachelor degree status and the father's bachelor degree status by subgroup for parents of children between the ages 6

to 18. For the White subgroup, 23% of the mothers had earned a bachelor's degree or higher versus 10.6% of the Black mothers, 7.7% of the Hispanic mothers, and 3.9% of the American Indian/Alaska Native mothers. For the White subgroup, 21.8% of fathers had earned a bachelor's degree or higher versus 13.0% of Black fathers, 8.0% of Hispanics fathers, and 8.4% of American Indian/Alaska Native fathers.

## Educational Factors That May Affect Achievement Gap

### Access and Enrollment in Early Childhood Programs

In the IES report, the authors analyzed the enrollment of children between the ages of 3 and 5 in a "center-based preprimary program." In their analysis, the data were divided by both ethnic subgroup and by poverty status (poor versus nonpoor). The percentage of identified poor children (all groups) between the ages of 3 and 5 who were enrolled in an early childhood program was estimated at 47.2%. This statistic is compared to the percentage of identified nonpoor children (all groups) enrolled in an early childhood program estimated at 59.9%. Per this statistic, the enrollment in early childhood programs is lower for "poor" (below the poverty threshold) children between the ages of 3 and 5 with the possible conclusion that "children with low-income families may not have the same access to preschool programs as children from higher-income families" (KewelRamani, Gilbertson, & Provasnik, 2007, p. 24). However, the data on early childhood (ages 3 to 5) enrollment in the "poor" category by race/ethnicity subgroups indicated that the percentage of "poor" Black early childhood enrollment was at 64.8%, compared to 44.6% for "poor" White and 36.0% for "poor" Hispanic. A similar statistical trend is noted with the "nonpoor" early childhood percentages by subgroup. The "nonpoor" Black early childhood enrollment is estimated at 67.8% in

comparison to the "nonpoor" White at 61% and the "nonpoor" Hispanic at 47.8%. This statistic may be due to access to early childhood programs in the local community and may require further study.

**Eligibility for Free and Reduced-Price Lunch Program**

Students from low-income families may qualify for federal assistance for free or reduced-price lunch program provided by the school district. The number of students eligible and registered for assistance with the National School Lunch Program is often used as a possible determinant of the socioeconomic status of the students attending the school district. In the IES report, the analysis is based on 4th grade students who are eligible for free and reduced-price lunch by community (central city, urban fringe/large town, rural/small town). Approximately 41% of the overall population of 4th graders was eligible for the free and reduced-price lunch program. For this 4th grade student population, 70% of the Black subgroup, 73% of the Hispanic subgroup, and 65% of the American Indian/Alaska Native subgroup were eligible for the program, compared to 24% of the White cohort.

**High Minority Student Population in High Poverty Schools**

In using the free and reduced-price lunch eligibility criteria, the IES report divided the statistical analysis by five different ranges (i.e., 10% of the student population or less is eligible for the program, 11-25%, 26-50%, 51-75%, and greater than 75%). Upon further analysis of the data, 48% of all 4th grade Black students attended a school where more than 75% of the total student population at that school was eligible for free and reduced-price lunch program. This is compared to only 5% of all 4th grade White students attending a school where more than 75% of the total student population at that

school was eligible for free and reduced-price lunch program. The conclusions drawn from this statistical information are that the Black subgroup population has a greater likelihood of attending a high poverty school setting than to their White cohort.

**English as a Second Language**

From the time a student enters the educational system in the United States, he or she is expected to have proficiency or obtain proficiency in speaking and processing the English language. Their academic success in the classroom and on local, state, or national assessment measures will be based on their ability to understand and respond effectively to the English language. The student's daily access to educational programs and learning opportunities may be limited based on the language barriers that the student may encounter. To ensure equal access and opportunity for the limited-English-proficient (LEP) student, school districts must provide additional support to students who are struggling with speaking, processing, and understanding the spoken and written English language.

The IES report summarizes the findings from the U.S. Department of Commerce survey (U.S. Department of Commerce, Census Bureau, American Community Survey, 2005) where respondents were "asked if the child in the household spoke a language other than English at home." If the response was "yes," then they were asked how well the student spoke English, with the range of responses categorized from "very well," "well," "not well," and "not at all." Any responses in the "not well" and "not at all" range were coded as the student having difficulty with speaking English. From that survey, the Hispanic subgroup had 69.8% of students in grades kindergarten through 12$^{th}$ grade who spoke a language other than English at home followed by the Asian subgroup

with 65.3%. This is compared to only 5.7% for the White subgroup and 5.6% for the Black subgroup. For all groups, approximately 20% of all students from kindergarten to 12th grade spoke a language other than English at home. The survey data further indicated the student's level of difficulty speaking the English language. An expected similar distribution occurs with 19.1% of the Hispanic subgroup and 17.8% of the Asian subgroup who experienced difficulty speaking the English language. This is compared to the total population of students where approximately 5.3% indicated difficulty speaking the English language.

**Absences from School**

Being absent from the learning and social environment will limit the student's access to a quality education and academic achievement. As demonstrated in the IES report, the authors correlated 8th grade performance (at or above Basic) on the NAEP mathematics assessment with the number of absences from school in a one-month period. Overall, 45% of the total 8th grade population had no absences, 34% had 1-2 absences, and 21% had 3 or more absences from school. There are no measurable differences observed amongst the race/ethnic subgroups of White, Black, Hispanic, and American Indian/Alaska Native where the distribution of absences in all three categories is consistent to the overall percentages. However, 62% of the Asian subgroup had no absences, and only 12% of the Asian subgroup had 3 or more absences from school in that one-month period.

In the correlation of these absences with the percentage of students who performed at or above *Basic* on the 8th grade NAEP mathematics assessment, the impact of these absences can be observed. Overall, 75% of the 8th grade students who had no

absences from school in one month scored at or above the *Basic* level on the 8th grade NAEP mathematics assessment as compared to only 71% of students with 1-2 absences and 56% of students with 3 or more absences.

Upon further analysis with the subgroup population, the student's absence from school demonstrated a further gap of performance on the 8th grade NAEP mathematics assessment when comparing the White subgroup with the Black and Hispanic subgroup. In the category of students who had no absences in one month, the White subgroup had 85% of students perform at or above the *Basic* level compared to only 49% of the Black subgroup and 58% of the Hispanic subgroup. For students who had 1- 2 absences, the White subgroup had 81% of students perform at or above the *Basic* level as compared to the Black subgroup with 43% and the Hispanic subgroup at 52% at or above the *Basic* level. For students who had 3 or more absences, the White subgroup had 69% of students perform at or above the *Basic* level as compared to the Black subgroup with 30% and the Hispanic subgroup at 40% at or above the *Basic* level. Per these findings, all groups demonstrated a greater likelihood of performance at or above the *Basic* level on the 8th grade NAEP mathematics assessment where there were fewer student absences. As the performance on this NAEP assessment showed, the Black and Hispanic subgroups with no absences had a lower performance at or above the *Basic* level (49% and 58% respectfully) versus the White cohort subgroup with 85% at or above the *Basic* level. This achievement gap differential between the White cohort and the Black and Hispanic cohort continues to be observed at a similar level on the NAEP assessment where students are absent for 1-2 times and for 3 or more times. The data reflected that only 30% of the Black 8th grade students with 3 or more absences in one month performed at

or above the *Basic* level as compared to 69% of the White 8th grade students who also had 3 or more absences in a one-month period (U.S. Department of Education, National Center for Education Statistics, 2005).

**Percentage of Students Retained in a Grade**

Some schools may determine academic and social reasons to retain a student in a grade and not advance them to the next grade level. The IES report reviewed information obtained from the U.S. Department of Education, National Center for Education Statistics (2003) on student retention rates from kindergarten to 12th grade. Overall, the number of students who were retained in a grade was approximately 10% of the total population. The male students had a higher rate of retention at 12% than the female retention rate at 8%. From the 2003 data, 8.2% of White students were retained in a grade as compared to 17.1% of Black students and 10.6% of Hispanic students. For the Black male students, the retention rate was at 22.6%, which represented the highest rate of all race/ethnic and gender groups.

**Percentage of Students Suspended or Expelled from School**

Data on the percentage of students that were suspended or expelled were also available per the U.S. Department of Education, National Center for Education Statistics (2003), and summarized in the IES report. From the 2003 data, the rates of suspension from school (temporary removal) for all groups were at 10.8% of the total student population from kindergarten through 12th grade. For the White subgroup of students, the percentage of students suspended was 8.8% as compared to 19.6% of Black students and 10.4% of Hispanic students. From the 2003 data, 24.2% of Black male students were suspended from school as compared to only 4.6% of White female students.

The permanent removal of student (expulsion) is even more significant in regard to the effect on the student's education in both the short-term and the long-term implications. Per review of the 2003 data, differences are also observed. For the White subgroup, approximately 1.4% of the students between kindergarten and 12th grade were expelled in 2003 compared to 5.0% of Black students. Again, the largest difference existed between the percentages of Black male students expelled versus the percentage of White female students expelled (6.7% versus 0.6%).

## Empirical Studies from the Literature that Demonstrate the Effects of Demographic and Educational Factors on Student Achievement for Minority Students

### Effects of Segregated Schools on Minority Achievement

Each and every day, there are millions of students across the United States who are walking through the doors of their school building and entering into their classroom to obtain access to an equal educational opportunity that is guaranteed by law. However, even today, the question still remains whether all school settings and all classrooms provide equal opportunity and access to all students. Are there variances that exist in the student's learning opportunities based on the level of educational support programs, instructional materials, teacher effectiveness, differentiated and rigorous curriculum, and family and support programs? Does the current academic environment provide a cohesive, consistent, and equal educational opportunity for all students to enhance learning and achievement? And does a desegregation of the student population across school settings result in positive academic outcomes for all students?

Competing social, political, and economic forces have continued the debate regarding the short-term and long-term benefits that a desegregated, multicultural, diverse racial environment has on all subgroup student populations. We live in a free society

where school choice may or may not be an option based on the socioeconomic condition of the family, and the students may be limited based on their access to different educational settings. The diversity of the school population and the cultural makeup of the student population may be directly related to and/or limited by the diversity and needs of the local neighborhood and community. In this section, the literature review will attempt to address the effects of segregation on student achievement.

**Coleman (1966) Study.** Twelve years after the *Brown v. Board of Education* decision, the United States Department of Education commissioned sociologist James Coleman to serve as the principal author of a report entitled, *Equality of Educational Opportunity* (Coleman, 1966). Coleman's social research team developed a massive study to determine the effects of funding differences between Black and White schools with any correlation to student achievement. This study involved more than 600,000 children and approximately 4,000 schools across the nation. This study addressed the fact that most schools in the United States were highly segregated. The researcher established an initial hypothesis that school-funding discrepancies directly influenced the academic achievement of students. It was further assumed that schools that received more funds would produce a higher level of student achievement. What Coleman's research team found in their study was that the family socioeconomic status of the student population was far more of a determining factor for student academic achievement than the funding of the schools. Students who attend schools with fellow students who have a higher socioeconomic status were a better predictor of student academic success. The Coleman report outlined their conclusion by indicating that "the social composition of the student body is more highly related to achievement, independent of the student's own

social background, than is any school factor." This national study recognized the influence of student peers on academic achievement and overall performance. The culture and climate of the school is directly related to the interest and investment of the students. Therefore, schools that serve the middle class student may be required to set forth higher academic expectations and outcomes as a return on the student's educational investment in the school setting. The researchers in the Coleman report also recognized that there were cultural norms established by the family that have a direct impact on the school environment. These included the parental support of the learning process; consistent discipline within the home, parental educational background, and history of educational success could all contribute to the academic focus that a student brings to the educational environment. This focus, when shared with students from low socioeconomic settings, can set the stage for establishing a foundation for academic success for all students, and the diversity of the race/ethnicity and socioeconomic makeup of the school will not diminish the educational and academic benefits for all students.

There are implications of the 1966 Coleman study that still hold true today. As presented in this paper, there continue to be discrepancies and significant differences when comparing subgroup populations in relation to socioeconomic status, family status, parent educational background, and cultural influences related to education. In today's school environment and climate, we still have limited school of choice options for low socioeconomic families due to either constraints associated with access to school or restrictions based on school policy. The climate established by low socioeconomic school settings (i.e., Detroit Public Schools) may hinder the ability of the teachers and administrators to set a higher expectation and culture for student achievement without the

support of the family or the local community. Segregation between schools continues with restricted school of choice policies or geographical limitations and, at times, segregation within schools based on socioeconomic conditions of the family and their ability to engage in the school social and academic atmosphere. Coleman continued to study the effects of school busing and the resulting "white flight" of students to schools in the suburbs. Segregation continues to exist within the schools where curriculum offerings are established by tracking student programs based on racial/ethnic background and lowered academic expectations for success. Students may also engage in self-segregation with a peer group that has established norms and cultural expectations that may be diverse from the greater majority of the students. As this study still draws questions to be debated amongst the social, political, and educational leaders, the achievement gap continues to exist and the effects of segregation or integration of students continues to warrant further study.

**Rumberger and Palardy (2005) Study.** In the Rumberger and Palardy (2005) study, the authors examined the impact of "racial and socioeconomic segregation" on student academic performance. The study involved the use of data from the National Education Longitudinal Survey of 1988 to measure the growth in achievement for students between 8$^{th}$ and 12$^{th}$ grade in the areas of mathematics, science, reading, and history. Their study included a sample of 14,217 students attending a random sample of 913 high schools in the United States. The study was an attempt to determine if the findings by Coleman et al. (1966) were still accurate today in regard to the impact of the socioeconomic level of the students having the greatest impact on their achievement and a determinant on the differences that can be observed in student achievement. There

were two parts to the study. The first part involved analyzing the total high school student population in regard to achievement growth over the four-year period. In the second part, they divided the student population into "high socioeconomic status (SES) schools," "middle socioeconomic (SES) status schools," and "low socioeconomic status (SES) schools." Per this distribution, 17% of the schools were considered high SES schools, 70% middle SES schools, and 13% low SES schools. They measured the schools on five different dependent variables. The five variables consisted of the "student performance on the standardized achievement test in math, science, reading, and social studies administered in the spring of 1988, 1990, and 1992 and the composite score for each year based on the mean of the four tests in that year." The independent variables in the study included the types of school that the students attended in regard to the composition of the student population (i.e., proportion minority, proportion nontraditional families, college aspirations), structure of the school (i.e., religious, private, magnet, small, large, urban, rural), resources available at the school (i.e., student-teacher ratio, mean salary, teacher experience), and process used by the school (i.e., parent involvement, discipline, homework time, teacher expectations).

The results of this study support the findings from the Coleman et al. (1966) study that the socioeconomic composition of the students in the schools has the greatest impact on student achievement. In the analysis of the data, the authors distributed the students as disadvantaged, average, or advantaged based on mean values of SES and grades. For White students who were identified as disadvantaged and in a low SES school district, the achievement growth rate over the four (4) year period was 7.2, while a similar disadvantaged White student in a high SES school district experienced a growth rate of

8.9. For the identified disadvantaged Black student in a low SES school district, the achievement growth was estimated at 6.1, whereas the disadvantaged Black student in a high SES school district showed an achievement growth rate of 8.3.

As part of the analysis of these data, the authors discuss the idea that if low SES students move into high SES schools, then the overall SES composition of the school would shift toward becoming a middle SES school. As a result, the "achievement advantages enjoyed by the White students in high SES schools could decline." Therefore, with all scores moving toward an equal mean of a middle SES school level, there would be declines in the achievement growth of White students and a slight decrease in the amount of achievement growth benefit observed when a Black student moves from a low SES school into a high SES school. The authors suggested that this may decrease the gap between White students and Black students in achievement if all students were equally and systematically placed in a middle SES school.

This study warrants further analysis as the authors addressed the issue of redistributing students and resources into private schools or small urban schools in order to improve student achievement. The authors found that the distribution of educational resources had no measurable effect on student learning. Again, the authors focus their attention on the impact of the schools' socioeconomic composition as the greatest variable for change and growth in student achievement. The authors discussed the implications of this study from a political standpoint as they indicated the difficulty in integrating schools and providing equal opportunity to students across socioeconomic levels. The integration of students for the purpose of student growth and achievement is correlated with the student's family and community and not necessarily based on the

school that they attend. Rumberger and Palardy (2005) conclude their study with the following statement, "In a society that is becoming more and more stratified along social class lines, this challenge is far more formidable today than ever before" (p. 2023).

**Mickelson and Heath (1999) Study.** The educational opportunities and potential for academic achievement for students may be hindered by the segregation of the student population and the placement of a student on a less rigorous curriculum track with lower standards and expectations. In the Mickelson and Heath (1999) study, the authors examined the "relationship between segregated education and school outcomes for African American adolescents in the Charlotte-Mecklenburg, North Carolina school district. This district had been under a U.S. Supreme Court order to desegrate the schools in 1971 (*Swann v. Charlotte –Mecklenburg School District*). The authors of this study used 1997 survey data to determine the extent to which desegregation was taking place across the school system and/or the extent that segregation of African American high school students and placement tracking in core academic subjects was still occurring within the buildings. The authors identified 640 African American high school seniors as part of the study and collected information from all 11 high schools in the Charlotte-Mecklenburg School District and on all English courses offered for each period of the school day in the 1996-1997 school year. The authors found, upon review of the student schedules, that the higher the academic track, the greater likelihood that the students in those classes would be White. For classes identified as less rigorous and of a lower academic track, there existed a larger percentage of Black students in those courses.

In this study of student academic placement in English classes at both the middle and high school level, the authors identify the Albemarle Road Middle School as

desegregated with a Black student population at 49.5%. In review of the English courses offered, the lowest level English course at that school, 88.5% of the students were Black. In the seventh grade remedial reading class, 75% of the students were Black. In the regular English classes, 52.5% of the students were Black, but only 20.6% of the more advanced English classes had Black students. This pattern continued into eighth grade where 78.1% of students in the remedial classes were Black and only 10.8% of students in the more advanced English classes were Black.

The authors concluded their findings by noting that several of the Charlotte-Mecklenburg schools were considered desegregated, but through practice and placement of students, segregation is still evident within the buildings for African American students. There is a disproportionate placement of African American students in lower curriculum tracks, which resulted in negative academic achievement outcomes.

The authors were clear and succinct in their findings by making the following concluding statement:

> First, very few African American students experienced genuinely desegregated education throughout their CMS careers because they either were educated in a segregated elementary school, or if they attended a racially balanced school, they were likely to be educated in a resegregated classroom at the elementary level and later in a segregated track within their high school. Second, those students who were educated in desegregated learning environments did better than their peers schooled in segregated ones. Our finding also suggests supporters of tracking are misguided in their advocacy of that practice. (p. 583)

**Orfield (2001) Analysis of the Resegregation of Schools.** As the United States becomes a more diverse and multicultural society, the trend in school systems appears to be moving in the opposite direction in an attempt to maintain a sense of local control and move toward a more segregated neighborhood and society. In Orfield (2001), the author addressed this shift in "resegregation" of students where White students continue to attend more segregated schools in comparison to any other racial group. The findings by Orfield (2001) are that segregation is becoming more prevalent by race, language, and socioeconomic status. There continues to be a "flight" of White students with higher socioeconomic status to private or charter school settings. The author further stated, "Segregated schools have higher dropout levels and poorer records of preparing students for higher education." In the data reflected in this paper with regard to minority student preparation and performance on college entrance examinations, the data support the conclusions and findings of Orfield (2001).

**Effects of Socioeconomic/Poverty Status on Minority Achievement**

The effects of students living in poverty on their ability to academically achieve in the classroom are pervasive throughout the literature and correlated to many additional variables affecting the achievement gap (Murphy, 2009; Hertert & Teague, 2003; Porter, 2006; McCall et al., 2006; Barnett, Daugherty, & Wieder, 2009; Rumberger & Palardy, 2005; Braun, Chapman, & Vezzu, 2010; Harris & Herrington, 2006). Porter (2006) captured the difficulty of addressing the achievement gap when he stated, "Closing the achievement gap in one of the most diverse school systems in the nation – one in which more than 160 different nationalities are represented, 120 different languages are spoken, and more than 26 percent of the students are living below poverty level is not a mission

of the weak-hearted." The socioeconomic factor of low income and poverty filters through the other variables that impact student achievement. The family structure is directly influenced by the ability of the parent(s) to establish a routine in the home that is conducive to instructional support. The parent(s) must demonstrate the ability to actively participate in the daily activities associated with an academic program. Today, the parent needs to be connected to the technology of the school to maintain and receive constant feedback on the performance of their child in the classroom. For low-income families, access to continuous electronic communication with the school through technology may be limited or nonexistent and difficult to find in such low poverty/income communities. The effects of low income and poverty on student achievement can begin even prior to conception with the lack of prenatal care, exposure to chemicals/elements, and lack of access to quality health care which may all contribute to poor growth and development. Physical, emotional, and cognitive growth in the early years of child development are extremely important variables that determine the long-term effects on academic achievement. For young children, the ability to make gains in these areas can be hindered by the effects of poverty when there is the presence of such variables as limited parent contact, poor nutrition, limited exposure to oral language and communication, and minimal access to educational materials (Hertet & Teague, 2003; Fryer & Levitt, 2002; Barton & Coley, 2010; Entwisle, Alexander, & Olson, 2000; McCall et al., 2006).

In Hart and Risley (1995), the authors address the concerns of the lack of constant communication and parent interactions with the developing child. The authors indicated that the number of words uttered to a child in their first three years of life is "directly related to their vocabulary development and other important educational outcomes." In

low income and poverty areas, there are a high proportion of single parent households where only one parent may be interacting with the child. In the Hart and Risley (1995) article, the number of out of wedlock births for Black woman under 30 was 77 percent in 2003-2004 compared to 34 percent for White woman and 16 percent for Asian woman during that same period. Such interactions by the single parent may lack the depth of communication necessary as a result of mothers having limited vocabulary based on their educational background and historical educational experience (Hart & Risley, 1995).

In Grissmer and Eiseman (2008), the authors further explore the impact of low income and poverty on student achievement. The gap in achievement may be evident even prior to the student's entry into the school. Therefore, the acceleration and intensity of learning needs to be even greater for the low-income student in order to maintain academic pace with their cohort group. As Grissmer and Eiseman (2008) describe the issues associated with concentrated poverty, there is an absence of resources in the neighborhood to promote social, emotional, physical, and cognitive growth for the young child. Such "economic capital" may not be found in neighborhoods of concentrated poverty. Libraries, early childhood centers, safe areas for parents to interact, and quality childcare may not be available or minimal at best. With concentrated poverty, the long-term generational impact is compounded further with an inability to move or enhance their income level. The results of such concentrated poverty and lack of neighborhood and social resources culminates for successive generations and continues the achievement gap even further (Barton & Coley, 2010; Grissmer & Eiseman, 2008; Lee, 2002).

Again, the Rumberger and Palardy (2005) study used data from the National Education Longitudinal Survey of 1988 to determine multilevel models of achievement

growth between grades 8 and 12 in the core subject areas of mathematics, science, reading, and history. They sampled approximately 14,217 students who attended 913 U.S. high schools. In their study, the authors found that the socioeconomic status of the students was one factor, but the socioeconomic status of the school was also a factor on the achievement of all students. The average socioeconomic status of the students plays a role when considering the potential for growth and student achievement. In other words, Rumberger and Palardy (2005) indicate that the potential for student achievement and academic success is also dependent upon the overall socioeconomic status of the entire school. If the average socioeconomic status of the school is "above and beyond" the socioeconomic status of the individual student, then there is a greater likelihood for a positive student achievement outcome. As part of the analysis conducted by Rumberger and Palardy (2005), they cite data from the 2000 National Assessment of Educational Progress:

> Both low-income and middle-income fourth-grade students had lower math scores in high-poverty schools compared with low-poverty schools (US Department of Education, 2002, Indicator 11). In fact, low-income students attending schools with fewer than 50% low-income students had higher scores in the fourth-grade math exam than middle-income students attending schools with more than 75% low-income students. (Rumberger & Palardy, 2005, p. 2003)

Rumberger and Palardy (2005) further investigated the need for social reform and identifying school settings where the socioeconomic factors of the entire school play a role in "teacher expectations, the amount of homework that students do, the number of

rigorous courses students take, and students' feelings about safety" (Rumberger and Palardy, 2005, p. 1999). The authors identify the work of Frankenberg et al. (2003), the U.S. Department of Education statistics (2003, Indicator 2), and the work of Orfield and Lee (2005, Table 6) where they summarize the demographic data on minority students and their segregation in today's school setting. In the Frankenberg et al. (2005, Figures 6 and 8) report, "More than 70% of all Black and Hispanic students in the United States attended predominantly minority schools in 2000, a higher percentage than 30 years earlier." And per the U.S. Department of Education statistics (2003, Indicator 2), one third of all Black and Hispanic children under the age of 18 were living in poverty to 10% of White children. In Orfield and Lee (2005, Table 6), the average Black and Hispanic student in the school year of 2002-2003 attended a school where almost 50% of the students were identified as poor in comparison to the average White student who went to a school where only 23% of the students were identified as poor.

The mobility factor for low-income students has two sides. In Engec (2006), the author studied the mobility rates of public school students in Louisiana and mobility percentages from year to year and within-school year for students from grades 1 through 12. Engec (2006) looked at the scores on the Iowa Test of Basic Skills (ITBS) in comparing mobile and nonmobile students. The findings from this study indicate that there is a negative relationship between mobility and student test performance. In the discussion of the study, the author states, "I recommend that educators give particular attention to students who have experienced single or multiple transfers within a school because these students are more likely than other students to incur discipline and performance problems" (Engec, 2006, p. 177). Per Engec (2006), the one factor that can

be prevalent among low-income families is the continuous change in their home setting due to changes in their economic condition. As a result, constant mobility of the student from one academic environment to another may be present and, as indicated in Engec (2006), the academic performance of these students would be directly impacted.

The other side of the equation is the limitations in the ability of the low-income family to move to a higher socioeconomic environment or to move closer to an academic school setting with a higher average socioeconomic setting. As Rumberger and Palardy (2005) identified in their study, the ability to transfer a student into a higher socioeconomic academic environment may improve the student's academic performance. For low-income students, they are more dependent on the schools for their academic success. Disruptions in their academic program can lead to additional time needed to catch up to possible changes in district-to-district curriculum practices, gaps in instruction, and gaps in social and school connections. The potential segregation of lower socioeconomic and/or minority students and the additional potential for higher mobility rates can lead to further gaps in student achievement and gaps in performance as compared to their higher socioeconomic and White cohorts.

**Effects of English as a Second Language on Minority Achievement.**

Another socioeconomic factor influencing student academic performance and potentially increasing the achievement gap is the student with English as a secondary language. Today, these students are identified as English Language Learners (ELL) or Limited English Proficiency (ELP) students. For ELL students, they are more proficient in their native language and the academic system requires that they assimilate into the English language for better performance in the classroom and on state assessment

measures. ELL students may have "sufficient difficulty speaking, reading, writing, or understanding the English language (Anstrom, 1996, p. 3). Per the No Child Left Behind Act of 2001, the ELL student must develop "high levels of academic attainment in English, and meet the same challenging State academic content standards for all students" (US Department of Education, 2005, p. 1). As these students work to assimilate to understanding the English language in the classroom, the potential for an increase in reading difficulties and grade retention exists (Bowman-Perrott, Herrera, & Murry, 2010). The retention of ELL students based on difficulties in growing academically is evident by a study conducted by Wilson and Hughes (2006). Their study identified predictors for grade retention for 283 first grade Hispanic students who were showing literacy performance below grade level. They examined several variables that included the affective/emotional levels of the student, home environments, school interactions, and academic competency. The authors found that the students who were retained were "less engaged in instruction (per teacher report), achieved at lower levels than their peers, were less resilient, had less support from their teachers, and had parents who were not likely to share responsibility for their children's academic success" (Wilson & Hughes, 2006).

The diversity of the student population continues to grow as reflected in the Biennial Evaluation Report to Congress on the Implementation of Title III, Part A of ESEA. The report recognizes 5.1 million students throughout the United States as meeting the criteria of Limited English Proficient (ELP) with 80% of these students receiving additional academic services (US Department of Education, 2005, p. 3). The long-term needs of this increasing population of ELP students can effectively require

additional financial and human resources to support the student's ability to perform academically in the typical English speaking school environment. The need for continuous interventions over a period of years is well documented in the literature (Thomas & Collier, 2002; Gersten & Domino, 2006; Ortiz, Wilkinson, Robertson-Courtney, & Kushner, 2006). In the Thomas and Collier (2002) longitudinal study, the authors demonstrate that the ELP students would require seven to ten years to develop the proficiency skills necessary to achieve with continuous support and remediation of skills.

## Additional School Factors

When considering an educational environment most conducive to effective instruction for students who are not showing growth in their achievement, the amount of contact with the many educational opportunities that exist within the school system is crucial. In this section, further exploration of critical components that can contribute to the minority achievement gap will be explored in the areas of class size, student access to a rigorous curriculum, student access to extended day curriculum support activities, school environment that utilizes quality and highly effective teachers and administrators, and available access to early childhood programs.

### Quality Teachers and Teacher Training

As identified earlier in this paper, the student who comes from a low socioeconomic background or comes from a specific subgroup population of minority students, there is a greater dependence on the school system to provide the major foundational components of educational support for the student to succeed. The amount of contact with quality teachers trained in the effective use of remedial and instructional support practices is important to the success of the student. The opportunity for

immediate instructive feedback in concert with support and effective teaching of new concepts is important during the early school years and experiences of the student (Finn, Gerber, & Boyd-Zaharias, 2005).

**Class Size**

There is extensive literature on the benefits of reducing class size at the early stages of learning and the positive outcomes for achievement, especially for low income and minority students (Finn & Achilles, 1990; Nye, Hedges, & Konstantopoulos, 2004; Finn, Gerber, & Boyd-Zaharias, 2005; Konstantopoulos & Chung, 2009). In the Finn and Achilles (1990) study, a significant large-scale study was conducted on the impact of class size in Tennessee where more than 7,000 students in 79 schools were randomly assigned to three classroom conditions. The three conditions included a small class size with between 13 to 17 students per teacher; a regular class size of 22 to 25 students per teacher; and a regular class size of 22 to 25 students with a teacher and an aide. The researchers randomly assigned the teachers to these classrooms and the students' academic performances were tracked over a period of kindergarten through 3rd grade. The Tennessee study was called Project STAR (Student Teacher Achievement Ratio) and the findings were that there was significant ($p \leq .01$) achievement obtained by students in the smaller sized classes over the regular class and the regular class with an aide. As stated by Finn and Achilles (1990), "This research leaves no doubt that small classes have an advantage over larger classes in reading and math in early primary grades." In the Nye, Hedges, and Konstantopoulos (2004) study, they continued the work of Project STAR and investigated the long-term effects and benefits of small class sizes for minority students. The findings of Nye, Hodges, and Konstantopoulus (2004) showed a

lasting academic benefit of 4 years for minority students enrolled in the small class sizes.

Based on this significant educational research on class sizes, large classroom sizes in urban and poor schools can also have a negative effect. Such short-term and long-term effects do not enhance the achievement of the minority subgroup of students who are significantly performing below their White peers. However, in addition to the need for a small classroom student size, there is also the need for highly trained and qualified teachers. Hertert and Teague (2003) stated that the "single most important school resource linked to academic success is the teacher." Improvement of the quality of instruction performed by the teacher in the classroom is a critical element to the success of all students. Gains obtained for students who need additional instructional support in their achievement is even more dependent upon the interactions with a highly qualified teacher in the classroom (Lewis, 2008).

**Rigorous Curriculum**

Recent discussion in the field of education includes the changing focus on the three most important elements in education. In the past, the three elements of focus were reading, writing, and arithmetic. Now, the direction and conversations in the educational circles revolve around the new three "Rs" of education known as rigor, relevance, and relationships. With the No Child Left Behind Act of 2001 and President Obama's school reform associated with Race to the Top legislation, the common core curriculum is more evident today. There is significant emphasis on rigorous curriculum standards and instructional programs that advance the learning of students (i.e., Advanced Placement, International Baccalaureate, and Honors Programs). Today, the standards of academic performance and achievement are constantly measured and directly connected to teacher

and principal effectiveness. The evaluation of programs, along with the teachers and administrative leaders who provide such programs, are under a constant assessment microscope to perform for all students and reduce the achievement gap. In socioeconomically poor schools and in urban areas where there is a large number of minority students, the ability to attract highly qualified teachers and to offer a rigorous curriculum becomes difficult, and reinforces the poor performance of low socioeconomic and minority students on high stakes assessment measures (Knapp, 2001; Becker & Luthar, 2002).

The effects of high stakes testing is demonstrated in the Heilig and Darling-Hammond (2008) longitudinal study from 1995-2002 where the authors of this study reviewed the academic program in a large urban district of Texas that served more than 250,000 students. Heilig and Darling-Hammond (2008) found that the district was attempting to show improvement in academic performance by retaining students and denying admission to students deemed at risk of academic failure. The stakes were obviously high in this setting with more than 30% of ninth graders being retained for one or more years. Many of the students dropped out of school and their academic achievement was never assessed through state measures.

**Before/After School Support Programs and Summer Programs**

Another corresponding contributing factor associated with the culture of the school is the opportunity for students to participate in before/after school academic support programs and summer programs. As noted by Miller (1999), and Hertert and Teague (2003), additional educational programs for students struggling in their academic skills is important to afford the necessary contact time and depth of understanding to succeed and

improve academic performance. As indicated in the previous section of this paper, low socioeconomic students are more dependent upon the school culture to provide the groundwork for academic achievement.

**Access to Early Childhood Programs**

The lack of early childhood programs available in the educational programs for low socioeconomic students resulted in a lack of contact time and instructional opportunities at an early stage of development that is crucial to long term academic success. In the early 1980s, only 30% of kindergarten programs were full day programs. In the early 1990s, that number had increased to over 50% (Clark & Kirk, 2000). Cryan, Sheehan, Wiechel, and Bandy-Hedden (1992) conducted a longitudinal study on the effects of different kindergarten schedules (half day, alternate day, and full day) and compared prior preschool experience. From their findings, the researchers concluded that "children who attend preschool prior to kindergarten experience greater subsequent success in elementary school than those who do not. Results from both phases of the study indicate that participation in full-day kindergarten is positively related to subsequent school performance, at least through first grade" (Cryan, Sheehan, Wiechel, & Bandy-Hedden, 1992, p. 187).

One of the most instrumental studies on the effects of a quality early childhood program for students born and living in poverty was the High/Scope Perry Preschool Study that was developed in the late 1960s (Weikart, Rogers, Adcock, & McClelland, 1971; Schweinhart, Barnes, &Weikart, 1993; Schweinhart & Weikart, 1997; Schweinhart, 2003). Weikart et al. (1971) identified three preschool curriculum models that were considered effective practices for young children that live in poverty. The three

curriculum areas were: High/Scope, traditional nursery preschool, and a Direct Instruction program. The school where the study took place was in the Ypsilanti school district in Michigan at Perry Elementary School. The High/Scope program and model utilized the concept of Jean Piaget and "emphasized the idea that children are intentional learners, who learn best from activities that they themselves plan, carry out, and review afterwards" (Schweinhart, 2003, p. 3). The program centered around the developmental theory model where the adults interacted with the child and encouraged them to participate in play activities so that they can "make choices, solve problems, and otherwise engage in activities that contribute to their intellectual, social, and physical development" (Schweinhart, 2003, p. 3). The Direct Instruction model involved the work of Bereiter and Engelmann (1966) where students were presented with pre-programmed academic instruction to establish skills in reading and mathematics. The materials used in this instructional approach and developed by Bereiter and Engelmann (1966) were called "DISTAR" to provide specific guidance on how information was presented, how questions were asked and answered, and how corrective prompting strategies would be provided. And, the more traditional nursery preschool model involved organizing activities in a broader context and within a more "permissive atmosphere." The social interactions and social development was the primary goal versus development of intellectual knowledge.

The empirical study conducted at Perry Elementary School involved 123 African-American young children. The children in this study were 3-years-olds in 1967, 1968, or 1969. Weikart et al. (1971) identified the children based on the family's socioeconomic status per the parent's history of schooling, the parent's current occupation, the number

of individuals living in the household, and the number of rooms in the household. The Stanford-Binet Intelligence Test (Terman & Merrill, 1960) was used to determine the young child's IQ and the study identified students who had IQs in the range of 70 to 85. The researchers distributed the young children into three groups: Direct Instruction (23 children); High/Scope (22 children); and Nursery School (23 children). The remaining students were in the no-program control group. The groups were then matched on mean socioeconomic status, mean intellectual performance, and percentages of boys and girls. Some other conditions of sibling placement and or other extraneous factors resulted in minimal adjustments from one group to the other.

This was a longitudinal study that looked at several variables including "demographic characteristics, test performance throughout childhood and adolescence, school success, crime, socioeconomic success, and personal development" (Schweinhart, 2003, p. 4). The study analyzed information on the participants with these variables at ages 19, 27, and 39-41. Interestingly, the attrition rate of being able to collect and keep the participants engaged in the study was fairly small, i.e., at the age 27 marker, 95% of the original participants could be interviewed and additional data collected.

The results and finding from this longitudinal study were the following:

- 71% of program participants graduated from high school or adult high school;
- 84% of the program females graduated as compared to only 35% of the no-program females;
- Program participants spent less than half the amount of time in an educable mentally impaired program as compared to no-program participants (1.1 years vs. 2.8 years);

- Significant scores were obtained by the program group compared to the no-program group in such areas as general literacy (age 27), student achievement tests (age 14); and intellectual assessments;
- 29% of program group participants were earning monthly income above $2,000 compared to only 7% of no program group participants at the age of 27;
- 80% of females from the program group were employed at the age of 27 versus only 55% of females from the no-program group;
- Crime prevention reports showed that the program group had an average of 2.3 arrests by the age of 28 versus the no-program group had an average of 4.6 arrests; and,
- 12% of the males in the program group had been arrested five or more times compared to 49% of the no-program males.

As indicated by Schweinhart (2003), this longitudinal study and further replicated studies (i.e., Abecedarian Study and the Chicago Child-Parent Centers Study) demonstrated that there are significant and long-term effects on both personal, professional, and social growth for students living in poverty who have been exposed to a quality early childhood program. Access to quality early childhood programs for rural and low socioeconomic families are a key to long-term beneficial gains in social, academic, and emotional development.

**Cultural Dissonance between Native American Culture and the Traditional School Settings**

The construct of what "culture" means is addressed in the work of Borofsky, Barth, Shweder, Rodseth, and Stolzenberg (2001) as the authors attempted to define a term and concept so often used by so many to describe their historical perspective,

beliefs, traditions, and rituals. To determine if dissonance exists between the "culture" of the Native American compared to the more traditional cultures in a public school setting, it is important to understand the complexities of defining culture. For the Native American, there may not be a clearly delineated and distinct culture for each and every individual who is a member of a tribe. As Borofsky et al. (2001) explored this issue, the authors began with a more general definition of culture as the "beliefs, behaviors, and/or artifacts [that] are portrayed as developing through time, often toward some progressive, positive end" (p. 433). Respect for the culture of the past and the evolving culture of the future warrants continuous review and understanding by educators as they work to provide an educational environment conducive to learning for all students.

Both Demmert and Towner (2003) and Castagno, McKinley, and Brayboy (2008) focused their work on reviewing the literature associated with culturally-based education (CBE) and culturally-responsive schooling (CRS) to enhance Native American student performance. As Demmert (2001) noted in an earlier study of the literature, recent reviews do support the importance of recognizing Native American culture in the educational setting and he further stated that "congruency between the school environment and the language and culture of the community is critical to the success of formal learning" (p. 9). As the student begins their educational journey, the interactions within and between their like or dissimilar peer group can enhance or detract their learning. For the Native American student entering the traditional school setting, the recognition of their cultural heritage, beliefs, and values may conflict with the daily norms of a more homogenous and integrated environment that does not recognize or address these differences. Without such recognition of the student's Native American

heritage, a cultural gap may exist that can further widen the relationship between a teacher and student and hinder their academic success.

In a study by Shields (1999), students from the small, predominantly Navajo high school of Canyon Collegiate (a pseudonym) discussed their educational experiences as it related to maintaining a sense of culture while still achieving in a world that is so much different than their primary experiences. The authors listened to the students to obtain a better understanding of the impact of differences in race and culture within the school setting and how these differences can influence their ability to learn. There are 230 students at this school where 97% are Navajo. The researchers conducted interviews with 210 Native American students and 7 non-Native students to identify recurrent themes in their answers to established questions about their educational experiences and the cultural differences that existed for them at both home and school. In their findings, the cultural traditions were important to the Native American students and 82% of the students indicated that they "felt it was important to pass the beliefs and practices on to their children" (p. 113). From this study, it appeared that the Native American students were connected to their cultural heritage and traditions. One of the emerging themes noted by Shields (1999) was that "there was no doubt that these students live in overlapping cultures…yet, enjoying many of the traditions and activities associated with the broader and dominant white American society. Yet, the students at this predominantly Navajo high school appear to be telling us that it is not easy to live successfully in two worlds" (p. 120). The author of this study learned from the students about their perception of who they are in a world of institutional racism and discrimination. A world where there exists myths and beliefs that they do not wish to

academically succeed and they do not have the basic support systems to encourage such success. The results of the interviews showed that the students and the teachers needed to recognize the differences of each individual in order for them to be successful in a broader school community. This qualitative study conducted by Shields (1999) attempted to determine the impact of cultural differences in a school community environment.

The limitation of this study is found in the fact that 97% of the students in this small high school setting were Native American. The impact of the cultural differences and potential cultural dissonance may not be as prevalent in such a setting even with a high number of participants in the study. The conclusion of this study warrants further analysis in a setting where there is a broader mix of both Anglo American and Native American students to determine the impact of a culturally diverse student population. The implications and findings of this study are noteworthy. Native American students and their families still have the goal to achieve academically while still having an eye on maintaining a strong sense of heritage and tradition.

**Cultural Dissonance as a Result of Historical Implications**

In addressing how the traditional school setting recognizes the culture of the Native American students, there is a long-standing history of governmental imposition that has resulted in conflict with the Native American communities regarding the educational programs and goals for their children. Some of the underlying concerns, conflicts, and dissonance between the Native American families and the traditional educational system stem from the historical background on how Native Americans were treated and impacted by governmental decisions. The long-standing historical

relationship and conflict between the Native Americans and the United States government is part of the culture and shared with each new generation. Cultural dissonance can continue, even today, in traditional school environments that appear to disconnect and discount the Native American cultural heritage and their perception of the "Anglo American" school environment.

Governmental involvement has been established for many years through treaties between the Native American tribal nations and the United States. Of the 400 treaties that were initially established between 1778 and 1871, 120 of the 400 treaties addressed and described the educational objectives and goals for Native American students (McCarty, 2009).

In the history of educating Native Americans by the U.S. government, different philosophies on how best to "assimilate" Native Americans to the American culture and the English standards of academic performance has emerged through public policy (Lindeen, 2005; McCarty, 2009). This assimilation of general American culture and approaches to educational programs and learning was an emphasis in the 1800s where a Civilization Fund was established by Congress. As noted in McCarty (2009), the fund was "an explicit endorsement for Christian groups to effectively convert, and thus 'civilize', Native Americans" (McCarty, 2009, p. 363; Reyhner & Eder, 2006). In Michael C. Coleman's book (1993) entitled, *American Indian Children at School, 1850-1930*, the United States Congress gave authorization to the Secretary of the Interior in 1893 to withhold rations from families who refused to send their children to school (Coleman, 1993, p. 45). The philosophy and perspective of educating Native American

students carried forward into the 1900s. In 1903, the U.S. Indian Commissioner, William A. Jones, made the following comment:

> Give the Indian a white man's chance. Educate him in the rudiments of our language. Teach him to work. Send him to his home… and tell him he must practice what he has been taught or starve. It will in a generation or more regenerate the race. It will exterminate the Indian but develop a man. (Coleman, 1993, p. 46)

Further review of the relationship between the United States government and the tribes of the Native American people continued in the early 1900s. In 1928, the U.S. Secretary of the Interior commissioned Lewis Meriam to establish a "report of a survey" in regard to the health, the living conditions, the causes of poverty, and the work of the government on behalf of the Indians. The report (also known as the *Meriam Report*) and titled, *The Problem of Indian Administration*, was submitted to the U.S. Secretary of the Interior on February 21, 1928 (Meriam et al., 1928). The report does identify some of the problems with the educational system for the Native American students. In Lindeen (2005), the author summarizes the finding of this lengthy report (872 pages) with such conclusions that the "uniform curriculum was too rigid and failed to allow for necessary adjustments for students with limited English proficiency." The report recognized the need to allow for a more diverse and differentiated curriculum that involved the cultural aspects of the Native American students (Lindeen, 2005, p. 364). With the information from the *Meriam Report*, and with the passage of the *Indian Citizenship Act in 1924*, attempts were made by the U.S. government to recognize the Native American people and the governmental duty and responsibiity in serving the Native American population

of people as their own. In a sutle, but small attempt to recognize the Native American people that were afforded the same rights and opportunities as any U.S. Citizen, the 1930 U.S. Census changed one word. The U.S. Census publication recognized the "Indians" as no longer "Indians" 'in' the United States but instead, "Indians 'of' the United States (Jobe, 2004).

The next major governmental and political action in regard to Native American education did not take place until 1969. In that year, the Senate Subcommitte on Indian Education (initially chaired by Robert Kennedy and known as the *Kennedy Report*) submitted a report entitled, *Indian Education: A National Tragedy, A National Challenge* (U.S. Senate, 1969). In the report to the Senate, the findings were concerning in that they addressed the "dropout rate among Native Americans as being twice the national average" and a graduation rate that was half of the national average (Lindeen, 2005). As identified in Reyhner (1992), the dropout rate among Native Americans still remained in the early 1990s at approximately two times the rate of "Euro-American" students (Reyhner, 1992, p. 1). From the *Meriam Report* in 1928, to the *Kennedy Report* in 1969, to No Child Left Behind in 2001, and to the *Blueprint for Reform* in 2010, the continued focus of the governmental powers has been on the attempt to standardize instructional practices and related core curriculum in order to guarantee equal application and achievement within an educational structure for all students. In applying structural requirements and sanctions, high stakes accountability practices, and financial scaffolds to the educational system without consideration for culture and history, could potentially result in a misguided attempt toward reaching the goal of closing the achievement gap between Native American students and their White peers. In going back to the *Meriam*

*Report* of 1928, Tippeconnic (2000) identified a point raised in the report that was true then and continues to be considered today in the education of Native American students. Tippeconnic (2000) identified a simple phrase from the Meriam report where it states, "The most fundamental need in Indian education is a change in the point of view" (Meriam et al., 1928, p. 346; Tippeconnic, 2000, p. 2).

As with any recognized citizen of the United States, the constitutional rights of equal protection under the law and equal access to liberty and property interest extend to the Native Americans. This right also includes the right to a free and appropriate public education. The responsibilities of the United States government to provide an equal education is clear per the Civil Rights Act and the U.S. Constitution (14th amendment). However, there is a unique relationship that exists between the United States and the Native Americans in regard to the rights of tribal sovereignty and the establishment of their own nation within the boundaries of the United States. For the Native American student, they may be educated within their neighborhood school as part of the established local school district setting; however, the Native American tribe may establish, as a part of their own sovereignty, an educational system and school that is separate from the local school district. Such schools are considered tribal schools and are closely monitored by the Bureau of Indian Affairs (BIA). In 1993, there were 87 tribal schools and 83 schools that were directly monitored and financially supported by the Bureau of Indian Affairs through federal grants. In 1999, the Bureau of Indian Affairs (BIA) was directly involved through grants with two-thirds of the tribal schools or approximately 108 schools and an additional 72 independent tribal schools. (Lindeen, 2005, pp. 367-368; U.S. Department of Education, 1995).

With the No Child Left Behind (NCLB) Act of 2001 and with the most recent political *Blueprint for Reform* set forth by President Obama (U.S. Department of Education, 2010), there is an emphasis on high stakes assessment, adequate yearly performance (AYP), teacher/principal evaluation and effectiveness, and corresponding school sanctions. Such policies may conflict with the rights and the intent of a sovereign nation's existence in maintaining their own cultural and educational/school standards, expectations, and outcomes from those proposed per NCLB. This unique governmental relationship that exists between the United States and the tribal sovereign nations of the Native Americans has implications for determining the true and recognized existence of an academic achievement gap between the Native Americans and their White peer group. If the markers for academic success and the determination for academic achievement and student growth are based on an English standard of skills, i.e., English language arts, mathematics, science, and social studies; then the culture of the Native Americans could be in conflict with the cultural norm where the Native American works for the welfare of the group in the absence of competition. The individual academic success and individual personal growth may not be a recognized function of the Native American. Therefore, the individual student's academic growth, which is at the cornerstone of NCLB, may not be an objective of the Native American culture.

**Identified Educational Practices for Native American Students and Culturally Based Education (CBE) Curriculums**

The primary mission of any school system is to provide a fundamental education that provides the student with the necessary skills to be successful academically, establishes a commitment to life-long learning, and supports the development of a productive member of the world-wide community. The traditional school setting sets the

stage and the environment for students to achieve by establishing core curriculum standards, achievement performance expectations, and instructional practices. In the presence of a diverse student population, the instructional methods and environments used to achieve this task may vary in some educational settings in order to best meet and address the needs of the students. As Demmert and Towner (2003) reviewed significant studies on culturally based education programs, they identified that the "basis of education is best built on the experience, values, and knowledge of the students and their families, both personal and community-based" (p. 8). The authors (Demmert & Towner, 2003, p. 9) further defined culturally based education programs as consisting of six critical elements:

1. Recognition and use of Native American (American Indian, Alaska Native, Native Hawaiian) languages.
2. Pedagogy that stresses traditional cultural characteristics, and adult-child interactions.
3. Pedagogy in which teaching strategies are congruent with the traditional culture and ways of knowing and learning.
4. Curriculum that is based on traditional culture and that recognizes the importance of Native spirituality.
5. Strong Native community participation (including parents, elders, other community resources) in educating children and in the planning and operation of school activities.
6. Knowledge and use of the social and political mores of community.

Demmert and Towner (2003) began their literature review with 100 citations and related references that reflected studies conducted and associated with culturally based curriculum programs. The authors attempted to demonstrate that there was strong evidence that educational environments, that recognized the culture of the Native Americans, had significant gains in student academic performance. By connecting and incorporating the student's background, previous cultural experiences, language, and past knowledge, the likelihood for academic success would improve. The authors found in their literature review only four studies considered as "quasi-experimental" or "experimental." The authors cite that the low numbers may be due to the following three problems: Problem of time, problem of ethics and group formation, and problem of measurement.

**Articles and Studies Addressing Learning Strategies for Native American Students**

In the Sparks (2000) article, the author addressed the educational accommodations that would be beneficial for Native American students in a classroom setting. The author speaks to the impact of acclimating the Native American student to the traditional educational programs without jeopardizing their own dominant culture, beliefs, and heritage to obtain academic success. In order for the teacher to be most effective, they would need to recognize the additional diversity that may exist within the Native American culture and to thoroughly understand the unique makeup of their Native American student population in their classroom. The author stressed the importance of not stereotyping a group of Native American students, but to recognize the depth of their traditions and to develop an appropriate meaningful curriculum based on this area to help "demystify" the cultural differences with the non-Native students.

The strategies presented by Sparks (2000) included gathering information about the student's Native American culture and the family dynamics in order to establish trust. The second area involved establishing an effective communication strategy by having the Native American student serve as a role model by demonstrating their ability to speak a different language, and providing meaning behind the language. With the diffusion of culture within the classroom, the teacher takes on the responsibility to facilitate courageous and quality conversations to address cultural awareness, cultural differences, and diversity that exist in the school setting. Sparks (2000) further addressed the characteristics of Native American students by identifying their need to learn in a visual environment where presentations and visual demonstrations are the more preferred method. The use of storytelling, singing, and dancing were also identified as effective approaches to demonstrating and supporting an engagement in learning for the Native American student. The author noted the work of Dunn and Griggs (1995) where the Native American learner uses "simultaneous processing" instead of "sequential processing." A majority of instructional approaches involve sequential presentation of information that layers the concepts to achieve understanding. For an individual that processes information in a simultaneous format, they tend to learn best when presented with the gestalt of the concept where all the parts or the whole picture is presented and there is a specific introduction of both the beginning and the desired end product. The other educational strategy that Sparks (2000) emphasized was the demonstration of a concept by the teacher where modeling, prompting, and interactions are the key. This can be accomplished by teacher demonstration, student demonstration, or cooperative learning amongst student peers. And finally, the author stated that Native American

students have a difficulty with the concept of time and space. Sparks (2000) does not reference any specific empirical research that demonstrated this conclusion, but it is worth noting. The classroom teacher who instructs or assesses the Native American student must be flexible and provide clear information about time restrictions or due dates. The teacher would verbally and visually identify timeliness for the completion of tasks and any boundaries or limitations associated with the assigned activities.

**Early Intervention Programs for Native American Children**

From an initiative from the U.S. Department of Health and Human Services and the Administration on Children, Youth, and Families (Head Start Bureau), Marks and Graham, and the U.S. Head Start Bureau (2004) conducted a two-year study on Head Start programs for American Indians and Alaska Natives for the purpose of conducting and recommending related research necessary to determine the impact of the programs for this early childhood subgroup population. The established goal of this initiative was "to develop a research agenda responsive to the needs of American Indian and Alaska Native Head Start programs—a research agenda that (1) takes into account the unique cultural environments and values of these populations and (2) guides the development of information associated with programs that can be used to improve services provided to children and families" (p. ix). The final document is entitled, *Establishing a Research Agenda for American Indian and Alaska Native Head Start Programs*. The researcher engaged in a review of the literature and facilitated "listening sessions" with 18 different Head Start programs. Participants in the study included tribal leaders, elders, community members, parents, and staff. There were different groups represented by geographic region, size of the program, and structure of the program (i.e., inclusion of Native

American language). As Marks and Graham (U.S. Head Start Bureau, 2004) conducted their study, they obtained information from participants on areas of research that would help to

> Promote children's native language skills and foster pride in their tribal identity and cultural traditions. They suggested additional research on valid, reliable, and culturally appropriate screening and assessment methods. Other research topics of interest that participants identified include the emotional and physical well-being of AI-AN children; strategies for increasing parent involvement in children's social, emotional, and academic development; and the effects of adverse environmental factors, such as poverty, geographic isolation, and family structure, on AI-AN children's educational outcomes. (pp. x-xi)

As Mark and Graham (U.S. Head Start Bureau, 2004) addressed the need for further studies on the effects of Head Start programs for Native American preschool children, they referenced the work and findings of Zill et al. (2001) and Barnett (1995). In the Zill et al. (2001) study entitled, *Head Start FACES (Family and Child Education: Longitudinal Findings on Program Performance)*, the researchers conducted a long-term study of a national sample of 40 Head Start programs with 3,200 children and parents. They also studied a second group of 43 Head Start programs with 2,800 children and parents. This study reviewed the "characteristics, experiences, and outcomes for children and families in Head Start." The findings from this study demonstrated improvement in the school readiness skills of the children that included significant gains in writing and vocabulary skills.

Barnett (1995) reviewed 36 studies of early childhood programs and concluded that

"these effects are large enough and persistent enough to make a meaningful difference in the lives of children from low-income families: for many children, preschool programs can mean the difference between failing and passing, regular or special education, staying out of trouble or becoming involved in crime and delinquency, dropping out or graduating from high school" (p. 43).

The reports from Mark and Graham (U.S. Head Start Bureau, 2004); Banks-Joseph and McCubbin (National Center for Rural Early Childhood Learning Initiatives, 2006); and Gilliard and Moore (2007) indicated the importance of understanding the connection of the family, the tribal community, and the Native American culture in setting the initial stage of early childhood educational programming. It is crucial to establish the foundation of a strong relationship of respect, trust, and concern for the young Native American student who enters the school setting. Therefore, the teacher of these young children must establish a cultural awareness and understanding within the classroom. Effective communication with the family is critical in establishing a sense of mutual trust and caring. The teacher must guide the student in the appropriate use of manipulatives and activities that teach school readiness skills in both the social and academic areas.

In 2005, the National Center for Rural Early Childhood Learning Initiatives and Mississippi State University Early Childhood Institute conducted a study entitled, *Rural Early Childhood Forum on American Indian and Alaska Native Early Learning.* As part of the proceedings from that forum, Schafft, Faircloth, and Thompson (National Center for Rural Early Childhood Learning Initiatives, 2006) discussed the reason for focusing attention on the Native American early childhood student and family in a rural setting. The authors looked at the prevalence of American Native families living in a

rural/nonmetropolitan setting and the limitation of access to early childhood programs. They identified "challenges in education [that include] shortages of highly qualified teachers, higher costs of transporting students (as well as time spent by students on school buses), and the challenges of meeting the requirements of the No Child Left Behind legislation in the face of often limited fiscal and human resources" (p. 4). However, the authors did recognize that the rural context for Native American students and families provided a mixed benefit in that the cultures and traditional beliefs and practices can be preserved in such a setting and may carry over into the school environment to afford a more culturally based educational program for the benefit of these students. Schafft, Faircloth, and Thompson (National Center for Rural Early Childhood Learning Initiatives, 2006) emphasized the importance of access to quality early childhood programs. Access to early childhood programs is a key factor. As the authors discussed in their paper, the parent also needs to have the skills and the resources to enroll, effectively communicate with the school personnel (per the English language), and be literate and connected to computer equipment and web-based access. The generally accepted process of just filling out the paperwork and enrolling the child in an early childhood program can limit and initially result in apprehension by the parents from engaging in a mutual and beneficial relationship. The authors identified the statistics from the Irish, Schumacher, and Lombardi (2004) study that "more than 75% of the total number of parents who benefit from Early Head Start programs have little or no schooling past high school" (p. 26). From the descriptive summary data per the 2000 U.S. Census, the authors provided information related to the enrollment of American Indian/Alaska Native (AI/AN) children (3- and 4-year-olds) in an early childhood

program. Their findings indicated that 46% of AI/AN children between the ages of 3 to 4 years old were enrolled in a nursery or preschool program as compared to 49% of the total U.S. population of 3- and 4-year-olds.

Rinehart (National Center for Rural Early Childhood Learning Initiatives, 2006) wrote an additional section in this document on *Effective Early Education Programs.* In this section, the author identified several factors to consider when establishing an effective early childhood program. The components of a program that serves to best meet the needs of the early childhood learners are:

- Developmentally appropriate and individualized instruction;
- Staff development for teachers and administrators on Native American culture;
- Family and community partnerships with clear investments in the educational program;
- Established outcomes and goals/objectives for student personal and academic success; and
- Appropriate and informational assessment to identify areas of strength and weakness.

Further, Rinehart (National Center for Rural Early Childhood Learning Initiatives, 2006) stressed the importance of a curriculum that is based on learning skills that are in the context of the child's everyday life and from their cultural experiences. As the author stated "the curriculum is individualized for the community and child, it is experiential, and it develops children's physical, cognitive, social, emotional, spiritual, and creative skills" (p. 69).

In the Thompson, Pope, and Holland (National Center for Rural Early Childhood

Learning Initiatives, 2006) section of the document on "school readiness," the authors identified the work of the State Early Childhood Policy and Technical Assistance Network (SECPTAN) and the National Association for the Education of Young Children (NAEYC) in the established six domains for determining the student's "readiness" to effectively participate and benefit from school. The six domains listed are: health and physical development, emotional well-being and social competence, approaches to learning, language development/communication skills, cognition and general knowledge, and other miscellaneous mathematics and scientific thinking (p. 105). Thompson et al. are further cited in the work of the National Center for Rural Early Childhood Initiatives (2006) where the researchers looked at indicators associated with "child and family health, socioeconomic status of children, and children's readiness for school across all ethnic cohort groups" (p. 107).

Grace, Shores, Zaslow, Brown, Aufseeser, and Bell (2006) prepared a document entitled, *Rural Disparities in Baseline Data of the Early Childhood Longitudinal Study: A Chartbook,* for The National Center for Rural Early Childhood Initiatives. In their study, they analyzed the data from The National Center for Education Statistics (NCES) and the longitudinal data on both a birth cohort (ECLS – B: birth to kindergarten) and a kindergarten cohort (ECLS – K: kindergarten through grade 2). As part of the studies of different ethnic groups, the authors focused their work on children coming from a rural versus non-rural setting. Their findings concluded that American Indian and Alaska Native young children who are from a rural setting are less likely to participate in a center-based child care program. This ECLS-B cohort group consisted of approximately 10,000 children, who were born between January, 2001 and December, 2001. The

baseline data involved children between the ages of 6 months and 22 months with the average age of the ECLS-B baseline cohort at 9 months of age.

There are several key findings in this report based on the baseline data of the ECLS-B cohort group that identified variables and factors that capture the child's health, socioeconomic status, prenatal exposures, and readiness for school. From the study, comparison data was provided on American Indian and Alaska Native children with other ethnic groups. Below are the significant findings from the ECLS-B cohort group of American Indians and Alaska Natives:

**Breastfeeding:** Rural American Indian and Alaska Native (AI/AN) mothers breastfed significantly less at 8.8% than White mothers (25.6%) or Hispanic mothers (23.6%).

**Second-hand smoke exposure:** Rural AI/AN babies were more likely to be exposed to smoke in the home than rural Black or Hispanic babies but no significant difference when compared to White babies.

**Parental alcohol use:** Rural AI/AN babies had a significantly greater likelihood of prenatal exposure to alcohol when compared to Black babies but no significant difference when compared to White or Hispanic babies.

The ECLS-K cohort group represented over 21,000 children entering kindergarten in 1998. In the analysis of the ethnic cohort group of American Indian and Alaska Natives (AI/AN) within this ECLS-K cohort group, the authors identified the following gaps when comparing different ethnic groups:

**Poverty:** 60.5% of rural AI/AN kindergarteners fell below the poverty level as compared to the non-rural AI/AN kindergartners at 23.1%.

**Parental education**: Only 7.8% of rural AI/AN kindergartners had a parent with a

bachelor's degree or higher as compared to the non-rural AI/AN kindergartners who had 26.4% of parents have a bachelor's degree or higher.

**Parents reading to children:** 60.5% of rural AI/AN kindergartners were reported to have been read to by their parents three or more times per week when compared to 82.7% of non-rural AI/AN parents.

**Children reading to selves:** 58.2% of rural AI/AN kindergartners were reported as reading to themselves outside of school for at least three times per week as compared to the 82.4% of non-rural AI/AN kindergartners.

An additional analysis of the ECLS-B cohort and the ECLS-K cohort, the authors analyzed the primary care and early childhood programs of rural versus other rural ethnic groups in regard to the following areas:

**Care by relatives:** 42.5% of AI/AN babies received their primary care from relatives as compared to 26.9% of White babies and 13.6% of Hispanic babies. Also, the rural AI/AN were less likely than any other group (at only 5.1%) of being cared for by a non relative.

**Center-based pre-kindergarten care:** Only 10.6% of rural AI/AN kindergartners had enrolled in and attended a center-based pre-kindergarten program as compared to 35.3% of White kindergartners.

In summary, the Grace, Shores, Zaslow, Brown, Aufseeser, and Bell (2006) found that there were some advantages of living in a rural community in regard to family support and mental health; however, the limitation in access to programs and services and limited support to early childhood programs may hinder the educational growth and development of the young child. Further studies are warranted in regard to the young American Indian

child in a rural setting as compared to a non-rural setting and what programs and services would be most beneficial to improving their early learning to decrease future gaps in achievement.

**Reading and Literacy Programs for Native American Students**

In a study by Marley, Levin, and Glenberg (2010), the authors developed two experimental conditions within a Native reservation community to determine a reading strategy that can be effective in the improvement of memory formation and comprehension associated to the content of the material presented. In the first experiment, the study involved randomly assigning 45 third-grade students to three different groups. The initial grouping was the "reread" participants who read each sentence of the story and then were directed to reread the story. The second randomly assigned group was identified as the "observe" group where they read the sentences and then observed manipulations and movements associated with the story. And, the final group was identified as the "activity" group where the students read the sentences and then individually moved manipulatives associated with the story. In the second experiment, the authors randomly assigned 40 second-grade students to a "reread" or "activity" group. The findings, from this study in both experiments, were that the greatest memory of the story occurred with the students assigned to the activity group. The most amount of recall occurred with the "observe" and "activity" group over the recall amount identified with the "reread" group. The authors of the study further discussed the benefits of using an activity-based model to enhance the learning and recall for young student learners.

Fayden (1997) studied the program called "Shared Reading" where teachers used

oversized books and an environment conducive to learning for young children in a secure and trusting setting. The children in this study were both Native American and Hispanic kindergarteners from low socioeconomic backgrounds and are believed to have limited exposure to reading in the home as compared to students from a higher socioeconomic background. There were 24 kindergarten students from a rural area in New Mexico. The students were pre-tested and post-tested on Clay's (1985) The Early Detection of Reading Difficulties and Clay's (1982) Sand Test. The experimental approach included exposure to the Shared Reading model for ten weeks with one-half hour per day in this model. Associated activities also occurred with the students, such as: bookmaking, cooking, singing, and choral reading for an additional forty-five minutes. The approach used was one of a Shared Reading with Big Books model to encourage active participation amongst the students in the reading and learning process and to establish meaning and purpose behind the reading content. The results and findings from the study indicated significant improvement in the reading skills test from pre-test to post-test.

Earlier studies by Bacon, Kidd, and Seaberg (1982) and Doebler and Mardis (1981) also demonstrated the effects of bilingual instruction for Native American students to assist and support the development of English language learning and reading in a school setting. The recognition of bicultural/bilingual instruction significantly enhances and lays the foundation for future success in bridging the literacy gap that can exist in the early years of learning for the Native American student.

In Bacon, Kidd, and Seaberg (1982), the researchers studied and compared a group of Native American students who were given instruction in both English and Cherokee from first through fifth grade versus students who did not receive bilingual instruction.

There were three treatment groups: Students with five years of bilingual instruction (N = 17); students with four years of bilingual instruction (N = 18); and students who did not receive bilingual instruction (N = 18). They assessed the students on the SRA Achievement Series in the area of reading and mathematics. The researchers found that the students who had four or five years of bilingual instruction obtained higher scores on this assessment in comparison to the students who did not receive bilingual instruction.

Two tribal run schools (Rock Point Community School and Fort Defiance Elementary School) in Arizona established a practice for teaching Native American students through a bilingual/bicultural model. The approach that these two tribal schools used was unique at that time where they began their reading and writing program in the student's native Navajo language. In the second grade, students were introduced to the English language teacher and they were taught to write and read in both languages. The classroom setting involved two teachers, a Navajo language teacher and an English language teacher. The intent of this program was that the students would be able to develop success in their native language first and then proceed to learning the second language of English to enhance the depth of their writing and reading skills. The teachers proceeded to incorporate programs that were contextually based with language related activities that included writing and critical thinking. In the spring of 1990 and spring of 1991, the K-3 percentile scores in reading vocabulary on the California Test of Basic Skills more than doubled (McCarty, 1993, Holm & Holm, 1995).

**Mathematics Programs for Native American Students**

In a review of the literature by Apthorp, D'Amato, and Richardson (2003), the authors developed a brief document entitled, *Effective Standards-Based Practices for*

*Native American Students*, as part of their work with the Midcontinent Research for Education and Learning (McRel) laboratory. As part of their study, they summarize the findings of research related to mathematics and the Native American and Alaska Native subgroup population. Based on their review of the literature of mathematics education programs for Native American students, they concluded that programs that provided "curricula and practices that acknowledge and build on traditional and everyday mathematics are associated with improved success for students" (p. 13). The limitations in this conclusion is that their research review only involved three sites of a kindergarten and second-grade classroom in Hawaii, rural classrooms in Alaska, and two fourth-grade classrooms in Montana. The authors indicated that more research in best practices for teaching Native American students in the area of mathematics is warranted.

In both Apthorp et al. (2003) and Nelson-Barber and Estrin (1995), the authors discussed the concept of *ethnomathmatics* as a way of connecting the student's home environment with the school environment in teaching the desired mathematic skills. This concept was also supported by the work of Brenner (1998) where it is important to bring meaning and experience to understanding the concepts and in solving the problem. It is from this foundation of ethnomathematics, intuitive knowledge, and everyday cultural experiences that the student constructs their foundation of learning math and science to effectively move into a more theoretically and formula base of learning and solving a problem (Nelson-Barber & Estrin, 1995).

The work by Brenner (1998) was a multi-year study with kindergarten and second-grade students in the KEEP laboratory in Hawaii. Although the study was conducted with Native Hawaiian children, the implications of the study and the recognition of the

student's culture when teaching mathematics has generalization effects to the Native American students. Brenner and the teachers modified how they aligned the chapters and materials for the students to determine the sequence from difficult to hard. They further incorporated the native language in teaching the concepts and used manipulatives and games to encourage the learning. From the data on standardized tests administered at a later date, the kindergarten students scored significantly higher than the control group. The control group scored on average at the 54$^{th}$ percentile and the experimental group scored on average at the 82$^{nd}$ percentile on the same standardized test.

The use of culturally-laden examples, manipulatives, experiential activities, and projects helped assist the Native American student to learn the concepts of both math and science.

**Social and Emotional Aspects of Educational Programs for Native American Students**

Hamm, J. V.; Farmer, T. W.; Robertson, D.; Dadisman, K. A.; Murray, A.; Meece, J. L., and Song, S. Y. (2010) studied the effects of teacher staff development on adolescent adjustment for both Native American and White students in a rural setting. This study addressed the social and academic isolation of adolescents in rural schools in the Northern Plains and the need for professional development of the teachers in regard to early adolescents and school adjustment. The teachers in the intervention schools were provided with training in three different teacher-student interaction approaches: Academic engagement, competence enhancement behavior management, and social dynamics management. There were four separate K-12 schools in the study. The participants in the study included 165 fifth-, sixth-, and seventh-grade students with 92 boys and 73 girls. From this population, 55.2% were White and 44.8% were Native

American. Schools were randomly assigned as intervention, teacher development sites and given training over the course of one year versus the control sites where teachers continued their current practices over the one-year period. The finding from this study indicated that the Native American students in the intervention group experienced the most significant gains in academic achievement on standardized test scores. The teachers' training provided a "safe and nonthreatening environment and conveyed that the students are valued members of the classroom community (p. 368).

**Demographics and Statistical Summary of the Native American Population: A National Perspective**

The demographics of the population of Native Americans throughout the United States represent unique challenges and characteristics quite different from other ethnic groups. In the 2000 census, there were 4.1 million American Indians (A/I) and Alaskan Natives (AN) living in the United States. This AI/AN group represented 1.4% of the total population of the United States per the 2000 census. The 4.1 million Native Americans identified in the 2000 Census are found in every state within the United States with more than 560 federally recognized tribes and 619 reservations and villages. The largest tribes can be found in the Southwestern regions of the United States where the Cherokee tribe has a population of 729,533 and the Navajo tribe has a population more than 298,000. However, in most states, the population of Native Americans is much smaller, dispersed across the region, and diverse in their culture and in their heritage (US Census Bureau, 2002; McCarty, 2009). In the McCarty (2009) article, the author references the US Census Bureau's report entitled, *We the People: American Indians and Alaska Natives in the United States* (US Census Bureau, 2006), with the following significant statistic summary:

> About 33% of the AI/AN population are under the age of 18, compared with 26% of the total population. Seventy-one percent have a high-school degree, compared with 80% of the total population. 11.5% have a college degree, compared with 24% of the total population. More than a quarter of the AI/AN population lives below the federal poverty line – a figure that is double that of the nation as a whole. (US Census Bureau, 2006; McCarty, 2009, p. 9)

Native American tribes tend to settle in rural areas and the number of students who are provided educational services may be only a small percentage of the total population. They may not represent a large enough subgroup to be considered statistically significant when reviewing assessment data associated with the NCLB requirements.

Under the direction of the U.S. Department of Education and the Institute of Education Sciences/National Center for Education Evaluation and Regional Assistance, a document entitled, *Achievement Gap Patterns of Grade 8 American Indian and Alaska Native Students in Reading and Math,* was prepared by Nelson, Greenough, and Sage (2009). This document addressed student proficiency in reading and math from 2003/2004 to 2006/2007. The analysis focused primarily on 8$^{th}$ grade achievement performance on state assessment tests and the gap that existed between American Indian/Alaska Native (AI/AN) students and all other grade 8 students from 26 states that had a larger populations of AI/AN students. The study was initiated by a request of the Council of Chief State School Officials (CCSSO) in response to President George Bush's Executive Order 13336 on April 30, 2004 where the intent of the order was to "assist American Indian and Alaska Native students in meeting the challenging academic

standards of the No Child Left Behind Act in a manner that is consistent with tribal traditions, languages, and cultures" (Executive Order No. 13336, 2004).

The study conducted by Nelson, Greenbough, and Sage (2009) involved 20 states that were recognized by the Council of Chief State School Officials (CCSSO) and six additional states that had an American Indian/Alaska Native population of greater than 4,000 students with data on 8th grade assessment available in 2003/2004 in at least one subject area. The study collected data in three areas: statewide assessment results, number of students tested, and annual measurable objectives. The researchers engaged in three different phases of analysis as they proceeded with their review of state assessment data. The first consideration involved verification that there had not been any changes in "standards, assessments, or cutscores over the four year period (2003/2004 through 2006/2007). The second consideration involved the specific content area tested and the proficiency rates for the subgroup population of AI/AN and all other groups in each state. And, the third area of consideration and analysis involved arranging the data by AI/AN subgroup performance in 8th grade reading and math assessment, and proficiency rates compared to all groups across each of the 26 identified states in the study. The authors in the study analyzed the trends over the three to four year period in regard to the percentage of 8th grade AI/AN students that were proficient in reading and math in comparison to the proficiency rates of all groups on state assessments. As part of this study, the researchers identified the "annual measurable objective" for the state that established an overall objective for the percentage of students that should be proficient in reading and math in that particular school year. In summarizing the results by each state, the researchers displayed the findings based on the proficiency rates of the AI/AN students, the

proficiency rates of all groups combined, and the annual measurable objective target rate for that year.

In review of the demographics of the 26 states in the study, the total number of 8th grade AI/AN students was 38,834 or 1.8% of the total student population in the identified states. The percentage of 8th grade students in the states ranged from a low of 0.3 percent of the total student population in the state (i.e., Florida) to a high of 25.9 percent (i.e., Alaska).

The findings from the study were summarized in regard to 8th grade reading proficiency rates and 8th grade math proficiency rates based on state assessment measures. There were 15 states out of the 26 states in the study that collected data over this four year period. There was an increase in the AI/AN student reading proficiency rates over this four year period in 12 out of 15 states which followed the same proficiency rate increases observed with all other groups. In 10 of the 15 states, the AI/AN 8th grade student population showed an increase in their reading proficiency rates that resulted in a decrease gap in the achievement performance between the AI/AN students and all other groups. In 4 of the 15 states, the AI/AN 8th grade students outperformed the reading proficiency rates for all other students in the final year of the four year period. There still existed gaps in reading proficiency rates when comparing the 8th grade AI/AN student and all other groups. However, some of the gaps were narrowing based on the four year trend data analysis. In summarizing some of the data from this study, the following states represent a sample of the findings in the area of 8th grade reading proficiency rates:

Table 1

*8th Grade Reading Achievement Gap between AI/AN Student Performance and All Groups Based on Proficiency Rates*

| State | 2003/2004 | 2004/2005 | 2005/2006 | 2006/2007 | 4 year change | 3 year change |
|---|---|---|---|---|---|---|
| Alabama | AI/AN is 6.1 points above all groups | 7.2 points above | 5.5 points above | 9.3 points above | 3.2 | 2.1 |
| Alaska | AI/AN is 32.9 points below all groups | 25.4 points below | 24.1 points below | 26.9 points below | 6 | 1.5 |
| Arizona | AI/AN is 28.9 points below all groups | 21.7 points below | 20.6 points below | 23.4 points below | 5.4 | 1.7 |
| South Dakota | AI/AN is 27.7 points below all groups | 28.6 points below | 29.4 points below | 30.4 points below | 2.7 | 1.8 |
| Michigan | Students not tested | Students not tested | 10.9 points below | 5.7 points below | | |
| Nevada | AI/AN is 3.2 points below all groups | 4.4 points below | 3.6 points below | 3.8 points below | 0.6 | 0.6 |

SOURCE: Nelson, Greenough, and Sage, 2009.

As demonstrated by the sample of states listed in the previous table, the reading proficiency rates of 8th grade AI/AN students are mixed with some states showing improvements in the performance of the AI/AN students over this four year period resulting in a decrease in the achievement gap that exists between the AI/AN student and all other groups. In some cases, the gap in proficiency rates has increased over this period of time (i.e., South Dakota) or the gap in proficiency rates are still significant (i.e., Montana at 30.0 percent below all other groups).

There was a similar analysis conducted by the researchers (Nelson, Greenough, & Sage, 2009) in the area of 8th grade math proficiency rates. There were 13 states with 8th grade math proficiency rates for the full four year period. And, 11 of the 13 states with this data showed increases in the AI/AN student proficiency rates from 2003/2004 to 2006/2007 on 8th grade state math assessment measures. In 2 of the 13 states, the AI/AN

8th grade math proficiency rates were above the proficiency rates of all groups (i.e., Florida, Texas). However, there were two states where the proficiency rate gap between the AI/AN students and all other groups was greater than 30 points (i.e., AI/AN student proficiency rate in South Dakota is 37.1 points below all other groups and AI/AN student proficiency rate in Montana is 34.4 points below all other groups).

Table 2

*8th Grade Math Achievement Gap between AI/AN Student Performance and All Groups Based on Proficiency Rates*

| State | 2003/2004 | 2004/2005 | 2005/2006 | 2006/2007 | 4 year change | 3 year change |
|---|---|---|---|---|---|---|
| Alabama | Students not tested | AI/AN is 10.8 points above | 7.7 points above | 5.5 points above | | 5.3 |
| Alaska | AI/AN is 27.6 points below all groups | 23.6 points below | 24.8 points below | 24.3 points below | 3.3 | 0.7 |
| Arizona | AI/AN is 18.2 points below all groups | 21.8 points below | 20.1 points below | 21.4 points below | 3.2 | 0.4 |
| South Dakota | AI/AN is 40.3 points below all groups | 41.8 points below | 41.8 points below | 37.1 points below | 3.2 | 4.7 |
| Michigan | AI/AN is 5.4 points below all groups | 12.1 points below | 8.6 below | 5.6 points below | 0.2 | 6.5 |
| Nevada | AI/AN is 6.2 points below all groups | 9.2 points below | 6.1 points below | 6.1 points below | 0.1 | 3.1 |

SOURCE: Nelson, Greenough, and Sage, 2009.

The 8th grade AI/AN student math proficiency performance on state assessment measures is also mixed across the states identified in the study. For a greater percentage of the states identified in this study, the AI/AN 8th grade performance had shown improvement in the percentage of students proficient in math. However, there are still significant gaps that need to be addressed in some of the states. Further studies of the educational programs in those districts should occur to expand this research.

Nelson, Greenough, and Sage (2009) did identify some of the limitations in their study. The first limitation was that the data provided are only descriptive of the performance of the students. It does not extend beyond the descriptive level and offer additional analysis of the reason for the gap in achievement and/or recommended solutions. The next limitation they identified was the discrepancy that existed between states in their assessment procedures and data collection. There existed differences in the state content standards and the levels of determining proficiency. Another limitation noted by the researchers of this study was related to special education and the American Indian/Alaska Native student. What the researchers described in regard to this limitation of their study was a greater "make up" of American Indian/Alaska Native students as special education certified in the area of cognitive impairment. As a result of this special education certification, these students may have been omitted from the testing at "a higher rate than other students." Therefore, the data on the testing results of the 8th grade American Indian/Alaska Native students may not completely reflect this entire subgroup population performance.

**Special Education Identification and Services**

From a national perspective, the federal government recognizes students with disabilities and their educational needs and services through current laws and practices. The laws governing the administration of special education services at the federal, state, and local levels have been enacted since 1975 with the initial implementation of the *Education for All Handicapped Children of 1975* (P.L. 94-142). Per current P.L. 108-446, the 108th Congress reauthorized the *Individuals with Disabilities Education Act (IDEA)* on December 3, 2004 (20 U.S.C. 1400 et seq.) and cited the Act as the

*Individuals with Disabilities Education Improvement Act of 2004.* In Part A of the general provisions of this Federal Act, Section 601 included the following subsection language, (c)-Findings, where the Congress stated in the Act that:

> ‘‘(6) While States, local educational agencies, and educational service agencies are primarily responsible for providing an education for all children with disabilities, it is in the national interest that the Federal Government has a supporting role in assisting State and local efforts to educate children with disabilities in order to improve results for such children and to ensure equal protection of the law.
>
> ‘‘(7) A more equitable allocation of resources is essential for the Federal Government to meet its responsibility to provide an equal educational opportunity for all individuals.
>
> ‘‘(8) Parents and schools should be given expanded opportunities to resolve their disagreements in positive and constructive ways.
>
> ‘‘(9) Teachers, schools, local educational agencies, and States should be relieved of irrelevant and unnecessary paperwork burdens that do not lead to improved educational outcomes.
>
> ‘‘(10) (A) The Federal Government must be responsive to the growing needs of an increasingly diverse society.

‘‘(B) America’s ethnic profile is rapidly changing. In 2000, 1 of every 3 persons in the United States was a member of a minority group or was limited English proficient.

‘‘(C) Minority children comprise an increasing percentage of public school students.

‘‘(D) With such changing demographics, recruitment efforts for special education personnel should focus on increasing the participation of minorities in the teaching profession in order to provide appropriate role models with sufficient knowledge to address the special education needs of these students.

‘‘(11) (A) The limited English proficient population is the fastest growing in our Nation, and the growth is occurring in many parts of our Nation.

‘‘(B) Studies have documented apparent discrepancies in the levels of referral and placement of limited English proficient children in special education.

‘‘(C) Such discrepancies pose a special challenge for special education in the referral of, assessment of, and provision of services for, our Nation’s students from non-English language backgrounds.

‘‘(12) (A) Greater efforts are needed to prevent the intensification of problems connected with mislabeling and high dropout

rates among minority children with disabilities.

‘‘(B) More minority children continue to be served in special education than would be expected from the percentage of minority students in the general school population.

‘‘(C) African-American children are identified as having mental retardation and emotional disturbance at rates greater than their White counterparts.

‘‘(D) In the 1998–1999 school year, African-American Children represented just 14.8 percent of the population aged 6 through 21, but comprised 20.2 percent of all children with disabilities.

‘‘(E) Studies have found that schools with predominately White students and teachers have placed disproportionately high numbers of their minority students into special education.

‘‘(13) (A) As the number of minority students in special education increases, the number of minority teachers and related services personnel produced in colleges and universities continues to decrease.

(U.S. Public Law, 108-446, December 3, 2004, pp. 4-5)

As recognized in the initial pages and findings of Congress in the *Individuals with Disabilities Education Improvement Act of 2004,* the changing demographics of the population, the disproportionate number of minorities receiving special education

services, the potential for mislabeling of students, and the high dropout rate are of great concern within the political arena. This issue is a major part of the educational agenda for politicians and educators. The identification for special education services early on can have both benefit and risk. The benefit can be observed through the use of early intervention strategies and exposure to practices that would improve learning in later school years. For some individuals, the early identification of students as needing special education can lead to a different track of educational experiences, along with a lack of interaction and exposure to a more rigorous curriculum. The added pressures of future high stakes testing per NCLB may make the identification of minority students needing special education services that much greater (Strong, 1988; Reyhner, 1992; Lomawaima & McCarty, 2002). As Lomawaima and McCarty (2002) stated, the federal demands of No Child Left Behind and the determination to support the educational needs of each student as measured through standardized assessment processes, there exists a "national ambivalence to diversity" that puts even more students at risk of being certified as needing special education services. According to Reyhner (1992), the author stated that "The use of standardized tests to measure school success leads to more Indian students being retained in a grade, and retention leads to over-age students who drop out of high school (Reyhner, 1992, p. 5).

The *25th Annual Report to Congress on the Implementation of the Individuals with Disabilities Education Act* (U.S. Department of Education, Office of Special Education and Rehabilitative Services, 2005) is the most recent and latest documented national report that summarizes the services to students with disabilities across the 50 states and the District of Columbia. In that report, it recognized the number of infants and toddlers

who were served under IDEA, Part C; the number of children between the ages of 3 and 5 who received services under IDEA, Part B; and the number of students who received services between the ages of 6 and 21 under IDEA, Part B. The Annual Report provided statistical data that included the demographics of the special education population and additionally, a further breakdown by race and ethnicity. The report captures information from the 2001-2002 school year.

In reviewing this preschool data as it corresponds to the Native American population, the Native American children between the ages of birth to 3 represented 1.2% of the total preschool students identified for early intervention and special education services. As indicated by this data, the general Native American population between the ages of birth to 3 represents 0.9% (U.S. Department of Education, Office of Special Education and Rehabilitative Services, 2005, p. 15). Therefore, the representation of the Native American children between the ages of birth to 3 is slightly higher than the general population.

For the Native American child between the ages of 3 and 5 with special education needs, the Annual Report indicated that they would be 1.3 times more likely to be served under Part B than any other group combined. From the Native American early childhood students identified, 44.6% of the children were provided support in an early childhood setting in comparison to 36.1% of White children and 23.4% of Asian children (U.S. Department of Education, Office of Special Education and Rehabilitative Services, 2005, pp. 16-18).

In the 6 to 21 age group of students, they are provided special education services based on meeting the criteria established by a certain category of educational need.

There are 12 recognized categories at the national level. The categories identified in the Annual Report are: Specific learning disabilities, speech and language impairments, mental retardation, emotional disturbance, multiple disabilities, hearing impairments, orthopedic impairments, other health impairments, visual impairments, autism, deaf-blindness, traumatic brain injury, and developmental delay. Per these categories, 56% of the Native American students receiving special education services between the ages of 6 and 21 were certified as having a "specific learning disability" as compared to 48.1% of the White student special education population receiving a similar certification (U.S. Department of Education, Office of Special Education and Rehabilitative Services, 2005, p.29).

## Chapter 3: Research Design and Methodology

This study is a quantitative comparative analysis of student performance and demographic data from selected school districts that provide educational programs to a Native American student population. The study is designed to identify significant factors that exist within the selected school districts and between the school districts that correlate to Native American student performance on assessment measures. The districts selected in this study included school settings where there was a higher concentration of Native American students in order to conduct a statistically significant analysis of achievement performance comparisons between Native American students and their White peer group. The purpose of the study is to identify where there exist or does not exist a significant gap in Native American student achievement versus the White peer group. Where there does exist a significant gap in student performance within a selected school district, the demographic and program data will be used to correlate contributing factors associated with the performance gap.

### Study Design

The study obtained student demographic and achievement data on state and national assessment measures over the past three years (2008-2009, 2009-2010, and 2010-2011) and correlated the Native American versus White student performance for each of the 20 participating school districts.

### Study Type

The study will be a comparative analysis of specific student achievement scores and demographic variables that will involve a quantitative analysis of variance (t-test) and correlational covariance (Pearson r). The significance level is established at $p \leq .05$

and t-test analysis was completed for each grade, i.e., 3rd grade, 4th grade, etc., and for each performance level.

**Study Population, Sample, Sampling Frame, and Sampling Techniques**

There are 16 public school districts and 4 public school academies (charter schools) that are part of this study. Data are available on the entire student population in regard to student achievement by grade level, special education identification, student demographics, and student enrollment. Sampling data will also occur when comparing Native American student achievement data versus the White peer group achievement data.

**Data Gathering Procedures and Instrumentation**

Data will be obtained through both state and national educational statistic sites, such as: National Center for Educational Statistics, 2000 and 2010 Census data, Michigan Department of Education/Center for Educational Performance and Information, identified school district's annual education report (AER), adequate yearly progress (AYP) reports, and Data4success.org.

**Measures to Insure Safety, Confidentiality, and Anonymity for Human Subjects**

Any sampling pool of less than 10 will not be part of the study and the information will remain confidential. Any specific variable that represents an outlier or a random event specific and correlated to a student will be removed. The sampling size or population size per each variable should be large enough to decrease the ability for the reader to correlate to a specific person or event.

**Data Analysis**

The data will be collected, correlated, and disaggregated based on school district and sampling pool to determine significant correlations and differences in performance/achievement. Several demographic variables, i.e., socioeconomic status per free and reduced-price lunch data and poverty census data, teacher/administration race will be analyzed for significant differences by district.

## Chapter 4: Results and Discussion

### Sample and Population: Demographics and Statistical Information Associated with the Native American Students in the State of Michigan

Based on available data from the U.S. Census Bureau for the State of Michigan, the estimated total population per the 2000 Census is 9,938,444. Per the 2000 Census, the American Indian (AI) and Alaskan Native (AN) population in the state of Michigan where the individual declared only one race was 58,479 or 0.6% of the total state population. Upon further review of the 2000 Census data, a total of 33,086 Native Americans lived either on an American Indian reservation or on an off-reservation trust land per federal recognized areas. This represents 56.6 % of the Native Americans in the State of Michigan live on federally recognized land. The largest population of Native Americans identified as living on an American Indian reservation in the state of Michigan is in Isabella County (Mt. Pleasant area) where the on-reservation population is 25,822 with over 10,574 housing units (US Census Bureau, 2000).

In the state of Michigan, there are a total of eleven federally recognized Indian reservations where 33,086 Native Americans reside. They are primarily located in the geographic western, central, northern, and Upper Peninsula regions of the state of Michigan.

The recognized Indian reservations are:

1. Bay Mills Indian Community in Brimley, MI;
2. Grand Traverse Band of Ottawa and Chippewa Indians in Suttons Bay, MI;
3. Hannaville Indian Community in Wilson, MI;
4. Huron Potawatomi Nation in Fulton, MI;
5. Keweenaw Bay Indian Community in Baraga, MI;

6. Lac Vieux Desert Band of Chippewa in Watersmeet, MI;
7. Little River Band of Ottawa Indians in Manistee, MI;
8. Little Traverse Bay Band of Ottawa Indians;
9. Pokagon Band of Potawatomi Indians in Dowagiac, MI;
10. Saginaw Chippewa Indian Tribe in Mt. Pleasant, MI;
11. Sault Ste. Marie Tribe of Chippewa, in Sault Ste. Marie, MI.

There are a total of six recognized Indian tribes in the state of Michigan, and they are: Fox and Sauk tribe, Kickapoo tribe, Menominee tribe, Miami tribe, Ojibwe tribe (also known as the Chippewa, Ojibway, or Ojibwa tribe), and Potawatomi tribe. The Huron tribe (also known as the Wyandot tribe) and Ottawa tribe migrated into the Michigan area at a later date and are incorporated into the tribal regions. These tribes are specifically located in different regions throughout the state of Michigan (Native American Tribes of Michigan, 2010 as found on http://www.native-languages.org/michigan.htm).

For each of the tribes listed, there is a recognized cultural language that has been spoken historically by members of the tribe. However, most of the Native Americans in these tribes speak English and their native tribal language is becoming more endangered with each successive generation. Many of the tribal elders work with the younger tribal members to teach their ancestral language, and the complexities and unique parts of the spoken native language.

In the state of Michigan, there are 552 local school districts and 229 public school academies (also known as PSAs or charter schools). The schools are provided additional resources and educational support services from 57 regionally placed intermediate school districts. At the end of September and in the second week of February of each school

year, school districts count the number of students attending their schools on those two identified days. The student enrollment for each district (public schools and public school academies) is established per the information/data obtained from the count days. Allocation of state funds are dispersed to the districts based on a blended/weighted count formula. This blended/weighted count funding formula recognizes the number of students counted in September as representative of 75% of the total student blended amount, in addition to, the number of students counted in February of the previous school year, which represents 25% of the total student blended amount. Therefore, each school district in the state of Michigan must submit to the Michigan Department of Education's Center for Educational Performance and Information (CEPI) a full account of student enrollment.

Based on information from the Michigan Department of Education (MDE) and the Center for Educational Performance and Information (CEPI) submitted by local school districts, the total number of students attending both public schools and public school academies (PSA) in the state of Michigan for the 2009-2010 school year was 1,607,375. In that year, the Native American students counted for 14,153 or 0.88% of the total student population and the "other" ethnic groups (not White or Native American) counted for 463,527 or 28.84% of the total student population.

In the 2007-2008 student enrollment submission, there were a total of 1,645,742 students identified by local school districts as attending the public schools and the public school academies (PSA). In comparison of the most recent documented student enrollment data for the state of Michigan in the 2009-2010 school year from the student enrollment data submitted in the 2007-2008 school year, the total number of students

attending public schools and public school academies (PSA) in the state of Michigan dropped by 38,367 students or a loss of 3.33% of the total student population.

In analysis of the loss of students, the number of White students identified in the student enrollment for 2007 was 1,170,085. The total number of White students per the student enrollment database for 2009 was 1,129,695. This is a total decrease of 40,390 or a loss of 3.45% of White students enrolled in public schools or public school academies (PSA) when comparing 2007 counts to 2009 counts. In comparing the number of Native American students enrolled in 2007 versus the number enrolled in 2009, the state of Michigan student database showed a loss of 1,014 Native American students or a 6.7% drop in the number of Native American students in public schools or public school academies. However, during that same period of time, the number of students representing "other" ethnic groups (other than White or Native American) in the state of Michigan increased from 2007 to 2009. In 2007, the other ethnic groups identified in the student enrollment database totaled 460,490. In the 2009 student enrollment database, the number of students represented from another ethnic group other than White or Native American was 463, 527. This is an increase in this population of 3,037 additional students. This slight increase of 0.65% in this other population of students, when the overall student population in the state of Michigan is declining, represented a more diversified student population that was now entering the public school system today (Michigan Department of Education, 2010; Center for Educational Performance and Information, 2010 as found on the http://www.michigan.gov/cepi ).

Table 3

*2007 and 2009 Public School and Public School Academy Student Enrollment in Michigan by Ethnic Group and Percent Difference*

| | 2007 Student Enrollment | 2009 Student Enrollment | Difference | Percent Difference |
|---|---|---|---|---|
| **White Student Population** | 1,170,085 | 1,129,695 | -40,390 | -3.45% |
| **AI/AN Population** | 14,167 | 14,153 | -1,014 | -6.7% |
| **Other Ethnic Group Population** | 460,490 | 463,527 | 3,037 | 0.65% |

NOTE: AI/AN = American Indian/Alaska Native.
SOURCE: Michigan Department of Education, 2010; Center for Educational Performance and Information.

In addition to the Michigan Department of Education collecting information from local school districts on the number of students enrolled in the district, demographic information related to the school personnel who work in the public schools is also collected by the Center for Educational Performance and Information (CEPI). They collect this information through submissions by the local district human resources office and compile the information into the *Registry of Educational Personnel (REP) Summary Report.* In the most recent documented and published submission of school personnel by CEPI for the 2008-2009 school year, there were 12,295 administrators, 110,344 teachers, 31,344 paraprofessionals/aides, and 116,287 non-instructional staff throughout the state of Michigan. This report also identifies staff by race and gender. Per the CEPI 2008 Registry of Educational Personnel (REP) Summary Report, the number of Native American administrative staff in local districts represented 0.24% (30 administrators) based on the total number of recognized administrators in the state of Michigan. The numbers of teachers who are Native Americans in the 2008-2009 school year were 0.22%

(237 teachers) of the total number of recognized teachers throughout the state. In comparison, the number of recognized White teachers per the 2008 report was 90.18% (99,408 teachers). In that same 2008-2009 school year, the White students in the state of Michigan represented 70.82% of the total student population and the Native American students represented 0.92% of the total student population. In comparing the 2006 REP Summary Report with the 2008 REP Summary Report, the number of recognized Native American administrators went from 46 in 2006 to 30 in 2008 which represents a 35% drop in Native American administrative staff in just a two year period. The number of recognized Native American teachers went from 270 in 2006 to 237 in 2008 which represents a 12.3% drop in Native American teaching staff (Michigan Department of Education, 2010; Center for Educational Performance and Information, 2010 as found on the http://www.michigan.gov/cepi).

As noted previously in the 2009-2010 student enrollment data (Michigan Department of Education/CEPI, 2009), there were 14,153 Native American students attending public schools or public school academies (PSA) in the state of Michigan. During that school year, the total Native American student population represented 0.88% of the total student population across the state. However, as indicated by McCarty, 2009; Lindeen, 2005, and Apthorp, D'Amoto, and Richardson (2003) and upon further analysis of the student data from the State of Michigan/CEPI site, there are larger regions and/or a larger subgroup of Native American students in select schools in the state of Michigan. Out of the 552 local school districts and 229 public school academies that serve the total Native American student population of 14,153, there are 16 public schools and four

public school academies/charter schools that serve 4,388 (31%) of this total Native American student population. The 16 public schools are:

- Suttons Bay Public Schools (total students: 766; Native American: 149)
- Escanaba Area Public Schools (total students: 2,705; Native American: 125)
- Sault Ste. Marie Area Schools (total students: 2,461; Native American: 783)
- Watersmeet Township School District (total stud: 167; Nat. American: 82)
- Baraga Area Schools (total students: 561; Native American: 240)
- Brimley Area Schools (total students: 511; Native American: 287)
- Mt. Pleasant City Schools (total students: 3,736; Native American: 425)
- Marquette Area Public Schools (total students: 3,150; Native Amer.: 181)
- Munising Public Schools (total students: 685; Native American: 142)
- L'Anse Area Schools (total students: 740; Native American: 183)
- Rudyard Area Schools (total students: 882; Native American: 241)
- Pellston Public Schools (total students: 681; Native American: 79)
- Carman-Ainsworth Community Schools (tot. stud.: 4,717; Nat. Amer: 209)
- St. Ignace Area Schools (total students: 634; Native American: 352)
- Chippewa Hills School District (total students: 2,264; Native Amer.: 171), and
- Manistique Area Schools (total students: 1,000; Native American: 169)

The other four districts are considered public school academies or charter schools. They are:

- Nah Tah Wahsh Public School Academy (total students: 173; Native American: 108)
- Ojibwe Charter School (total students: 106; Native American: 95)
- Joseph K. Lumsden Bahweting Anishnabe Academy (total students: 472; Native American: 313)
- Big Bay De Noc School (total students: 248; Native American: 54)

The student population of these 20 schools ranged from 106 total students (Ojibwe Charter School) to 4,717 total students (Carman-Ainsworth Community Schools). The 20 schools selected in this study had a Native American student population greater than 50 students. There are 26,659 total students enrolled in the 20 selected school districts and 4,388 Native American students. The Native American

students enrolled in the selected districts represent 16.46% of the total student population. The average percent of Native American students enrolled in school districts across the state of Michigan is less than 1%.

The school districts are

- Both urban and rural,
- Commonly receive the base foundation funding grant per student,
- Tend to be areas with lower socioeconomic status,
- Have an association with a federally recognized tribe,
- Have Native American students who live on and off the reservation, and
- Have a corresponding larger White cohort comparison subgroup.

This study analyzed achievement gap data and other contributing factors that exist between the Native American students and their White cohort group within these selected 20 school settings in the state of Michigan. Differences and contributing factors in achievement by the Native Americans may occur within the district and differences and contributing factors may emerge per a district-to-district comparison. For some of the districts in Michigan with a Native American cohort group by grade, there may not be a large enough Native American subgroup population at that grade level (<10) where the student data are not presented due to concerns regarding the confidentiality of the scores.

**Financial Comparison Analysis between the Selected School Districts**

The first part of this study involved analysis of the different funding sources that existed between the identified districts in this study with regard to the incoming revenues and related expenditures. The school districts in the state of Michigan are required to report financial data as part of the budget transparency requirements established by the

Michigan Department of Education. Audited financial data and information are submitted by the districts to the Michigan Department of Education as part of the Financial Information Database (FID). This database is contained in Bulletin 1014 and found on the website: http://www.michigan.gov/documents/mde/b101410_349994_7.pdf. As indicated on this site, it is intended to facilitate a "common understanding of school financial accounting and reporting procedures."

Upon review of Bulletin 1014 with regard to revenue and expenditure sources, the following tables demonstrates the revenue and expenditure sources for each of the 20 selected school districts in this study.

Table 4

*Bulletin 1014 Regarding General Fund Revenues Per Pupil for All Selected Districts Distributed by State Ranking based on All Sources of Revenue, 2009 -2010*

| 2009-2010 Bulletin 1014 | All Sources | | Pupil Count | | Pupil Tch |
|---|---|---|---|---|---|
| District Name | Per Pupil | Rank | Fall Count | Rank | Ratio |
| Watersmeet Township School District | $19,167 | 16 | 167 | 709 | 10 |
| Nah Tah Wahsh Public School Academy | $18,566 | 17 | 173 | 705 | 7 |
| Joseph P. Lumsden Bahweting | $17,078 | 19 | 472 | 556 | 13 |
| Ojibwe Charter School | $13,704 | 31 | 106 | 737 | 15 |
| Carman-Ainsworth Community Schools | $10,339 | 116 | 4,717 | 77 | 25 |
| Suttons Bay Public Schools | $10,252 | 120 | 766 | 447 | 21 |
| Brimley Area Schools | $10,244 | 122 | 511 | 541 | 15 |
| Rudyard Area Schools | $10,093 | 140 | 882 | 419 | 19 |
| Baraga Area Schools | $9,831 | 176 | 561 | 525 | 17 |
| Pellston Public Schools | $9,795 | 179 | 681 | 486 | 21 |
| St. Ignace Area Schools | $9,717 | 188 | 634 | 505 | 20 |
| Big Bay De Noc School District | $9,668 | 199 | 248 | 664 | 18 |
| Mt. Pleasant City School District | $9,248 | 286 | 3,736 | 103 | 22 |
| Munising Public Schools | $9,215 | 295 | 685 | 485 | 21 |
| Sault Ste. Marie Area Schools | $9,102 | 326 | 2,461 | 184 | 24 |
| L'Anse Area Schools | $8,824 | 412 | 740 | 451 | 17 |
| Chippewa Hills School District | $8,787 | 426 | 2,264 | 203 | 23 |
| Marquette Area Public Schools | $8,659 | 458 | 3,150 | 133 | 22 |
| Manistique Area Schools | $8,437 | 530 | 1,000 | 390 | 22 |
| Escanaba Area Public Schools | $8,351 | 568 | 2,705 | 168 | 24 |
| STATEWIDE TOTALS | $8,919 | | 1,605,971 | | 23 |
| Number of Records Ranked | | 783 | | 783 | |

Upon review of this financial revenue information, there are only five of the 20 school districts in this study that fall below the state average in per pupil revenues received by local, state, and federal sources. The charter schools had smaller pupil-teacher ratios (range from 7 students per teacher to 15 students per teacher). Three of the charter schools had revenue sources per pupil that ranged from $13,704 per pupil (Ojibwe

Charter School) to $18,566 per pupil (Nah Tah Wahsh Public School Academy). Table 4 ranks the districts by the largest amount of revenue received per pupil. The top five highest revenue districts in this study tend to be the districts that receive a larger amount of funds from federal sources and tend to have lower student enrollment.

Table 5

*Bulletin 1014 Regarding General Fund Expenditures Per Pupil for All Selected Districts Distributed by State Ranking based on All Sources of Revenue with Pupil Count and Pupil Teacher Ratio, 2009 -2010*

| | Total General Fund Expenditures | | Average Teacher Salaries | | Pupil Count | | Pupil Teacher |
|---|---|---|---|---|---|---|---|
| District Name | Per Pupil | Rank | Per Pupil | Rank | Fall Count | Rank | Ratio |
| Carman-Ainsworth Community Schools | $10,816 | 97 | $69,868 | 57 | 4,717 | 77 | 25 |
| Chippewa Hills School District | $9,033 | 341 | $61,070 | 171 | 2,264 | 203 | 23 |
| Escanaba Area Public Schools | $8,397 | 560 | $60,164 | 190 | 2,705 | 168 | 24 |
| Suttons Bay Public Schools | $10,980 | 92 | $59,527 | 205 | 766 | 447 | 21 |
| Marquette Area Public Schools | $8,981 | 360 | $59,104 | 220 | 3,150 | 133 | 22 |
| Nah Tah Wahsh Public School Academy | $18,466 | 19 | $57,920 | 254 | 173 | 705 | 7 |
| Sault Ste. Marie Area Schools | $8,954 | 371 | $56,678 | 291 | 2,461 | 184 | 24 |
| Munising Public Schools | $9,301 | 274 | $53,467 | 387 | 685 | 485 | 21 |
| Watersmeet Township School District | $18,950 | 18 | $52,915 | 404 | 167 | 709 | 10 |
| Pellston Public Schools | $9,523 | 236 | $52,551 | 416 | 681 | 486 | 21 |
| St. Ignace Area Schools | $9,372 | 258 | $52,315 | 431 | 634 | 505 | 20 |
| Baraga Area Schools | $10,066 | 154 | $52,225 | 432 | 561 | 525 | 17 |
| Brimley Area Schools | $11,098 | 84 | $51,568 | 444 | 511 | 541 | 15 |
| Rudyard Area Schools | $9,731 | 200 | $51,389 | 449 | 882 | 419 | 19 |
| Mt. Pleasant City School District | $9,179 | 302 | $50,259 | 469 | 3,736 | 103 | 22 |
| Manistique Area Schools | $8,338 | 580 | $49,095 | 480 | 1,000 | 390 | 22 |
| L'Anse Area Schools | $8,929 | 380 | $45,310 | 517 | 740 | 451 | 17 |
| Joseph P. Lumsden Bahweting | $16,147 | 22 | $42,219 | 543 | 472 | 556 | 13 |
| Big Bay De Noc School District | $9,946 | 169 | $36,984 | 573 | 248 | 664 | 18 |
| Ojibwe Charter School | $12,603 | 46 | * | * | 106 | 737 | 15 |
| STATEWIDE TOTALS | $9,633 | | $63,024 | | 1,605,971 | | 23 |
| Number of Records Ranked | | 783 | | 604 | | 783 | |

Table 5 ranks the selected school districts in this study by the highest to lowest average teacher salaries. Where the largest amount of revenue source comes based on per pupil funding, these same charter schools were at the lowest end of average teacher salary. This may be partially due to low student enrollment. However, the total amount of funds received from local, state, and federal sources still only provides a limited and small pool

of financial resources to cover all the educational and structural needs of the smaller school district. The federal sources are also shown in Table 6 below where several of the school districts receive additional federal dollars to support students who are at-risk and professional development for staff. The table ranks the districts by estimated 2009 Census poverty percentages. As presented later in this section, Nah Tah Wahsh Academy has the highest poverty level amongst their student population and the highest number of students eligible for the free and reduced-price lunch program.

Further in this study, a correlation analysis of student performance rankings by the state of Michigan (Top to Bottom State Rankings) will be presented in relation to students eligible for free and reduced-price lunch and student achievement performance.

Table 6

*Federal Fund Revenue Allocations for All Selected Districts Distributed by Title I – Part A, Title II – Teacher and Principal Training, and Title VI – Part B, Rural and Low-Income School Program, 2011 -2012*

| School District | Estimated 2009 Census Poverty Percentage | Title I - Part A Total Allocation (2011-2012) | Title II - Teacher and Principal Training (2011-2012) | Title VI, Part B Rural & Low Income School Program |
|---|---|---|---|---|
| Nah Tah Wahsh Academy | 33.53% | $88,842 | $5,710 | |
| Ojibwe Charter School | 32.08% | $46,092 | $5,104 | |
| Big Bay De Noc | 28.06% | $89,214 | $21,412 | |
| Watersmeet Township | 25.54% | $46,436 | $9,648 | |
| Carman-Ainsworth Community Schools | 25.50% | $1,415,910 | $250,334 | |
| Rudyard Area | 25.11% | $333,239 | $74,131 | $17,683 |
| J. Lumsden Bahweting Anishnabe | 24.15% | $125,157 | $10,372 | |
| Chippewa Hills | 22.97% | $735,623 | $164,845 | $45,419 |
| Baraga Area | 22.83% | $139,301 | $40,883 | |
| Pellston | 21.03% | $144,559 | $38,577 | $13,671 |
| Escanaba Area | 20.52% | $587,119 | $187,693 | $54,293 |
| Manistique Area | 20.14% | $224,615 | $77,857 | $20,060 |
| L'Anse Area | 18.40% | $134,175 | $34,532 | |
| Mt. Pleasant City | 18.37% | $848,754 | $217,117 | |
| Brimley Area | 17.91% | $100,961 | $32,189 | |
| Sault Ste. Marie | 17.82% | $555,318 | $178,129 | |
| St. Ignace | 17.32% | $103,637 | $35,039 | |
| Munising | 14.18% | $91,316 | $41,579 | |
| Suttons Bay | 11.60% | $89,713 | $43,420 | |
| Marquette Area | 10.12% | $341,776 | $166,810 | |

**Distribution of Staff per Employment Assignment by Subgroup in the Selected School Districts**

Per the Registry of Educational Personnel (REP) summary data provided by the Michigan Department of Education (Michigan Department of Education; Center for Educational Performance and Information, 2008-2010), the following represents the

percentage of the Native American and White personnel in comparison to the total population of personnel in the public schools across the state of Michigan by specific roles:

- 0.24% of Administrators are Native American and 83.34% are White;
- 0.22% of Teachers are Native American and 90.08% are White;
- 0.21% of Paraprofessionals/Aides are Native American and 91.15% are White;
- 0.26% of Non-instructional Staff are Native American and 85.12% are White.

In reviewing this data on staffing distribution by the subgroups of Native American and White, the student distribution in the state by these same subgroups is 0.88% of the total student population in the state is Native American and 70.28% of the total student population is White.

In comparison with the 20 identified school districts in the state of Michigan, the following data represent the personnel percentages in the same categories during the 2010-2011 school year:

- 4.43% of the total Administrators within these districts are Native American and 92.61% of the total Administrators within these districts are White;
- 2.15% of the total Teachers within these districts are Native American and 96.05% of the total Teachers within these districts are White;
- 5.80% of the total Paraprofessionals/Aides within these districts are Native American and 92.56% of the total Paraprofessionals/Aides within these districts are White;

- 3.25% of the total Non-Instructional Staff within these districts are Native American and 91.07% of the total Non-Instructional Staff within these districts are White (Michigan Department of Education/CEPI, 2011).

In reviewing this data on staffing distribution by the Native American subgroup, the statistics are compared to the fact that the Native American student population served by these selected districts in this study represented 31% of the total student population. As indicated by the statistics listed above and in the tables on the next few pages, the percentage of Native American staff employed to serve the Native American students in these select districts does not even come close to the same distribution of the student population.

Table 7

*Employment Distribution by Subgroup of School Administrators in Selected School Districts per the Registry of Educational Personnel, 2008*

| District Name | Year | Am. Indian/ Alaskan Native | White | Total |
|---|---|---|---|---|
| | | Administrators | | |
| Carman-Ainsworth Community Schools | 2008 | | 39 | 43 |
| Mt. Pleasant City School District | 2008 | | 25 | 25 |
| Marquette Area Public Schools | 2008 | 1 | 22 | 23 |
| Sault Ste. Marie Area Schools | 2008 | 2 | 18 | 20 |
| Chippewa Hills School District | 2008 | | 14 | 14 |
| Escanaba Area Public Schools | 2008 | | 13 | 13 |
| Suttons Bay Public Schools | 2008 | | 11 | 11 |
| Joseph K. Lumsden Bahweting Anishnabe Academy | 2008 | 3 | 7 | 10 |
| Manistique Area Schools | 2008 | | 9 | 9 |
| Rudyard Area Schools | 2008 | 1 | 8 | 9 |
| Munising Public Schools | 2008 | | 8 | 8 |
| Baraga Area Schools | 2008 | 1 | 5 | 6 |
| L'Anse Area Schools | 2008 | 1 | 5 | 6 |
| Brimley Area Schools | 2008 | 1 | 5 | 6 |
| Pellston Public Schools | 2008 | | 5 | 5 |
| St. Ignace Area Schools | 2008 | | 4 | 4 |
| Big Bay De Noc School District | 2008 | | 3 | 3 |
| Watersmeet Township School District | 2008 | | 2 | 2 |
| Nah Tah Wahsh Public School Academy | 2008 | | 1 | 1 |
| Ojibwe Charter School | 2008 | | 1 | 1 |
| | | 10 | 205 | 219 |
| | | 4.57% | 93.61% | |

Table 8

*Employment Distribution by Subgroup of School Administrators in Selected School Districts per the Registry of Educational Personnel, 2009*

| District Name | Year | Am. Indian/ Alaskan Native | White | Total |
|---|---|---|---|---|
| | | Administrators | | |
| Carman-Ainsworth Community Schools | 2009 | | 43 | 49 |
| Marquette Area Public Schools | 2009 | 1 | 21 | 22 |
| Mt. Pleasant City School District | 2009 | | 21 | 21 |
| Sault Ste. Marie Area Schools | 2009 | 1 | 19 | 20 |
| Suttons Bay Public Schools | 2009 | 1 | 14 | 15 |
| Chippewa Hills School District | 2009 | | 13 | 13 |
| Escanaba Area Public Schools | 2009 | | 12 | 12 |
| Manistique Area Schools | 2009 | | 9 | 9 |
| Joseph K. Lumsden Bahweting Anishnabe Academy | 2009 | 2 | 7 | 9 |
| Pellston Public Schools | 2009 | | 8 | 8 |
| Rudyard Area Schools | 2009 | 1 | 6 | 7 |
| Munising Public Schools | 2009 | | 7 | 7 |
| Baraga Area Schools | 2009 | 1 | 5 | 6 |
| L'Anse Area Schools | 2009 | 1 | 5 | 6 |
| Brimley Area Schools | 2009 | 1 | 5 | 6 |
| Big Bay De Noc School District | 2009 | | 4 | 4 |
| St. Ignace Area Schools | 2009 | | 4 | 4 |
| Ojibwe Charter School | 2009 | 1 | 1 | 2 |
| Watersmeet Township School District | 2009 | | 2 | 2 |
| Nah Tah Wahsh Public School Academy | 2009 | | | 1 |
| | | 10 | 206 | 223 |
| | | 4.48% | 92.38% | |

Table 9

*Employment Distribution by Subgroup of School Administrators in Selected School Districts per the Registry of Educational Personnel, 2010*

| District Name | Year | Am. Indian/ Alaskan Native | White | Total |
|---|---|---|---|---|
| | | Administrators | | |
| Carman-Ainsworth Community Schools | 2010 | | 31 | 36 |
| Mt. Pleasant City School District | 2010 | | 22 | 22 |
| Marquette Area Public Schools | 2010 | 1 | 21 | 22 |
| Sault Ste. Marie Area Schools | 2010 | 1 | 19 | 20 |
| Escanaba Area Public Schools | 2010 | | 12 | 12 |
| Chippewa Hills School District | 2010 | | 12 | 12 |
| Suttons Bay Public Schools | 2010 | | 11 | 11 |
| Joseph K. Lumsden Bahweting Anishnabe Academy | 2010 | 2 | 8 | 10 |
| Manistique Area Schools | 2010 | | 7 | 7 |
| Brimley Area Schools | 2010 | 1 | 6 | 7 |
| Munising Public Schools | 2010 | | 7 | 7 |
| Pellston Public Schools | 2010 | | 7 | 7 |
| Baraga Area Schools | 2010 | 1 | 5 | 6 |
| Rudyard Area Schools | 2010 | | 5 | 6 |
| L'Anse Area Schools | 2010 | | 4 | 4 |
| Big Bay De Noc School District | 2010 | | 4 | 4 |
| St. Ignace Area Schools | 2010 | | 4 | 4 |
| Ojibwe Charter School | 2010 | 2 | 1 | 3 |
| Watersmeet Township School District | 2010 | | 2 | 2 |
| Nah Tah Wahsh Public School Academy | 2010 | 1 | | 1 |
| | | 9 | 188 | 203 |
| | | 4.43% | 92.61% | |

Table 10

*Employment Distribution by Subgroup of Teachers in Selected School Districts per the Registry of Educational Personnel, 2008*

| District Name | Year | Am. Indian/ Alaskan Native | White | Total |
|---|---|---|---|---|
| | | Teachers | | |
| Carman-Ainsworth Community Schools | 2008 | 1 | 276 | 292 |
| Mt. Pleasant City School District | 2008 | | 250 | 253 |
| Marquette Area Public Schools | 2008 | | 215 | 216 |
| Sault Ste. Marie Area Schools | 2008 | 12 | 149 | 164 |
| Escanaba Area Public Schools | 2008 | 1 | 157 | 158 |
| Chippewa Hills School District | 2008 | | 135 | 135 |
| Rudyard Area Schools | 2008 | 3 | 66 | 69 |
| Suttons Bay Public Schools | 2008 | | 62 | 63 |
| Manistique Area Schools | 2008 | | 60 | 60 |
| L'Anse Area Schools | 2008 | 1 | 54 | 55 |
| Munising Public Schools | 2008 | 1 | 48 | 49 |
| Pellston Public Schools | 2008 | | 47 | 47 |
| Joseph K. Lumsden Bahweting Anishnabe Academy | 2008 | 9 | 35 | 45 |
| St. Ignace Area Schools | 2008 | | 41 | 41 |
| Baraga Area Schools | 2008 | | 40 | 40 |
| Brimley Area Schools | 2008 | 2 | 36 | 38 |
| Nah Tah Wahsh Public School Academy | 2008 | | 28 | 28 |
| Watersmeet Township School District | 2008 | 1 | 19 | 21 |
| Big Bay De Noc School District | 2008 | | 18 | 18 |
| Ojibwe Charter School | 2008 | 5 | 13 | 18 |
| | | 36 | 1749 | 1810 |
| | | 1.99% | 96.63% | |

Table 11

*Employment Distribution by Subgroup of Teachers in Selected School Districts per the Registry of Educational Personnel, 2009*

| District Name | Year | Am. Indian/ Alaskan Native | White | Total |
|---|---|---|---|---|
| | | Teachers | | |
| Carman-Ainsworth Community Schools | 2009 | 1 | 258 | 272 |
| Mt. Pleasant City School District | 2009 | | 240 | 242 |
| Marquette Area Public Schools | 2009 | | 214 | 215 |
| Sault Ste. Marie Area Schools | 2009 | 12 | 140 | 154 |
| Escanaba Area Public Schools | 2009 | 1 | 150 | 151 |
| Chippewa Hills School District | 2009 | | 131 | 131 |
| Manistique Area Schools | 2009 | | 60 | 60 |
| Rudyard Area Schools | 2009 | 1 | 56 | 57 |
| L'Anse Area Schools | 2009 | 1 | 55 | 56 |
| Suttons Bay Public Schools | 2009 | | 53 | 53 |
| Munising Public Schools | 2009 | 1 | 48 | 49 |
| Joseph K. Lumsden Bahweting Anishnabe Academy | 2009 | 9 | 33 | 43 |
| Pellston Public Schools | 2009 | | 42 | 42 |
| Baraga Area Schools | 2009 | | 41 | 41 |
| St. Ignace Area Schools | 2009 | | 39 | 39 |
| Brimley Area Schools | 2009 | 2 | 36 | 38 |
| Nah Tah Wahsh Public School Academy | 2009 | | 28 | 28 |
| Watersmeet Township School District | 2009 | 1 | 19 | 21 |
| Big Bay De Noc School District | 2009 | | 19 | 19 |
| Ojibwe Charter School | 2009 | 4 | 9 | 13 |
| | | 33 | 1671 | 1724 |
| | | 1.97% | 96.93% | |

Table 12

*Employment Distribution by Subgroup of Teachers in Selected School Districts per the Registry of Educational Personnel, 2010*

| District Name | Year | Am. Indian/ Alaskan Native | White | Total |
|---|---|---|---|---|
| | | Teachers | | |
| Carman-Ainsworth Community Schools | 2010 | 1 | 281 | 295 |
| Mt. Pleasant City School District | 2010 | | 246 | 247 |
| Marquette Area Public Schools | 2010 | 1 | 195 | 207 |
| Sault Ste. Marie Area Schools | 2010 | 11 | 136 | 148 |
| Escanaba Area Public Schools | 2010 | 1 | 144 | 145 |
| Chippewa Hills School District | 2010 | | 128 | 128 |
| L'Anse Area Schools | 2010 | 1 | 60 | 61 |
| Manistique Area Schools | 2010 | | 53 | 53 |
| Rudyard Area Schools | 2010 | 1 | 51 | 52 |
| Suttons Bay Public Schools | 2010 | 2 | 45 | 48 |
| Joseph K. Lumsden Bahweting Anishnabe Academy | 2010 | 9 | 35 | 46 |
| Munising Public Schools | 2010 | 1 | 42 | 44 |
| Baraga Area Schools | 2010 | | 42 | 42 |
| Pellston Public Schools | 2010 | | 41 | 41 |
| St. Ignace Area Schools | 2010 | | 37 | 37 |
| Brimley Area Schools | 2010 | 2 | 34 | 36 |
| Nah Tah Wahsh Public School Academy | 2010 | | 34 | 34 |
| Big Bay De Noc School District | 2010 | | 22 | 22 |
| Watersmeet Township School District | 2010 | 1 | 20 | 22 |
| Ojibwe Charter School | 2010 | 6 | 8 | 14 |
| | | 37 | 1654 | 1722 |
| | | 2.15% | 96.05% | |

Table 13

*Employment Distribution by Subgroup of Paraprofessionals/Instructional Support in Selected School Districts per the Registry of Educational Personnel, 2008*

| District Name | Year | Am. Indian/ Alaskan Native | White | Total |
|---|---|---|---|---|
| | | Paraprofessionals/ Aides | | |
| Mt. Pleasant City School District | 2008 | | 97 | 99 |
| Marquette Area Public Schools | 2008 | 3 | 69 | 72 |
| Carman-Ainsworth Community Schools | 2008 | | 60 | 63 |
| Escanaba Area Public Schools | 2008 | | 53 | 53 |
| Sault Ste. Marie Area Schools | 2008 | 2 | 39 | 41 |
| Chippewa Hills School District | 2008 | | 39 | 40 |
| Joseph K. Lumsden Bahweting Anishnabe Academy | 2008 | 6 | 19 | 27 |
| Manistique Area Schools | 2008 | 1 | 24 | 25 |
| Rudyard Area Schools | 2008 | | 22 | 23 |
| Suttons Bay Public Schools | 2008 | 1 | 14 | 15 |
| Munising Public Schools | 2008 | | 14 | 14 |
| St. Ignace Area Schools | 2008 | 6 | 7 | 13 |
| Brimley Area Schools | 2008 | 5 | 6 | 11 |
| Pellston Public Schools | 2008 | | 10 | 10 |
| Baraga Area Schools | 2008 | | 9 | 9 |
| L'Anse Area Schools | 2008 | 1 | 8 | 9 |
| Big Bay De Noc School District | 2008 | | 7 | 7 |
| Ojibwe Charter School | 2008 | 1 | 1 | 2 |
| Watersmeet Township School District | 2008 | | 2 | 2 |
| Nah Tah Wahsh Public School Academy | 2008 | | | |
| | | 26 | 500 | 535 |
| | | 4.86% | 93.46% | |

Table 14

*Employment Distribution by Subgroup of Paraprofessionals/Instructional Support in Selected School Districts per the Registry of Educational Personnel, 2009*

| District Name | Year | Am. Indian/ Alaskan Native | White | Total |
|---|---|---|---|---|
| | | Paraprofessionals/ Aides | | |
| Mt. Pleasant City School District | 2009 | | 74 | 76 |
| Marquette Area Public Schools | 2009 | 3 | 64 | 68 |
| Carman-Ainsworth Community Schools | 2009 | | 61 | 64 |
| Escanaba Area Public Schools | 2009 | | 53 | 53 |
| Sault Ste. Marie Area Schools | 2009 | 1 | 40 | 42 |
| Chippewa Hills School District | 2009 | | 36 | 37 |
| Joseph K. Lumsden Bahweting Anishnabe Academy | 2009 | 6 | 20 | 28 |
| Manistique Area Schools | 2009 | 1 | 20 | 21 |
| Munising Public Schools | 2009 | | 17 | 17 |
| Rudyard Area Schools | 2009 | | 16 | 16 |
| St. Ignace Area Schools | 2009 | 6 | 7 | 13 |
| Brimley Area Schools | 2009 | 5 | 7 | 12 |
| Suttons Bay Public Schools | 2009 | | 11 | 11 |
| L'Anse Area Schools | 2009 | 1 | 8 | 9 |
| Pellston Public Schools | 2009 | | 9 | 9 |
| Baraga Area Schools | 2009 | | 7 | 7 |
| Big Bay De Noc School District | 2009 | | 4 | 4 |
| Watersmeet Township School District | 2009 | | 4 | 4 |
| Ojibwe Charter School | 2009 | 2 | 1 | 3 |
| Nah Tah Wahsh Public School Academy | 2009 | | | |
| | | 25 | 459 | 494 |
| | | 5.06% | 92.91% | |

Table 15

*Employment Distribution by Subgroup of Paraprofessionals/Instructional Support in Selected School Districts per the Registry of Educational Personnel, 2010*

| District Name | Year | Am. Indian/ Alaskan Native<br>Paraprofessionals/ Aides | White | Total |
|---|---|---|---|---|
| Marquette Area Public Schools | 2010 | 4 | 62 | 68 |
| Mt. Pleasant City School District | 2010 | | 66 | 67 |
| Carman-Ainsworth Community Schools | 2010 | | 58 | 62 |
| Escanaba Area Public Schools | 2010 | | 55 | 55 |
| Sault Ste. Marie Area Schools | 2010 | 1 | 37 | 39 |
| Chippewa Hills School District | 2010 | | 32 | 33 |
| Joseph K. Lumsden Bahweting Anishnabe Academy | 2010 | 6 | 18 | 25 |
| Manistique Area Schools | 2010 | 1 | 21 | 22 |
| Munising Public Schools | 2010 | | 21 | 21 |
| Rudyard Area Schools | 2010 | | 15 | 15 |
| St. Ignace Area Schools | 2010 | 6 | 7 | 13 |
| L'Anse Area Schools | 2010 | 1 | 10 | 11 |
| Suttons Bay Public Schools | 2010 | | 10 | 10 |
| Brimley Area Schools | 2010 | 4 | 5 | 9 |
| Pellston Public Schools | 2010 | | 9 | 9 |
| Baraga Area Schools | 2010 | | 8 | 8 |
| Big Bay De Noc School District | 2010 | | 6 | 6 |
| Watersmeet Township School District | 2010 | | 6 | 6 |
| Ojibwe Charter School | 2010 | 3 | 2 | 5 |
| Nah Tah Wahsh Public School Academy | 2010 | | | |
| | | 26 | 448 | 484 |
| | | 5.80% | 92.56% | |

Table 16

*Employment Distribution by Subgroup of Non-Instructional Support in Selected School Districts per the Registry of Educational Personnel, 2008*

| District Name | Year | Am. Indian/ Alaskan Native | White | Total |
|---|---|---|---|---|
| | | Non-Instructional | | |
| Carman-Ainsworth Community Schools | 2008 | 2 | 365 | 417 |
| Sault Ste. Marie Area Schools | 2008 | 24 | 218 | 249 |
| Marquette Area Public Schools | 2008 | 3 | 232 | 235 |
| Mt. Pleasant City School District | 2008 | | 179 | 185 |
| Escanaba Area Public Schools | 2008 | 1 | 166 | 167 |
| Chippewa Hills School District | 2008 | | 121 | 125 |
| Suttons Bay Public Schools | 2008 | | 64 | 72 |
| Manistique Area Schools | 2008 | | 58 | 58 |
| L'Anse Area Schools | 2008 | 1 | 54 | 55 |
| Rudyard Area Schools | 2008 | 1 | 53 | 54 |
| Joseph K. Lumsden Bahweting Anishnabe Academy | 2008 | 18 | 34 | 52 |
| Munising Public Schools | 2008 | 1 | 49 | 51 |
| Pellston Public Schools | 2008 | | 48 | 48 |
| Brimley Area Schools | 2008 | 9 | 28 | 38 |
| Big Bay De Noc School District | 2008 | 1 | 32 | 33 |
| St. Ignace Area Schools | 2008 | 9 | 17 | 26 |
| Baraga Area Schools | 2008 | 1 | 21 | 23 |
| Ojibwe Charter School | 2008 | 4 | 5 | 9 |
| Watersmeet Township School District | 2008 | | 9 | 9 |
| Nah Tah Wahsh Public School Academy | 2008 | | * | * |
| | | 75 | 1753 | 1906 |
| | | 3.93% | 91.97% | |

Table 17

*Employment Distribution by Subgroup of Non-Instructional Support in Selected School Districts per the Registry of Educational Personnel, 2009*

| District Name | Year | Am. Indian/ Alaskan Native | White | Total |
|---|---|---|---|---|
| | | Non-Instructional | | |
| Nah Tah Wahsh Public School Academy | 2009 | | * | * |
| Carman-Ainsworth Community Schools | 2009 | 2 | 375 | 437 |
| Marquette Area Public Schools | 2009 | 1 | 222 | 224 |
| Sault Ste. Marie Area Schools | 2009 | 15 | 180 | 201 |
| Escanaba Area Public Schools | 2009 | 1 | 154 | 155 |
| Mt. Pleasant City School District | 2009 | | 123 | 127 |
| Chippewa Hills School District | 2009 | 2 | 107 | 110 |
| Suttons Bay Public Schools | 2009 | | 62 | 71 |
| L'Anse Area Schools | 2009 | 1 | 59 | 60 |
| Pellston Public Schools | 2009 | | 56 | 56 |
| Manistique Area Schools | 2009 | | 53 | 53 |
| Joseph K. Lumsden Bahweting Anishnabe Academy | 2009 | 16 | 35 | 51 |
| Munising Public Schools | 2009 | 1 | 47 | 50 |
| Rudyard Area Schools | 2009 | 1 | 45 | 46 |
| St. Ignace Area Schools | 2009 | 8 | 26 | 35 |
| Big Bay De Noc School District | 2009 | 1 | 31 | 32 |
| Brimley Area Schools | 2009 | 8 | 23 | 32 |
| Baraga Area Schools | 2009 | 1 | 26 | 28 |
| Watersmeet Township School District | 2009 | 1 | 11 | 13 |
| Ojibwe Charter School | 2009 | 4 | 4 | 8 |
| | | 63 | 1639 | 1789 |
| | | 3.52% | 91.62% | |

Table 18

*Employment Distribution by Subgroup of Non-Instructional Support in Selected School Districts per the Registry of Educational Personnel, 2010*

| District Name | Year | Am. Indian/ Alaskan Native | White | Total |
|---|---|---|---|---|
| | | Non-Instructional | | |
| Nah Tah Wahsh Public School Academy | 2010 | | * | * |
| Carman-Ainsworth Community Schools | 2010 | 2 | 429 | 500 |
| Marquette Area Public Schools | 2010 | 3 | 223 | 231 |
| Sault Ste. Marie Area Schools | 2010 | 18 | 153 | 179 |
| Escanaba Area Public Schools | 2010 | 1 | 154 | 155 |
| Mt. Pleasant City School District | 2010 | | 140 | 141 |
| Chippewa Hills School District | 2010 | | 108 | 111 |
| Suttons Bay Public Schools | 2010 | | 62 | 73 |
| Manistique Area Schools | 2010 | | 57 | 57 |
| Joseph K. Lumsden Bahweting Anishnabe Academy | 2010 | 15 | 38 | 55 |
| L'Anse Area Schools | 2010 | 1 | 51 | 52 |
| Rudyard Area Schools | 2010 | 1 | 51 | 52 |
| Pellston Public Schools | 2010 | 1 | 51 | 52 |
| Munising Public Schools | 2010 | | 47 | 49 |
| Big Bay De Noc School District | 2010 | | 38 | 38 |
| St. Ignace Area Schools | 2010 | 8 | 22 | 31 |
| Baraga Area Schools | 2010 | 1 | 27 | 29 |
| Brimley Area Schools | 2010 | 6 | 18 | 25 |
| Watersmeet Township School District | 2010 | 1 | 11 | 13 |
| Ojibwe Charter School | 2010 | 2 | 3 | 5 |
| | | 60 | 1683 | 1848 |
| | | 3.25% | 91.07% | |

In the 20 selected school districts in this study, there is a total enrollment of 26,659 students. The total enrollment of the Native American students in these 20 selected school districts is 4,388. The Native American student population represents 16.46% of the total student population. However, the administrative staff does not exceed 5% of the

total administrative population and the teaching staff does not exceed more than 2.5% of the total teaching staff population in these districts.

The following pages summarize student achievement performance data on the Michigan Educational Assessment Program (MEAP) for both American Indian/Alaskan Native (AI/AN) students and White students in 3rd grade through 8th grade. The charts and data also reflect 11th grade performance on the Michigan Merit Exam (MME). As part of this study, the three core curriculum areas of reading, mathematics, and science were the key areas of focus when analyzing student performance on these achievement tests by the two subgroup populations. The data was disaggregated by school district, grade level, core subject area, level of proficiency, and subgroup population. In order to establish a subject pool that would provide a significant amount of information to statistically provide relevance to this information, the student subgroup academic performance on these achievement tests were analyzed using all information from the 20 selected districts collectively as one group. For example, achievement performance data from all 3rd graders from the selected districts in this study were used to demonstrate any presence of a significant difference in performance between the American Indian/Alaskan Native subgroup and their White peer group.

There are three data sets presented that summarize the performance of the students by subgroup cohort for the 2008-2009, 2009-2010, and 2010-2011 school years. After each core subject data set, a brief summary of key points or relevant factors will be presented. The data analysis also included a comparison of the performance on the identified achievement measures of Native American students who attended a traditional

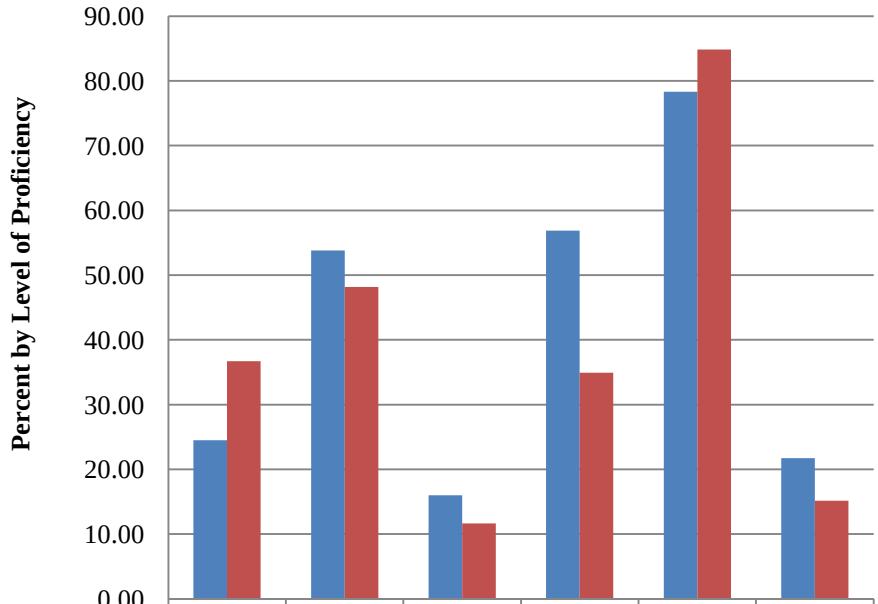
public school versus the Native American students who attended a charter school over this same period of three years.

With a small subject pool in some of the selected districts at specific grade levels, the data at each grade level represents the performance of all students across the 20 selected school districts. The figures presented in the following pages are intended to demonstrate the degree of significant differences in the core subject performance on the state assessments between the Native American students and the White students. Upon review of each figure and table, the visual charts indicate the amount of difference that existed and the statistical analysis indicates the degree that the difference is statistically significant at that performance level of student achievement on these state assessment measures. The first set of figures and charts represent the core area of reading in the school years of 2008-2009, 2009-2010, and 2010-2011. At the end of the many different figures shown on the next several pages, the general trend data reflects the presence or absence of a significant achievement gap between the achievement performance of the Native American students and White students by grade and by year. This process of presentation of the data was also used for the core subject areas of math and science over the same three year time period.

At the end of each core subject area, key points are provided that summarizes any specific trends or significance found in the analysis of the data. The figures provide a visual representation of the trend line in student performance across the different grade levels over this three year period. The shaded areas in the table below each graph represent that there existed a statistical significance in the student achievement performance of the Native American students and the White students in that core subject

area, in that specific level of performance on the assessment measure, and in that specified grade.

**Student Assessment Data Analysis of 3rd Grade through 8th Grade Michigan Educational Assessment Program (MEAP) Reading Scores and 11th Grade Michigan Merit Exam (MME) Reading Scores for Native American Students and White Students in the Selected School Districts**



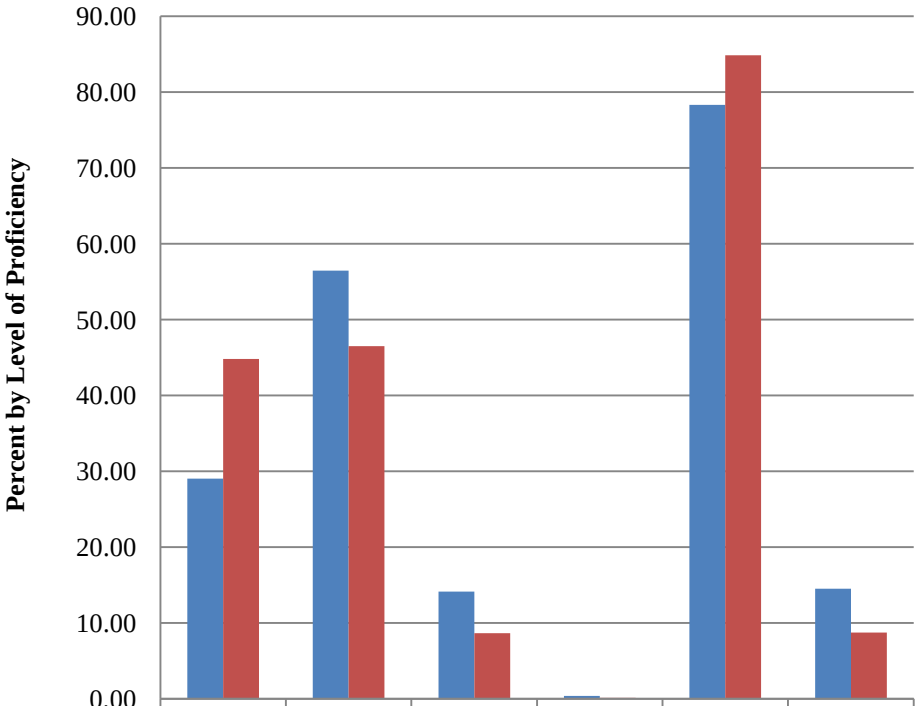

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Reading Am Ind/AK Native | 24.50 | 53.80 | 16.01 | 56.86 | 78.30 | 21.70 |
| Reading White | 36.71 | 48.15 | 11.65 | 34.90 | 84.86 | 15.14 |

| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 17.37 | 21.33 | 16.90 | 9.51 | 19.27 | 19.27 |
| Standard Deviation | White | 15.13 | 14.93 | 14.66 | 4.61 | 15.03 | 15.03 |
| T-TEST | | 0.0000 | 0.0041 | 0.0087 | 0.0056 | 0.0006 | 0.0006 |

**N= 1,913 AI/AN and 7,549 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 1.* 3rd Grade through 8th grade 2008 MEAP Reading Scores for All Selected Districts

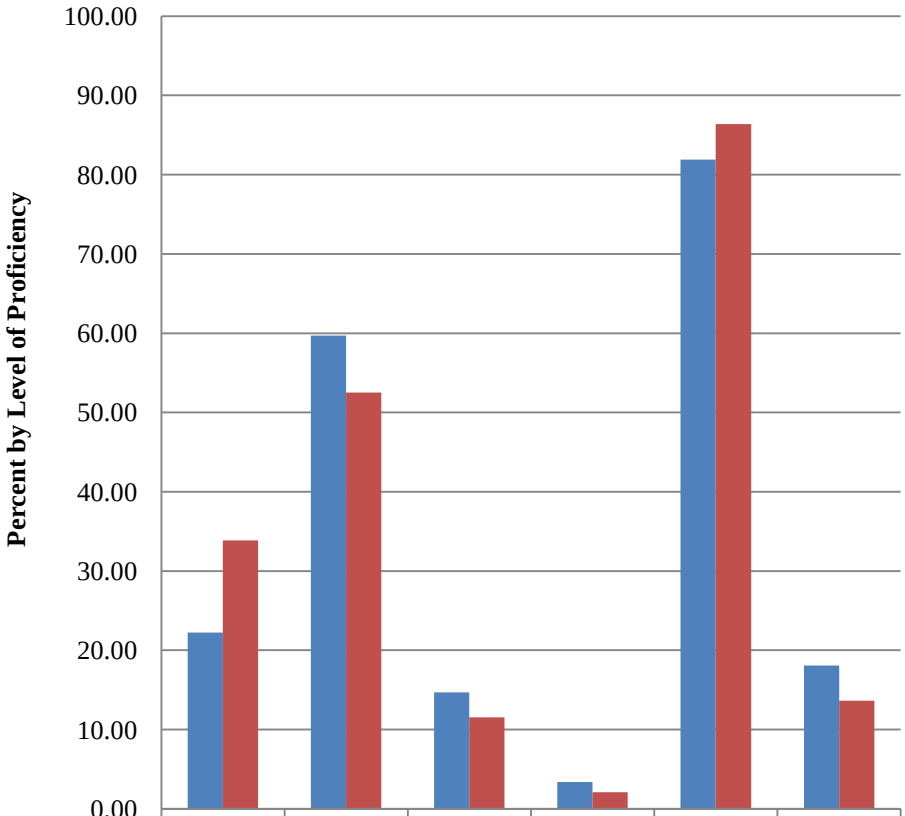



| | | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 23.30 | 25.47 | 19.42 | 2.21 | 19.51 | 19.51 |
| Standard Deviation | White | 12.80 | 11.23 | 5.10 | 0.47 | 5.01 | 5.01 |
| T-TEST | | 0.0008 | 0.0244 | 0.0653 | 0.2503 | 0.0571 | 0.0571 |

**N= 251 AI/AN and 1,128 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 2.* 3rd Grade 2008 MEAP Reading Scores for All Selected Districts

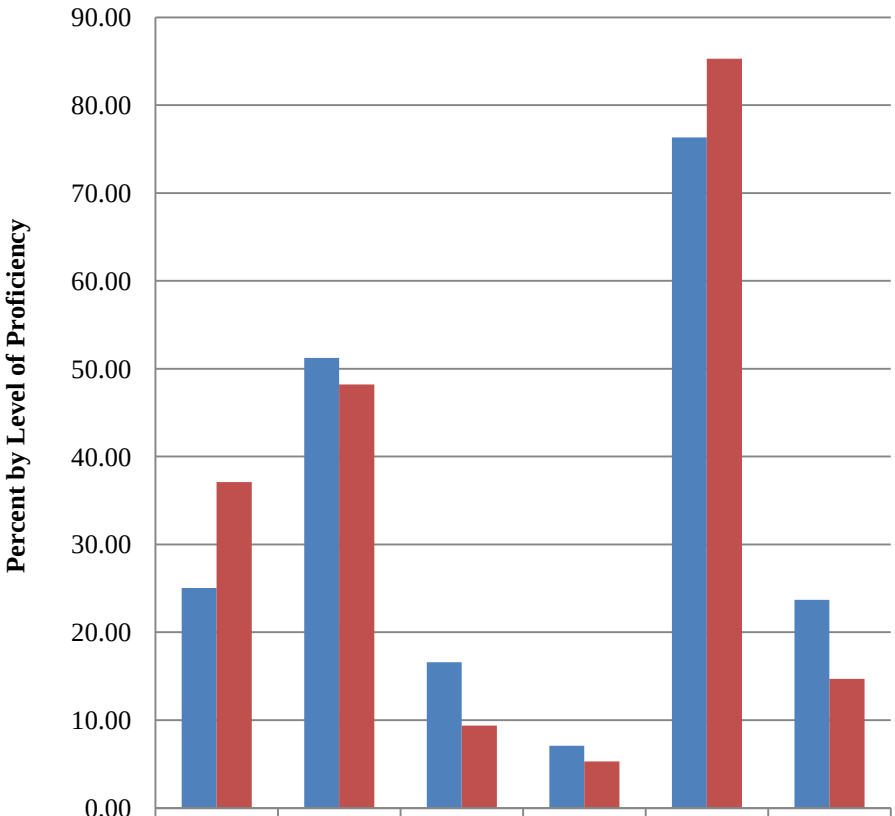



| | | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 32.63 | 23.27 | 16.18 | 10.04 | 18.73 | 18.73 |
| Standard Deviation | White | 24.31 | 8.00 | 9.92 | 2.93 | 10.73 | 10.73 |
| T-TEST | | 0.0164 | 0.0598 | 0.1828 | 0.2551 | 0.1330 | 0.1330 |

**N= 327 AI/AN and 1,181 White**

**Shaded Cell Indicates Statistical Significance at p ≤ .05**

*Figure 3.* 4th Grade 2008 MEAP Reading Scores for All Selected Districts



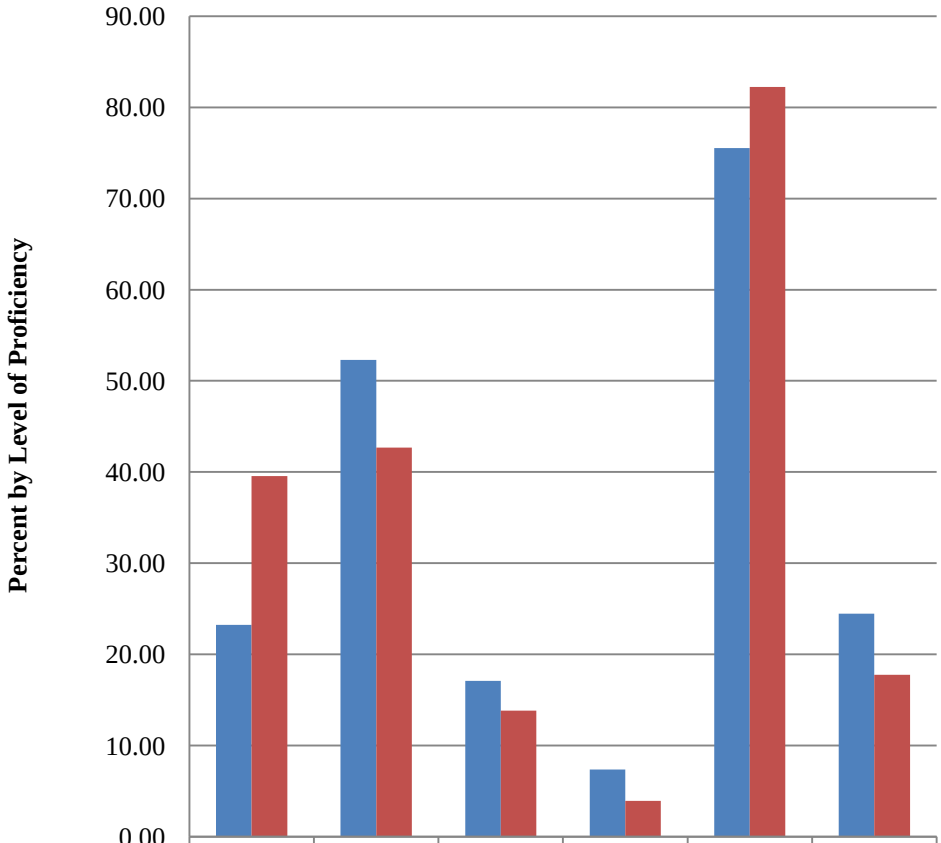

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Reading Am Ind/AK Native | 25.05 | 51.25 | 16.59 | 7.09 | 76.31 | 23.69 |
| Reading White | 37.10 | 48.19 | 9.39 | 5.31 | 85.30 | 14.70 |

| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 16.80 | 23.02 | 22.72 | 12.53 | 24.57 | 24.57 |
| Standard Deviation | White | 14.49 | 14.03 | 8.32 | 5.79 | 9.28 | 9.28 |
| T-TEST | | 0.0027 | 0.2733 | 0.0591 | 0.2465 | 0.0372 | 0.0372 |

**N= 307 AI/AN and 1,173 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 4.* 5th Grade 2008 MEAP Reading Scores for All Selected Districts



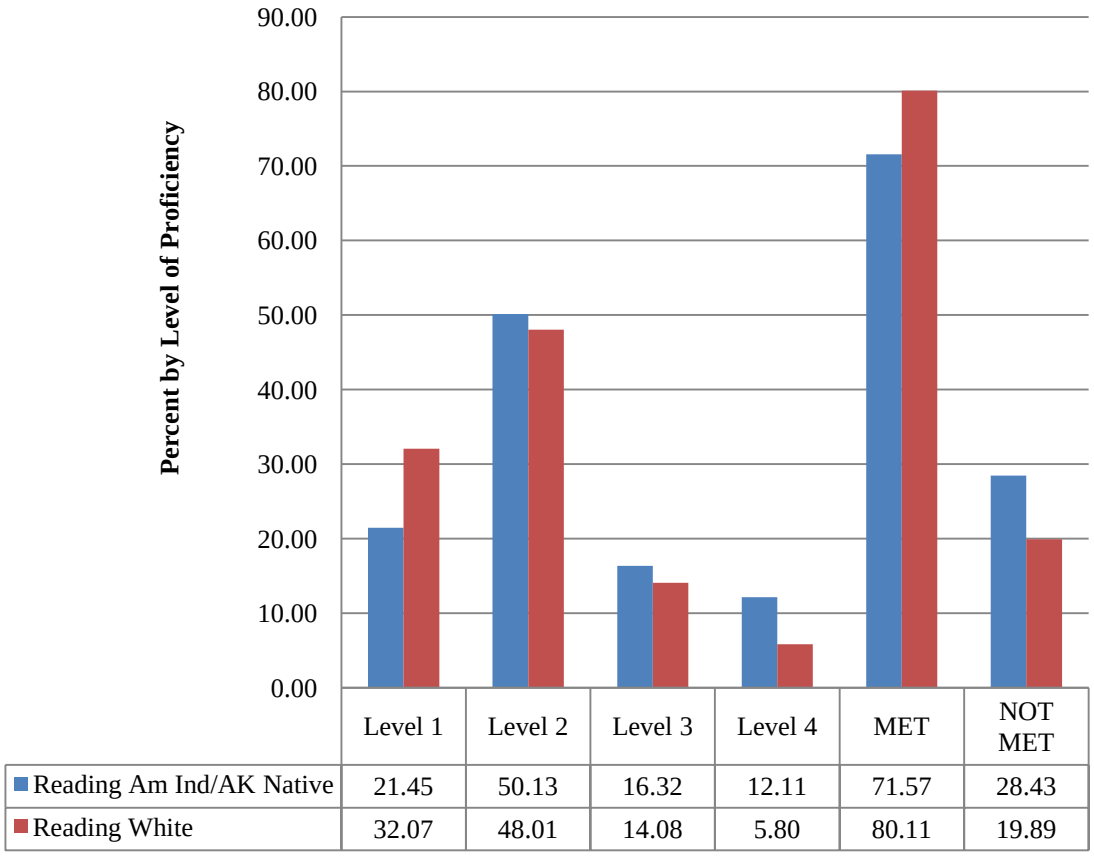

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Reading Am Ind/AK Native | 23.23 | 52.29 | 17.09 | 7.40 | 75.52 | 24.48 |
| Reading White | 39.55 | 42.69 | 13.83 | 3.93 | 82.24 | 17.76 |

| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 15.18 | 20.17 | 10.29 | 9.87 | 16.16 | 16.16 |
| Standard Deviation | White | 15.24 | 14.87 | 21.28 | 4.39 | 20.79 | 20.79 |
| T-TEST | | 0.0007 | 0.0450 | 0.2703 | 0.0768 | 0.1285 | 0.1285 |

**N= 323 AI/AN and 1,325 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 5.* 6th Grade 2008 MEAP Reading Scores for All Selected Districts

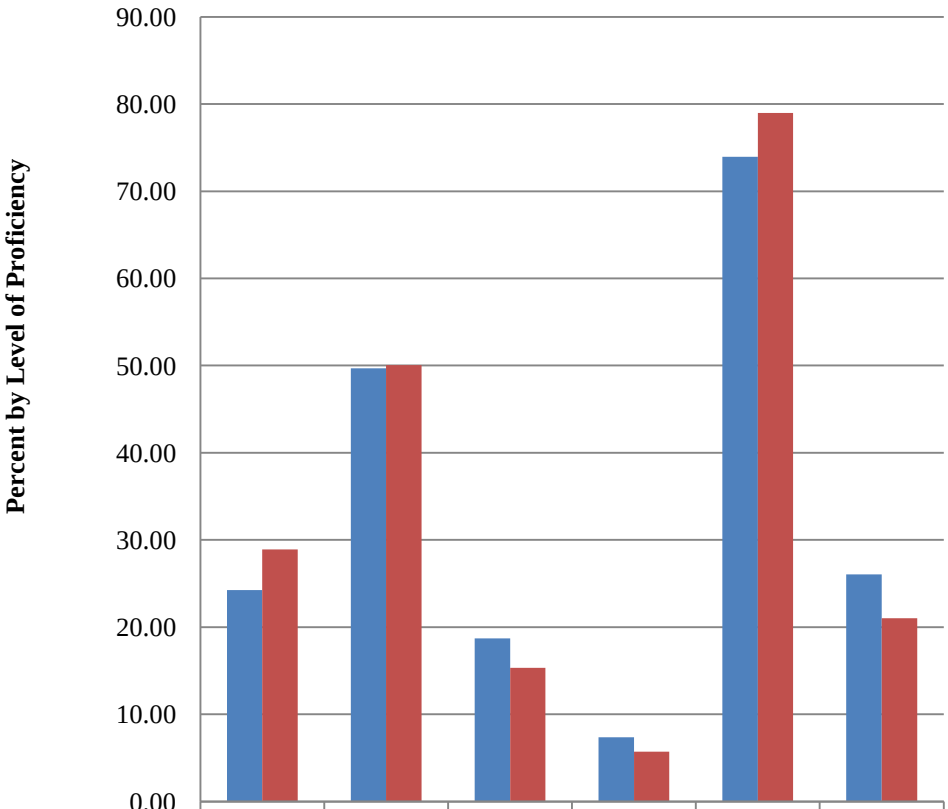



| | | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 14.31 | 13.90 | 13.77 | 8.12 | 12.37 | 12.37 |
| Standard Deviation | White | 15.72 | 19.79 | 21.81 | 5.08 | 21.39 | 21.39 |
| T-TEST | | 0.0169 | 0.3516 | 0.3531 | 0.0031 | 0.0703 | 0.0703 |

**N= 345 AI/AN and 1,369 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

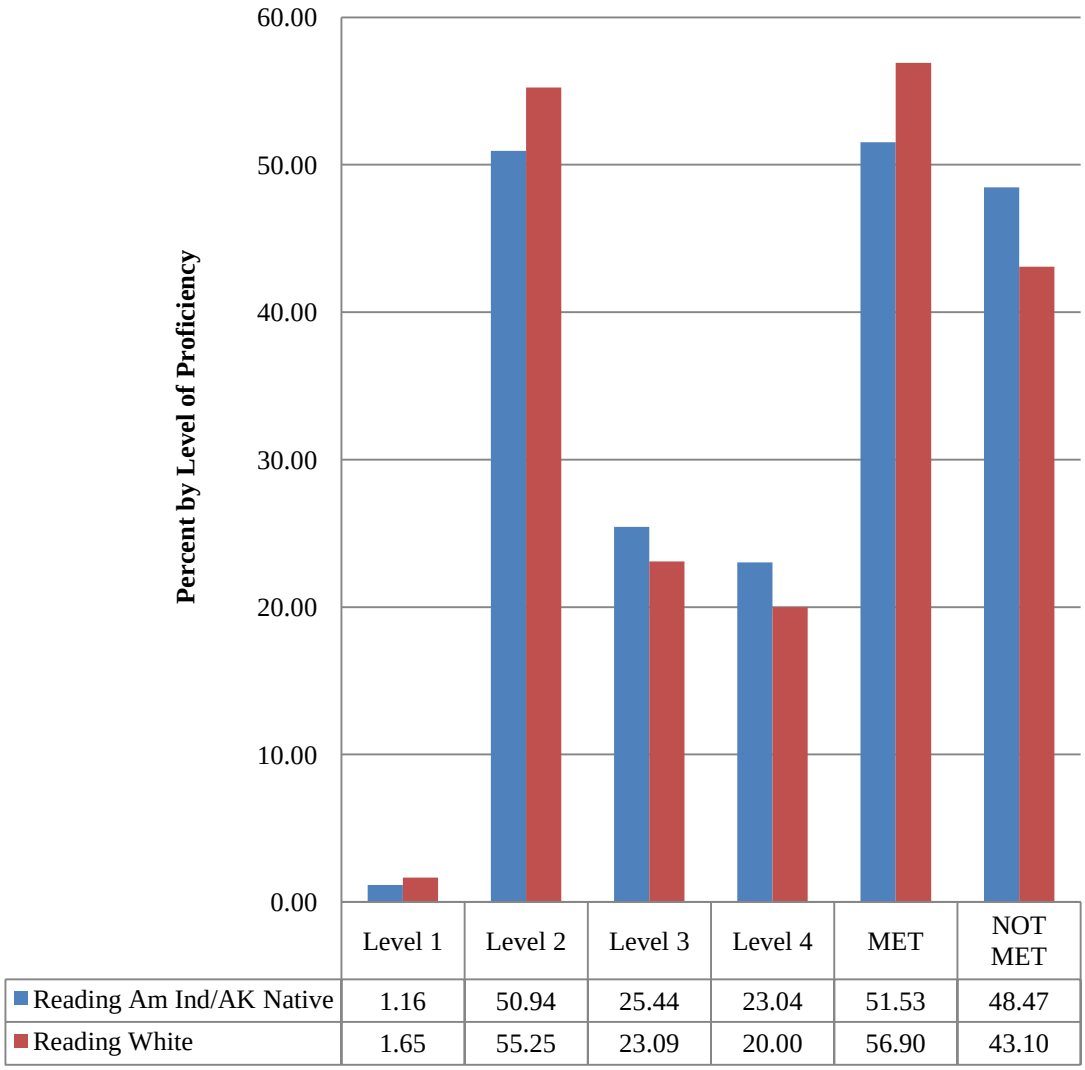
*Figure 6.* 7th Grade 2008 MEAP Reading Scores for All Selected Districts




| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 15.18 | 14.77 | 13.26 | 7.00 | 16.98 | 16.98 |
| Standard Deviation | White | 16.74 | 22.00 | 20.65 | 4.73 | 20.27 | 20.27 |
| T-TEST | | 0.1811 | 0.4750 | 0.2711 | 0.1937 | 0.1998 | 0.1998 |

**N= 360 AI/AN and 1,373 White**

*Figure 7.* 8th Grade 2008 MEAP Reading Scores for All Selected Districts



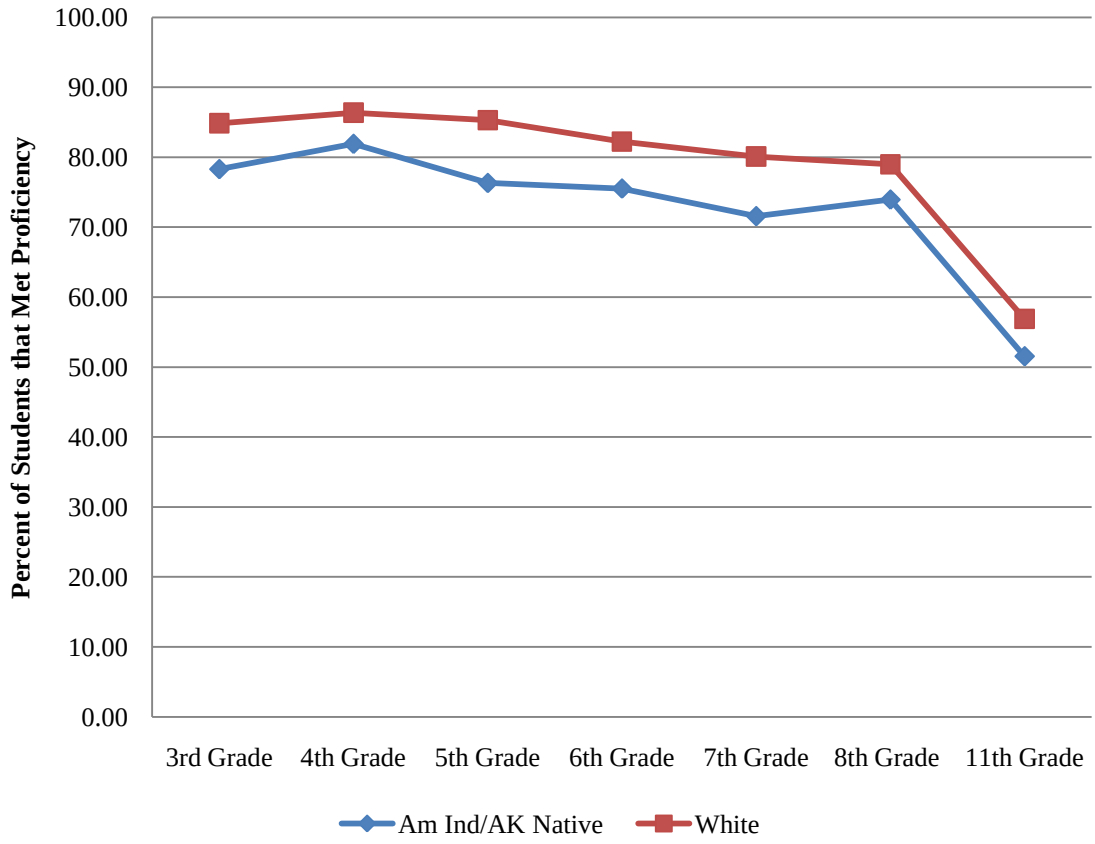

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Reading Am Ind/AK Native | 1.16 | 50.94 | 25.44 | 23.04 | 51.53 | 48.47 |
| Reading White | 1.65 | 55.25 | 23.09 | 20.00 | 56.90 | 43.10 |

| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 1.87 | 21.55 | 13.83 | 16.21 | 21.28 | 21.28 |
| Standard Deviation | White | 2.15 | 23.38 | 11.05 | 23.89 | 24.04 | 24.04 |
| T-TEST | | 0.0429 | 0.2643 | 0.2689 | 0.3124 | 0.2183 | 0.2183 |

**N= 318 AI/AN and 1,513 White**

**Shaded Cell Indicates Statistical Significance at p ≤ .05**

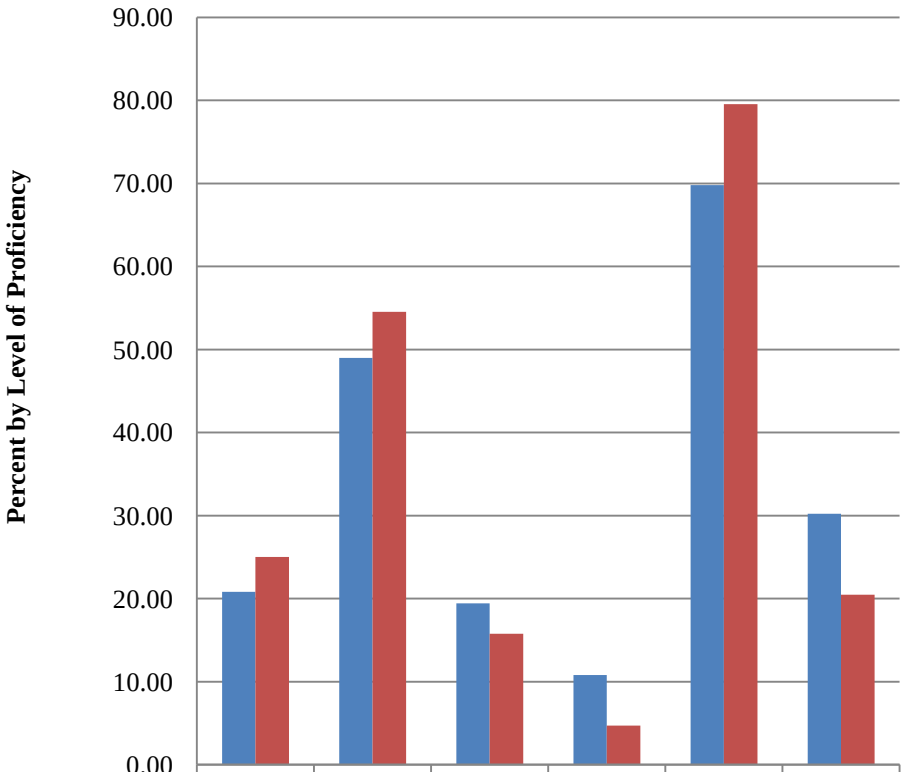
*Figure 8.* 11th Grade 2008-2009 MME Reading Scores for All Selected Districts




**N= 2,231 AI/AN and 9,062 White**

*Figure 9.* Percent of Students that Met Proficiency on 2008 MEAP Reading and 2008-2009 MME Reading by Grade and Subgroup for All Selected Districts

Statistical Significance demonstrated in $5^{th}$ grade only with $p \leq .05$**.**



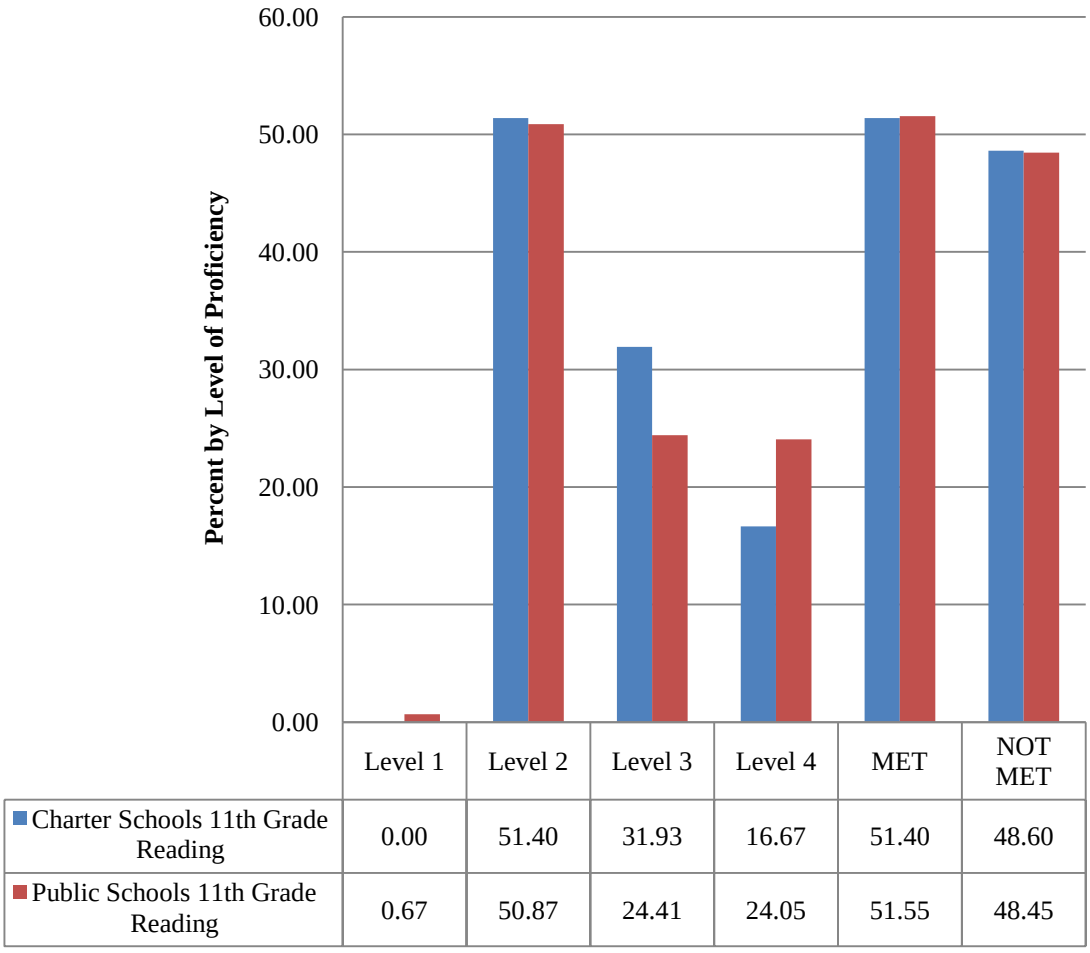

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Charter Schools 3rd - 8th Grade Reading | 20.81 | 48.97 | 19.44 | 10.78 | 69.78 | 30.23 |
| Public Schools 3rd - 8th Grade Reading | 25.00 | 54.54 | 15.77 | 4.69 | 79.54 | 20.46 |

| | | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|---|
| Charter Schools | Stand. Dev. | Am Ind/AK Native | 20.24 | 23.35 | 15.90 | 14.90 | 23.45 | 23.45 |
| Public Schools | Stand. Dev. | White | 16.86 | 20.91 | 17.59 | 7.83 | 18.44 | 18.44 |
| | T-TEST | | 0.1741 | 0.1422 | 0.1572 | 0.0311 | 0.0317 | 0.0317 |

**N= 282AI/AN in Charter Schools and 1,634 AI/AN in Public Schools**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

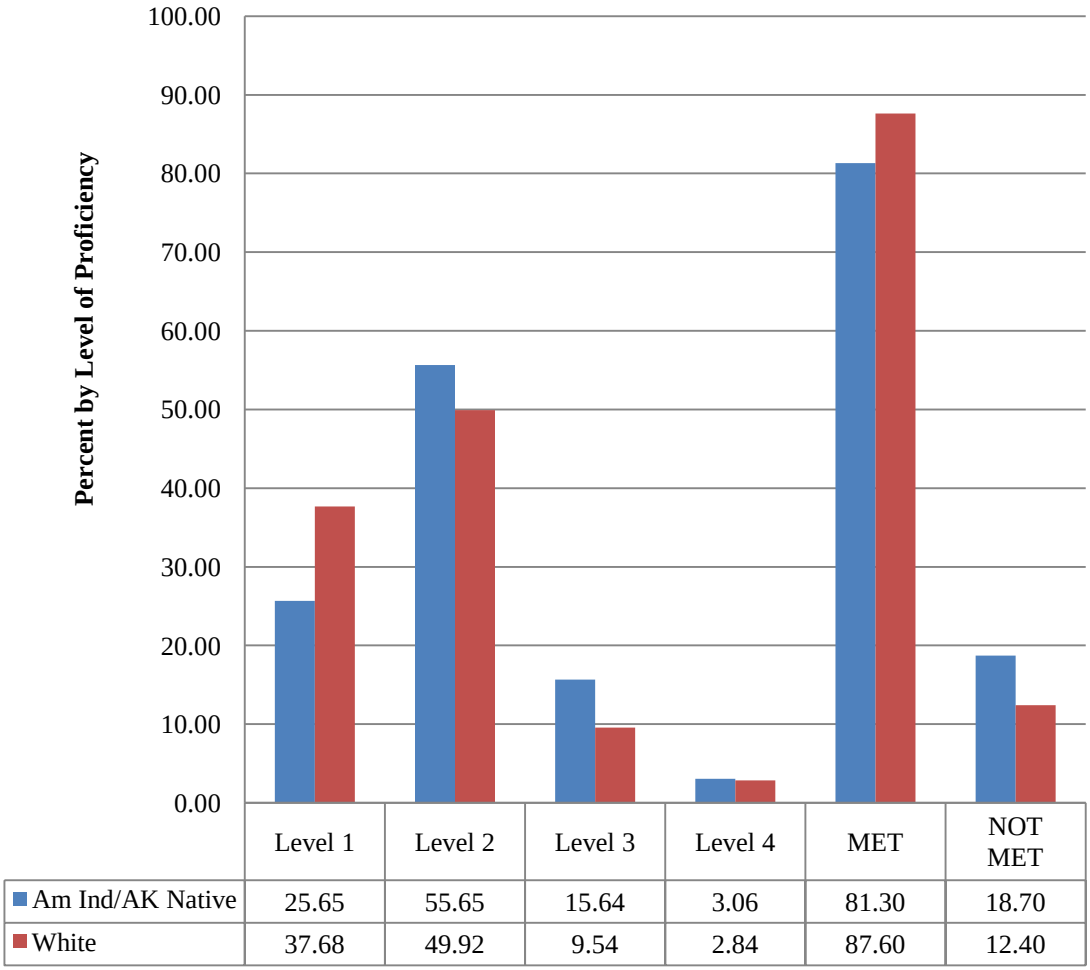
*Figure 10.* 3rd Grade through 8th grade 2008 MEAP Reading Scores for American Indian/Alaskan Native in Charter Schools versus Public Schools




| | | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|---|
| Charter Schools | Stand. Dev. | Am Ind/AK Native | 0.00 | 14.65 | 6.36 | 14.43 | 14.65 | 14.65 |
| Public Schools | Stand. Dev. | White | 2.00 | 22.76 | 14.51 | 16.60 | 22.46 | 22.46 |
| | T-TEST | | 0.0799 | 0.4800 | 0.0893 | 0.2406 | 0.4944 | 0.4944 |

**N= 18 AI/AN in Charter Schools and 300 AI/AN in Public Schools**

*Figure 11.* 11th Grade 2008-2009 MME Reading Scores for American Indian/Alaskan Native in Charter Schools versus Public Schools

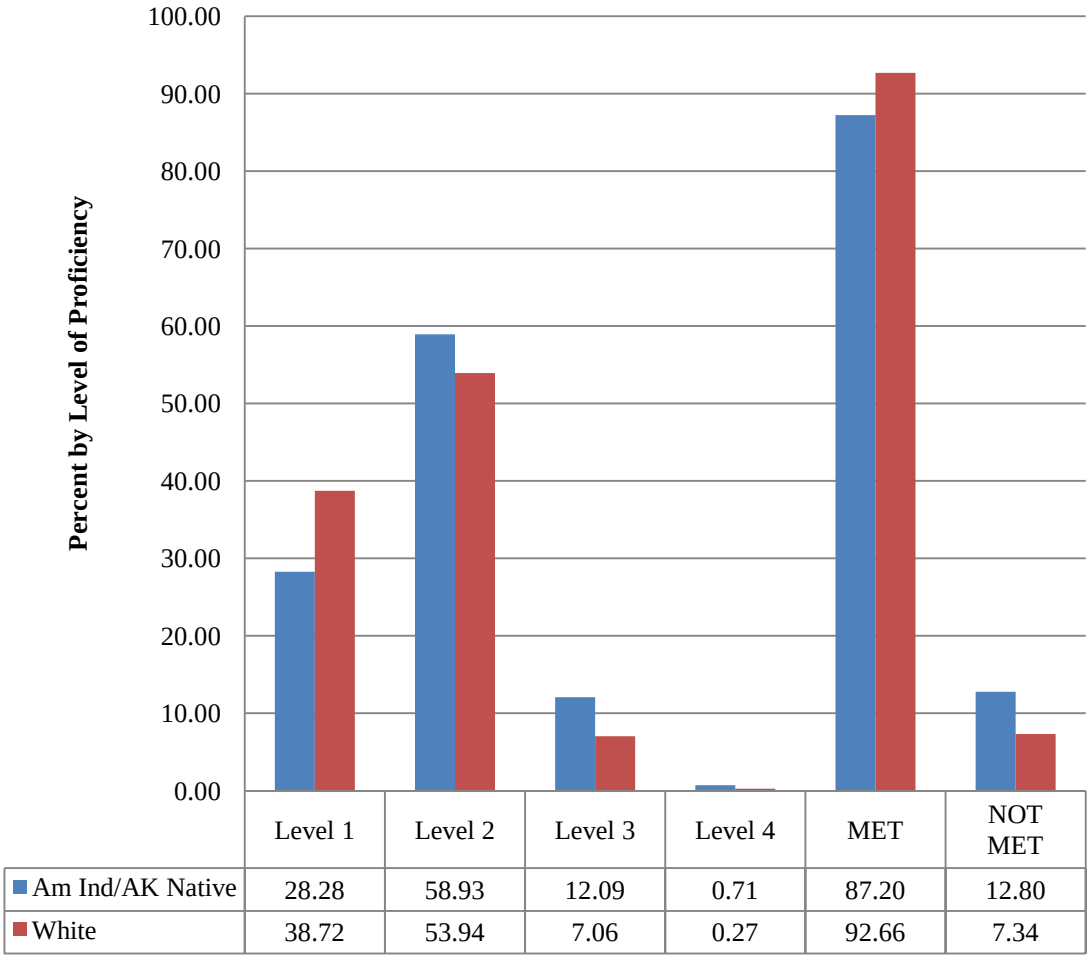



| | | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 20.12 | 20.85 | 16.02 | 7.69 | 17.37 | 17.37 |
| Standard Deviation | White | 14.73 | 15.99 | 12.49 | 9.06 | 15.19 | 15.19 |
| T-TEST | | 0.0000 | 0.0041 | 0.0001 | 0.4128 | 0.0005 | 0.0005 |

**N= 1,838 AI/AN and 7,242 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 12.* 3rd Grade through 8th grade 2009 MEAP Reading Scores for All Selected Districts

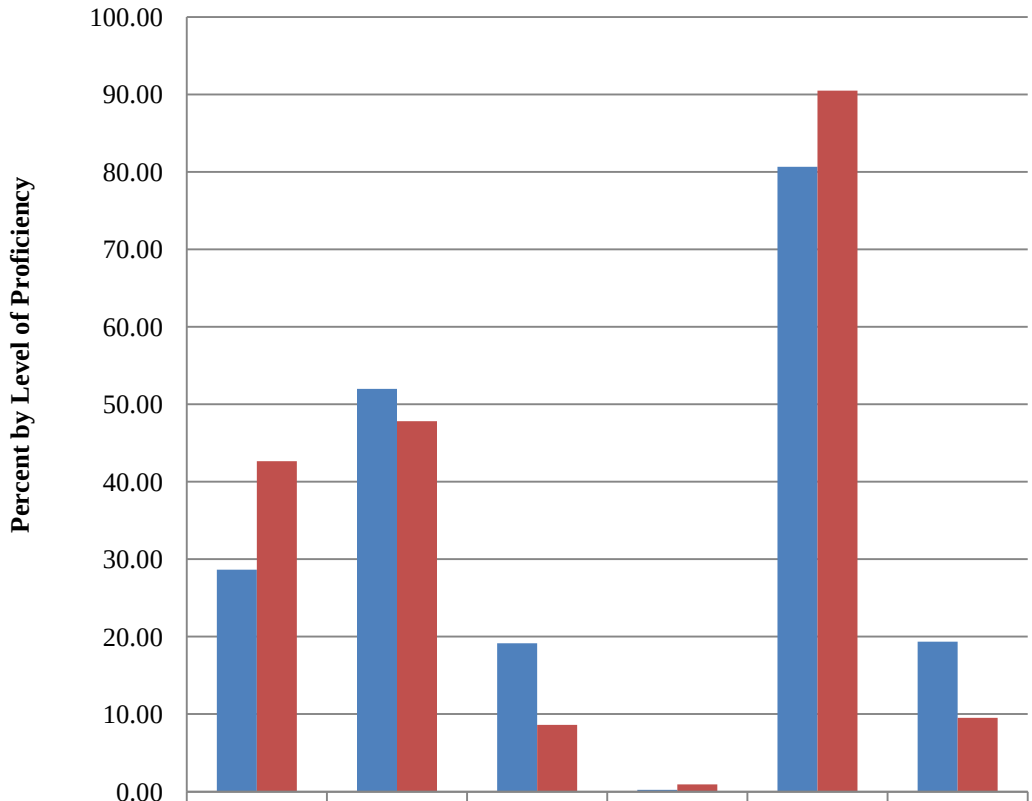



| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 24.94 | 24.01 | 13.89 | 2.65 | 13.88 | 13.88 |
| Standard Deviation | White | 16.10 | 14.94 | 5.73 | 0.90 | 6.14 | 6.14 |
| T-TEST | | 0.0267 | 0.1636 | 0.0344 | 0.1958 | 0.0255 | 0.0255 |

**N= 293 AI/AN and 1,159 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 13.* 3rd Grade 2009 MEAP Reading Scores for All Selected Districts



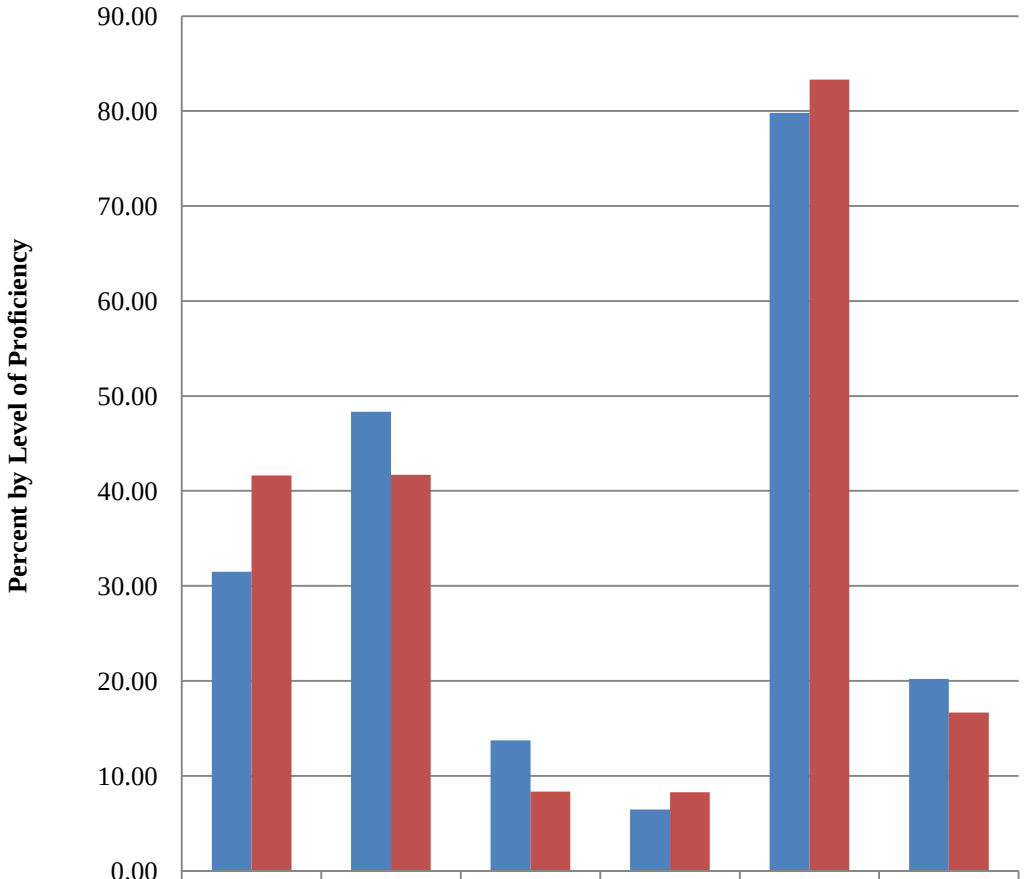

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Am Ind/AK Native | 28.67 | 51.98 | 19.14 | 0.22 | 80.64 | 19.36 |
| White | 42.67 | 47.80 | 8.62 | 0.91 | 90.47 | 9.53 |

| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 21.58 | 24.88 | 22.80 | 1.20 | 22.84 | 22.84 |
| Standard Deviation | White | 13.45 | 12.28 | 5.07 | 1.60 | 5.12 | 5.12 |
| T-TEST | | 0.0017 | 0.2030 | 0.0086 | 0.0293 | 0.0128 | 0.0128 |

**N= 242 AI/AN and 1,107 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 14.* 4th Grade 2009 MEAP Reading Scores for All Selected Districts



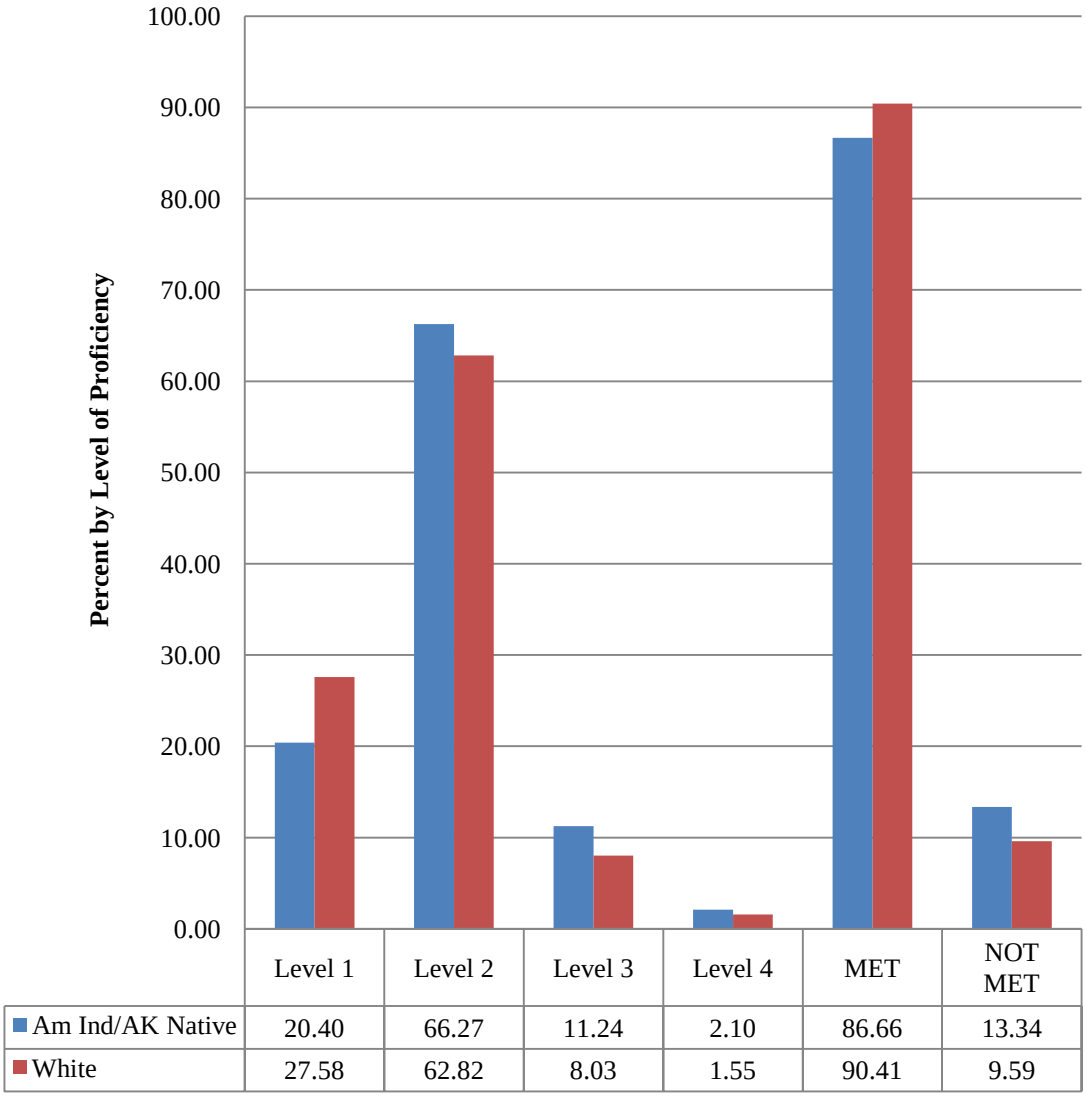

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Am Ind/AK Native | 31.48 | 48.33 | 13.74 | 6.45 | 79.81 | 20.19 |
| White | 41.64 | 41.69 | 8.34 | 8.28 | 83.32 | 16.68 |

| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 21.88 | 17.70 | 14.52 | 11.67 | 17.92 | 17.92 |
| Standard Deviation | White | 13.46 | 15.71 | 6.77 | 20.00 | 21.11 | 21.11 |
| T-TEST | | 0.0251 | 0.0793 | 0.0470 | 0.3445 | 0.2602 | 0.2602 |

**N= 316 AI/AN and 1,028 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

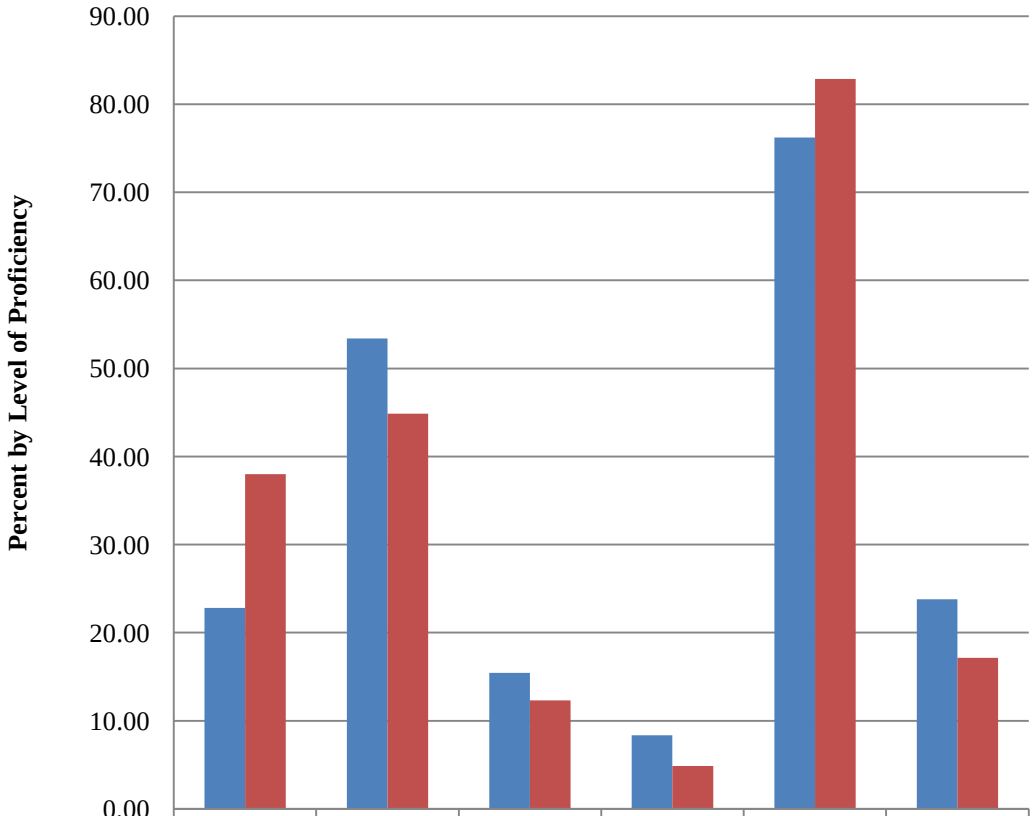
*Figure 15.* 5th Grade 2009 MEAP Reading Scores for All Selected Districts




| | | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 13.71 | 14.08 | 9.18 | 5.66 | 11.49 | 11.49 |
| Standard Deviation | White | 14.65 | 15.32 | 10.60 | 2.94 | 10.36 | 10.36 |
| T-TEST | | 0.0545 | 0.2264 | 0.1504 | 0.3484 | 0.1365 | 0.1365 |

**N= 333 AI/AN and 1,279 White**

*Figure 16.* 6th Grade 2009 MEAP Reading Scores for All Selected Districts

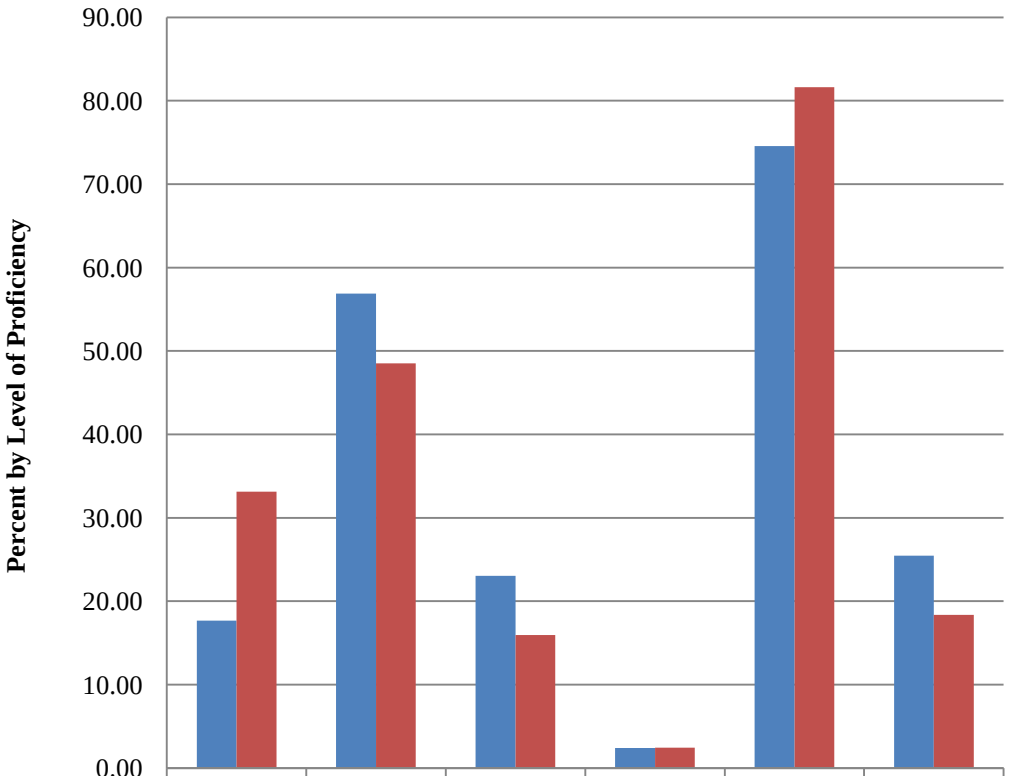



| | | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 15.53 | 18.75 | 11.72 | 12.14 | 15.42 | 15.42 |
| Standard Deviation | White | 12.77 | 15.45 | 21.55 | 4.92 | 21.15 | 21.15 |
| T-TEST | | 0.0010 | 0.0645 | 0.2902 | 0.1216 | 0.1364 | 0.1364 |

**N= 318 AI/AN and 1,343 White**

**Shaded Cell Indicates Statistical Significance at p ≤ .05**

*Figure 17.* 7th Grade 2009 MEAP Reading Scores for All Selected Districts



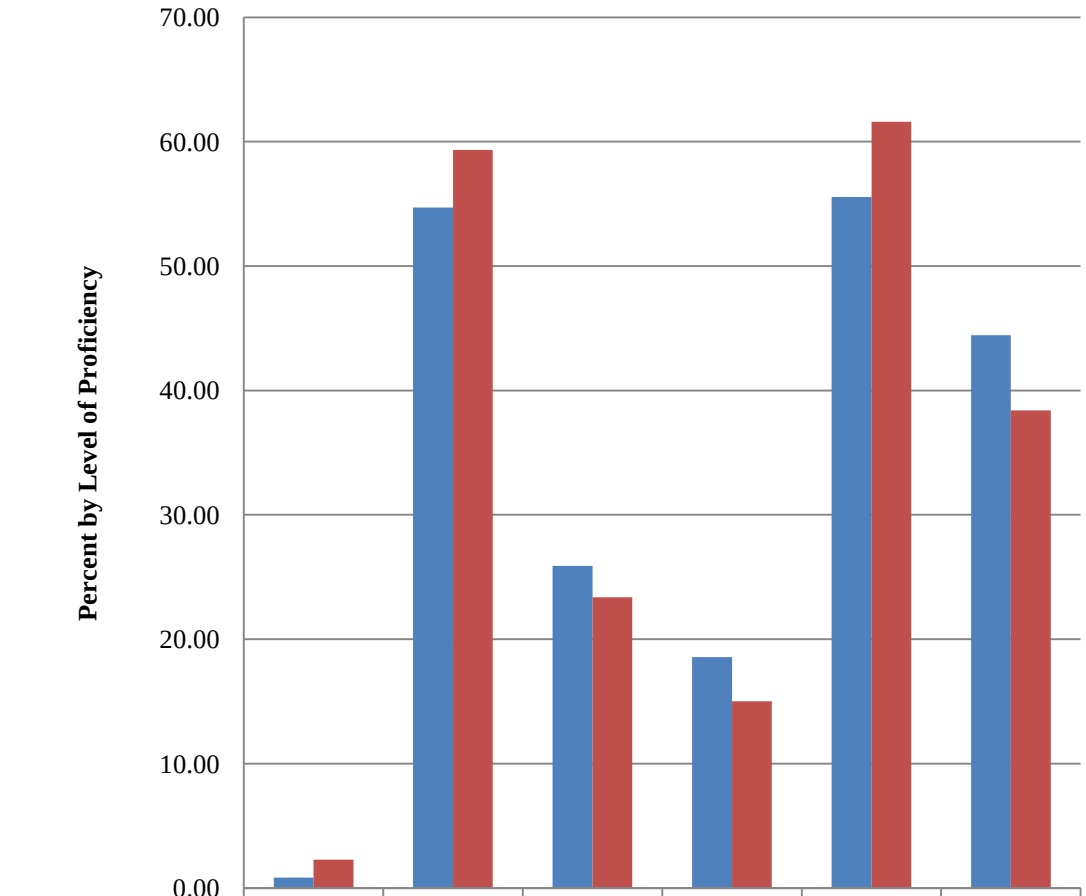

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Am Ind/AK Native | 17.67 | 56.89 | 23.05 | 2.39 | 74.56 | 25.45 |
| White | 33.13 | 48.49 | 15.94 | 2.43 | 81.64 | 18.36 |

| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 13.76 | 16.79 | 15.69 | 4.25 | 16.00 | 16.00 |
| Standard Deviation | White | 12.63 | 15.91 | 21.43 | 3.53 | 21.03 | 21.03 |
| T-TEST | | 0.0004 | 0.0588 | 0.1237 | 0.4869 | 0.1231 | 0.1231 |

**N= 336 AI/AN and 1,326 White**

**Shaded Cell Indicates Statistical Significance at p ≤ .05**

*Figure 18.* 8th Grade 2009 MEAP Reading Scores for All Selected Districts

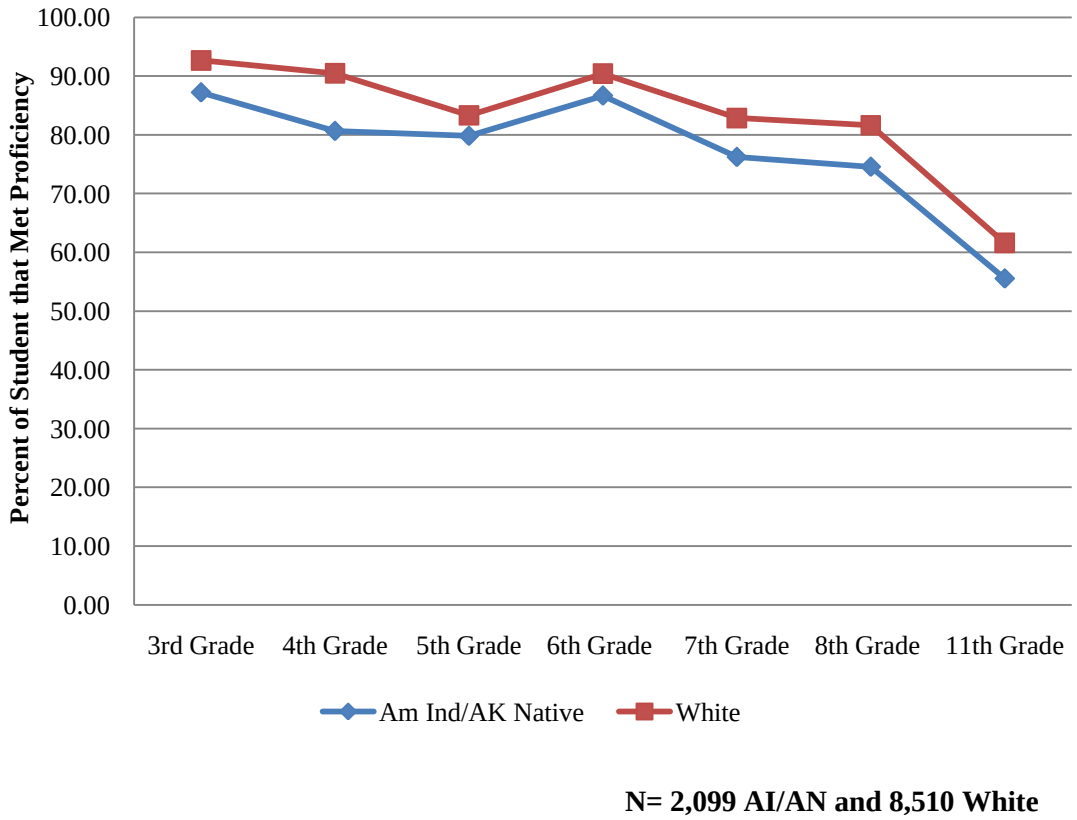



| | | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 2.75 | 27.02 | 21.25 | 12.58 | 27.52 | 27.52 |
| Standard Deviation | White | 2.50 | 15.98 | 11.96 | 11.74 | 17.41 | 17.41 |
| T-TEST | | 0.0458 | 0.2551 | 0.3201 | 0.1812 | 0.2036 | 0.2036 |

**N= 261 AI/AN and 1,268 White**

**Shaded Cell Indicates Statistical Significance at p ≤ .05**

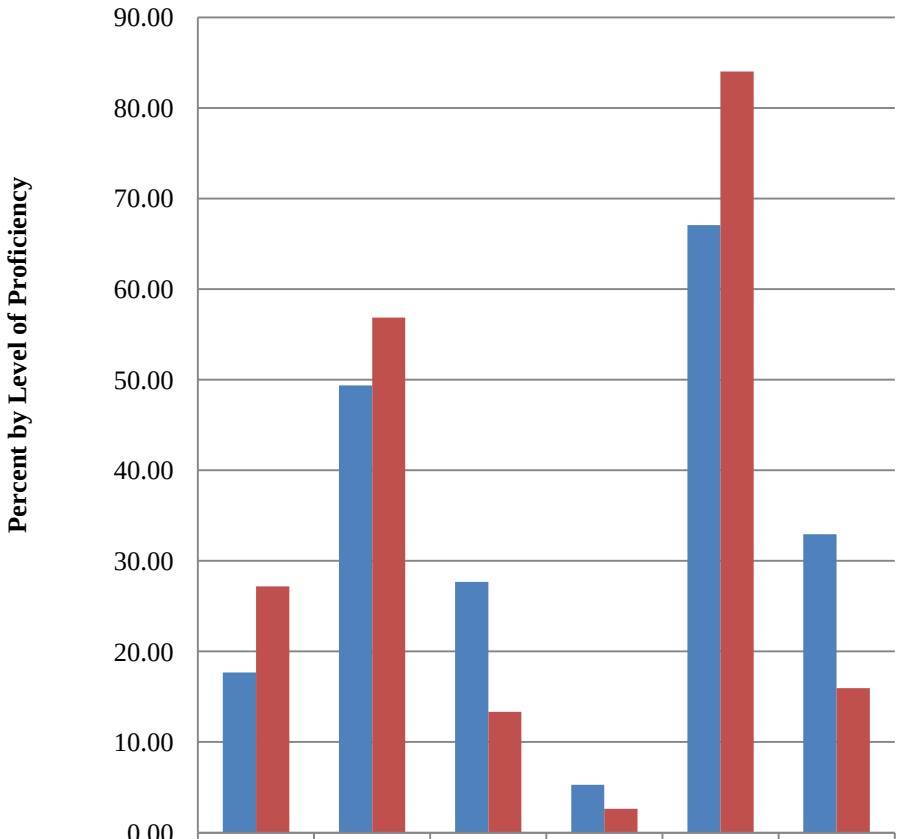
*Figure 19.* 11th Grade 2009-2010 MME Reading Scores for All Selected Districts




**N= 2,099 AI/AN and 8,510 White**

*Figure 20.* Percent of Students that Met Proficiency on 2009 MEAP Reading and 2009-2010 MME Reading by Grade and Subgroup for All Selected Districts

Statistical Significance demonstrated in 3rd and 4th grade only with $p \leq .05$**.**



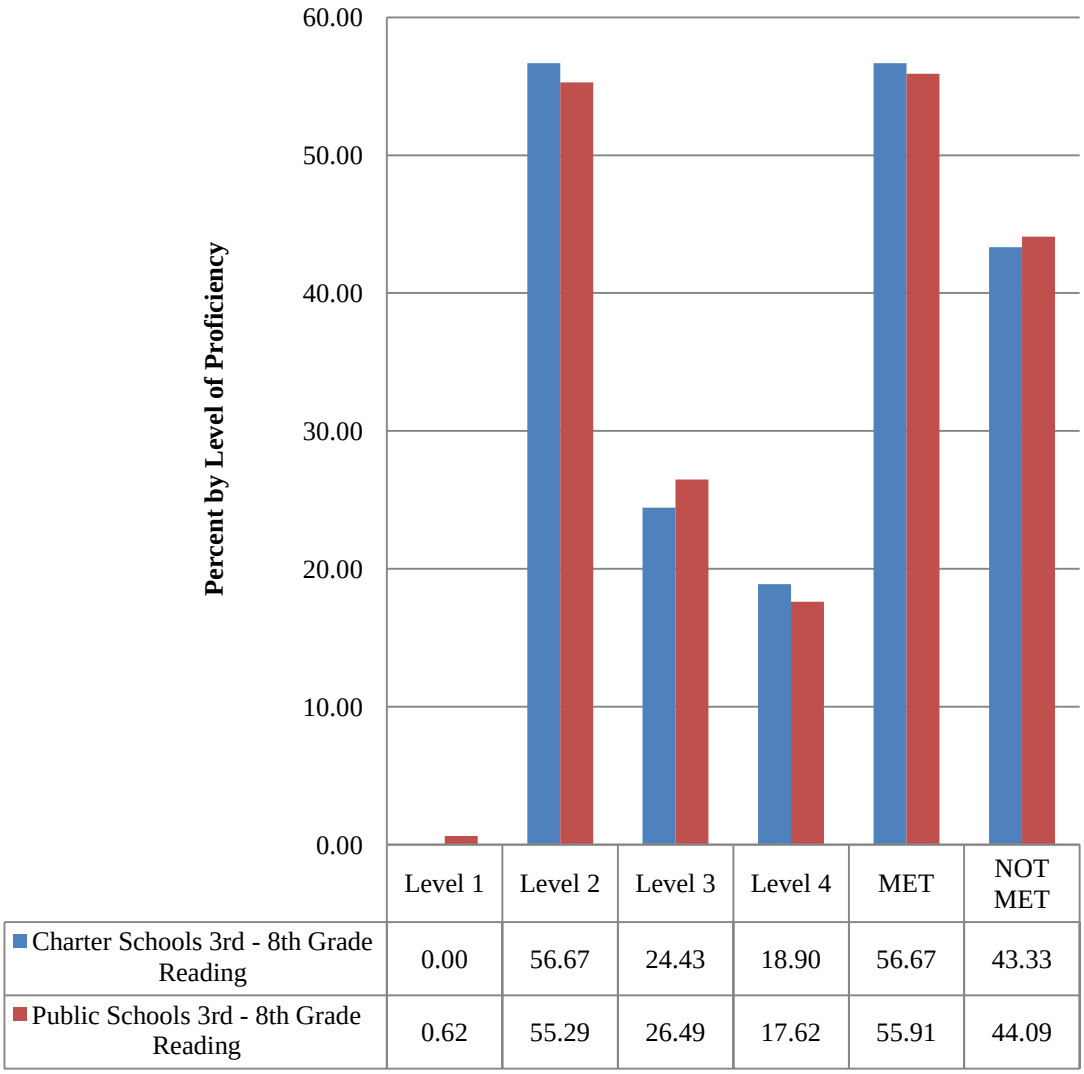

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Charter Schools 3rd - 8th Grade Reading | 17.68 | 49.37 | 27.67 | 5.28 | 67.06 | 32.94 |
| Public Schools 3rd - 8th Grade Reading | 27.18 | 56.86 | 13.34 | 2.63 | 84.03 | 15.97 |

| | | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|---|
| Charter Schools | Stand. Dev. | Am Ind/AK Native | 19.61 | 21.79 | 24.48 | 14.22 | 24.66 | 24.66 |
| Public Schools | Stand. Dev. | Am Ind/AK Native | 19.93 | 20.54 | 12.73 | 5.65 | 14.16 | 14.16 |
| | T-TEST | | 0.0187 | 0.0650 | 0.0048 | 0.1872 | 0.0015 | 0.0015 |

**N= 283 AI/AN in Charter Schools and 1,555 AI/AN in Public Schools**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

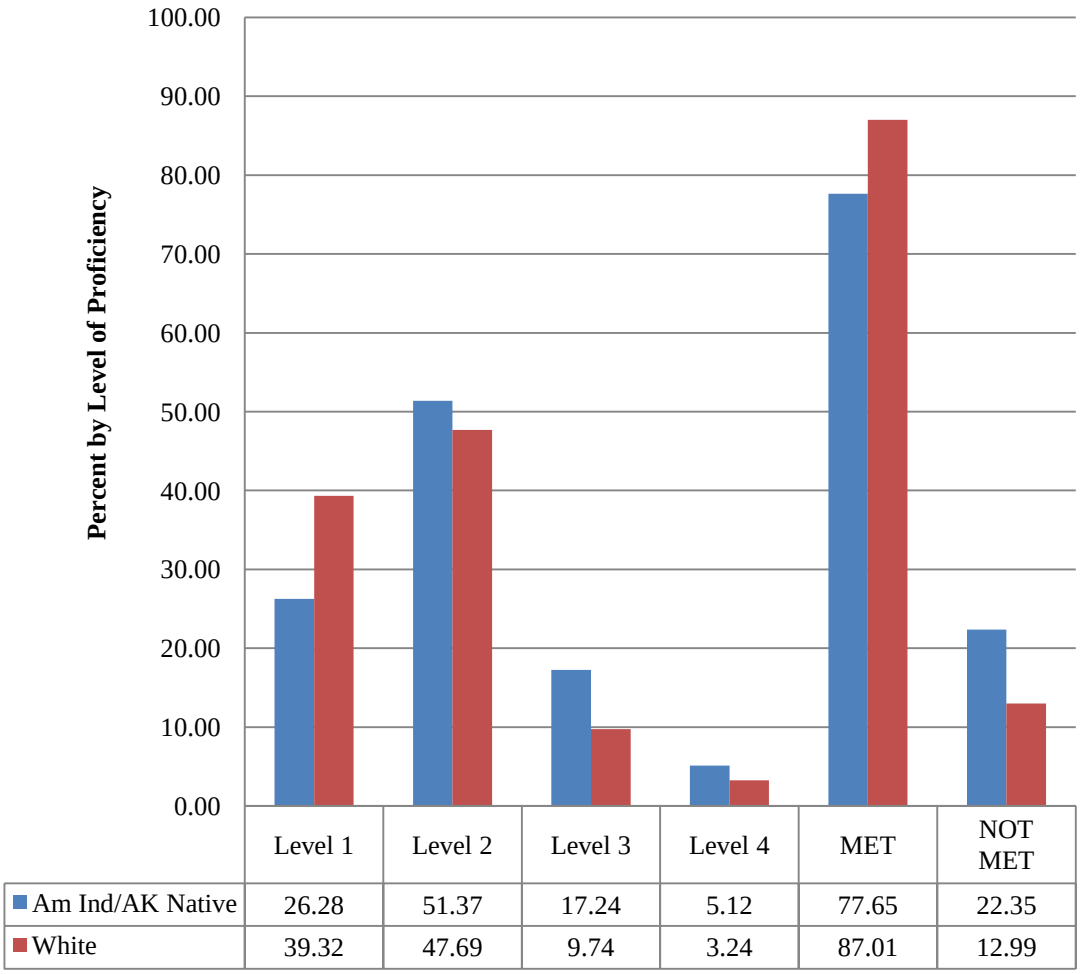
*Figure 21.* 3rd Grade through 8th grade 2009 MEAP Reading Scores for American Indian/Alaskan Native in Charter Schools versus Public Schools




| | | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|---|
| Charter Schools | Stand. Dev. | Am Ind/AK Native | 0.00 | 40.41 | 21.42 | 20.09 | 40.41 | 40.41 |
| Public Schools | Stand. Dev. | Am Ind/AK Native | 2.95 | 25.81 | 21.83 | 11.78 | 26.43 | 26.43 |
| | T-TEST | | 0.0891 | 0.4662 | 0.4534 | 0.4882 | 0.4807 | 0.4807 |

**N= 12 AI/AN in Charter Schools and 249AI/AN in Public Schools**

*Figure 22.* 11th Grade 2009-2010 MME Reading Scores for American Indian/Alaskan Native in Charter Schools versus Public Schools



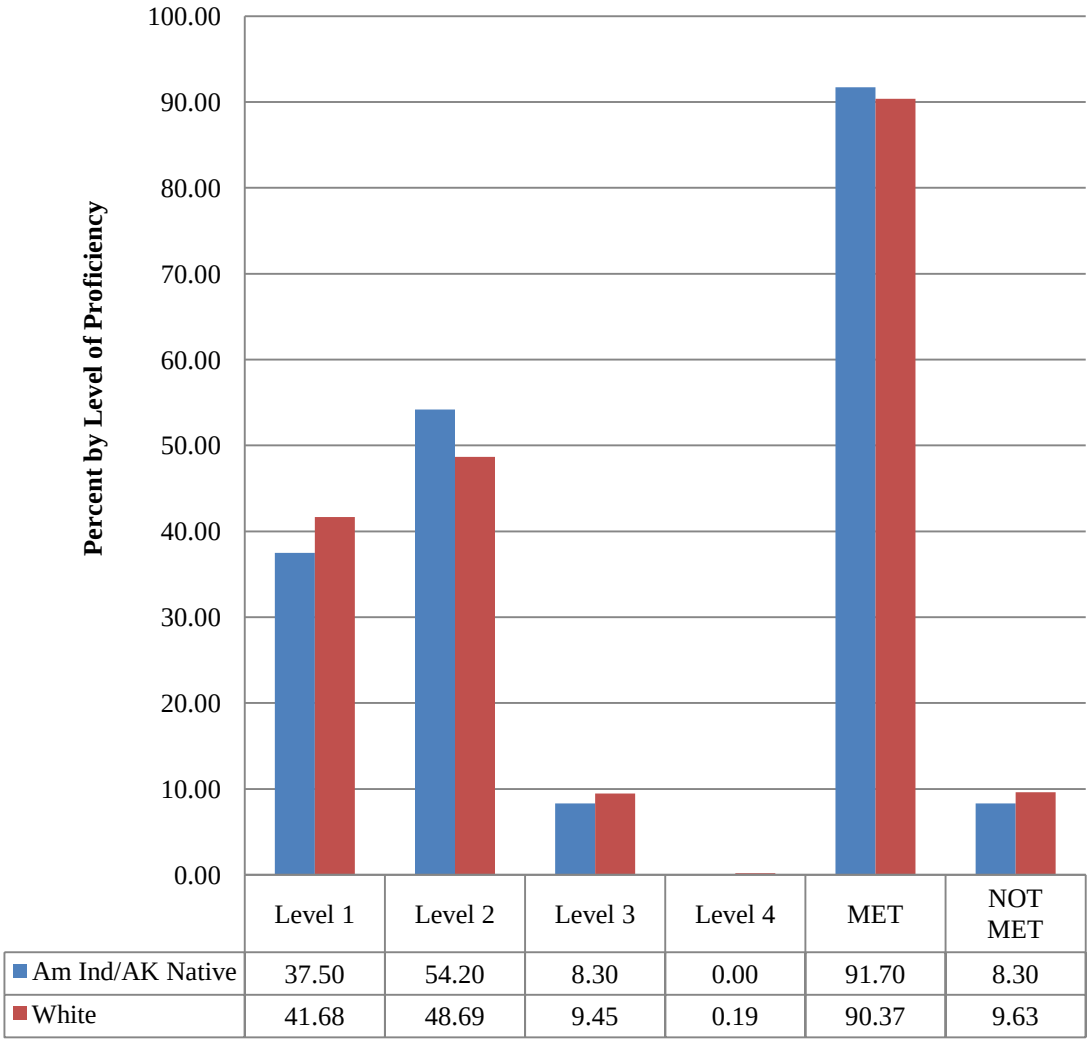

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Am Ind/AK Native | 26.28 | 51.37 | 17.24 | 5.12 | 77.65 | 22.35 |
| White | 39.32 | 47.69 | 9.74 | 3.24 | 87.01 | 12.99 |

| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 14.23 | 16.12 | 14.51 | 7.61 | 13.79 | 13.79 |
| Standard Deviation | White | 9.19 | 9.63 | 5.42 | 3.38 | 5.58 | 5.58 |
| T-TEST | | 0.000 | 0.197 | 0.005 | 0.270 | 0.001 | 0.001 |

**N= 1,648 AI/AN and 7,514 White**

**Shaded Cells Indicate Statistical Significance at p $\leq$ .05**

*Figure 23.* 3rd Grade through 8th grade 2010 MEAP Reading Scores for All Selected Districts



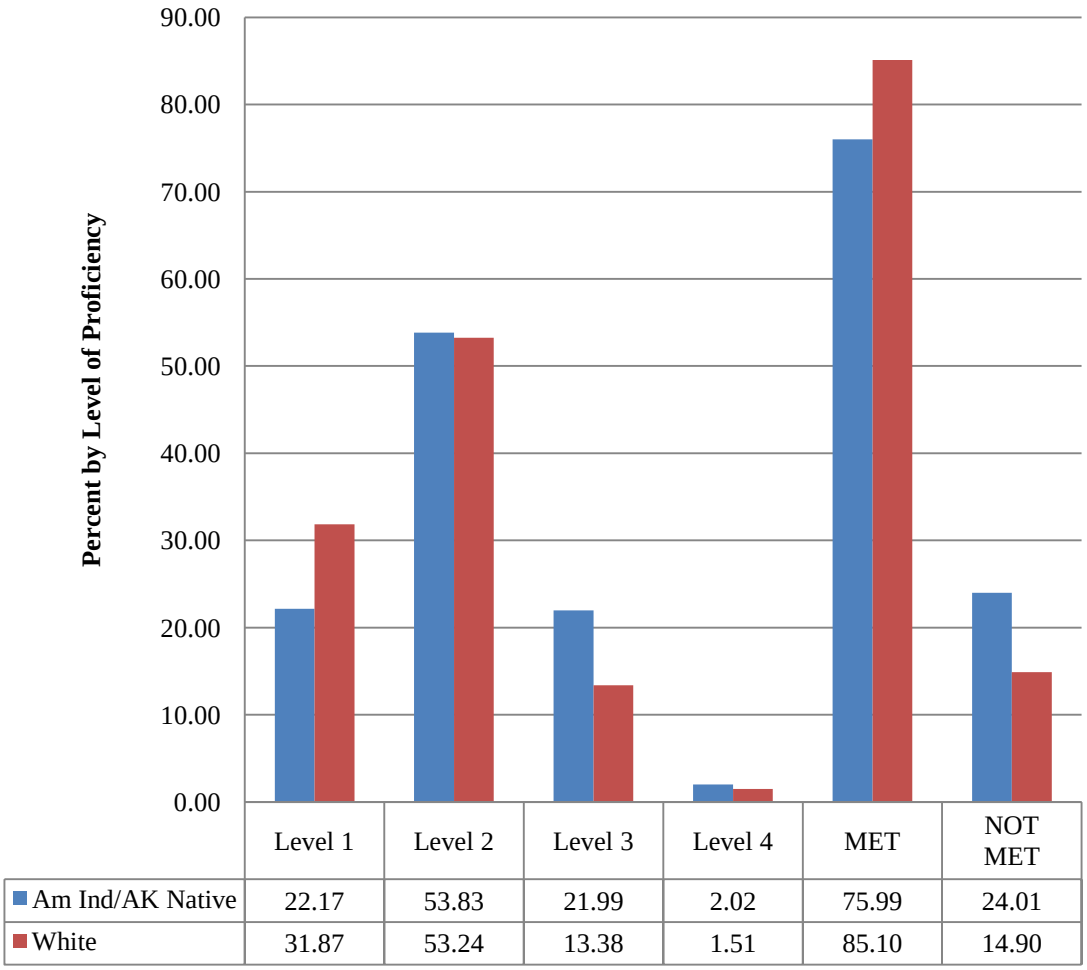

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Am Ind/AK Native | 37.50 | 54.20 | 8.30 | 0.00 | 91.70 | 8.30 |
| White | 41.68 | 48.69 | 9.45 | 0.19 | 90.37 | 9.63 |

| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 32.54 | 30.65 | 14.40 | 0.00 | 14.40 | 14.40 |
| Standard Deviation | White | 15.79 | 13.40 | 4.39 | 1.17 | 4.35 | 4.35 |
| T-TEST | | 0.1406 | 0.1898 | 0.2108 | 0.0101 | 0.2638 | 0.2638 |

**N= 225 AI/AN and 1,222 White**

**Shaded Cell Indicates Statistical Significance at p ≤ .05**

*Figure 24.* 3rd Grade 2010 MEAP Reading Scores for All Selected Districts



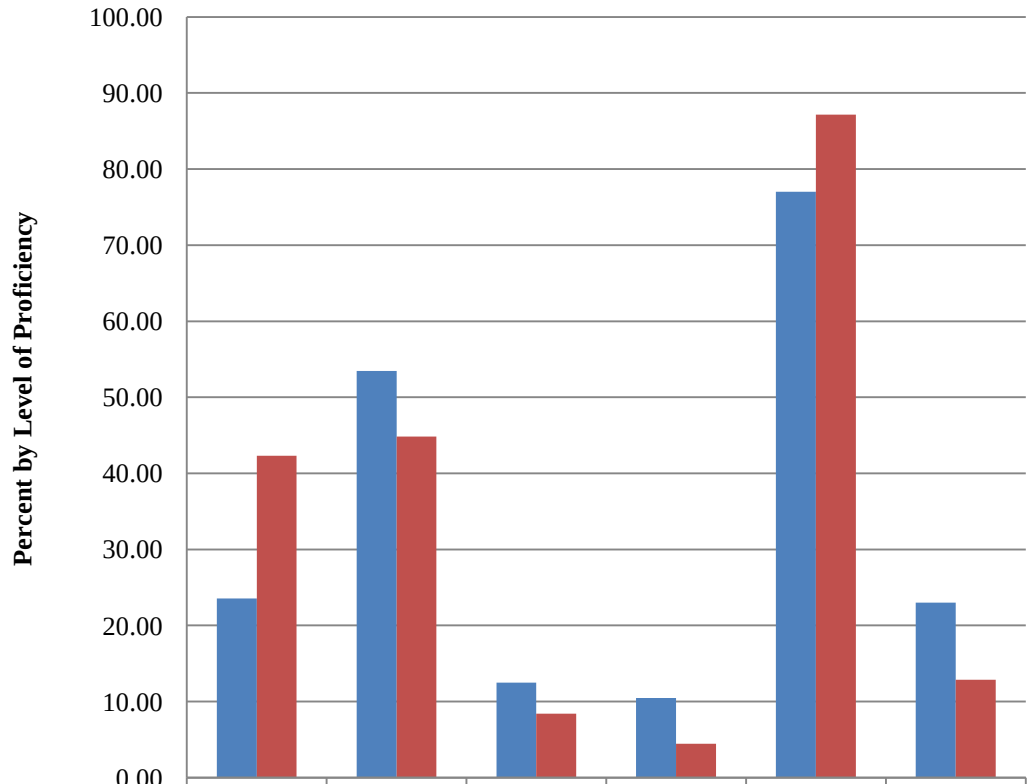

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Am Ind/AK Native | 22.17 | 53.83 | 21.99 | 2.02 | 75.99 | 24.01 |
| White | 31.87 | 53.24 | 13.38 | 1.51 | 85.10 | 14.90 |

| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 20.01 | 24.27 | 24.27 | 0.92 | 25.96 | 25.96 |
| Standard Deviation | White | 9.76 | 9.49 | 4.97 | 2.29 | 5.91 | 5.91 |
| T-TEST | | 0.0275 | 0.3921 | 0.0000 | 0.0384 | 0.0343 | 0.0343 |

**N= 280 AI/AN and 1,303 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 25.* 4th Grade 2010 MEAP Reading Scores for All Selected Districts



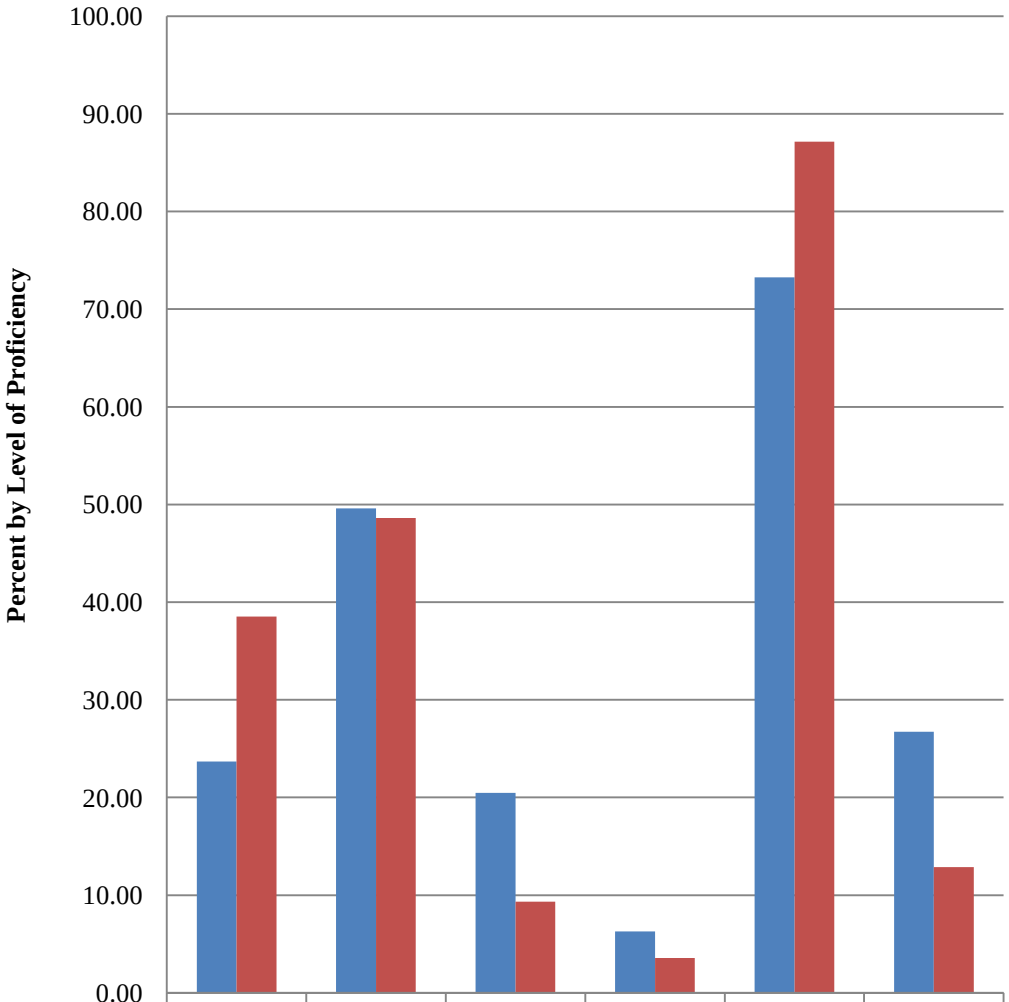

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Am Ind/AK Native | 23.56 | 53.45 | 12.50 | 10.48 | 77.01 | 22.99 |
| White | 42.29 | 44.85 | 8.40 | 4.46 | 87.15 | 12.85 |

| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 15.14 | 22.90 | 17.08 | 25.45 | 25.41 | 25.41 |
| Standard Deviation | White | 9.71 | 8.54 | 6.09 | 3.83 | 5.88 | 5.88 |
| T-TEST | | 0.0000 | 0.1268 | 0.0655 | 0.0959 | 0.0131 | 0.0131 |

**N= 237 AI/AN and 1,113 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 26.* 5th Grade 2010 MEAP Reading Scores for All Selected Districts



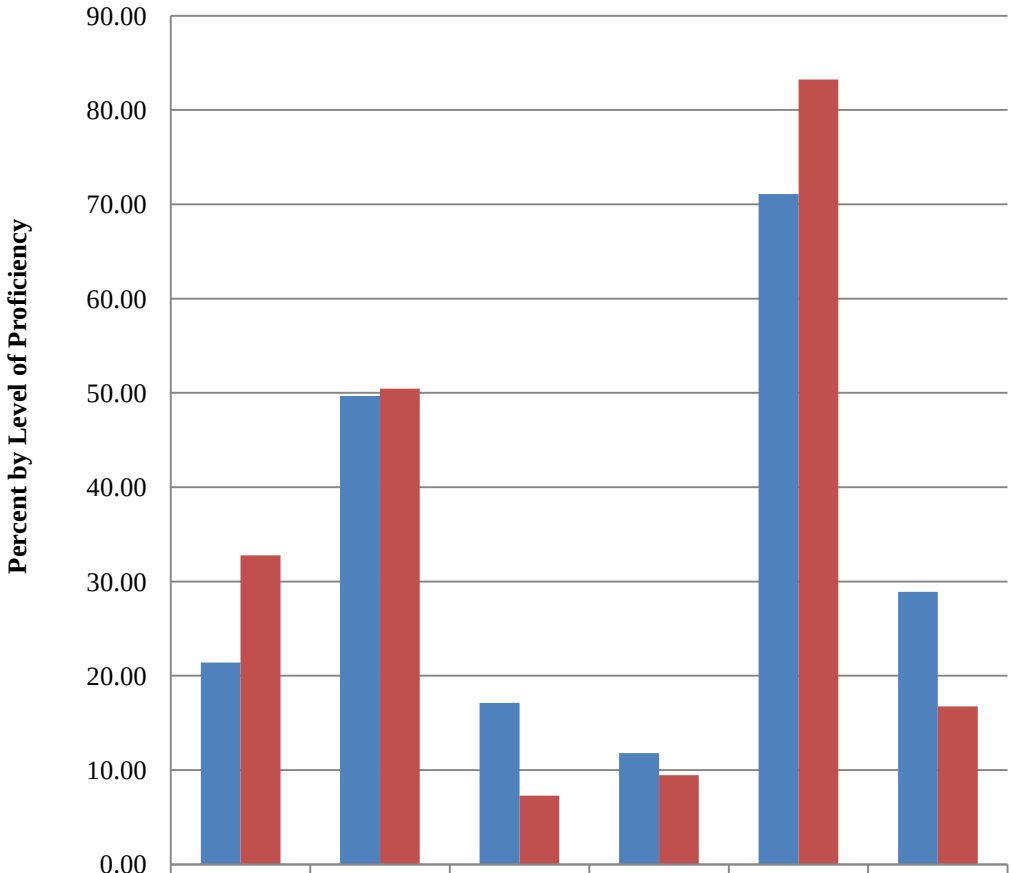

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Am Ind/AK Native | 23.67 | 49.59 | 20.47 | 6.28 | 73.26 | 26.74 |
| White | 38.51 | 48.61 | 9.33 | 3.56 | 87.13 | 12.87 |

| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 14.94 | 15.91 | 15.87 | 6.73 | 16.58 | 16.58 |
| Standard Deviation | White | 8.38 | 7.47 | 5.09 | 2.74 | 5.08 | 5.08 |
| T-TEST | | 0.0003 | 0.0264 | 0.0599 | 0.2114 | 0.0359 | 0.0359 |

**N= 324 AI/AN and 1,243 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 27.* 6th Grade 2010 MEAP Reading Scores for All Selected Districts



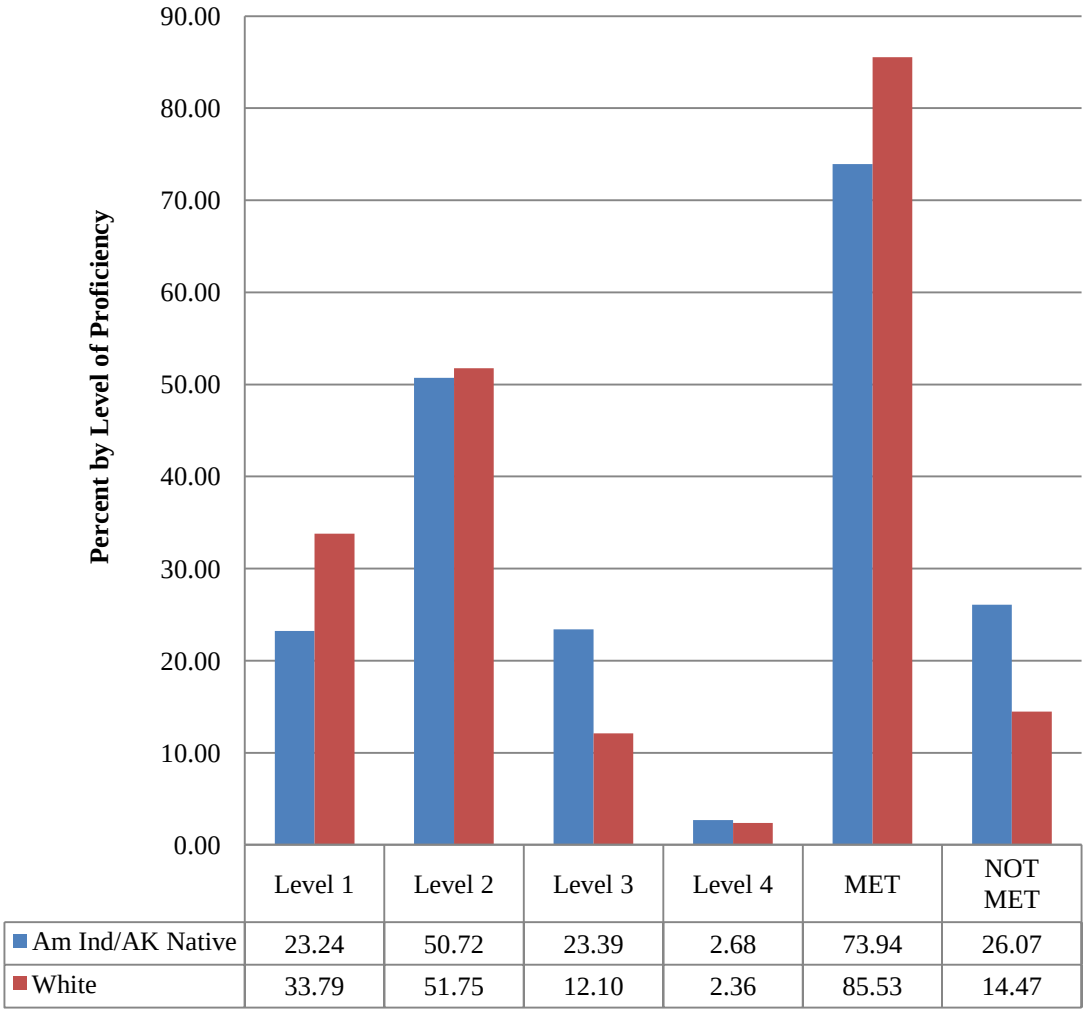

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Am Ind/AK Native | 21.41 | 49.67 | 17.14 | 11.79 | 71.08 | 28.92 |
| White | 32.76 | 50.46 | 7.30 | 9.47 | 83.24 | 16.76 |

| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 11.49 | 11.24 | 11.36 | 13.14 | 16.72 | 16.72 |
| Standard Deviation | White | 7.05 | 7.93 | 6.54 | 7.35 | 8.02 | 8.02 |
| T-TEST | | 0.0003 | 0.4238 | 0.0060 | 0.1007 | 0.0034 | 0.0034 |

**N= 312 AI/AN and 1,273 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 28.* 7th Grade 2010 MEAP Reading Scores for All Selected Districts

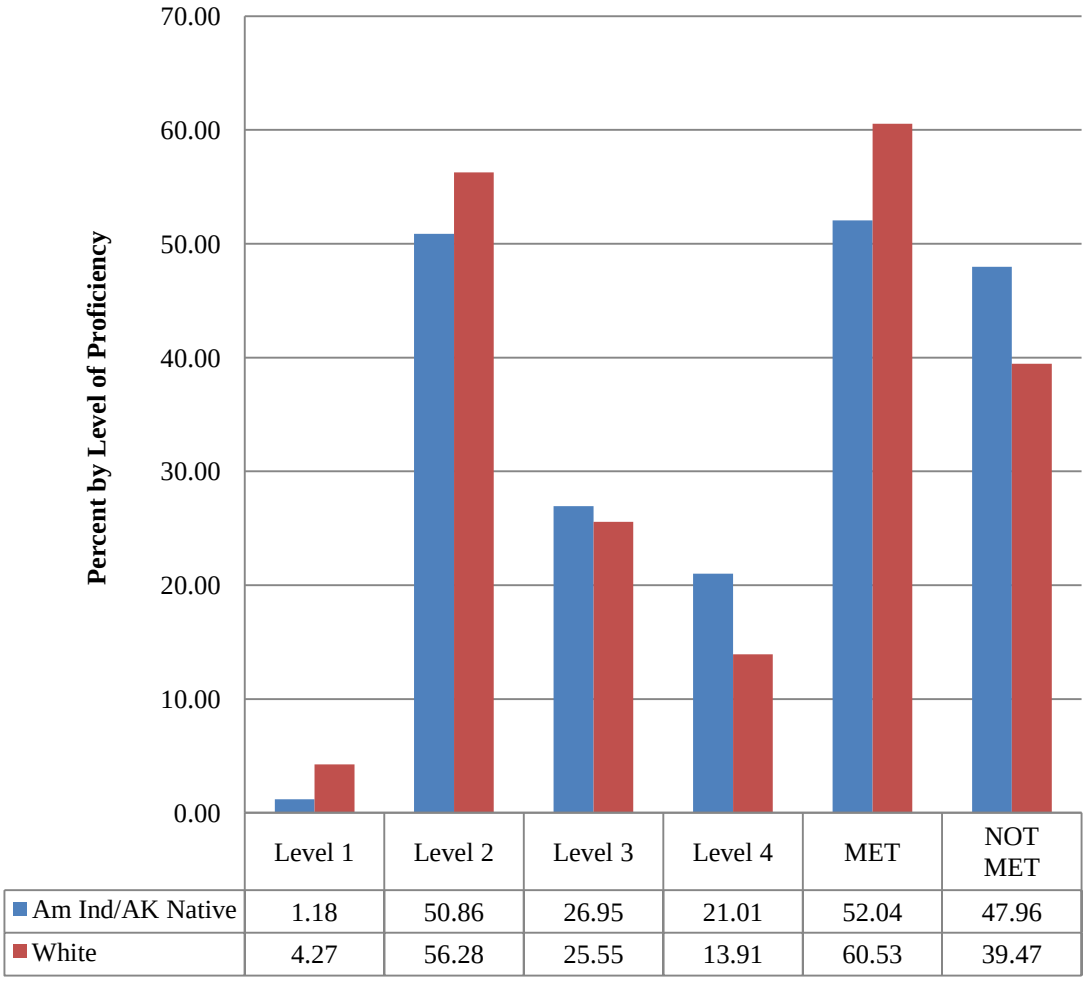



| | | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 13.79 | 20.59 | 12.26 | 3.71 | 11.70 | 11.70 |
| Standard Deviation | White | 6.78 | 5.95 | 4.68 | 2.31 | 5.22 | 5.22 |
| T-TEST | | 0.0005 | 0.1531 | 0.0080 | 0.3474 | 0.0050 | 0.0050 |

**N= 270 AI/AN and 1,322 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 29.* 8th Grade 2010 MEAP Reading Scores for All Selected Districts

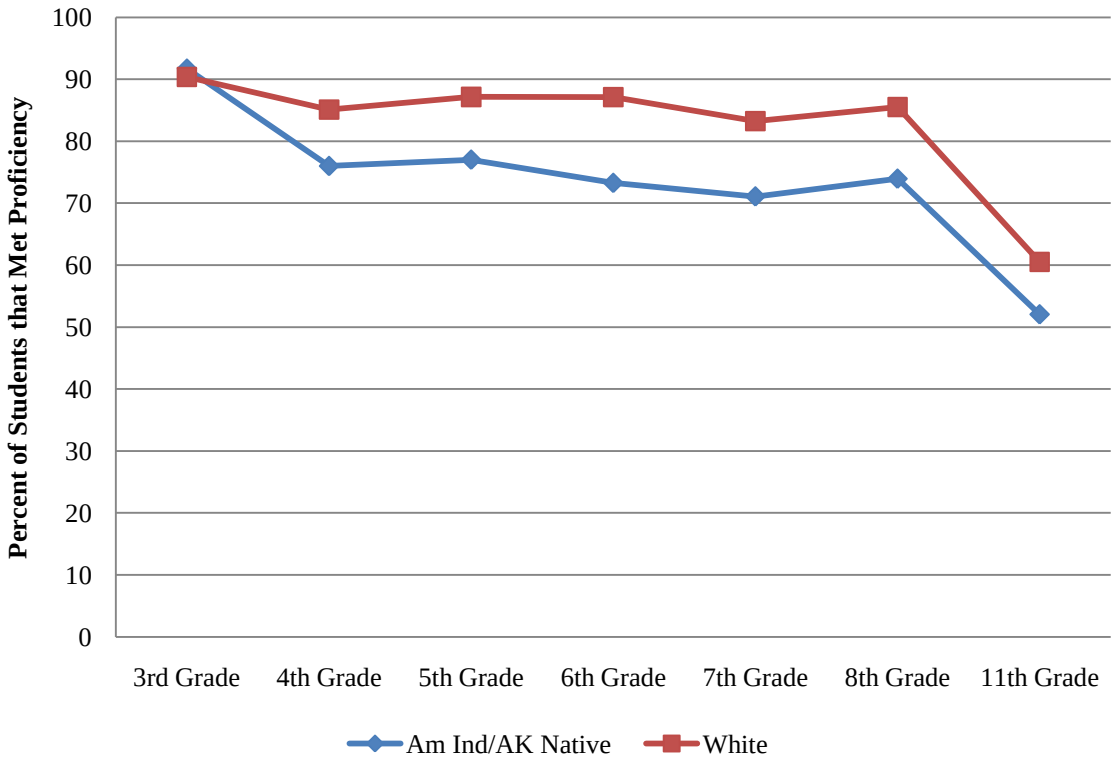



| | | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 2.74 | 24.68 | 23.83 | 26.29 | 25.05 | 25.05 |
| Standard Deviation | White | 5.36 | 22.72 | 15.52 | 11.99 | 23.15 | 23.15 |
| T-TEST | | 0.0127 | 0.2319 | 0.4117 | 0.1349 | 0.1303 | 0.1303 |

**N= 251 AI/AN and 1,293 White**

**Shaded Cell Indicates Statistical Significance at p ≤ .05**

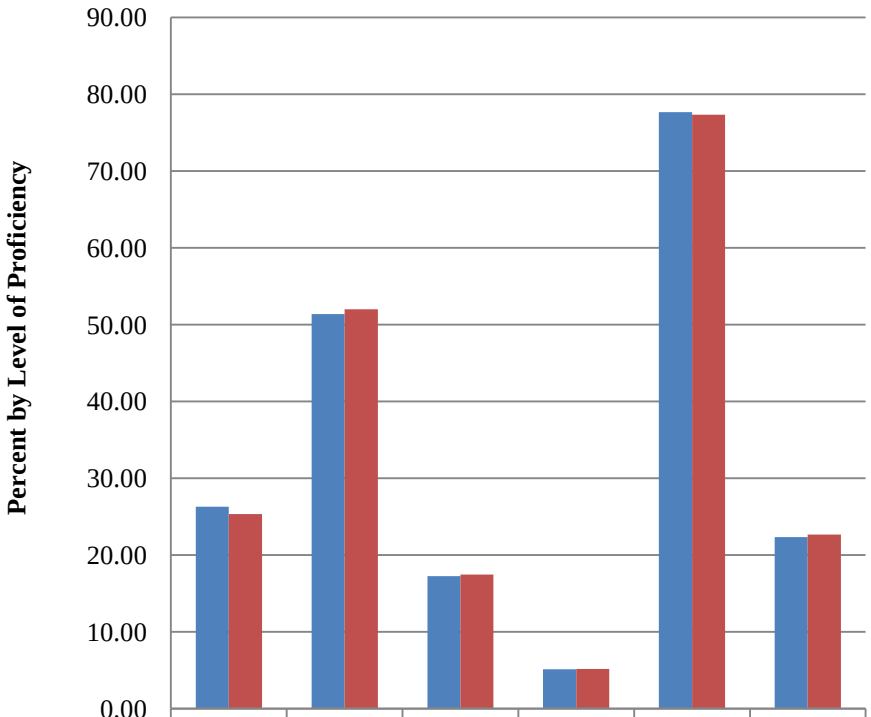
*Figure 30.* 11th Grade 2010-2011 MME Reading Scores for All Selected Districts




**N= 1,899 AI/AN and 8,807 White**

*Figure 31.* Percent of Students that Met Proficiency on 2010 MEAP Reading and 2010-2011 MME Reading by Grade and Subgroup for All Selected Districts

Statistical Significance demonstrated in $4^{th,}$ $5^{th}$, $6^{th}$, $7^{th}$, and $8^{th}$ grade only with $p \leq .05$**.**



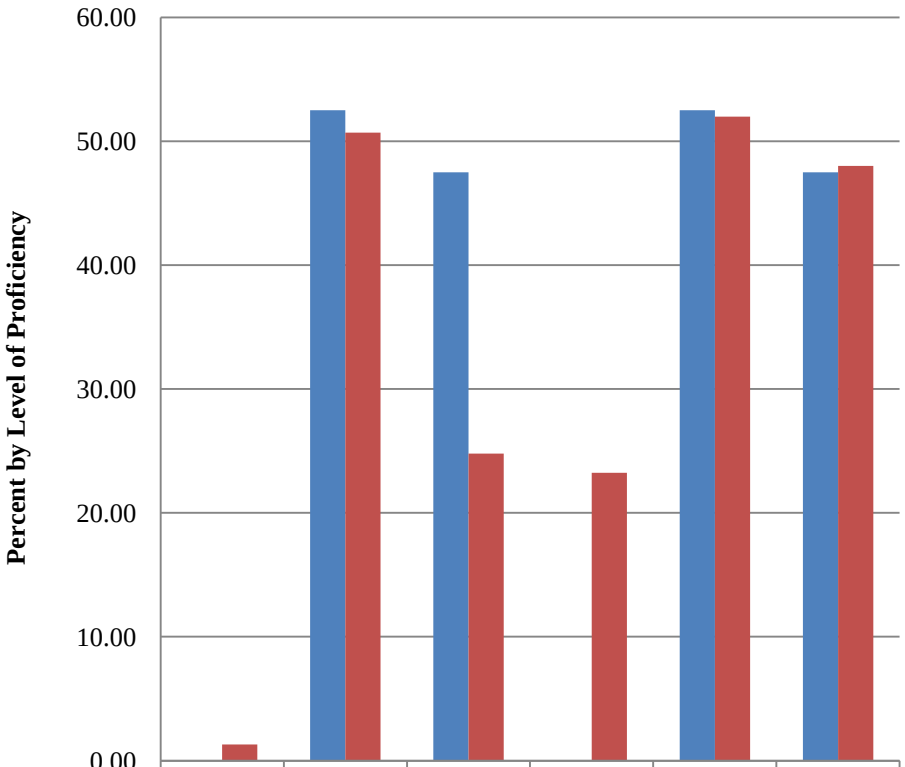

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Charter Schools 3rd - 8th Grade Reading | 26.29 | 51.37 | 17.23 | 5.11 | 77.65 | 22.35 |
| Public Schools 3rd - 8th Grade Reading | 25.32 | 52.01 | 17.48 | 5.18 | 77.34 | 22.66 |

| | | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|---|
| Charter Schools | Stand. Dev. | Am Ind/AK Native | 19.89 | 26.28 | 26.40 | 14.93 | 27.72 | 27.72 |
| Public Schools | Stand. Dev. | Am Ind/AK Native | 21.37 | 22.30 | 17.84 | 10.98 | 20.30 | 20.30 |
| | T-TEST | | 0.0144 | 0.2352 | 0.2835 | 0.1942 | 0.1581 | 0.1581 |

**N= 208 AI/AN in Charter Schools and 1,440 AI/AN in Public Schools**

**Shaded Cell Indicates Statistical Significance at p ≤ .05**

*Figure 32.* 3rd Grade through 8th grade 2009 MEAP Reading Scores for American Indian/Alaskan Native in Charter Schools versus Public Schools




| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Charter Schools 11th Grade Reading | 0.00 | 52.50 | 47.50 | 0.00 | 52.50 | 47.50 |
| Public Schools 11th Grade Reading | 1.30 | 50.69 | 24.78 | 23.23 | 51.99 | 48.01 |

| | | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|---|
| Charter Schools | Stand. Dev. | Am Ind/AK Native | 2.86 | 24.34 | 22.25 | 26.72 | 24.77 | 24.77 |
| Public Schools | Stand. Dev. | Am Ind/AK Native | 0.00 | 38.89 | 38.89 | 0.00 | 38.89 | 38.89 |
| | T-TEST | | 0.0317 | 0.4792 | 0.2792 | 0.0007 | 0.4941 | 0.4941 |

**N= 9 AI/AN in Charter Schools and 242 AI/AN in Public Schools**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 33.* 11th Grade 2010-2011 MME Reading Scores for American Indian/Alaskan Native in Charter Schools versus Public Schools

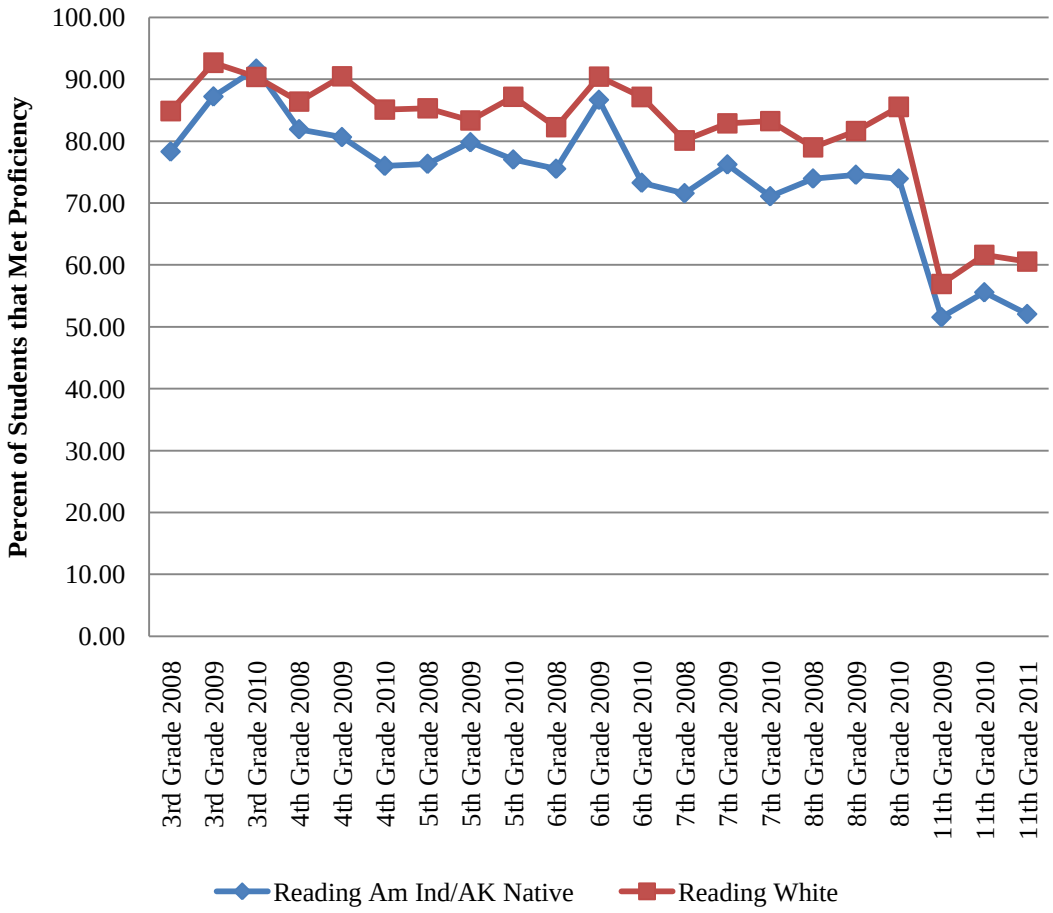



*Figure 34.* Percent of Students that Met Proficiency on the MEAP Reading and the MME Reading by Grade and Subgroup from 2008-2011 in All Selected Districts

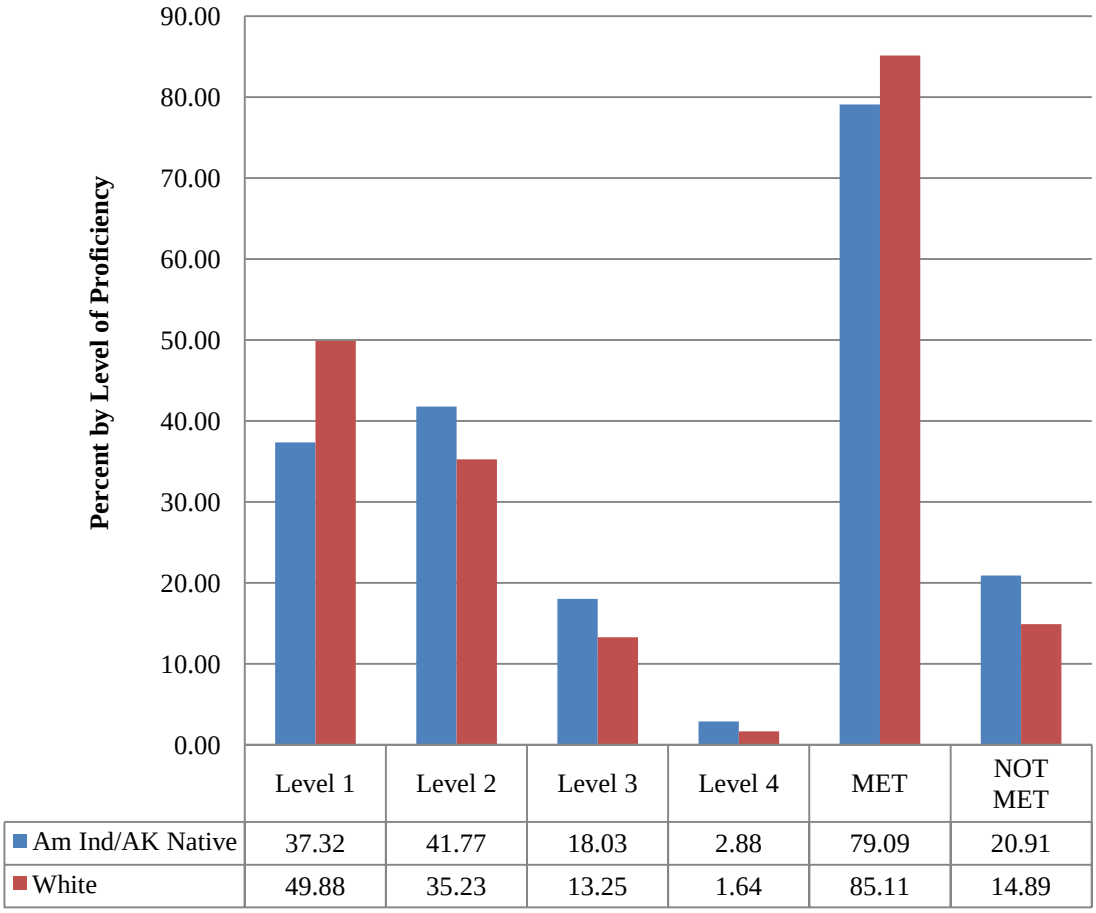
**Reading Key Point Summary:**

- In the most recent 2010-2011 assessment, there appeared to be the greatest amount of significant achievement gap performance between the Native American cohort versus the White cohort as demonstrated by statistical significance at 4th, 5th, 6th, 7th, and 8th grade. In 2008-2009, only the 5th grade assessment results showed a significant achievement gap.
- The greatest likelihood for significant difference occurs when comparing students from the American Indian cohort and White cohort in Level 1performance. In

this area, the students have exceeded performance expectations on the achievement measure.

- Continued gaps existed between the performances of American Indian students when compared to their White peer group in these districts.
- American Indian students who met the performance expectation in reading in the charter schools when compared to the American Indian students in public schools showed no statistically significant difference.

**Student Assessment Data Analysis of 3rd Grade through 8th Grade Michigan Educational Assessment Program (MEAP) Mathematics Scores and 11th Grade Michigan Merit Exam (MME) Mathematics Scores for Native American Students and White Students in the Selected School Districts**



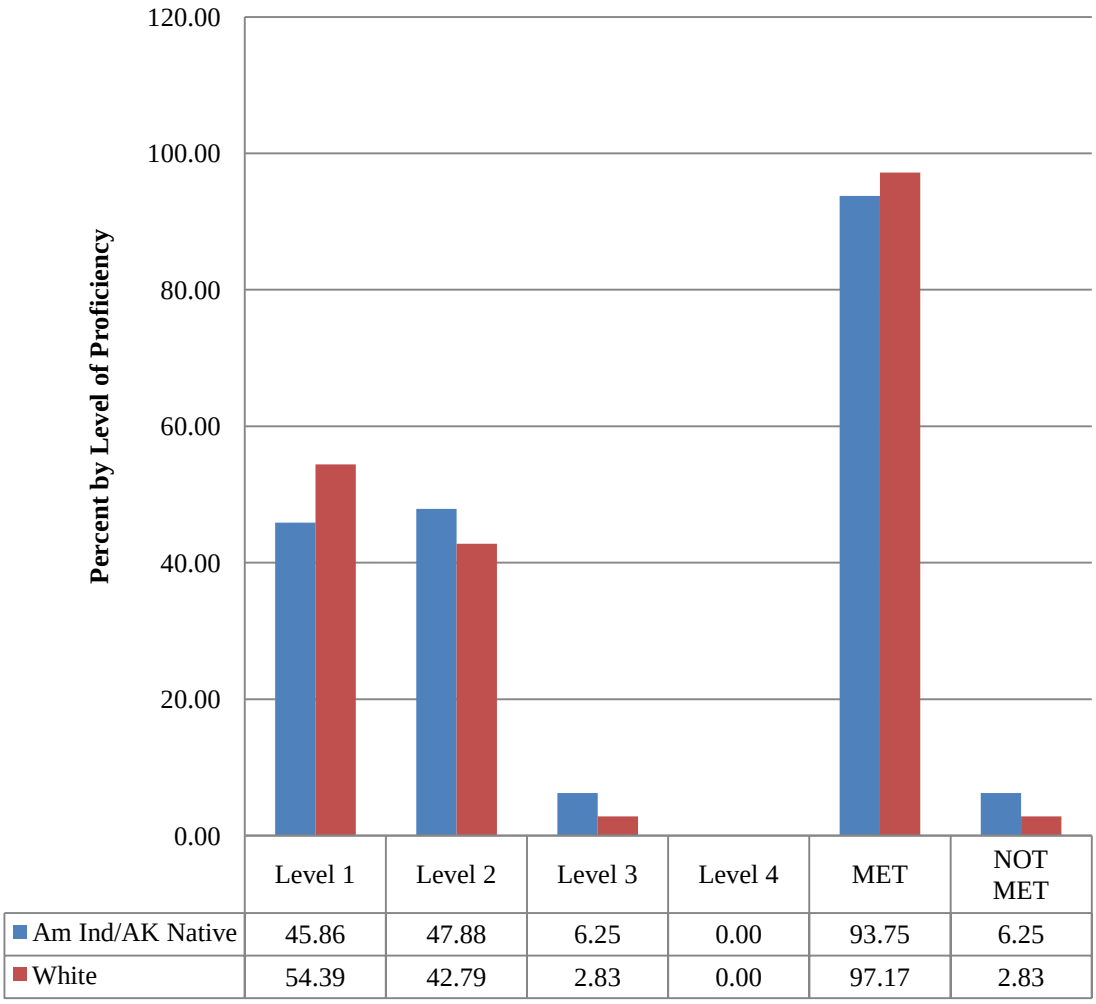

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Am Ind/AK Native | 37.32 | 41.77 | 18.03 | 2.88 | 79.09 | 20.91 |
| White | 49.88 | 35.23 | 13.25 | 1.64 | 85.11 | 14.89 |

| | | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 22.45 | 19.88 | 18.00 | 5.83 | 19.93 | 19.93 |
| Standard Deviation | White | 18.33 | 15.94 | 17.03 | 2.67 | 17.34 | 17.34 |
| T-TEST | | 0.0000 | 0.0013 | 0.0097 | 0.0089 | 0.0029 | 0.0029 |

**N= 1,923 AI/AN and 7,516 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 35.* 3rd Grade through 8th Grade 2008 MEAP Mathematics Score for All Selected Districts



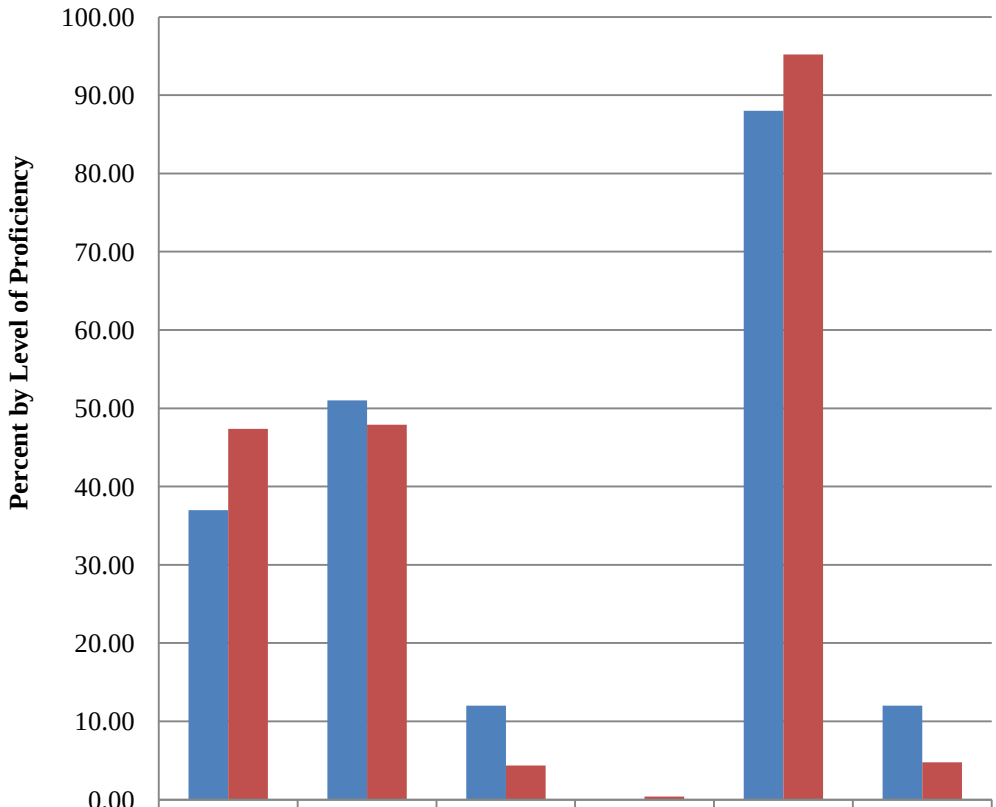

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Am Ind/AK Native | 45.86 | 47.88 | 6.25 | 0.00 | 93.75 | 6.25 |
| White | 54.39 | 42.79 | 2.83 | 0.00 | 97.17 | 2.83 |

| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 24.84 | 23.34 | 10.65 | 0.00 | 10.65 | 10.65 |
| Standard Deviation | White | 20.58 | 19.21 | 3.80 | 0.00 | 3.80 | 3.80 |
| T-TEST | | 0.0688 | 0.1708 | 0.0471 | | 0.0471 | 0.0471 |

**N= 252 AI/AN and 1,178 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 36.* 3rd Grade 2008 Mathematics Scores for All Selected Districts



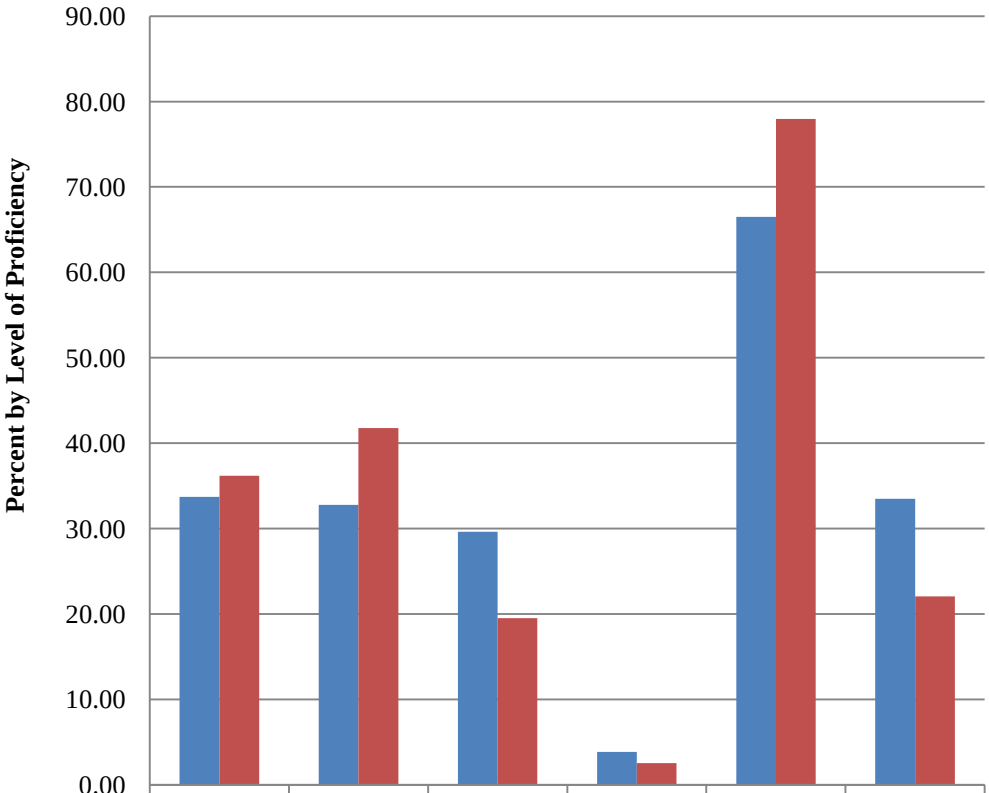

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Am Ind/AK Native | 36.98 | 51.02 | 12.01 | 0.00 | 87.99 | 12.01 |
| White | 47.35 | 47.88 | 4.37 | 0.40 | 95.22 | 4.78 |

| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 24.46 | 23.54 | 16.39 | 0.00 | 16.39 | 16.39 |
| Standard Deviation | White | 17.15 | 16.31 | 4.51 | 1.56 | 4.67 | 4.67 |
| T-TEST | | 0.0307 | 0.2741 | 0.0096 | 0.0798 | 0.0131 | 0.0131 |

**N= 329 AI/AN and 1,116 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 37.* 4th Grade 2008 Mathematics Scores for All Selected Districts



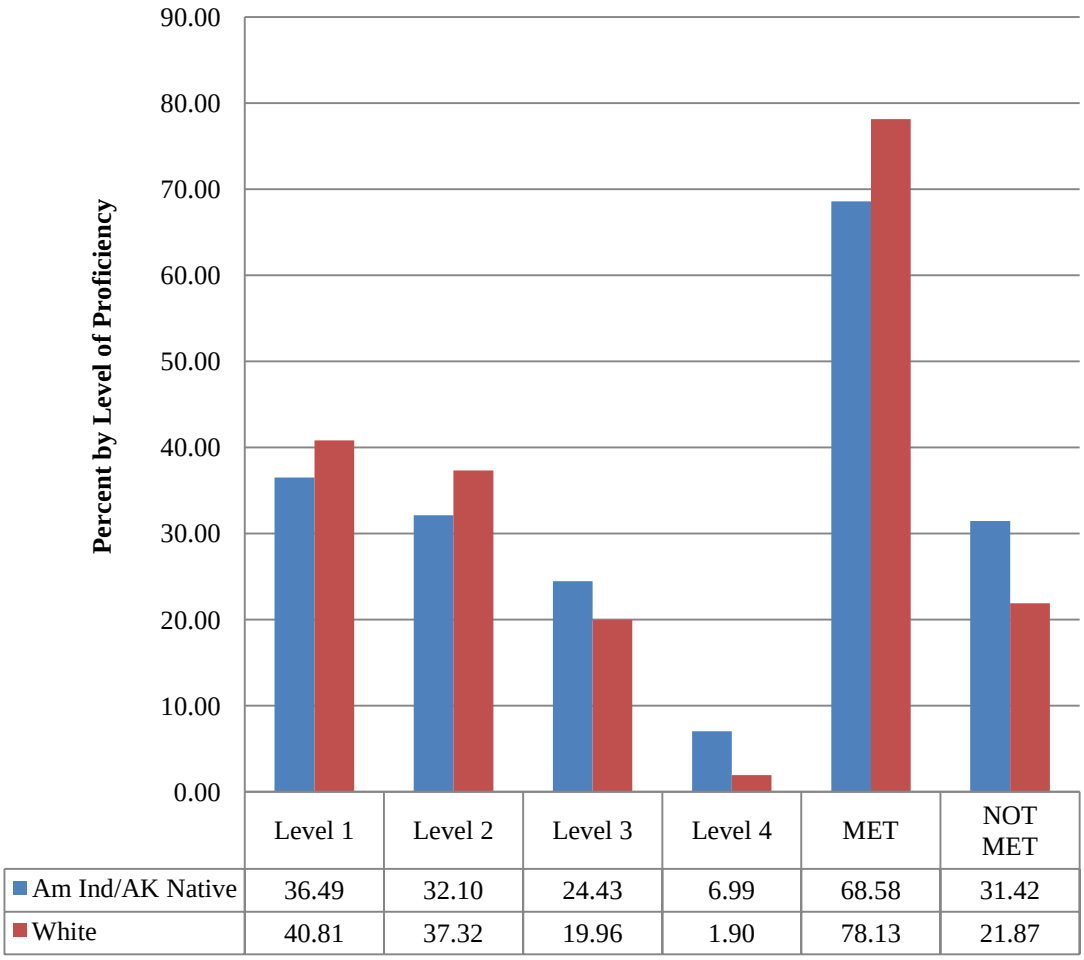

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Am Ind/AK Native | 33.72 | 32.79 | 29.64 | 3.85 | 66.51 | 33.49 |
| White | 36.17 | 41.78 | 19.52 | 2.55 | 77.95 | 22.05 |

| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 23.83 | 18.03 | 22.56 | 7.01 | 24.24 | 24.24 |
| Standard Deviation | White | 14.61 | 12.92 | 12.42 | 2.63 | 11.93 | 11.93 |
| T-TEST | | 0.3319 | 0.0244 | 0.0284 | 0.1967 | 0.0207 | 0.0207 |

**N= 299 AI/AN and 1,029 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 38.* 5th Grade 2008 Mathematics Scores for All Selected Districts

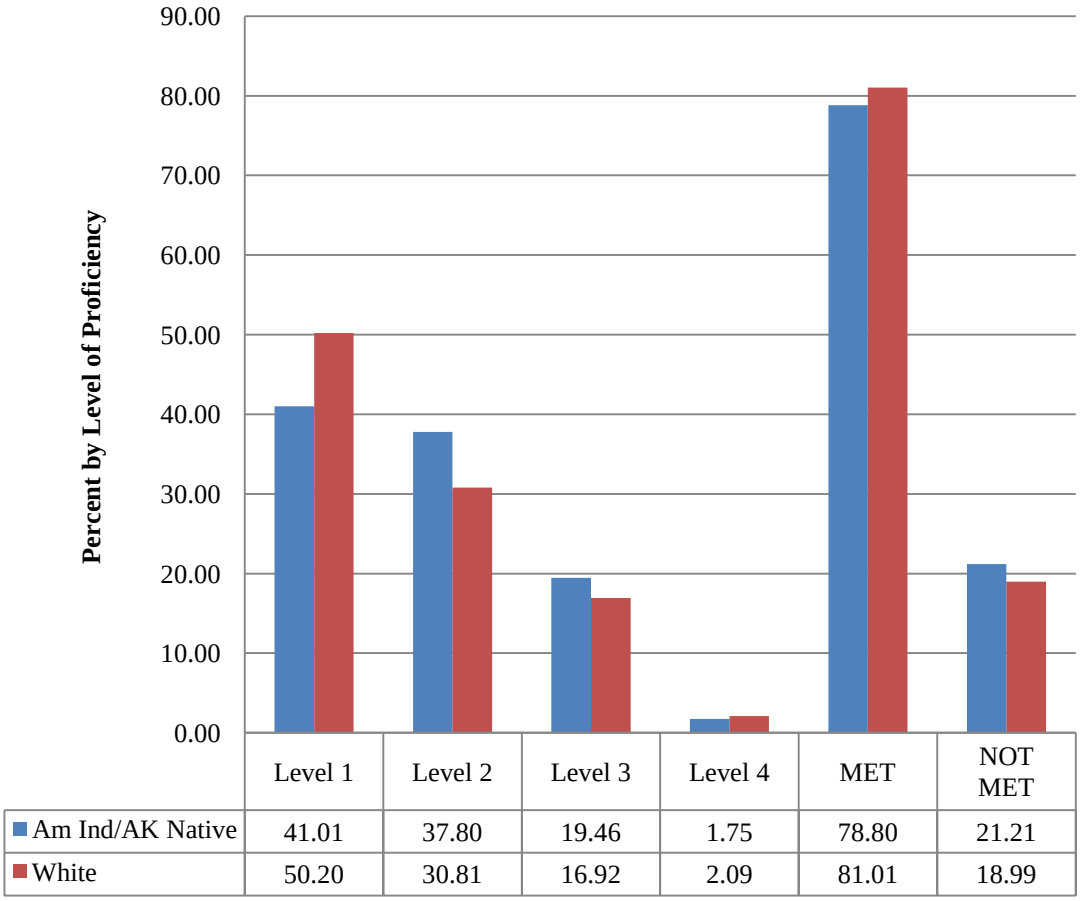



| | | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 16.91 | 15.88 | 13.72 | 7.62 | 15.06 | 15.06 |
| Standard Deviation | White | 19.59 | 13.96 | 21.29 | 3.16 | 20.46 | 20.46 |
| T-TEST | | 0.2245 | 0.1324 | 0.2120 | 0.0044 | 0.0466 | 0.0466 |

**N= 323 AI/AN and 1,276 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 39.* 6th Grade 2008 Mathematics Scores for All Selected Districts

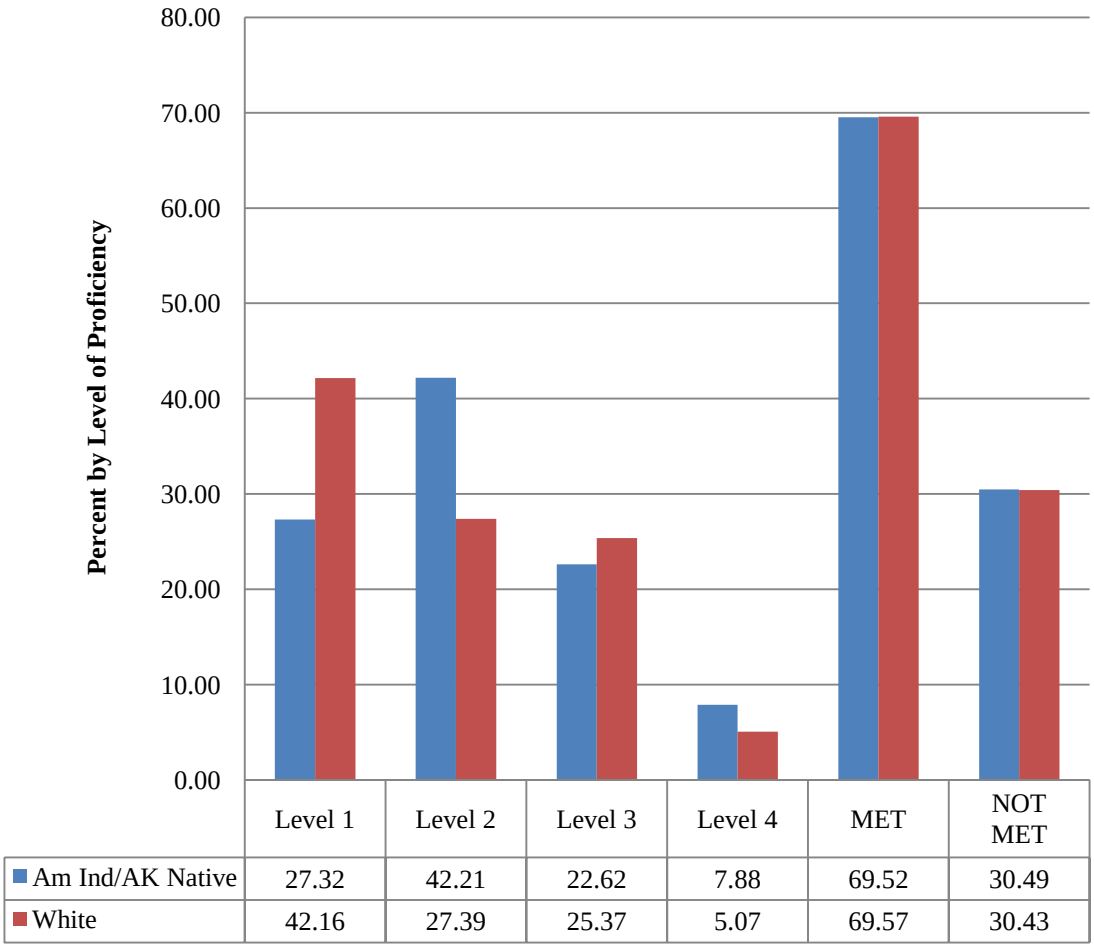



| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Am Ind/AK Native | 41.01 | 37.80 | 19.46 | 1.75 | 78.80 | 21.21 |
| White | 50.20 | 30.81 | 16.92 | 2.09 | 81.01 | 18.99 |

| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 20.15 | 13.91 | 13.67 | 4.14 | 12.71 | 12.71 |
| Standard Deviation | White | 21.24 | 14.91 | 16.59 | 7.59 | 22.67 | 22.67 |
| T-TEST | | 0.0871 | 0.0695 | 0.3032 | 0.4302 | 0.3560 | 0.3560 |

**N= 347 AI/AN and 1,339 White**

*Figure 40.* 7th Grade 2008 Mathematics Scores for All Selected Districts

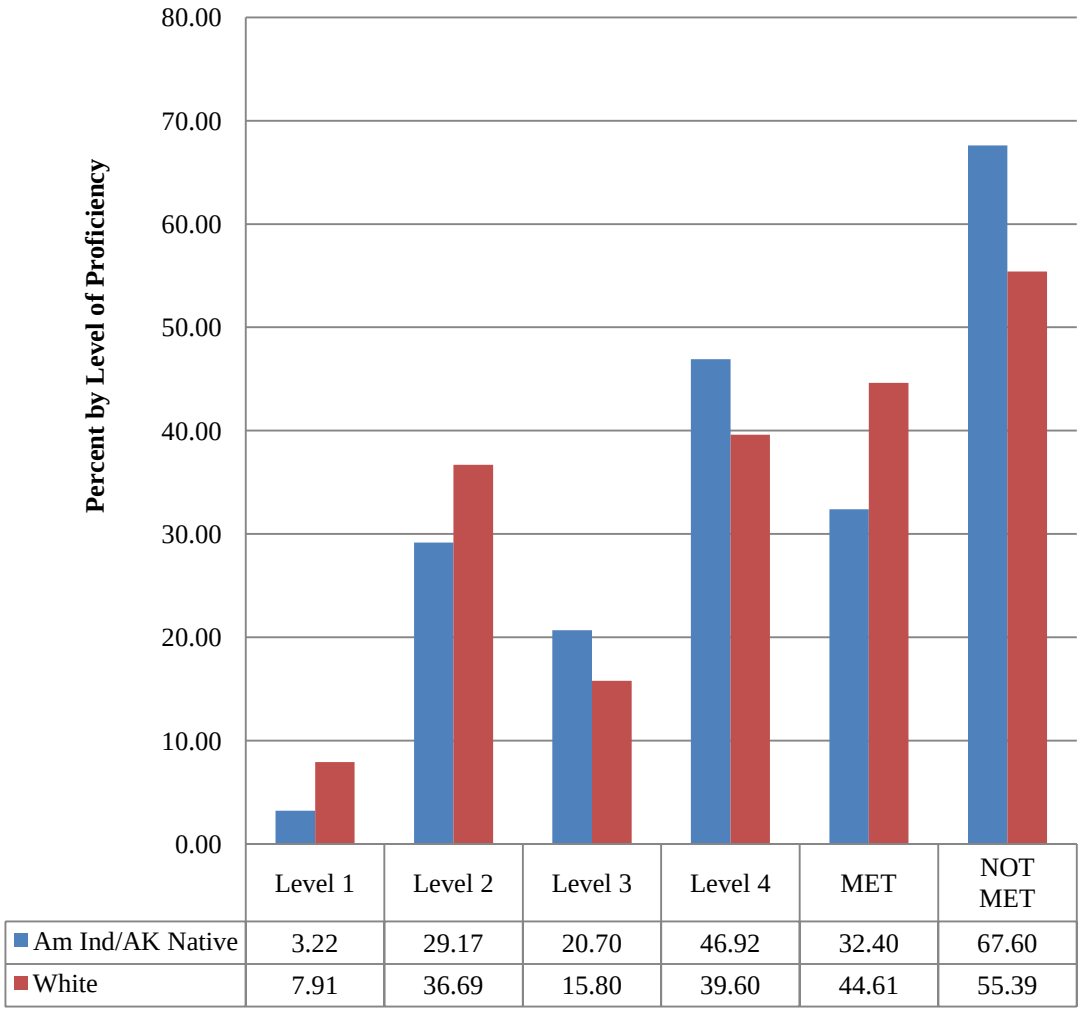



| | | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 17.03 | 18.34 | 18.84 | 7.19 | 21.07 | 21.07 |
| Standard Deviation | White | 19.91 | 12.69 | 21.11 | 4.46 | 20.16 | 20.16 |
| T-TEST | | 0.0087 | 0.0029 | 0.3350 | 0.0750 | 0.4965 | 0.4965 |

**N= 362 AI/AN and 1,322 White**

**Shaded Cells Indicate Statistical Significance at p $\leq$ .05**

*Figure 41.* 8th Grade 2008 Mathematics Scores for All Selected Districts




| | | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 5.64 | 18.82 | 17.68 | 21.49 | 19.66 | 19.66 |
| Standard Deviation | White | 7.39 | 13.50 | 8.41 | 21.96 | 18.20 | 18.20 |
| T-TEST | | 0.0115 | 0.0681 | 0.1248 | 0.1353 | 0.0192 | 0.0192 |

**N= 316 AI/AN and 1,504 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 42.* 11th Grade 2008-2009 MME Mathematics Scores for All Selected Districts

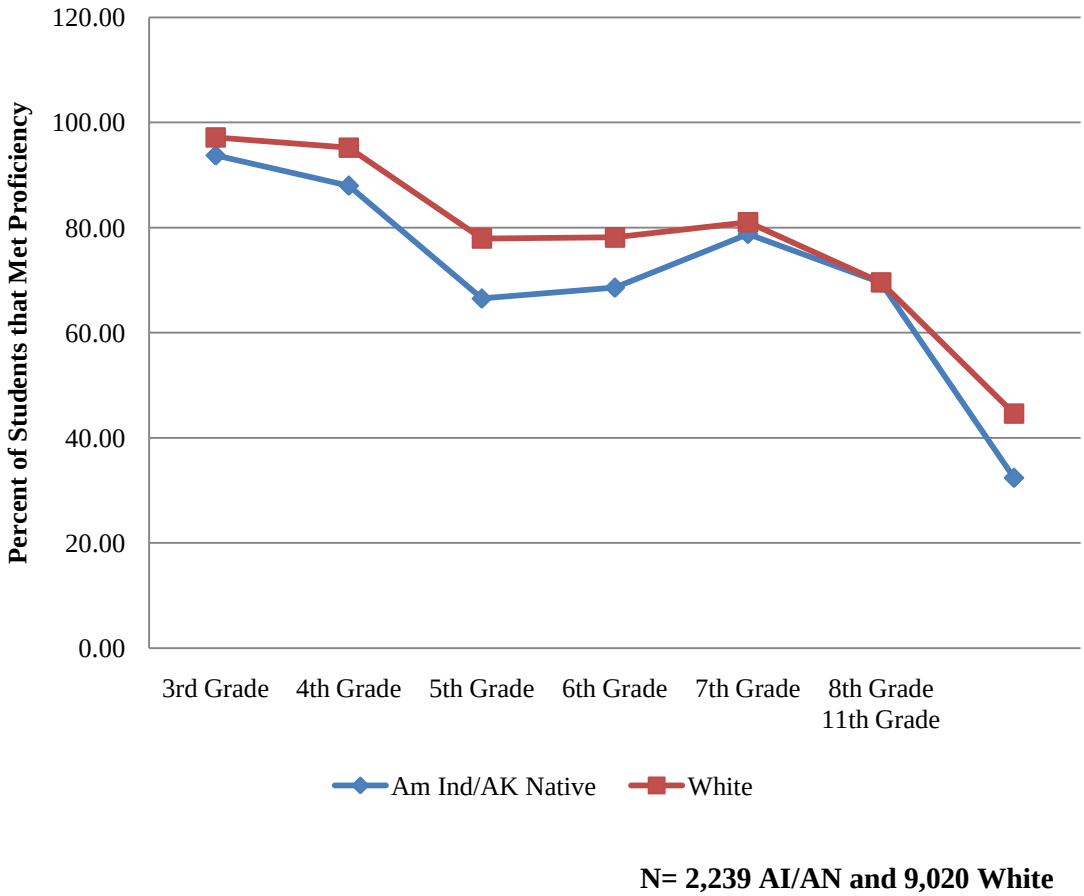
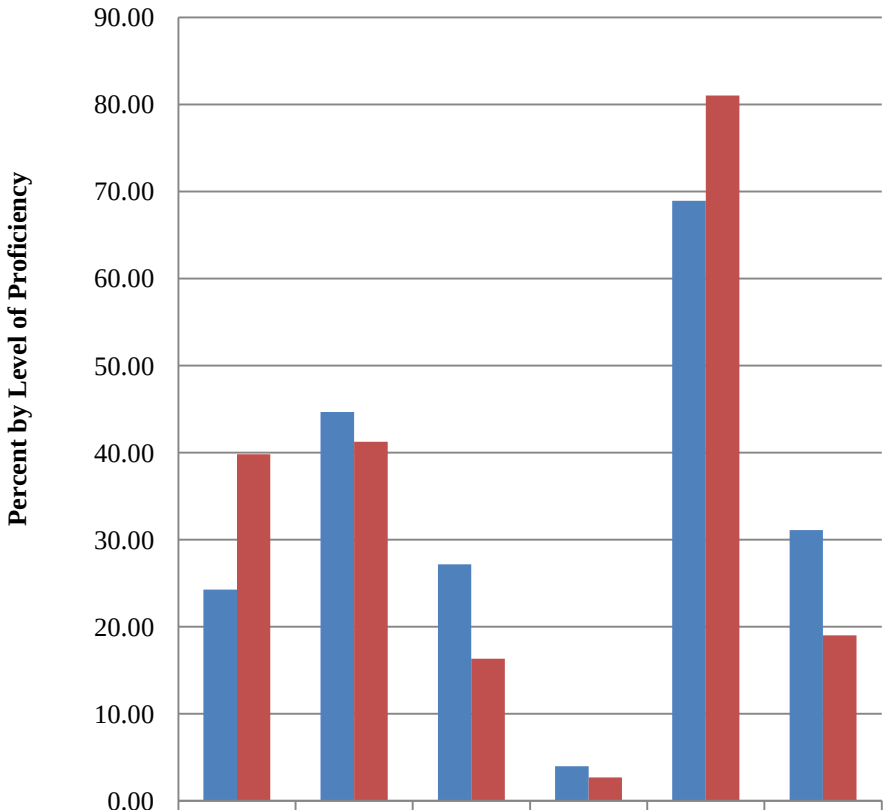



*Figure 43.* Percent of Students that Met Proficiency on 2008 MEAP Mathematics and 2008-2009 MME Mathematics by Grade and Subgroup for Selected Districts

Statistical Significance demonstrated in 3rd, 4th, 5th, 6th, and 11th grade only with $p \leq .05$.



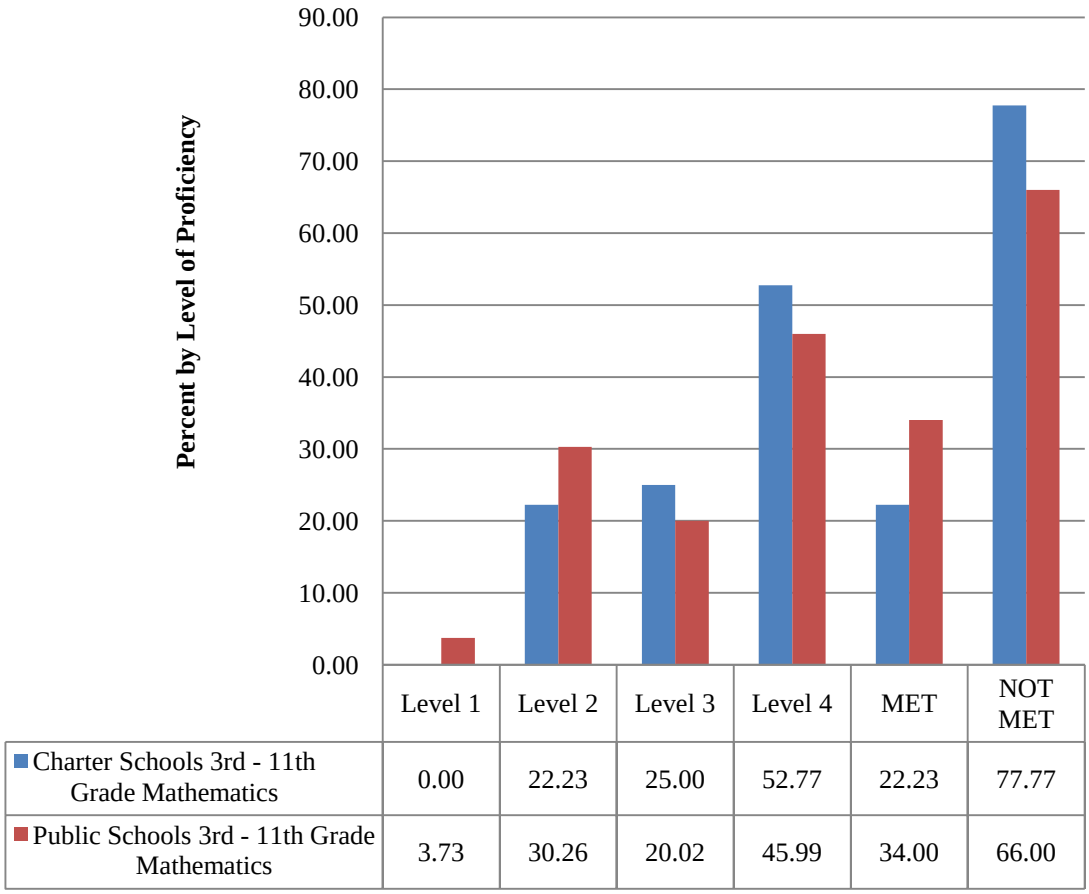

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Charter Schools 3rd - 8th Grade Mathematics | 24.24 | 44.67 | 27.14 | 3.94 | 68.92 | 31.08 |
| Public Schools 3rd - 8th Grade Mathematics | 39.80 | 41.22 | 16.31 | 2.68 | 81.01 | 18.99 |

| | | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|---|
| Charter Schools | Stand. Dev. | Am Ind/AK Native | 17.68 | 20.56 | 22.93 | 8.21 | 25.01 | 25.01 |
| Public Schools | Stand. Dev. | White | 22.45 | 20.84 | 16.46 | 5.28 | 18.31 | 18.31 |
| | T-TEST | | 0.0003 | 0.2285 | 0.0178 | 0.2381 | 0.0160 | 0.0160 |

**N= 282 AI/AN in Charter Schools and 1,641 AI/AN in Public Schools**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 44.* 3rd Grade through 8th Grade 2008 MEAP Mathematics Scores for American Indian/Alaska Native in Charter Schools versus Public Schools

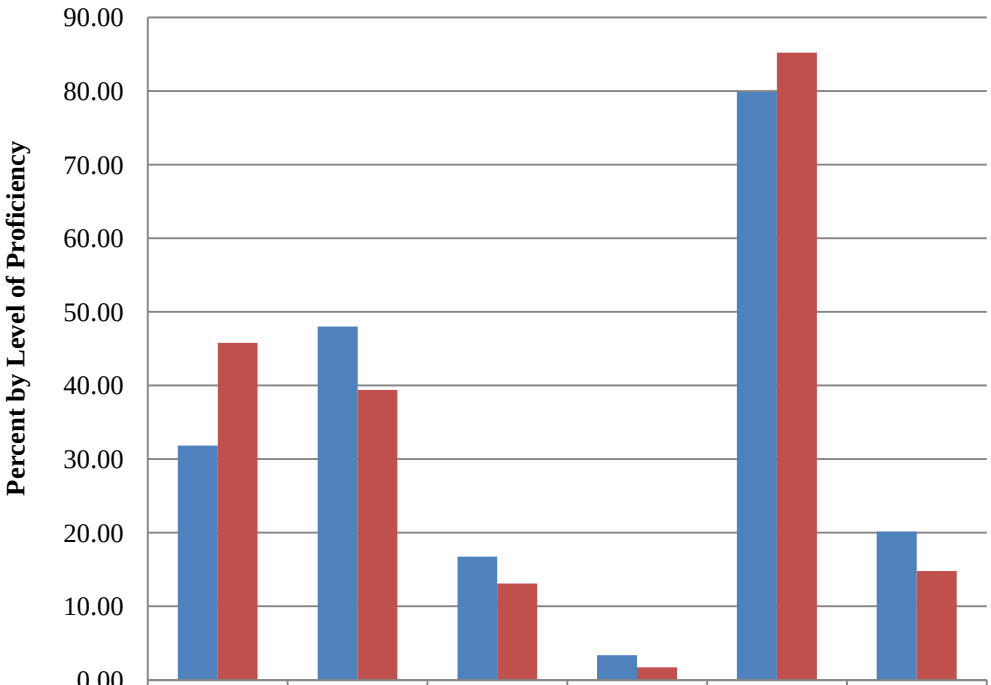



| | | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|---|
| Charter Schools | Stand. Dev. | Am Ind/AK Native | 0.00 | 4.79 | 25.00 | 20.99 | 4.79 | 4.79 |
| Public Schools | Stand. Dev. | White | 5.93 | 20.04 | 17.07 | 21.98 | 20.70 | 20.70 |
| | T-TEST | | 0.0067 | 0.0774 | 0.3836 | 0.3223 | 0.0241 | 0.0241 |

**N= 18 AI/AN in Charter Schools and 298 AI/AN in Public Schools**

**Shaded Cells Indicate Statistical Significance at p $\leq$ .05**

*Figure 45.* 11th Grade 2008-2009 MME Mathematics Scores for American Indian/Alaska Native in Charter Schools versus Public Schools



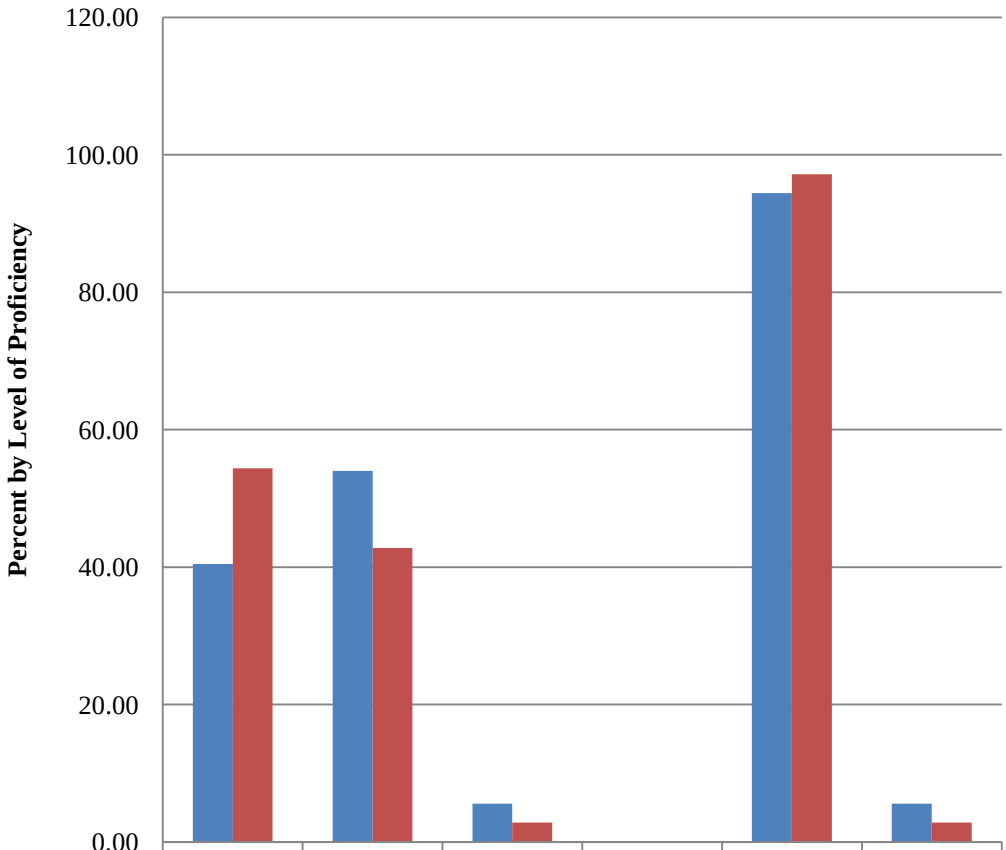

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Am Ind/AK Native | 31.83 | 48.02 | 16.76 | 3.38 | 79.85 | 20.15 |
| White | 45.80 | 39.39 | 13.10 | 1.70 | 85.20 | 14.80 |

| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 22.41 | 23.75 | 15.69 | 8.08 | 19.17 | 19.17 |
| Standard Deviation | White | 19.59 | 16.82 | 16.04 | 3.88 | 17.43 | 17.43 |
| T-TEST | | 0.0000 | 0.0002 | 0.0239 | 0.0117 | 0.0062 | 0.0063 |

**N= 1,845 AI/AN and 7,260 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 46.* 3rd Grade through 8th Grade 2009 MEAP Mathematics Score for All Selected Districts



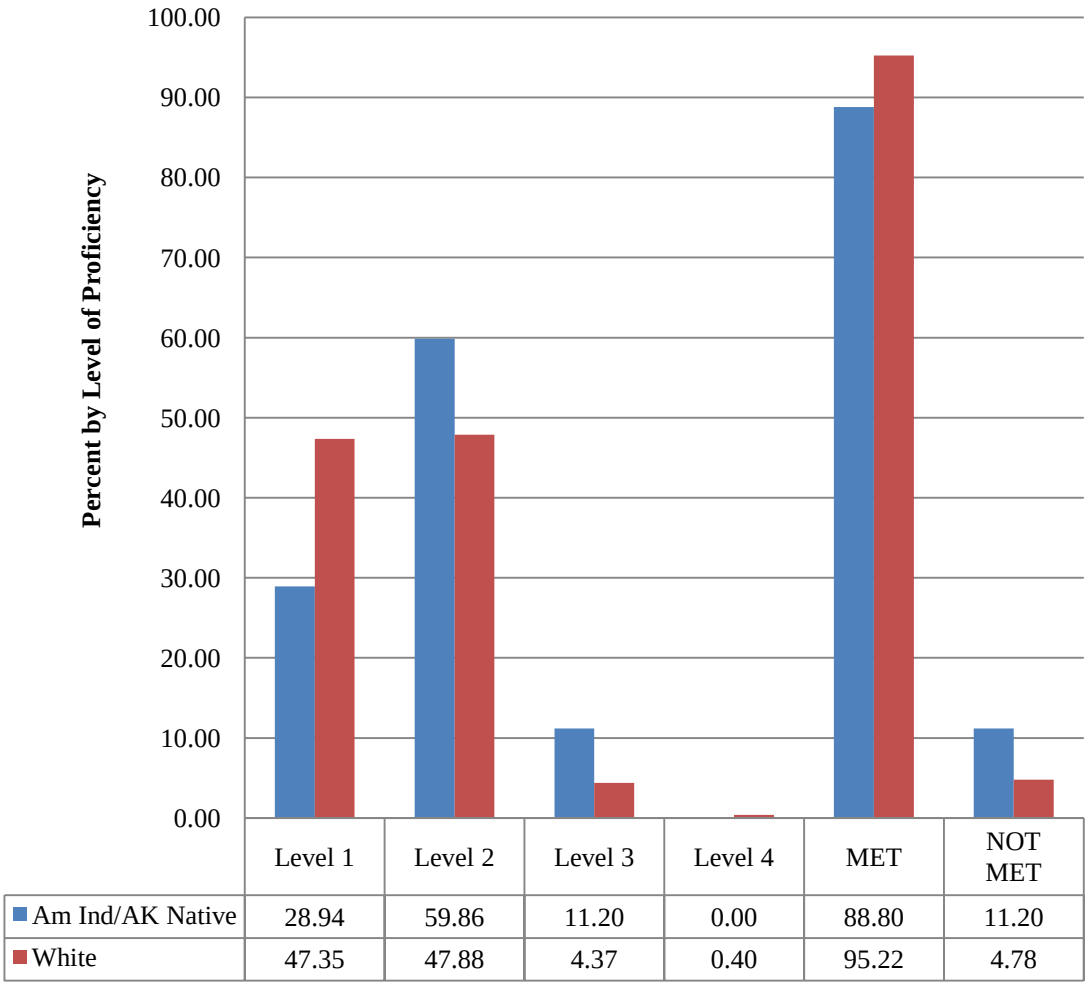

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Am Ind/AK Native | 40.43 | 53.99 | 5.58 | 0.00 | 94.42 | 5.58 |
| White | 54.39 | 42.79 | 2.83 | 0.00 | 97.17 | 2.83 |

| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 24.35 | 23.40 | 10.26 | 0.00 | 10.26 | 10.26 |
| Standard Deviation | White | 20.58 | 19.21 | 3.80 | 0.00 | 3.80 | 3.80 |
| T-TEST | | 0.0082 | 0.0208 | 0.0840 | | 0.0840 | 0.0840 |

**N= 296 AI/AN and 1,178 White**

**Shaded Cells Indicate Statistical Significance at p $\leq$ .05**

*Figure 47.* 3rd Grade 2009 MEAP Mathematics Score for All Selected Districts

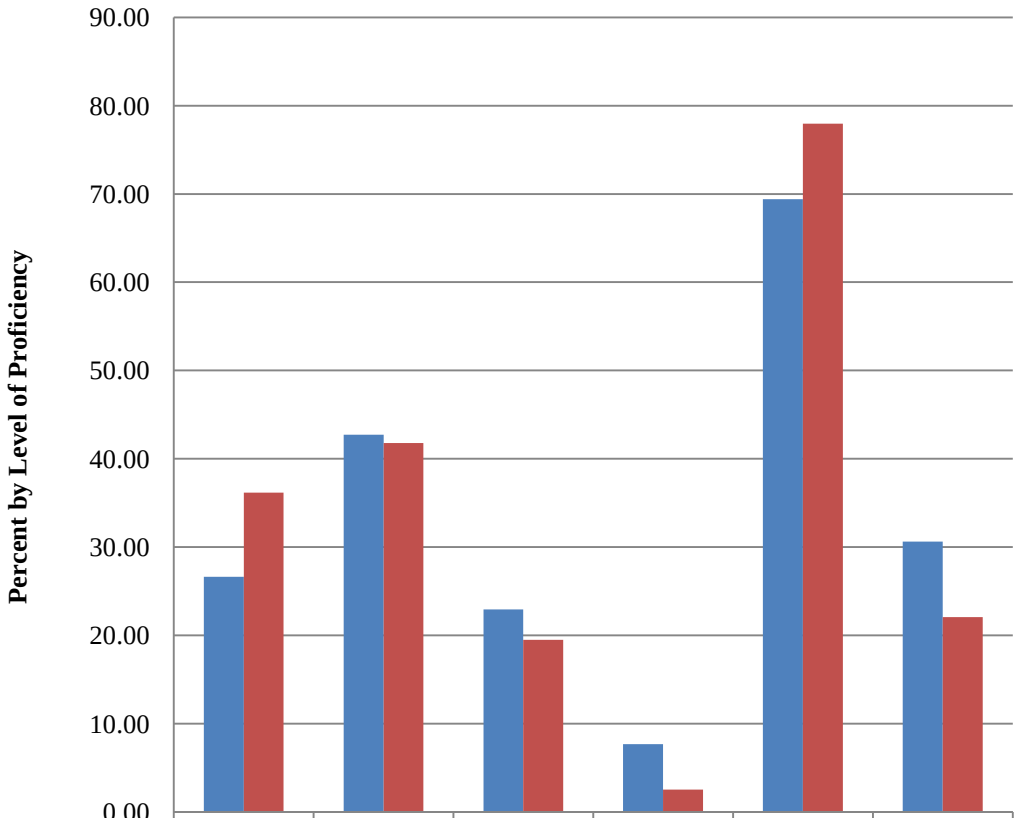



| | | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 28.20 | 24.12 | 14.62 | 0.00 | 14.62 | 14.62 |
| Standard Deviation | White | 17.15 | 16.31 | 4.51 | 1.56 | 4.67 | 4.67 |
| T-TEST | | 0.0016 | 0.0130 | 0.0089 | | 0.0128 | 0.0128 |

**N= 242 AI/AN and 1,116 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 48.* 4th Grade 2009 MEAP Mathematics Score for All Selected Districts

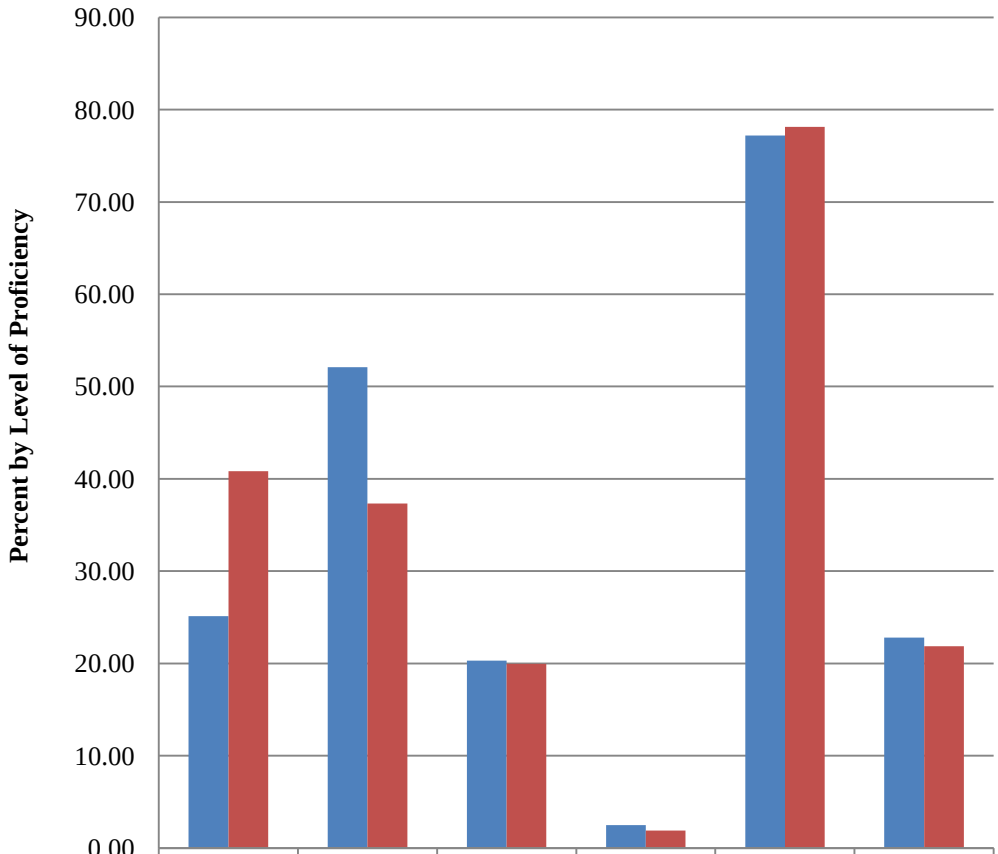



| | | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 24.01 | 22.06 | 16.38 | 13.60 | 21.21 | 21.21 |
| Standard Deviation | White | 14.61 | 12.92 | 12.42 | 2.63 | 11.93 | 11.93 |
| T-TEST | | 0.0466 | 0.4248 | 0.2028 | 0.0338 | 0.0410 | 0.0410 |

**N= 316 AI/AN and 1,029 White**

**Shaded Cells Indicate Statistical Significance at p ≤.05**

*Figure 49.* 5th Grade 2009 MEAP Mathematics Score for All Selected Districts

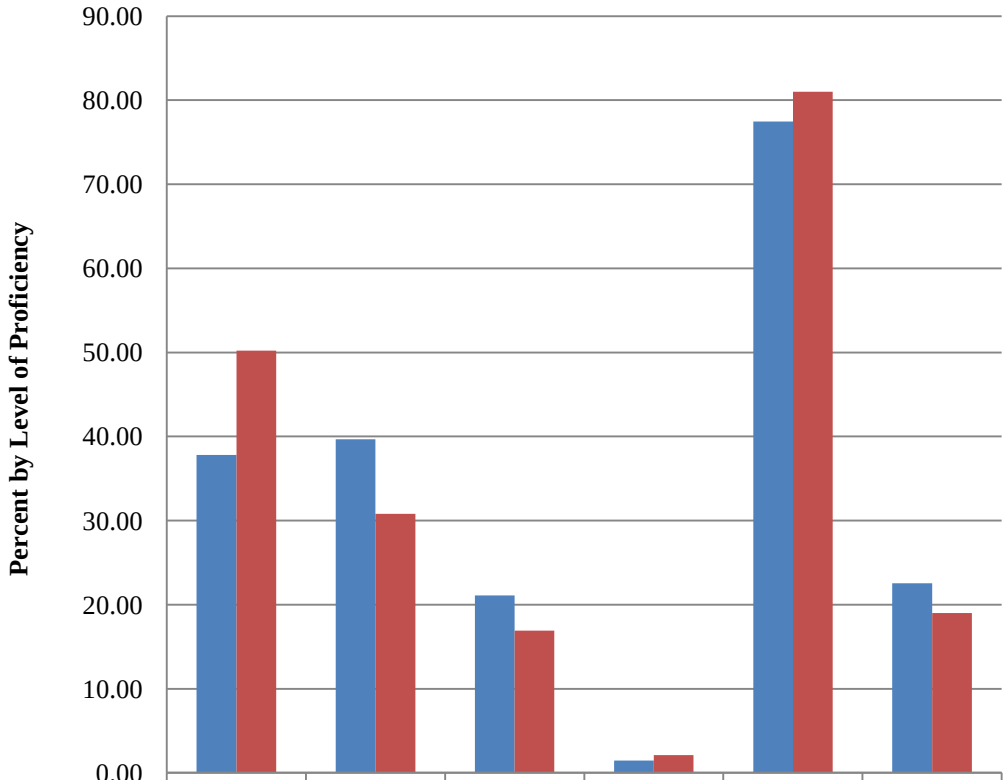



| | | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 17.59 | 21.63 | 12.47 | 4.34 | 13.97 | 13.97 |
| Standard Deviation | White | 19.59 | 13.96 | 21.29 | 3.16 | 20.46 | 20.46 |
| T-TEST | | 0.0047 | 0.0064 | 0.4738 | 0.3143 | 0.4323 | 0.4323 |

**N= 338 AI/AN and 1,276 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 50.* 6th Grade 2009 MEAP Mathematics Score for All Selected Districts



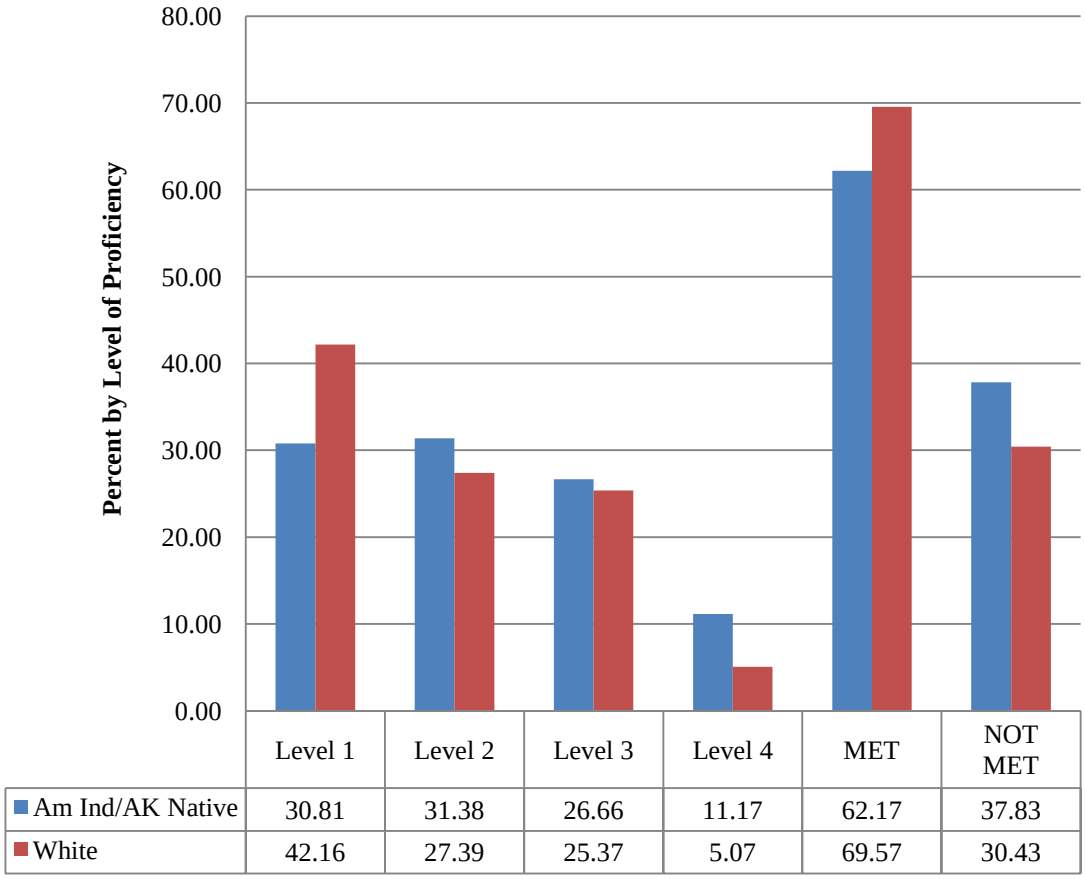

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Am Ind/AK Native | 37.82 | 39.67 | 21.09 | 1.44 | 77.48 | 22.53 |
| White | 50.20 | 30.81 | 16.92 | 2.09 | 81.01 | 18.99 |

| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 15.25 | 16.29 | 15.58 | 3.67 | 17.03 | 17.03 |
| Standard Deviation | White | 21.24 | 14.91 | 16.59 | 7.59 | 22.67 | 22.67 |
| T-TEST | | 0.0226 | 0.0422 | 0.2122 | 0.3682 | 0.2938 | 0.2938 |

**N= 320 AI/AN and 1,339 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 51.* 7th Grade 2009 MEAP Mathematics Score for All Selected Districts

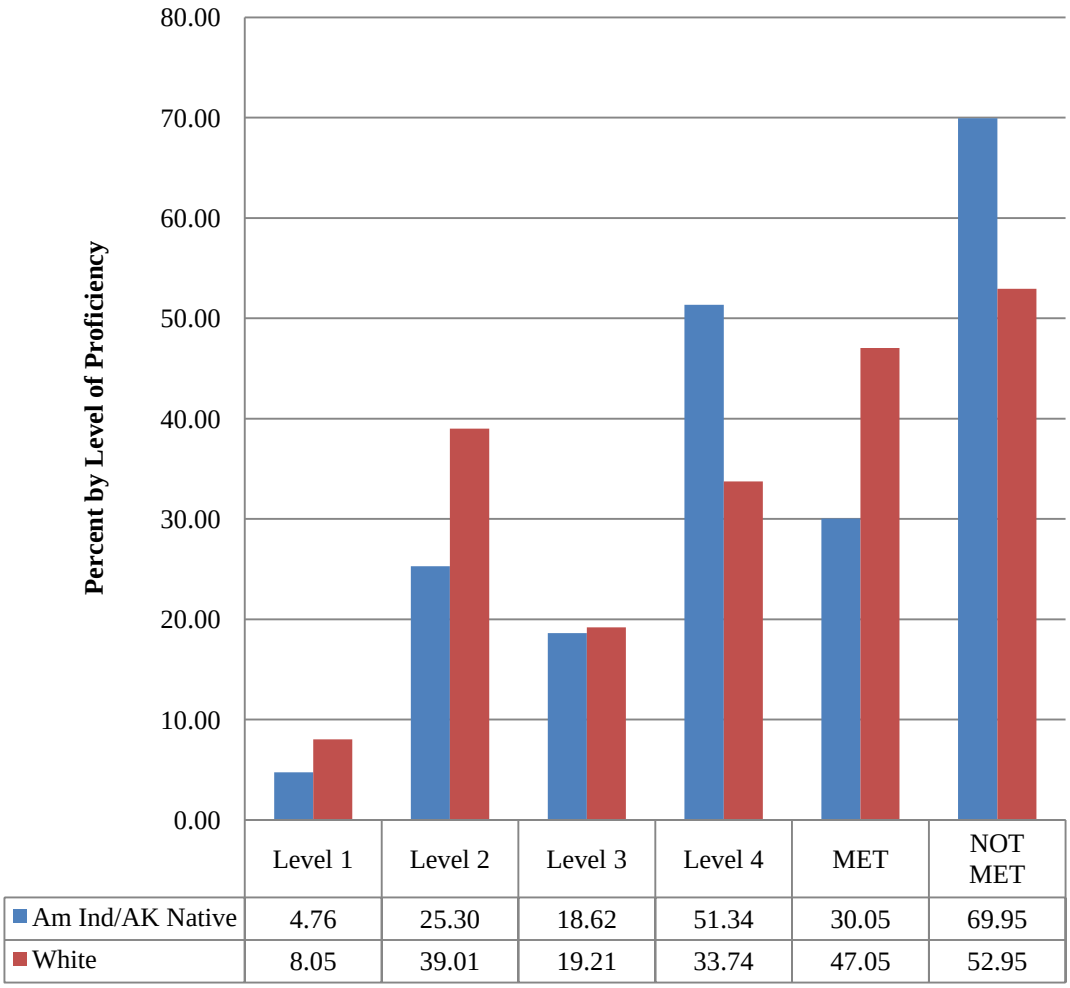



| | | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 12.10 | 22.26 | 13.45 | 9.87 | 17.46 | 17.46 |
| Standard Deviation | White | 19.22 | 12.47 | 21.46 | 4.58 | 20.50 | 20.50 |
| T-TEST | | 0.0317 | 0.2300 | 0.4422 | 0.0063 | 0.1779 | 0.1779 |

**N= 333 AI/AN and 1,322 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 52.* 8th Grade 2009 MEAP Mathematics Score for All Selected Districts

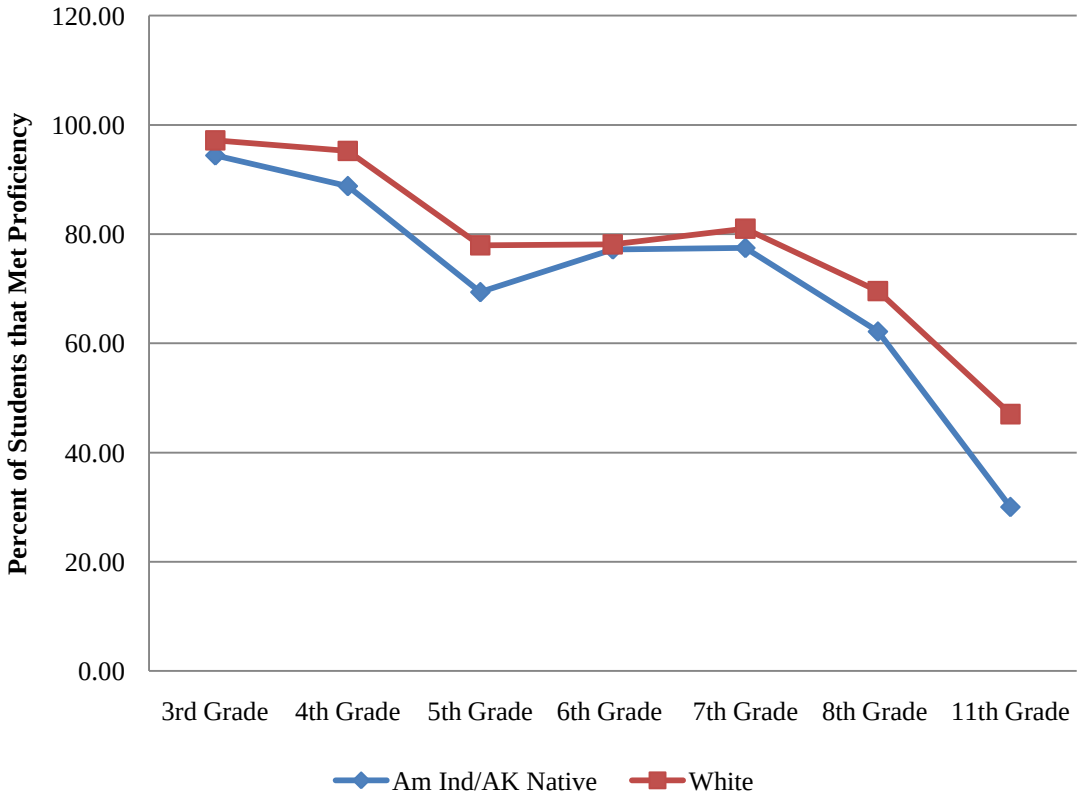



| | | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 9.88 | 21.77 | 13.21 | 26.93 | 25.04 | 25.04 |
| Standard Deviation | White | 9.05 | 17.10 | 8.25 | 20.71 | 21.44 | 21.44 |
| T-TEST | | 0.1902 | 0.0613 | 0.0906 | 0.0150 | 0.0500 | 0.0500 |

**N= 261 AI/AN and 1,266 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

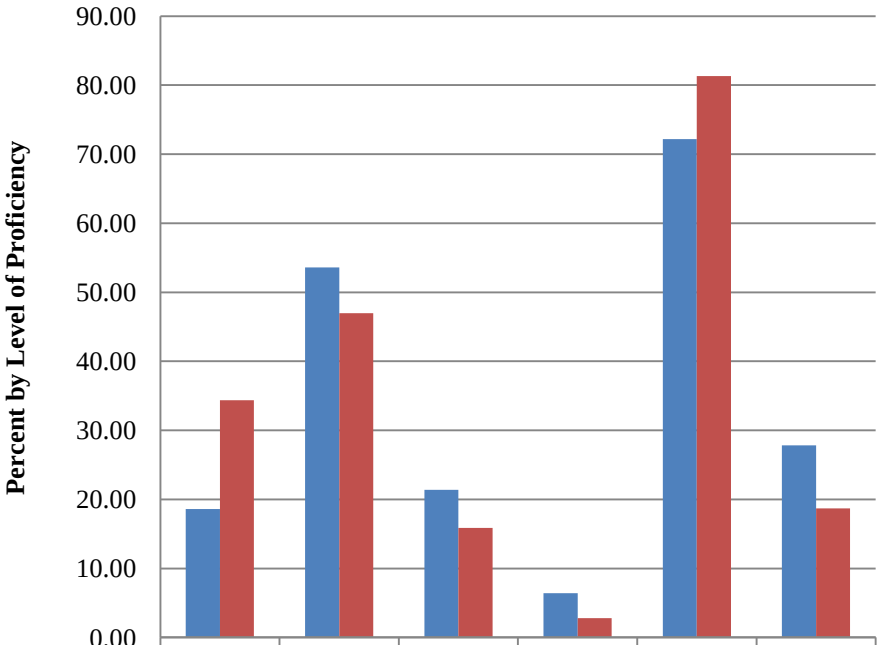
*Figure 53.* 11th Grade 2009-2010 MME Mathematics Score for All Selected Districts




**N= 2,106 AI/AN and 8,526 White**

*Figure 54.* Percent of Students that Met Proficiency on 2009 MEAP and 2009-2010 MME Mathematics by Grade and Subgroup for All Selected Districts

Statistical Significance demonstrated in $4^{th}$, $5^{th}$, and $11^{th}$ grade only with $p \leq .05$



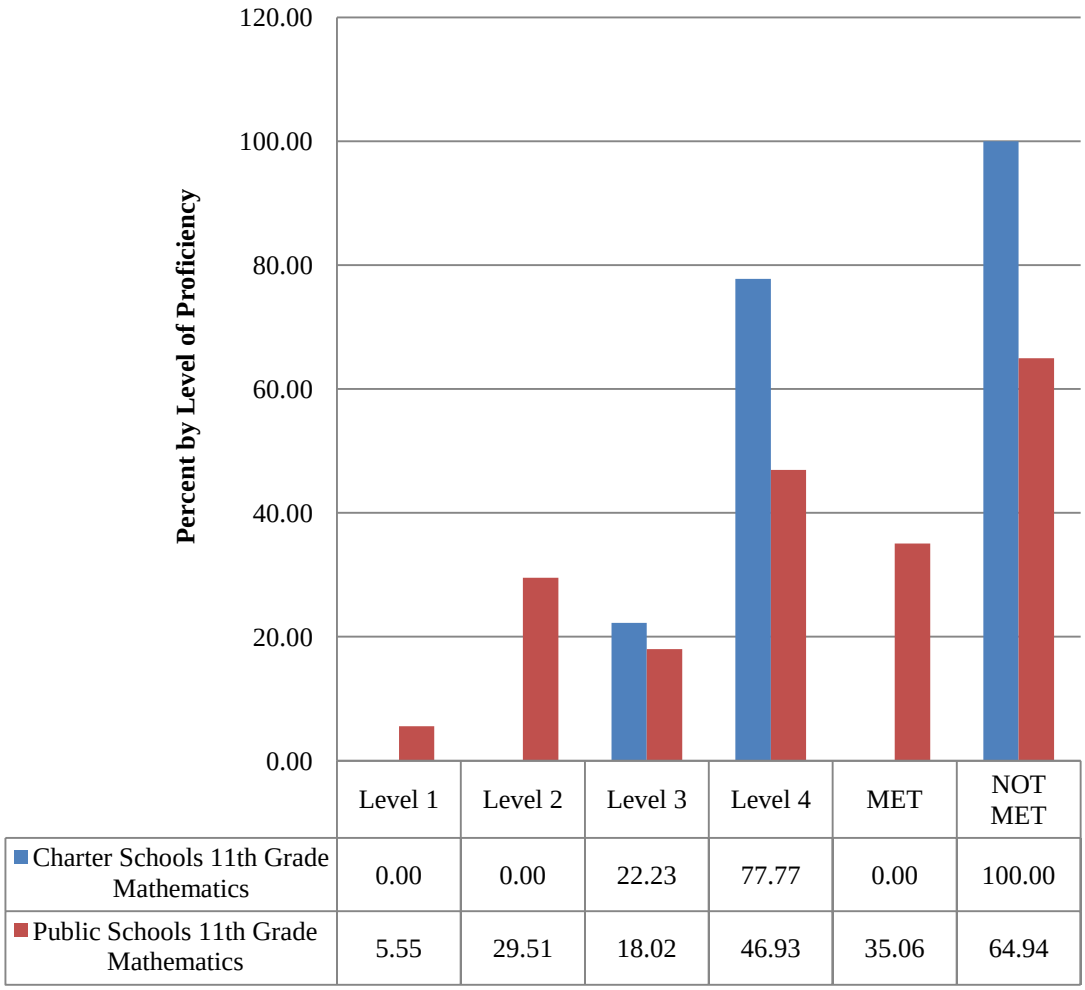

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Charter Schools 3rd - 8th Grade Mathematics | 18.59 | 53.60 | 21.39 | 6.42 | 72.19 | 27.81 |
| Public Schools 3rd - 8th Grade Mathematics | 34.38 | 46.95 | 15.87 | 2.80 | 81.32 | 18.68 |

| | | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|---|
| Charter Schools | Stand. Dev. | Am Ind/AK Native | 18.53 | 28.62 | 18.98 | 13.40 | 24.32 | 24.32 |
| Public Schools | Stand. Dev. | Am Ind/AK Native | 22.26 | 22.67 | 14.90 | 6.52 | 17.76 | 17.76 |
| | T-TEST | | 0.0004 | 0.1455 | 0.0945 | 0.1035 | 0.0453 | 0.0453 |

**N= 283 AI/AN in Charter Schools and 1,562 AI/AN in Public Schools**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 55.* 3rd Grade through 8th Grade 2009 MEAP Mathematics Scores for American Indian/Alaska Native in Charter Schools versus Public Schools



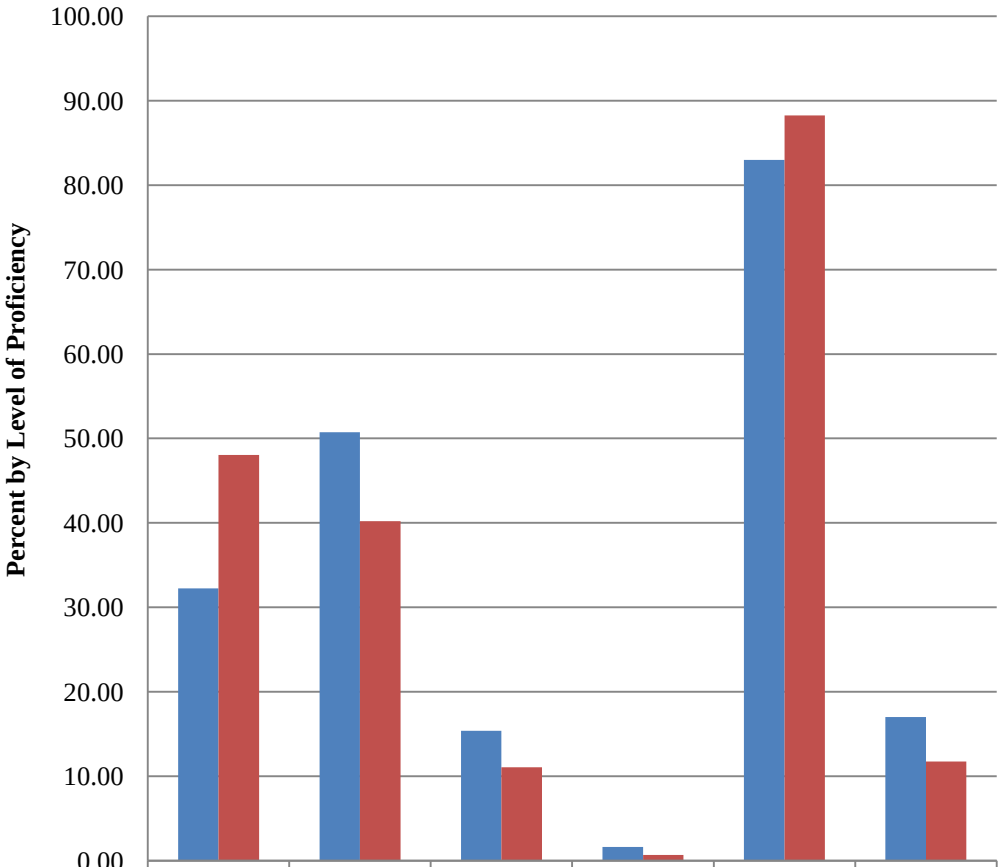

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Charter Schools 11th Grade Mathematics | 0.00 | 0.00 | 22.23 | 77.77 | 0.00 | 100.00 |
| Public Schools 11th Grade Mathematics | 5.55 | 29.51 | 18.02 | 46.93 | 35.06 | 64.94 |

| | | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|---|
| Charter Schools | Stand. Dev. | Am Ind/AK Native | 0.00 | 0.00 | 2.31 | 38.51 | 0.00 | 0.00 |
| Public Schools | Stand. Dev. | Am Ind/AK Native | 13.83 | 18.36 | 11.36 | 18.61 | 22.14 | 22.14 |
| | T-TEST | | 0.0145 | 0.0000 | 0.0001 | 0.1490 | 0.0000 | 0.0000 |

**N= 12 AI/AN in Charter Schools and 249 AI/AN in Public Schools**

**Shaded Cells Indicate Statistical Significance at p $\leq$ .05**

*Figure 56.* 11th Grade 2009-2010 MME Mathematics Scores for American Indian/Alaska Native in Charter Schools versus Public Schools



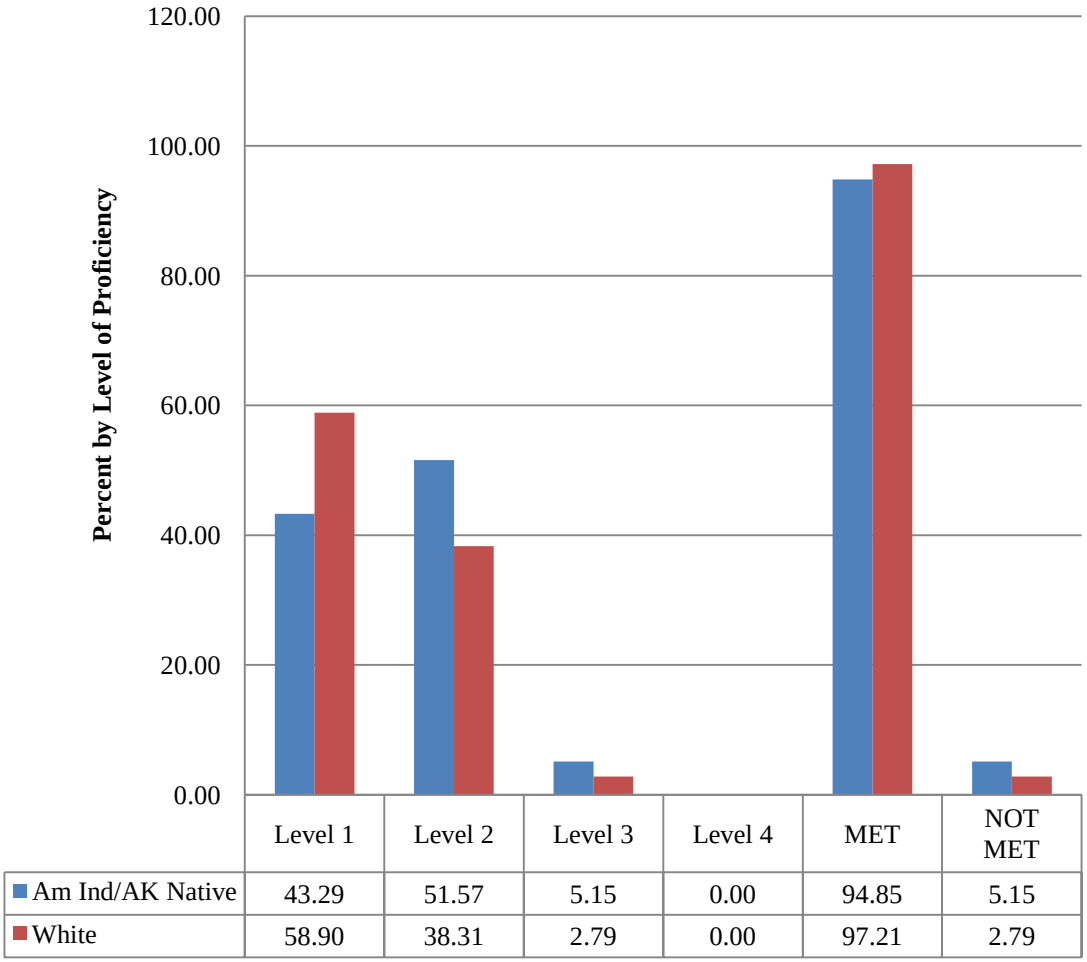

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Am Ind/AK Native | 32.25 | 50.72 | 15.40 | 1.62 | 82.98 | 17.02 |
| White | 48.03 | 40.21 | 11.06 | 0.70 | 88.24 | 11.76 |

| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 24.38 | 26.42 | 19.30 | 5.03 | 20.73 | 20.73 |
| Standard Deviation | White | 17.58 | 14.15 | 10.89 | 1.74 | 11.24 | 11.24 |
| T-TEST | | 0.0000 | 0.0000 | 0.0096 | 0.0188 | 0.0039 | 0.0039 |

**N= 1,651 AI/AN and 7,540 White**

**Shaded Cells Indicate Statistical Significance at p $\leq$ .05**

*Figure 57.* 3rd Grade through 8th Grade 2010 MEAP Mathematics Score for All Selected Districts

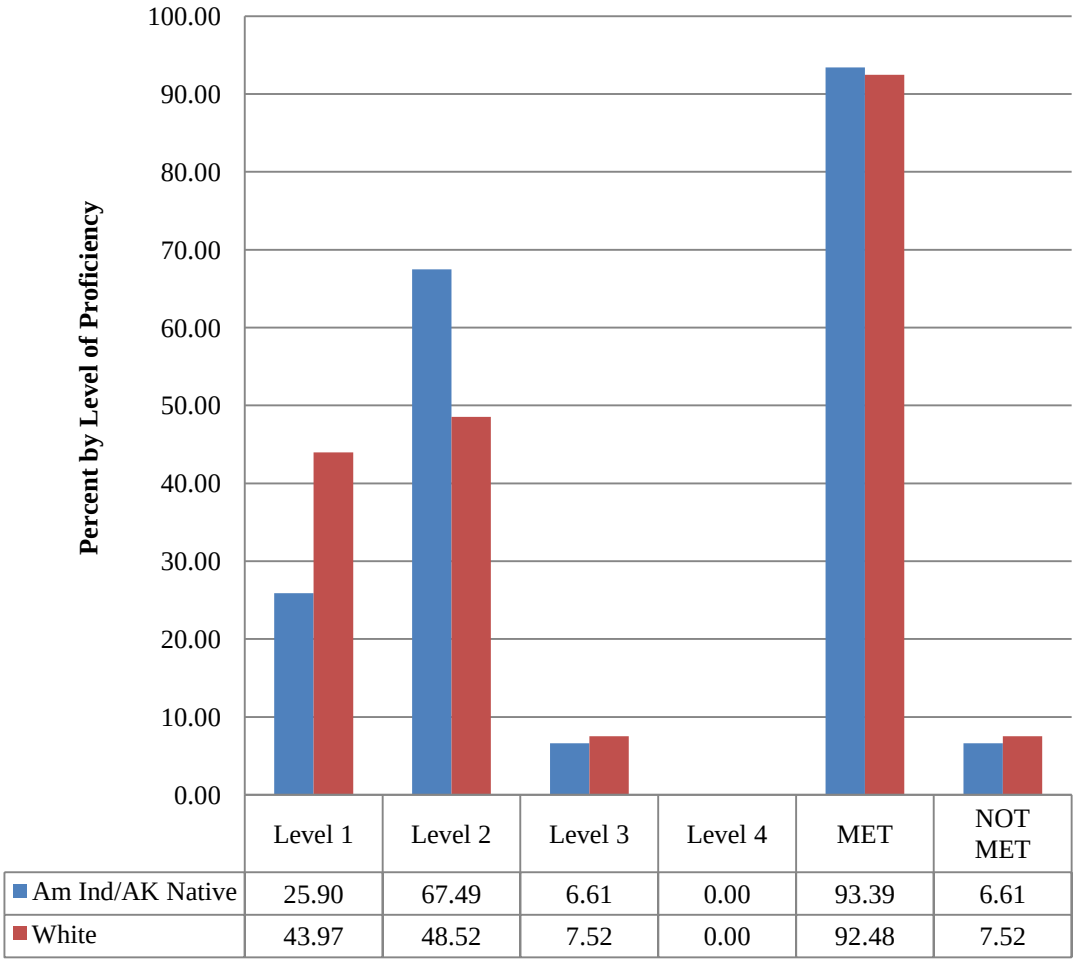



| | | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 29.33 | 29.88 | 10.84 | 0.00 | 10.84 | 10.84 |
| Standard Deviation | White | 13.79 | 13.51 | 3.05 | 0.00 | 3.05 | 3.05 |
| T-TEST | | 0.0070 | 0.0186 | 0.1370 | | 0.1370 | 0.1370 |

**N= 224 AI/AN and 1,203 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 58.* 3rd Grade 2010 MEAP Mathematics Score for All Selected Districts



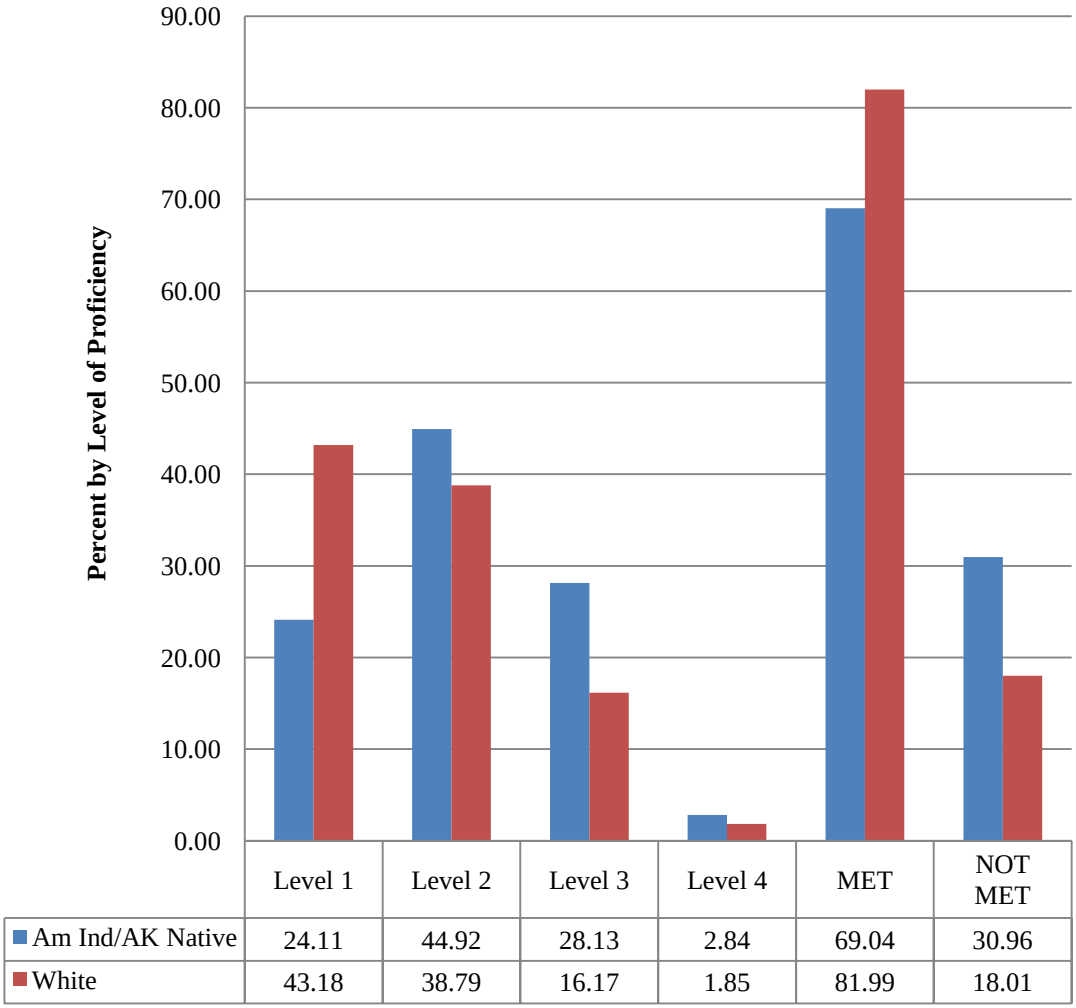

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Am Ind/AK Native | 25.90 | 67.49 | 6.61 | 0.00 | 93.39 | 6.61 |
| White | 43.97 | 48.52 | 7.52 | 0.00 | 92.48 | 7.52 |

| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 25.82 | 26.69 | 10.90 | 0.00 | 10.90 | 10.90 |
| Standard Deviation | White | 17.27 | 14.38 | 8.12 | 0.00 | 8.12 | 8.12 |
| T-TEST | | 0.0009 | 0.0005 | 0.3527 | | 0.3527 | 0.3527 |

**N=279AI/AN and 1,306 White**

**Shaded Cells Indicate Statistical Significance at p $\leq$ .05**

*Figure 59.* 4th Grade 2010 MEAP Mathematics Score for All Selected Districts

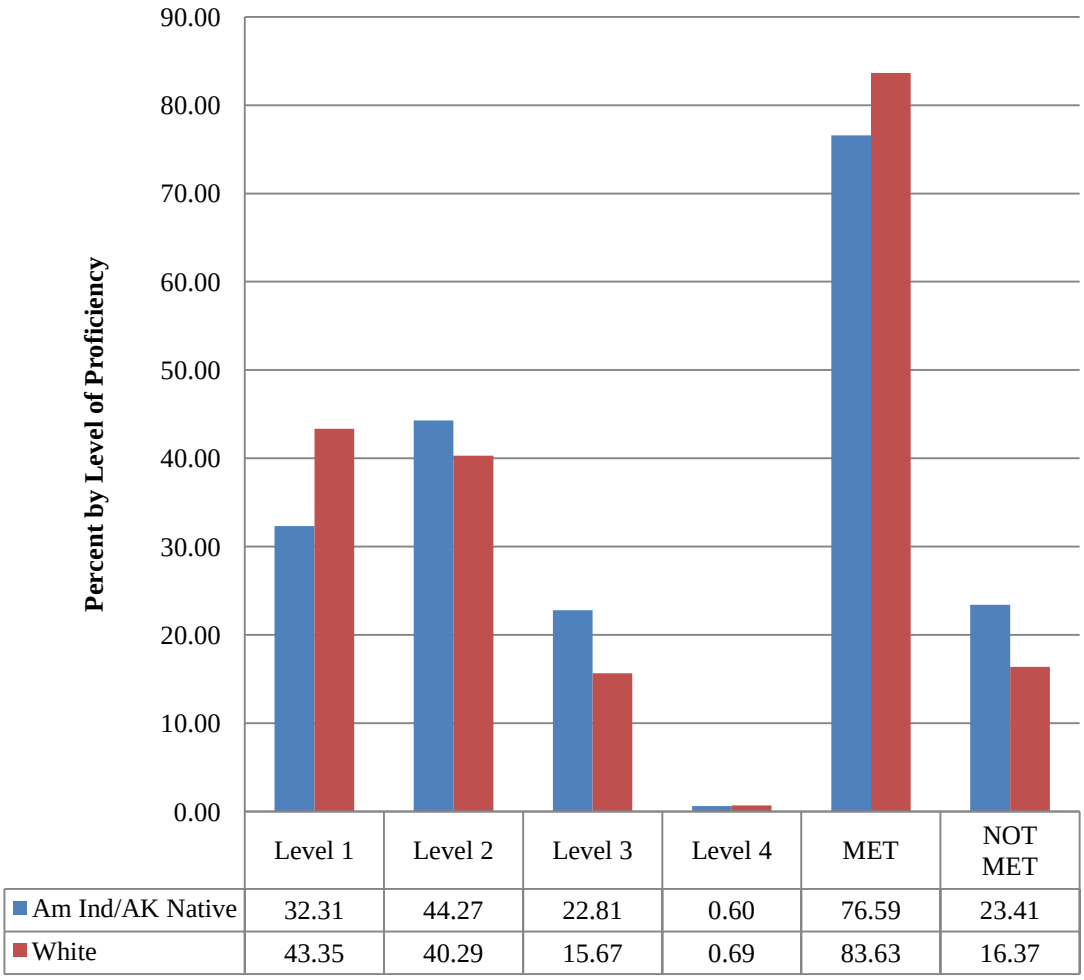



| | | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 21.63 | 26.07 | 24.09 | 6.31 | 25.72 | 25.72 |
| Standard Deviation | White | 13.62 | 11.58 | 7.51 | 3.10 | 8.03 | 8.03 |
| T-TEST | | 0.0004 | 0.1510 | 0.0141 | 0.2485 | 0.0131 | 0.0131 |

**N=237AI/AN and 1,184 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 60.* 5th Grade 2010 MEAP Mathematics Score for All Selected Districts

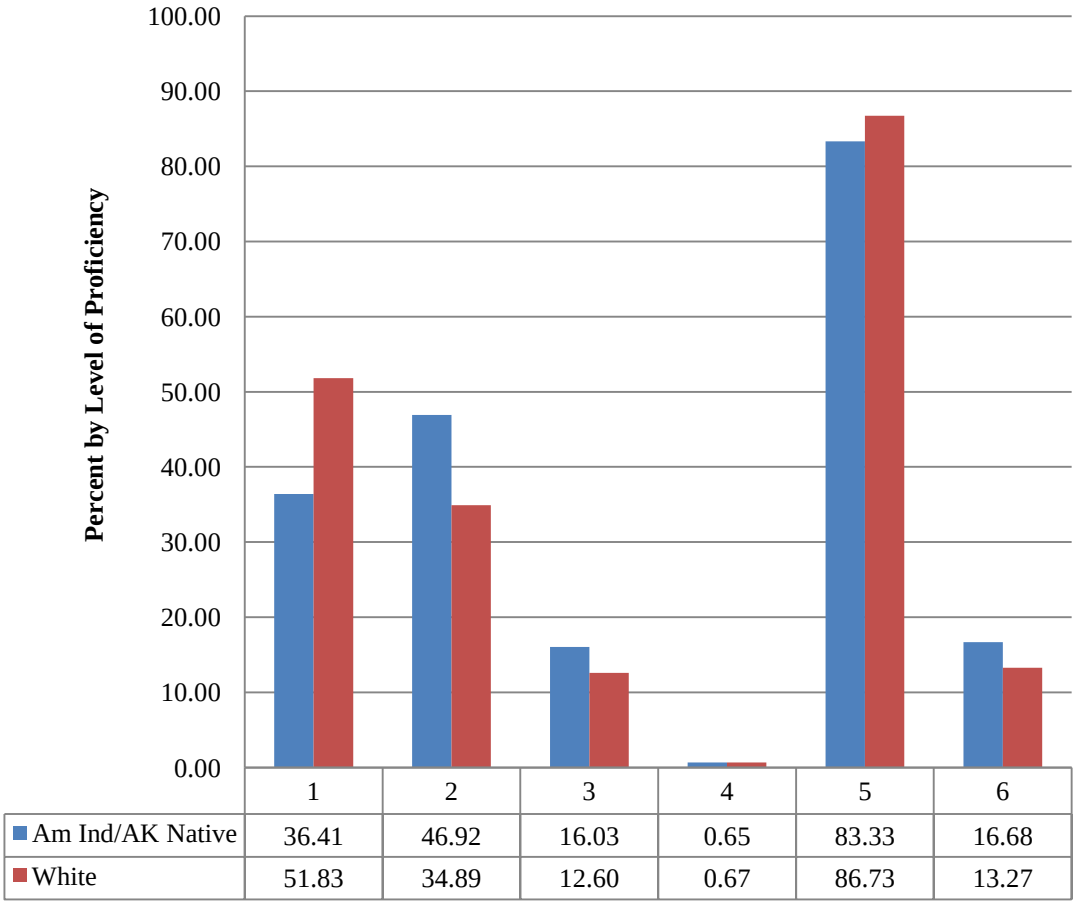



| | | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 22.08 | 21.98 | 19.32 | 2.43 | 19.43 | 19.43 |
| Standard Deviation | White | 18.97 | 14.48 | 11.17 | 0.93 | 11.16 | 11.16 |
| T-TEST | | 0.0468 | 0.2480 | 0.0774 | 0.4378 | 0.0809 | 0.0809 |

**N=325AI/AN and 1,246 White**

**Shaded Cell Indicates Statistical Significance at p ≤ .05**

*Figure 61.* 6th Grade 2010 MEAP Mathematics Score for All Selected Districts



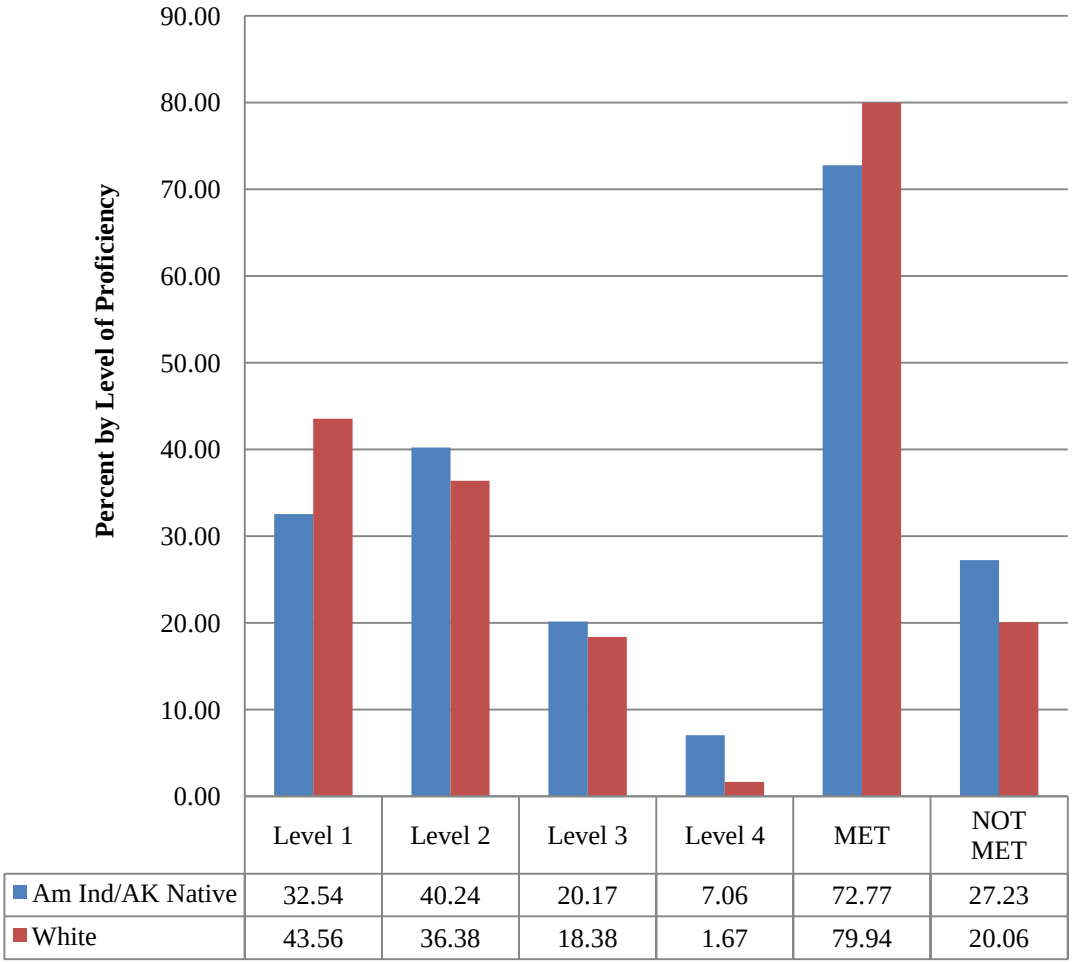

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Am Ind/AK Native | 36.41 | 46.92 | 16.03 | 0.65 | 83.33 | 16.68 |
| White | 51.83 | 34.89 | 12.60 | 0.67 | 86.73 | 13.27 |

| | | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 20.67 | 21.57 | 16.45 | 2.04 | 16.35 | 16.35 |
| Standard Deviation | White | 20.62 | 16.70 | 9.43 | 1.95 | 9.32 | 9.32 |
| T-TEST | | 0.0126 | 0.0294 | 0.2142 | 0.4886 | 0.2138 | 0.2138 |

**N=314AI/AN and 1,276 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 62.* 7th Grade 2010 MEAP Mathematics Score for All Selected Districts



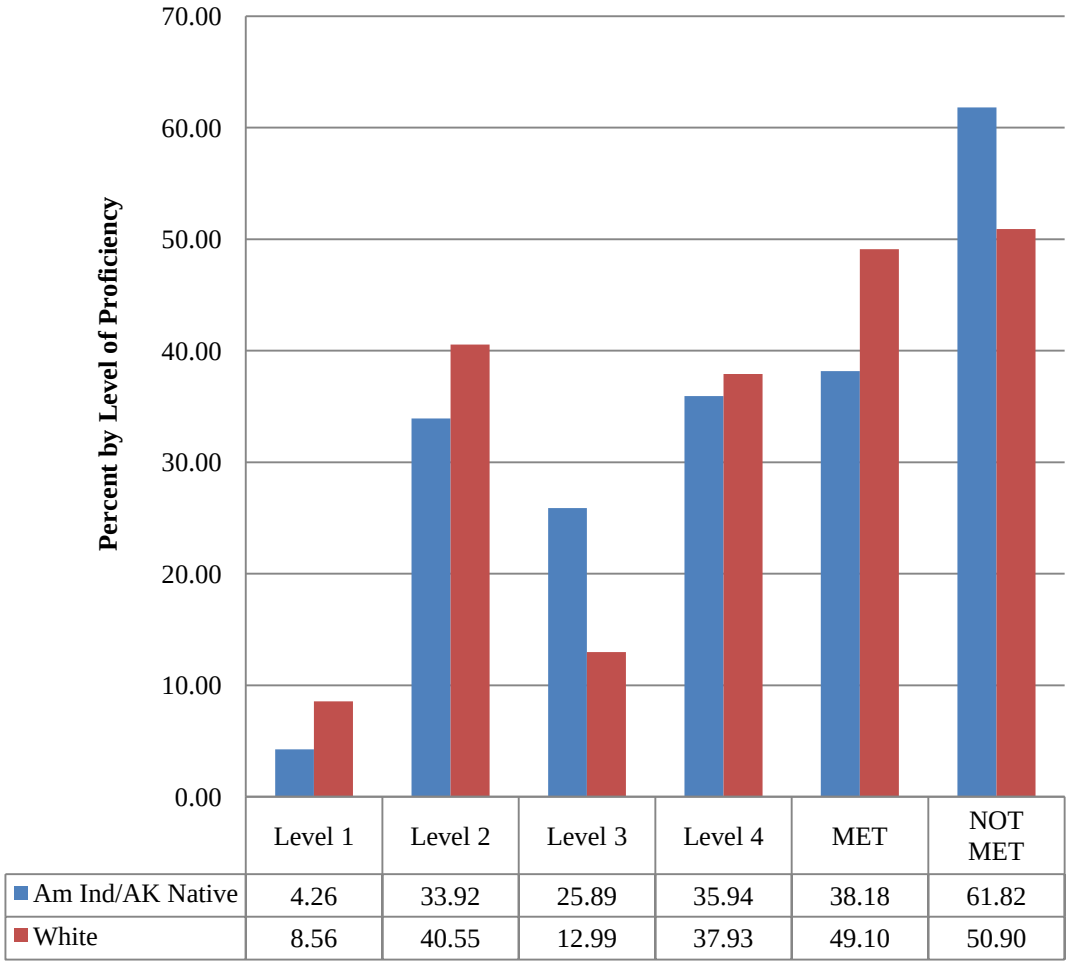

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Am Ind/AK Native | 32.54 | 40.24 | 20.17 | 7.06 | 72.77 | 27.23 |
| White | 43.56 | 36.38 | 18.38 | 1.67 | 79.94 | 20.06 |

| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 18.42 | 19.23 | 22.87 | 9.46 | 25.32 | 25.32 |
| Standard Deviation | White | 16.41 | 9.57 | 16.40 | 1.81 | 16.12 | 16.12 |
| T-TEST | | 0.0279 | 0.2159 | 0.3901 | 0.0105 | 0.1485 | 0.1485 |

**N=272 AI/AN and 1,325 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 63.* 8th Grade 2010 MEAP Mathematics Score for All Selected Districts




| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Am Ind/AK Native | 4.26 | 33.92 | 25.89 | 35.94 | 38.18 | 61.82 |
| White | 8.56 | 40.55 | 12.99 | 37.93 | 49.10 | 50.90 |

| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 6.80 | 27.54 | 21.74 | 24.42 | 27.85 | 27.85 |
| Standard Deviation | White | 8.01 | 19.90 | 11.24 | 29.26 | 24.92 | 24.92 |
| T-TEST | | 0.0365 | 0.1905 | 0.0113 | 0.4076 | 0.0965 | 0.0965 |

**N=249 AI/AN and 1,275 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 64.* 11th Grade 2010-2011 MME Mathematics Score for All Selected Districts

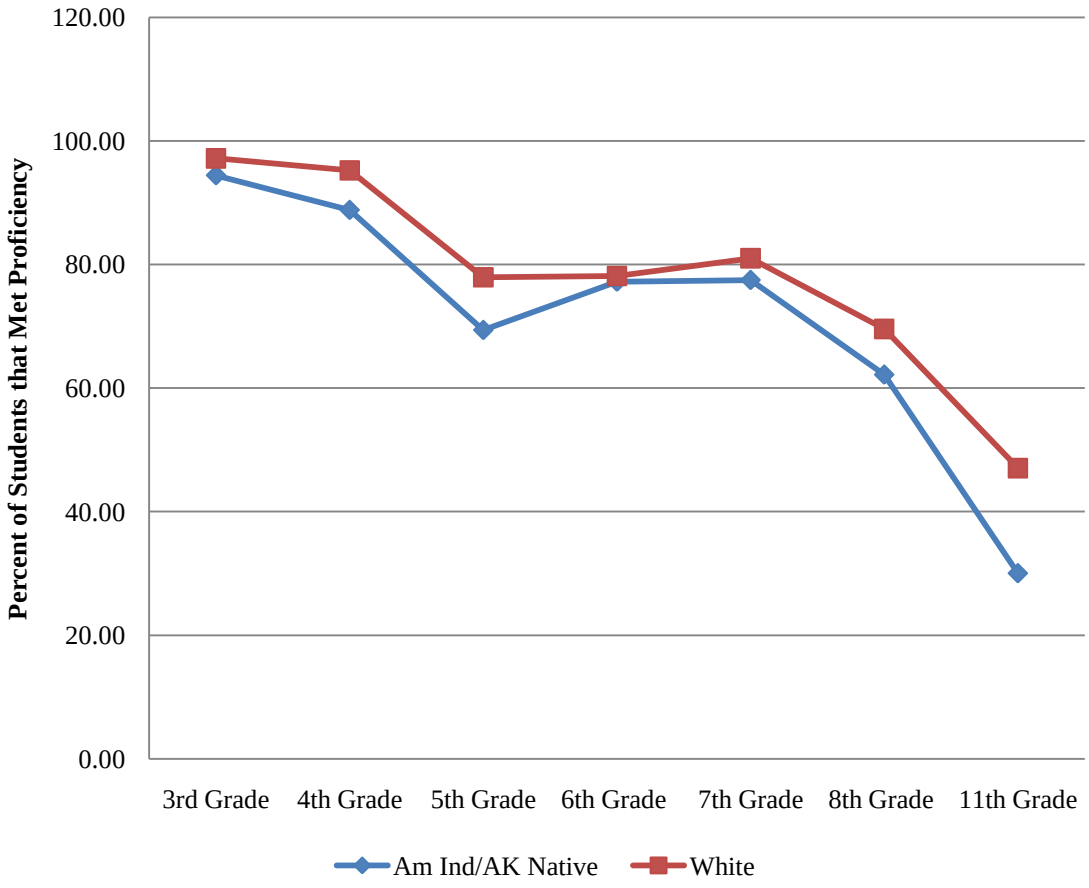
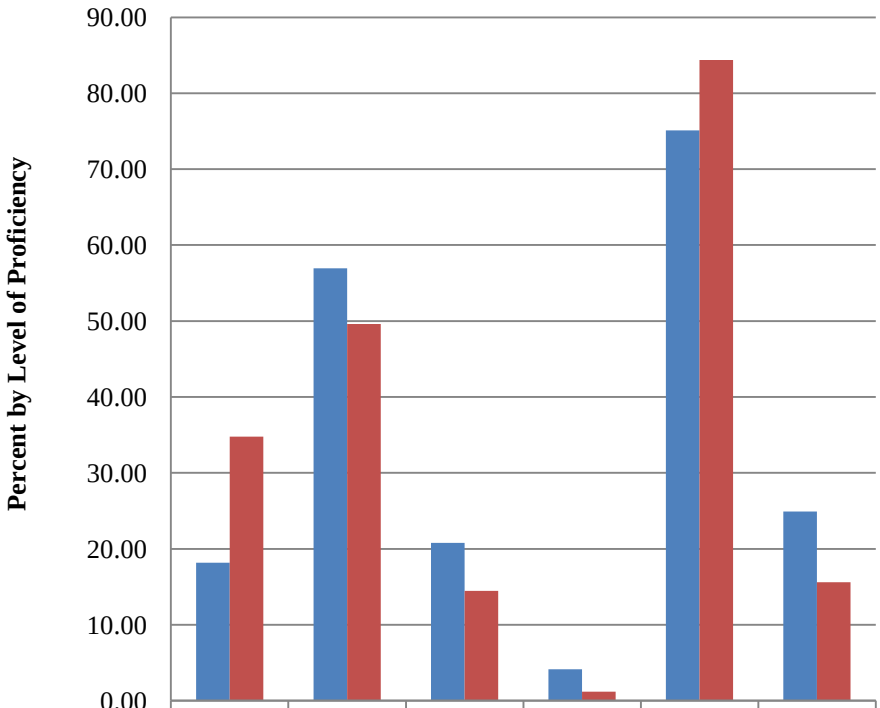



*Figure 65.* Percent of Students that Met Proficiency on 2009 MEAP Mathematics and 2010-2011 MME Mathematics by Grade and Subgroup for All Selected Districts

Statistical Significance demonstrated in 5$^{th}$ grade only with $p \leq .05$



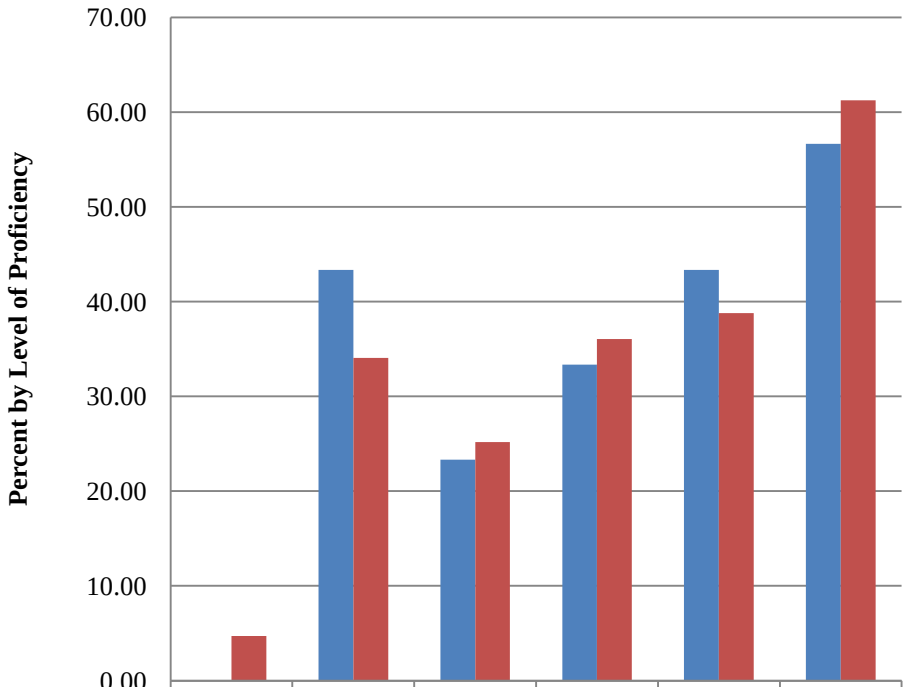

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Charter Schools 3rd - 8th Grade Mathematics | 18.16 | 56.93 | 20.76 | 4.14 | 75.10 | 24.90 |
| Public Schools 3rd - 8th Grade Mathematics | 34.77 | 49.61 | 14.44 | 1.17 | 84.39 | 15.61 |

| | | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|---|
| Charter Schools | Stand. Dev. | Am Ind/AK Native | 20.90 | 31.90 | 30.30 | 8.59 | 32.94 | 32.94 |
| Public Schools | Stand. Dev. | Am Ind/AK Native | 24.17 | 25.31 | 16.60 | 3.97 | 17.53 | 17.53 |
| | T-TEST | | 0.0010 | 0.1586 | 0.1752 | 0.0629 | 0.1048 | 0.1048 |

**N= 209 AI/AN in Charter Schools and 1,442 AI/AN in Public Schools**

**Shaded Cell Indicates Statistical Significance at p $\leq$ .05**

*Figure 66.* 3rd Grade through 8th Grade 2010 MEAP Mathematics Scores for American Indian/Alaska Native in Charter Schools versus Public Schools




| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Charter Schools 11th Grade Mathematics | 0.00 | 43.33 | 23.33 | 33.33 | 43.33 | 56.67 |
| Public Schools 11th Grade Mathematics | 4.71 | 34.07 | 25.19 | 36.04 | 38.77 | 61.23 |

| | | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|---|
| Charter Schools | Stand. Dev. | Am Ind/AK Native | 0.00 | 20.21 | 17.56 | 15.28 | 20.21 | 20.21 |
| Public Schools | Stand. Dev. | Am Ind/AK Native | 7.01 | 28.92 | 22.66 | 25.25 | 29.19 | 29.19 |
| | T-TEST | | 0.0045 | 0.2667 | 0.4402 | 0.4052 | 0.3770 | 0.3770 |

**N= 29 AI/AN in Charter Schools and 240 AI/AN in Public Schools**

**Shaded Cell Indicates Statistical Significance at p ≤ .05**

*Figure 67.* 11th Grade 2010-2011 MME Mathematics Scores for American Indian/Alaska Native in Charter Schools versus Public Schools

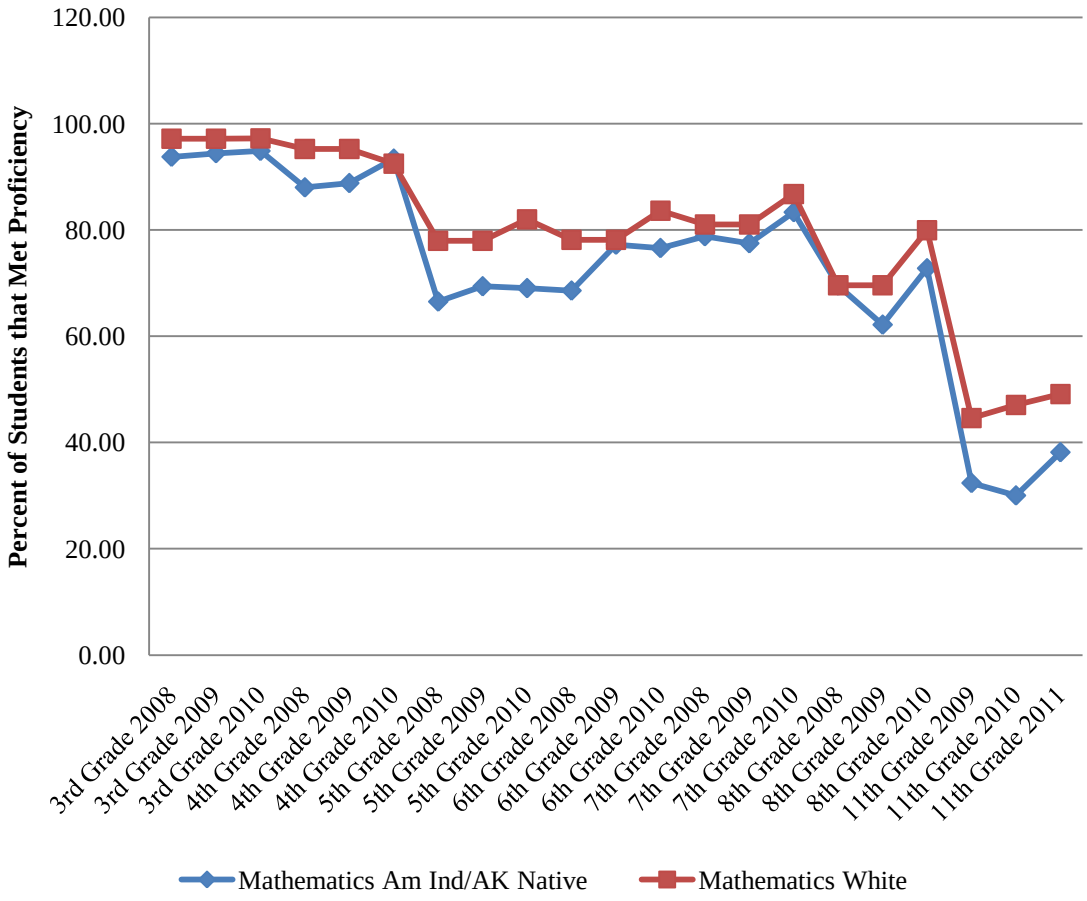



*Figure 68.* Percent of Students that Met Proficiency on the MEAP Mathematics and the MME Mathematics by Grade and Subgroup from 2008-2011 in All Selected Districts

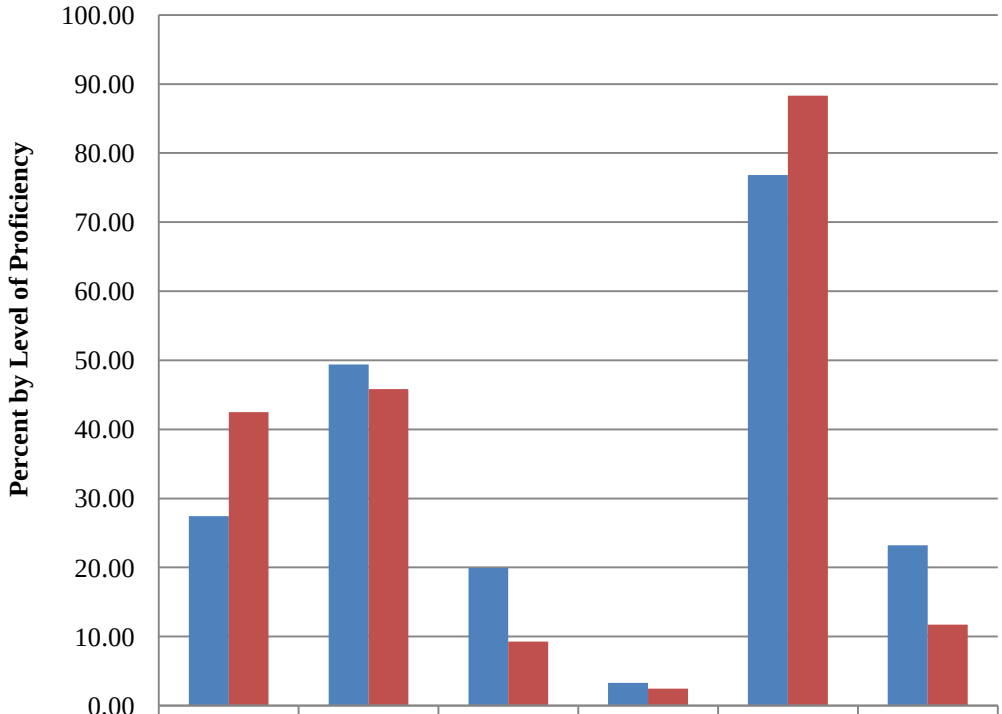
**Mathematics Key Point Summary:**

- The gaps in achievement on measures of mathematics did not appear to be as wide in comparison to the gaps found in the area of reading. There are certain years where the performance of the Native American students is equal to the performance of their White peer group.
- The greatest likelihood for significant difference still occurs when comparing students from the American Indian cohort and White cohort in Level 1

performance. In this area, the students have demonstrated that they exceeded performance expectations on the achievement measure.

- The trend lines in performance appear similar across grade levels and testing years with a large drop in meeting performance expectations occurring at the 11th grade level.
- American Indian students who met the performance expectation in mathematics in the charter schools when compared to the American Indian students in public schools showed no statistically significant difference.

**Student Assessment Data Analysis of 5rd Grade and 8th Grade Michigan Educational Assessment Program (MEAP) Science Scores and 11th Grade Michigan Merit Exam (MME) Science Scores for Native American Students and White Students in the Selected School Districts**



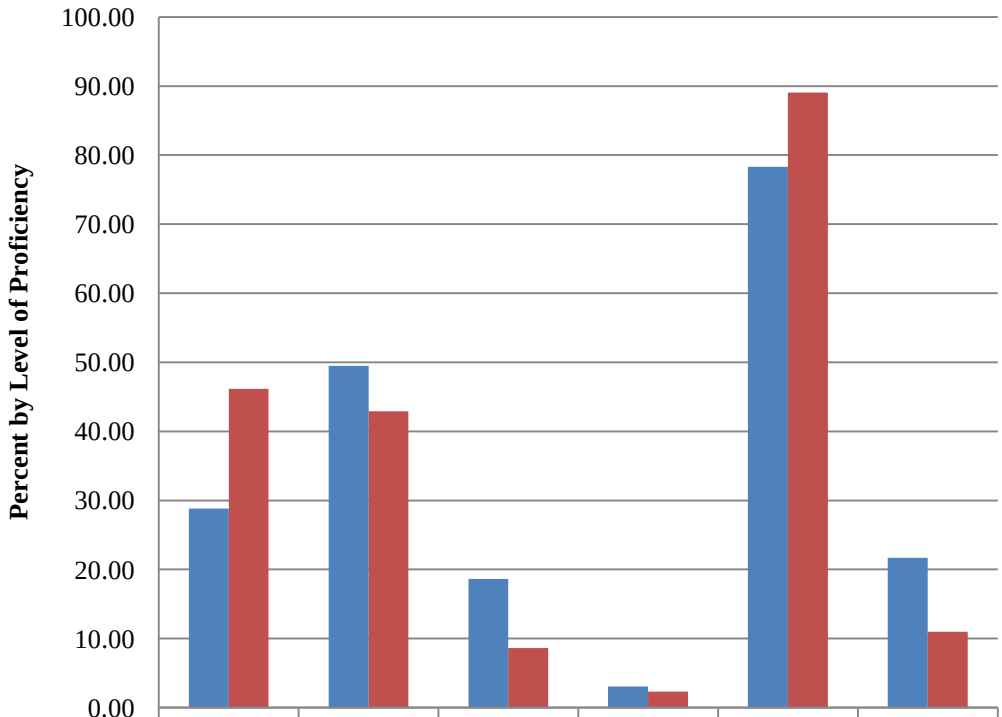

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Am Ind/AK Native | 27.43 | 49.38 | 19.93 | 3.27 | 76.80 | 23.20 |
| White | 42.49 | 45.81 | 9.27 | 2.44 | 88.29 | 11.71 |

| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 17.58 | 18.33 | 19.46 | 5.76 | 20.52 | 20.52 |
| Standard Deviation | White | 16.58 | 18.56 | 7.38 | 3.05 | 8.08 | 8.08 |
| T-TEST | | 0.0000 | 0.1714 | 0.0003 | 0.1879 | 0.0003 | 0.0003 |

**N=669 AI/AN and 2,563 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 69.* 5th Grade and 8th Grade 2008 MEAP Science Score for All Selected Districts



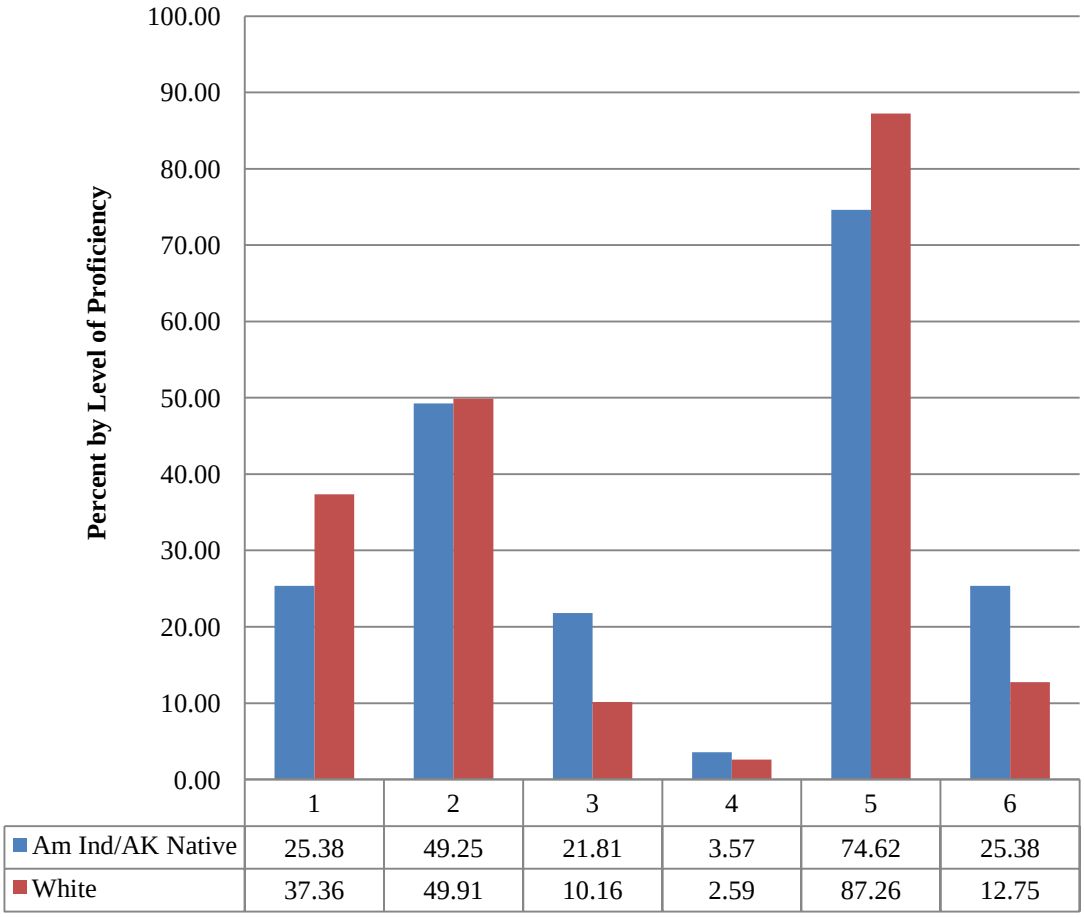

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Am Ind/AK Native | 28.84 | 49.47 | 18.63 | 3.07 | 78.31 | 21.69 |
| White | 46.15 | 42.88 | 8.64 | 2.33 | 89.03 | 10.97 |

| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 19.00 | 21.74 | 21.65 | 6.32 | 23.35 | 23.35 |
| Standard Deviation | White | 13.73 | 14.70 | 5.04 | 2.78 | 6.56 | 6.56 |
| T-TEST | | 0.0001 | 0.0925 | 0.0108 | 0.2859 | 0.0117 | 0.0117 |

**N=309 AI/AN and 1,190 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 70.* 5th Grade 2008 MEAP Science Score for All Selected Districts



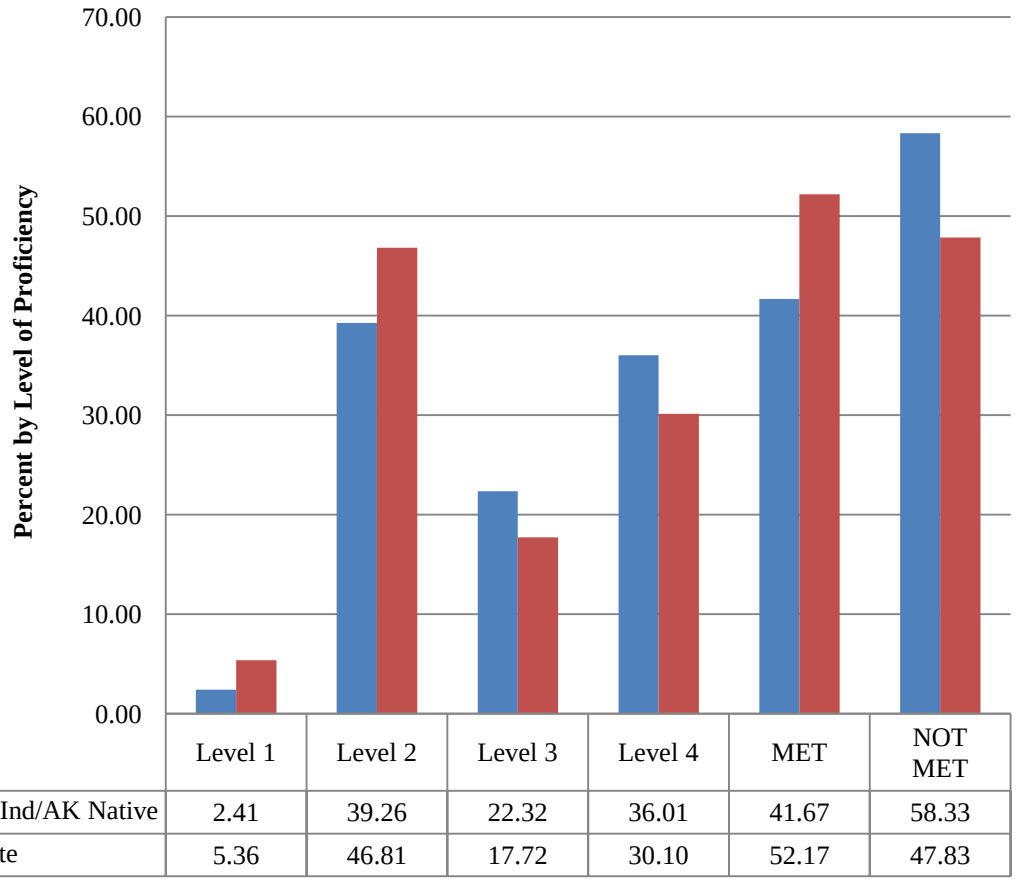

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Am Ind/AK Native | 25.38 | 49.25 | 21.81 | 3.57 | 74.62 | 25.38 |
| White | 37.36 | 49.91 | 10.16 | 2.59 | 87.26 | 12.75 |

| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 15.53 | 12.34 | 16.10 | 4.98 | 15.86 | 15.86 |
| Standard Deviation | White | 19.10 | 22.69 | 9.85 | 3.47 | 9.93 | 9.93 |
| T-TEST | | 0.0181 | 0.4552 | 0.0048 | 0.2376 | 0.0025 | 0.0025 |

**N=360 AI/AN and 1,373 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 71.* 8th Grade 2008 MEAP Science Score for All Selected Districts




| | | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 4.30 | 17.45 | 12.34 | 24.32 | 18.54 | 18.54 |
| Standard Deviation | White | 5.93 | 18.45 | 9.06 | 24.25 | 21.09 | 21.09 |
| T-TEST | | 0.0330 | 0.0853 | 0.0832 | 0.2123 | 0.0434 | 0.0434 |

**N=317 AI/AN and 1,510 White**

*Figure 72.* 11th Grade 2008-2009 MME Science Score for All Selected Districts

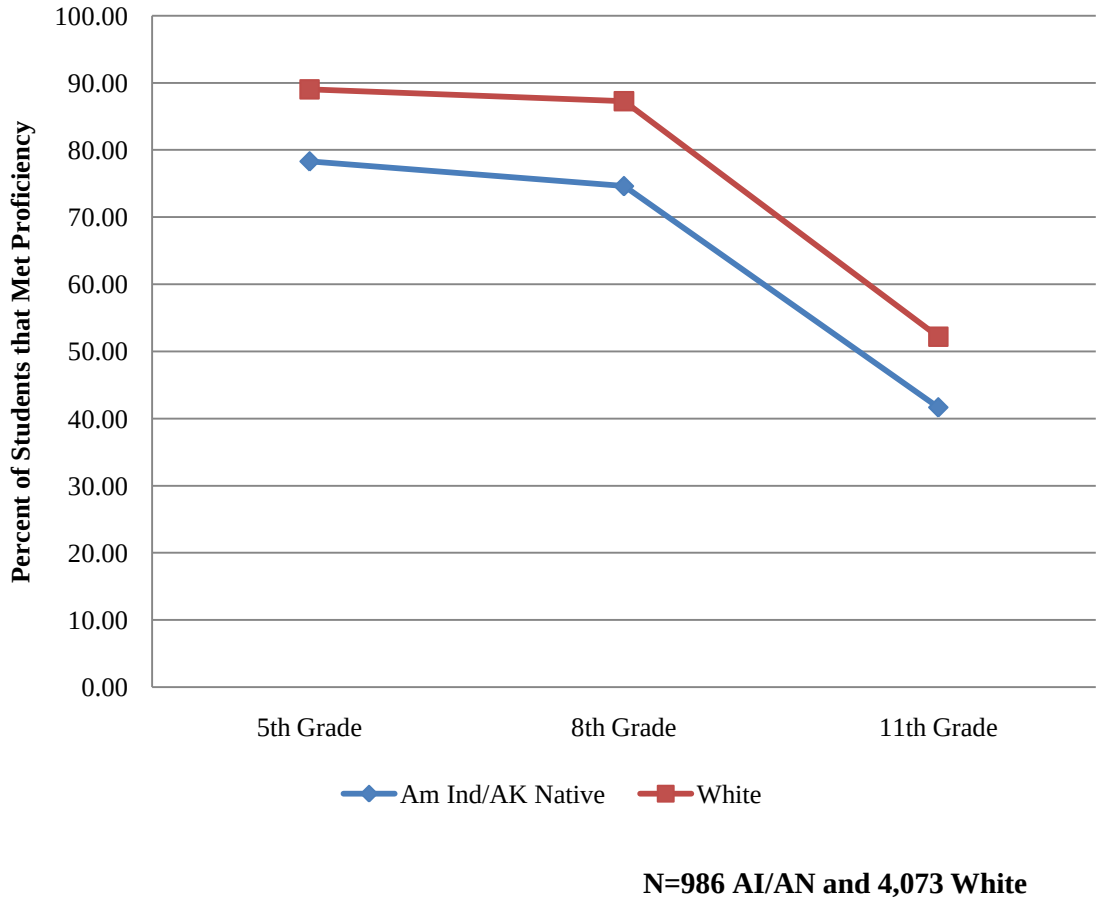
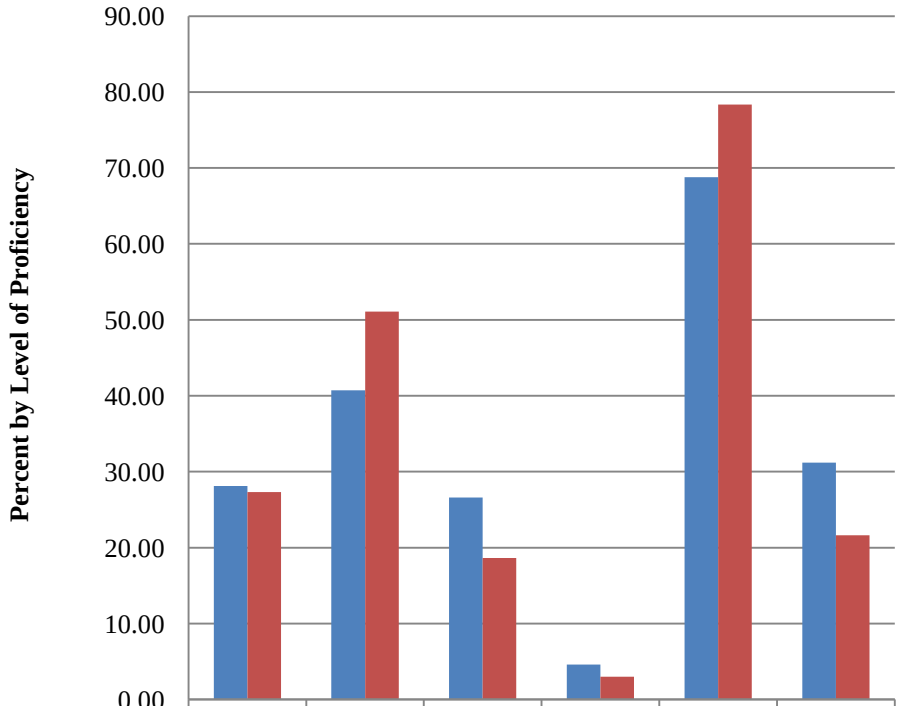



*Figure 73.* Percent of Students that Met Proficiency on 2008 MEAP Science and 2008-2009 MME Science by Grade and Subgroup for All Selected Districts

Statistical Significance demonstrated in 5th, 8th, and 11th grade only with $p \leq .05$

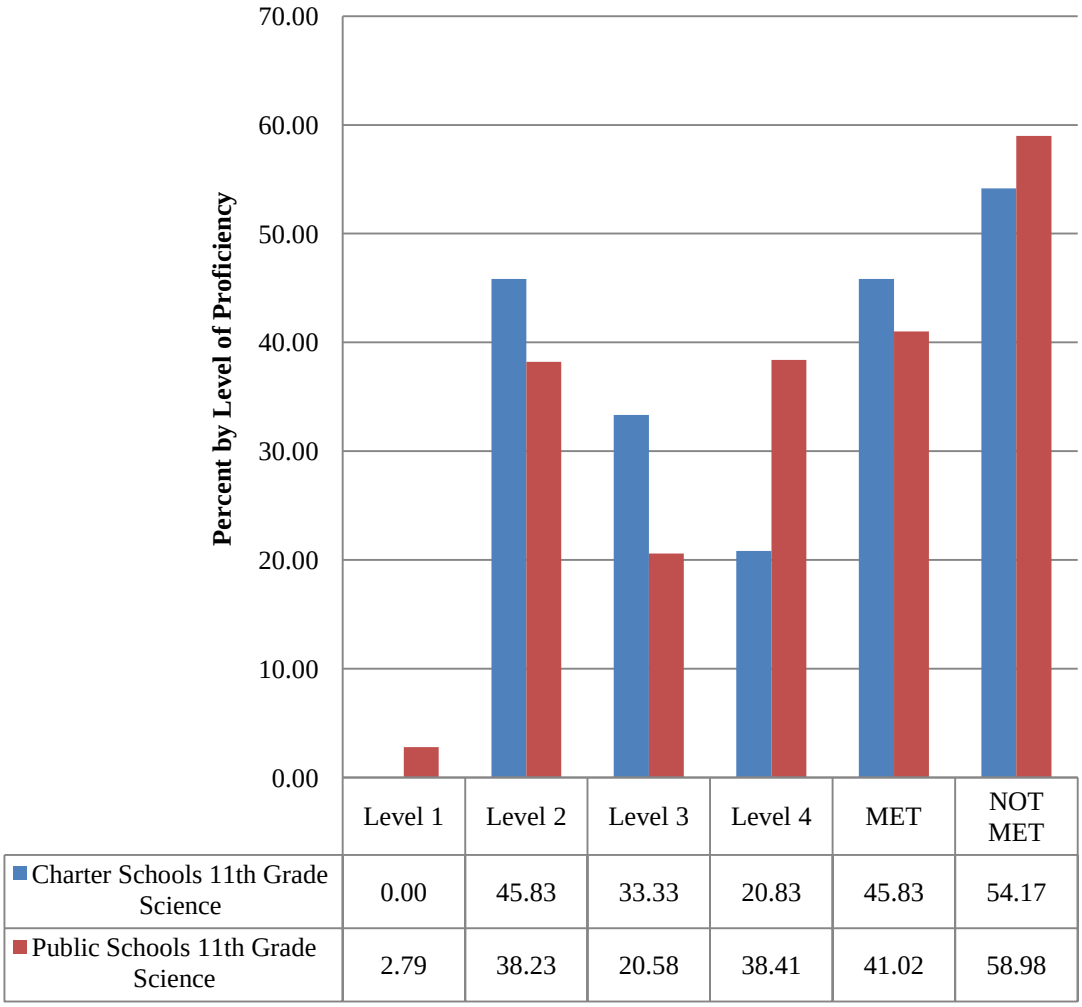



| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Charter Schools 5th - 8th Grade Science | 28.10 | 40.70 | 26.61 | 4.59 | 68.80 | 31.20 |
| Public Schools 5th - 8th Grade Science | 27.30 | 51.07 | 18.63 | 3.01 | 78.36 | 21.64 |

| | | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|---|
| Charter Schools | Stand. Dev. | Am Ind/AK Native | 24.92 | 13.93 | 23.47 | 8.54 | 25.11 | 31.20 |
| Public Schools | Stand. Dev. | White | 16.19 | 18.74 | 18.64 | 5.16 | 19.48 | 19.48 |
| | T-TEST | | 0.4661 | 0.0471 | 0.1940 | 0.3139 | 0.1678 | 0.1678 |

**N= 87 AI/AN in Charter Schools and 582 AI/AN in Public Schools**

*Figure 74.* 5th Grade and 8th Grade 2008 MEAP Science Scores for American Indian/Alaska Native in Charter Schools versus Public Schools

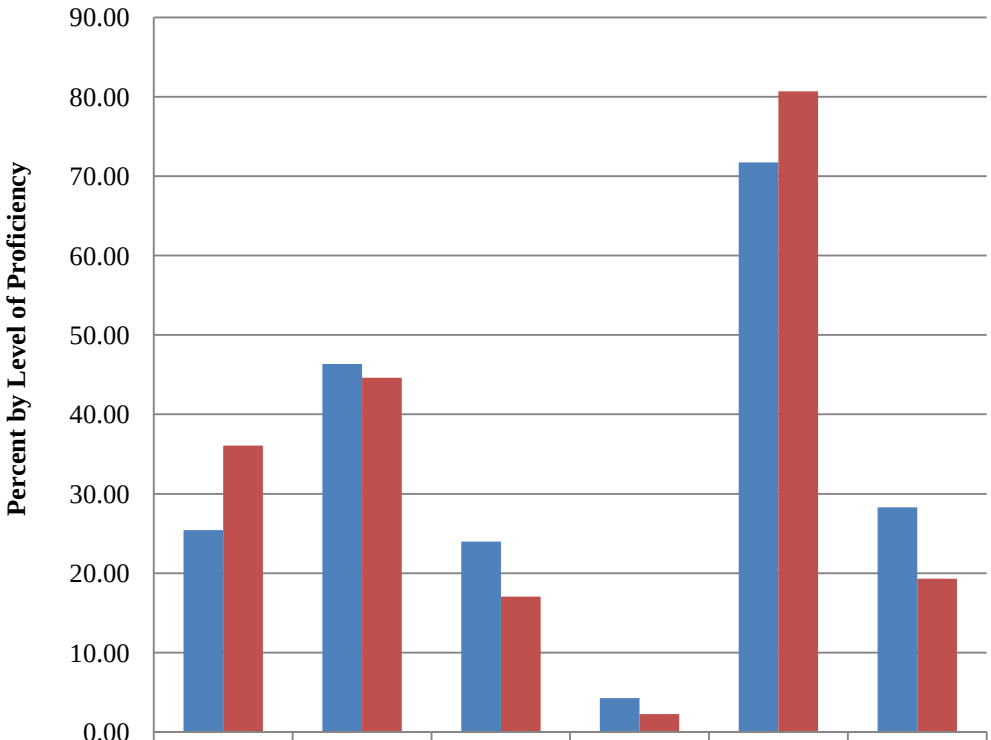



| | | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|---|
| Charter Schools | Stand. Dev. | Am Ind/AK Native | 0.00 | 7.22 | 14.43 | 19.09 | 7.22 | 7.22 |
| Public Schools | Stand. Dev. | White | 4.52 | 18.47 | 11.45 | 24.60 | 19.79 | 19.79 |
| | T-TEST | | 0.0075 | 0.1196 | 0.1306 | 0.1233 | 0.2281 | 0.2281 |

**N= 18 AI/AN in Charter Schools and 299 AI/AN in Public Schools**

**Shaded Cell Indicates Statistical Significance at p ≤ .05**

*Figure 75.* 11th Grade 2008-2009 MME Science Scores for American Indian/Alaska Native in Charter Schools versus Public Schools



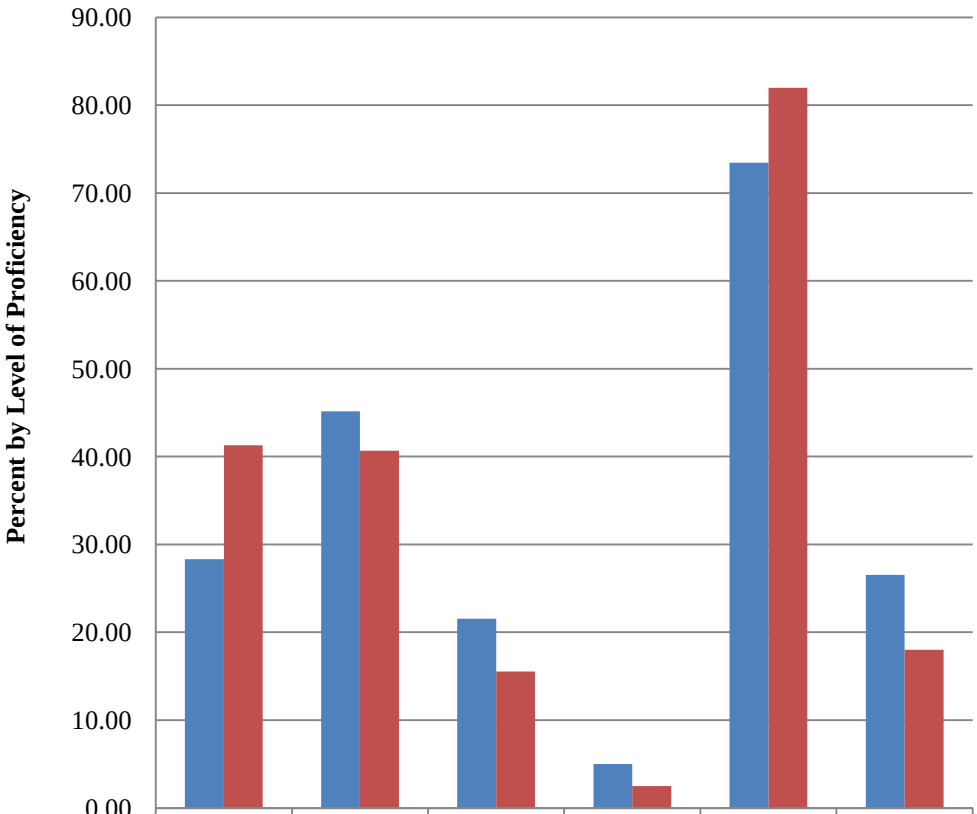

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Am Ind/AK Native | 25.41 | 46.33 | 23.99 | 4.28 | 71.73 | 28.27 |
| White | 36.09 | 44.60 | 17.06 | 2.25 | 80.68 | 19.32 |

| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 15.66 | 13.13 | 11.06 | 7.75 | 13.74 | 13.74 |
| Standard Deviation | White | 13.47 | 14.02 | 7.89 | 2.47 | 8.07 | 8.07 |
| T-TEST | | 0.0006 | 0.3183 | 0.0004 | 0.0397 | 0.0001 | 0.0001 |

**N=658 AI/AN and 2,379 White**

**Shaded Cells Indicate Statistical Significance at p $\leq$ .05**

*Figure 76.* 5th Grade and 8th Grade 2009 MEAP Science Score for All Selected Districts



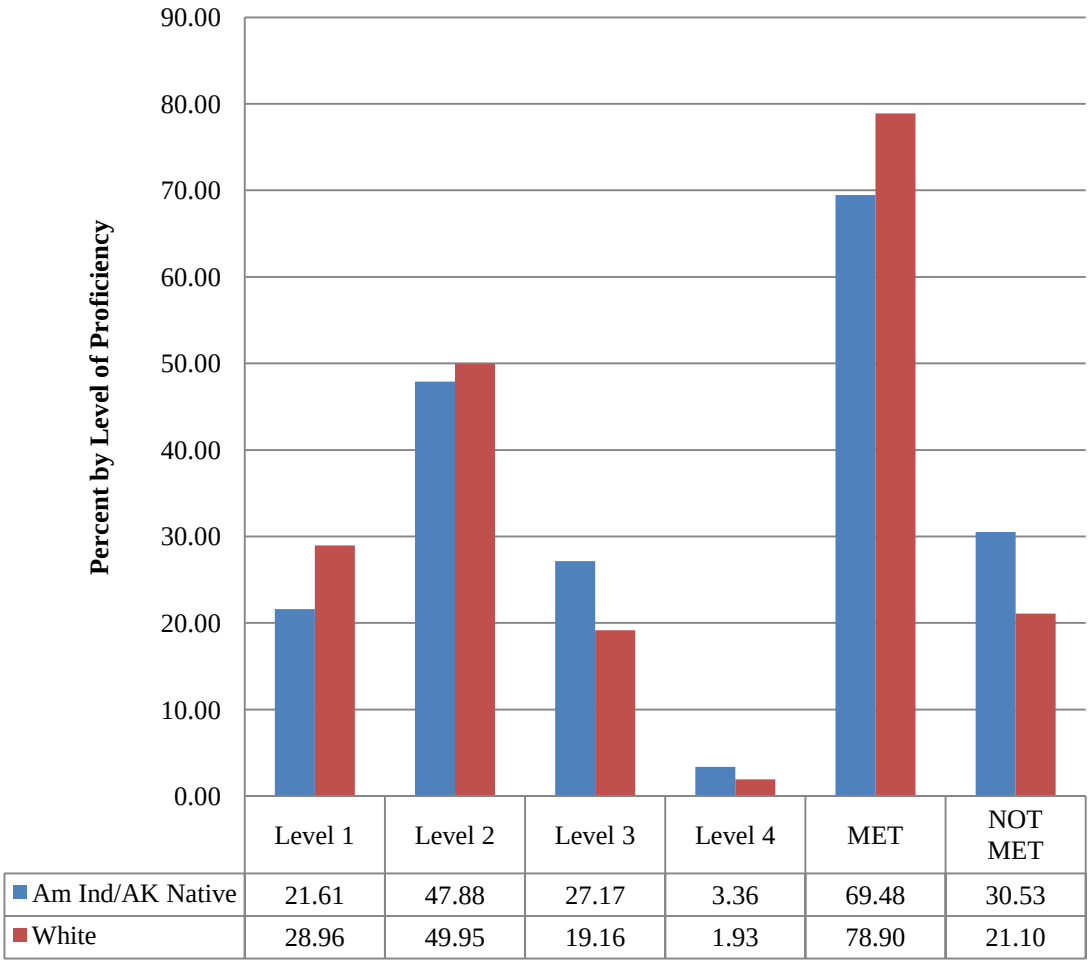

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Am Ind/AK Native | 28.33 | 45.14 | 21.54 | 5.00 | 73.46 | 26.54 |
| White | 41.29 | 40.68 | 15.53 | 2.49 | 81.98 | 18.02 |

| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 25.32 | 18.45 | 16.07 | 6.22 | 17.65 | 17.65 |
| Standard Deviation | White | 14.82 | 12.32 | 21.86 | 2.35 | 21.37 | 21.37 |
| T-TEST | | 0.0436 | 0.0871 | 0.3293 | 0.0884 | 0.2213 | 0.2213 |

**N=320 AI/AN and 1,036 White**

**Shaded Cell Indicates Statistical Significance at p ≤ .05**

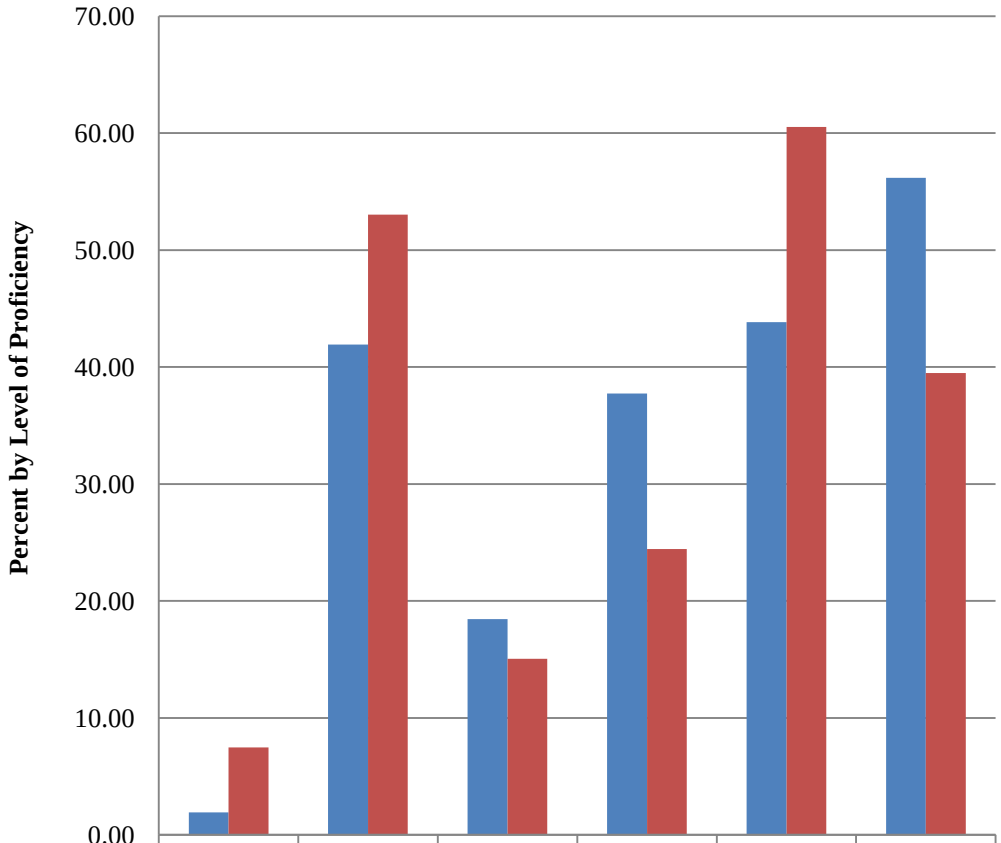
*Figure 77.* 5th Grade 2009 MEAP Science Score for All Selected Districts




| | | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 16.39 | 16.49 | 13.72 | 6.86 | 15.49 | 15.49 |
| Standard Deviation | White | 13.42 | 19.71 | 20.75 | 2.39 | 20.96 | 20.96 |
| T-TEST | | 0.0668 | 0.3623 | 0.0838 | 0.1946 | 0.0607 | 0.0607 |

**N=338 AI/AN and 1,343 White**

*Figure 78.* 8th Grade 2009 MEAP Science Score for All Selected Districts




| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Am Ind/AK Native | 1.92 | 41.91 | 18.45 | 37.73 | 43.84 | 56.16 |
| White | 7.47 | 53.03 | 15.04 | 24.44 | 60.51 | 39.49 |

| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 5.27 | 22.83 | 14.55 | 24.88 | 24.26 | 24.26 |
| Standard Deviation | White | 6.43 | 13.15 | 6.29 | 16.98 | 16.64 | 16.64 |
| T-TEST | | 0.0052 | 0.0562 | 0.2865 | 0.0329 | 0.0158 | 0.0158 |

**N=362 AI/AN and 1,266 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 79.* 11th Grade 2009-2010 MME Science Score for All Selected Districts

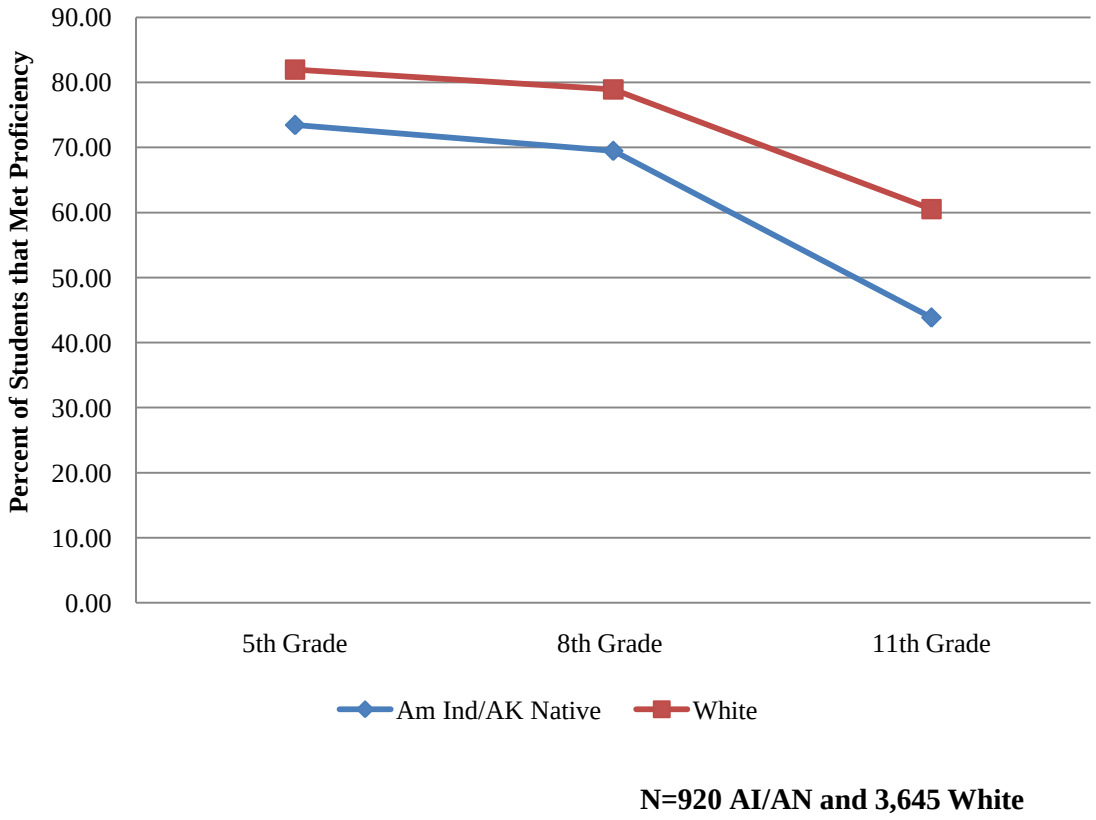
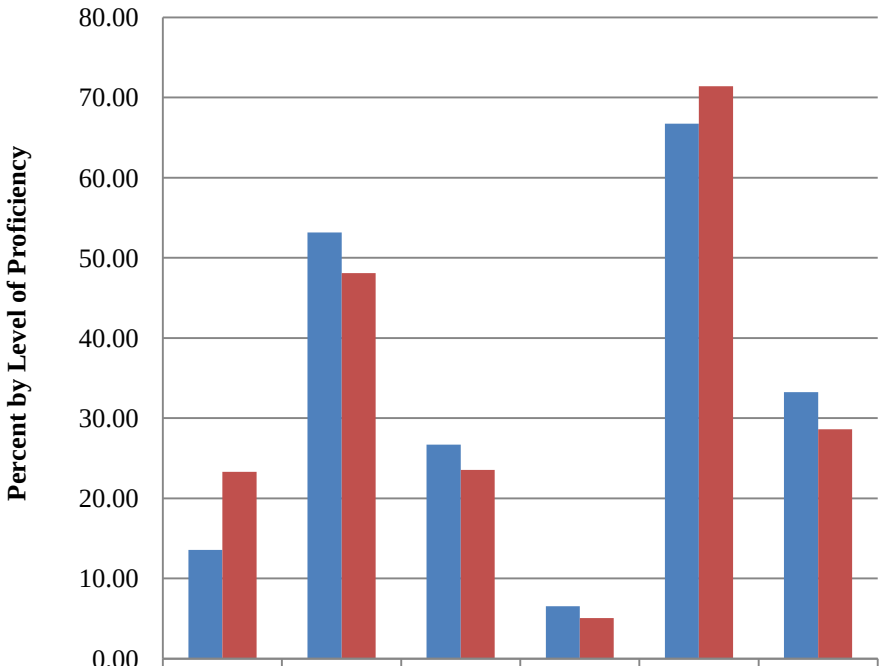



*Figure 80.* Percent of Students that Met Proficiency on 2009 MEAP Science and 2009-2010 MME Science by Grade and Subgroup for All Selected Districts

Statistical Significance demonstrated in 11th grade only with $p \leq .05$



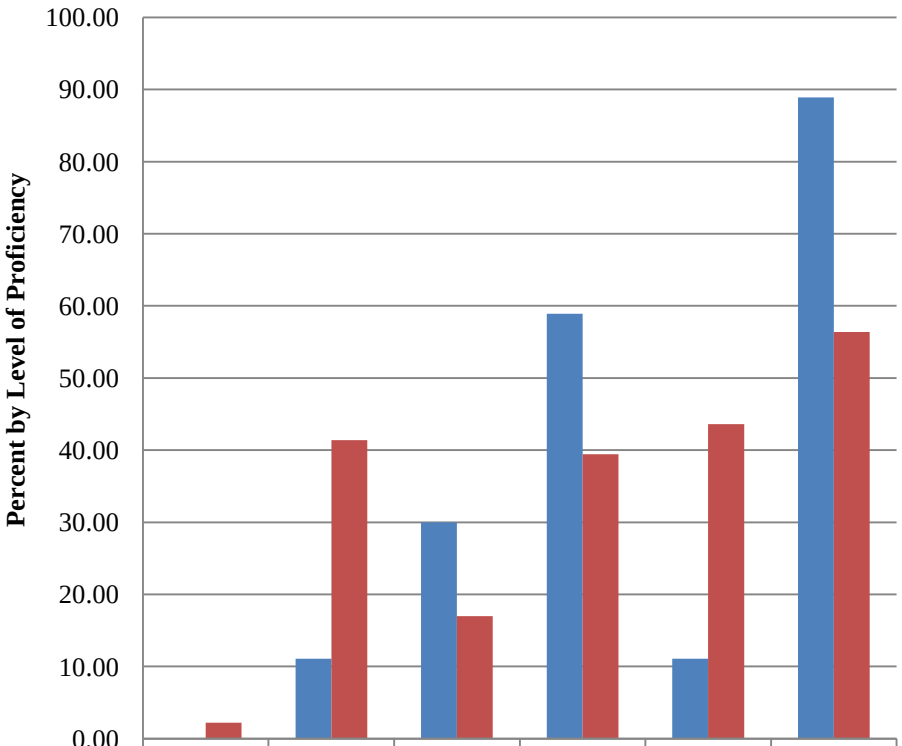

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Charter Schools 5th - 8th Grade Science | 13.58 | 53.16 | 26.71 | 6.55 | 66.74 | 33.26 |
| Public Schools 5th - 8th Grade Science | 23.32 | 48.08 | 23.53 | 5.07 | 71.39 | 28.61 |

| | | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|---|
| Charter Schools | Stand. Dev. | Am Ind/AK Native | 15.99 | 22.42 | 17.46 | 17.58 | 21.50 | 21.50 |
| Public Schools | Stand. Dev. | Am Ind/AK Native | 20.14 | 13.87 | 14.16 | 6.38 | 15.77 | 21.50 |
| | T-TEST | | 0.0242 | 0.1721 | 0.3142 | 0.3378 | 0.2357 | 0.2357 |

**N= 101 AI/AN in Charter Schools and 557 AI/AN in Public Schools**

**Shaded Cell Indicates Statistical Significance at p ≤ .05**

*Figure 81.* 5th Grade and 8th Grade 2009 MEAP Science Scores for American Indian/Alaska Native in Charter Schools versus Public Schools



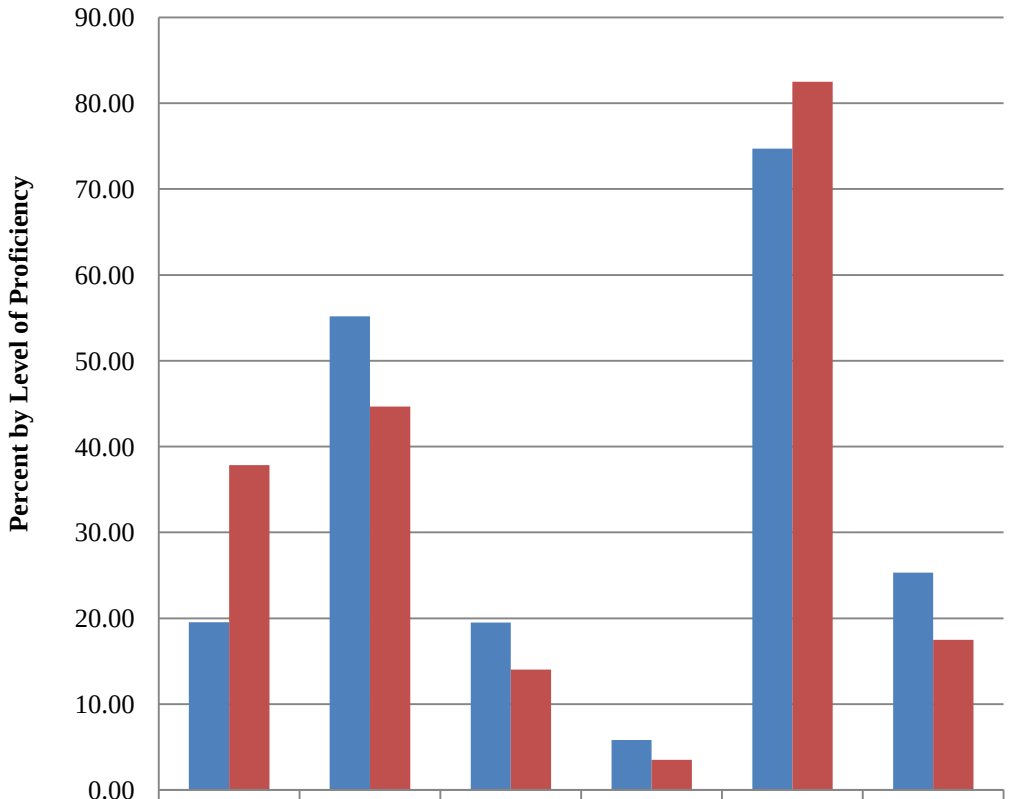

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Charter Schools 11th Grade Science | 0.00 | 11.10 | 30.00 | 58.90 | 11.10 | 88.90 |
| Public Schools 11th Grade Science | 2.22 | 41.38 | 16.98 | 39.43 | 43.61 | 56.39 |

| | | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|---|
| Charter Schools | Stand. Dev. | Am Ind/AK Native | 0.00 | 0.00 | 26.46 | 41.66 | 19.23 | 19.23 |
| Public Schools | Stand. Dev. | Am Ind/AK Native | 7.07 | 15.57 | 13.52 | 20.21 | 16.08 | 16.08 |
| | T-TEST | | 0.0477 | 0.0338 | 0.2362 | 0.2066 | 0.0288 | 0.0288 |

**N= 12 AI/AN in Charter Schools and 250 AI/AN in Public Schools**

**Shaded Cells Indicate Statistical Significance at p ≤.05**

*Figure 82.* 11th Grade 2009-2010 MME Science Scores for American Indian/Alaska Native in Charter Schools versus Public Schools



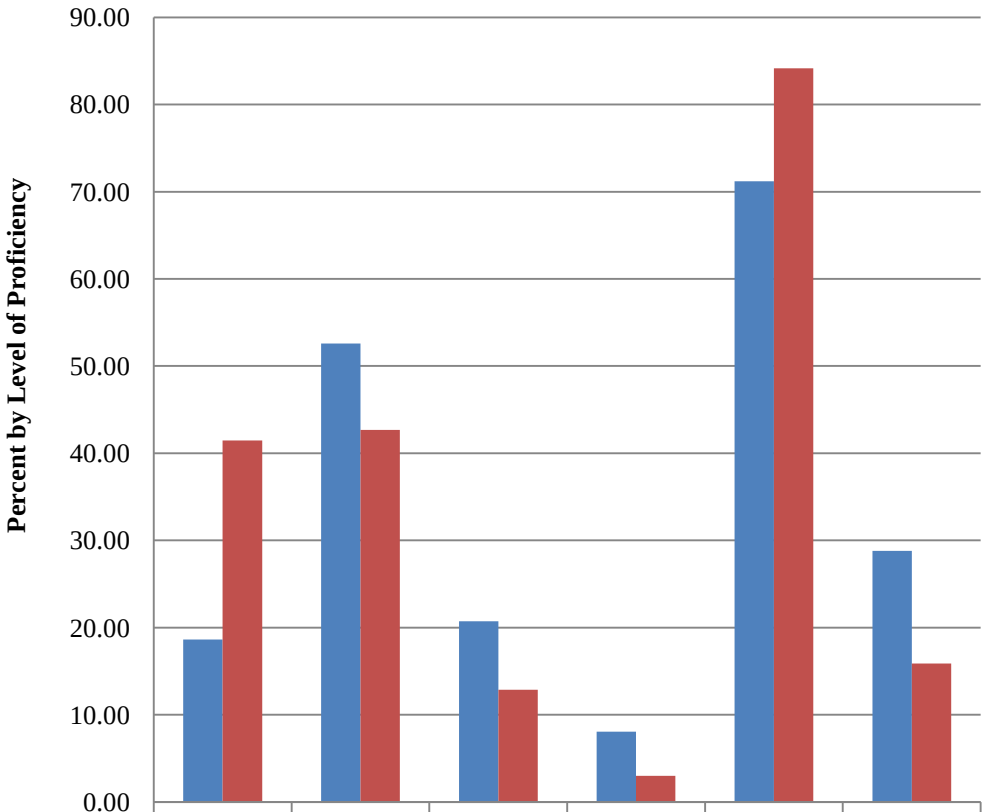

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Am Ind/AK Native | 19.53 | 55.18 | 19.49 | 5.81 | 74.70 | 25.30 |
| White | 37.82 | 44.67 | 14.01 | 3.50 | 82.50 | 17.50 |

| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 16.33 | 20.59 | 19.45 | 10.77 | 20.58 | 20.58 |
| Standard Deviation | White | 14.26 | 11.41 | 8.84 | 4.91 | 11.05 | 11.05 |
| T-TEST | | 0.0000 | 0.0022 | 0.0476 | 0.1011 | 0.0155 | 0.0155 |

**N=508 AI/AN and 2,515 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 83.* 5th Grade and 8th Grade 2010 MEAP Science Score for All Selected Districts



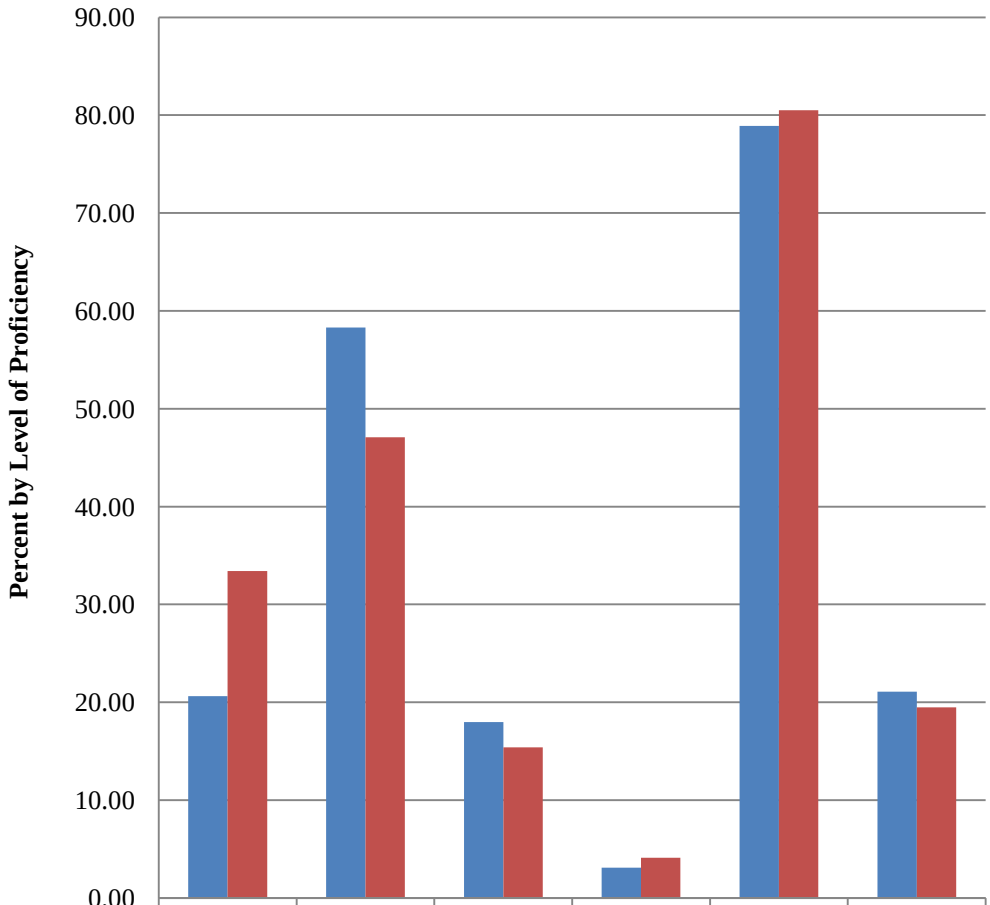

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Am Ind/AK Native | 18.63 | 52.57 | 20.75 | 8.06 | 71.19 | 28.81 |
| White | 41.47 | 42.67 | 12.87 | 3.00 | 84.13 | 15.87 |

| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 16.90 | 21.36 | 23.58 | 13.54 | 24.39 | 24.39 |
| Standard Deviation | White | 13.82 | 13.28 | 8.68 | 4.04 | 9.30 | 9.30 |
| T-TEST | | 0.0000 | 0.0313 | 0.0682 | 0.0108 | 0.0108 | 0.0108 |

**N=236 AI/AN and 1,192 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 84.* 5th Grade 2010 MEAP Science Score for All Selected Districts



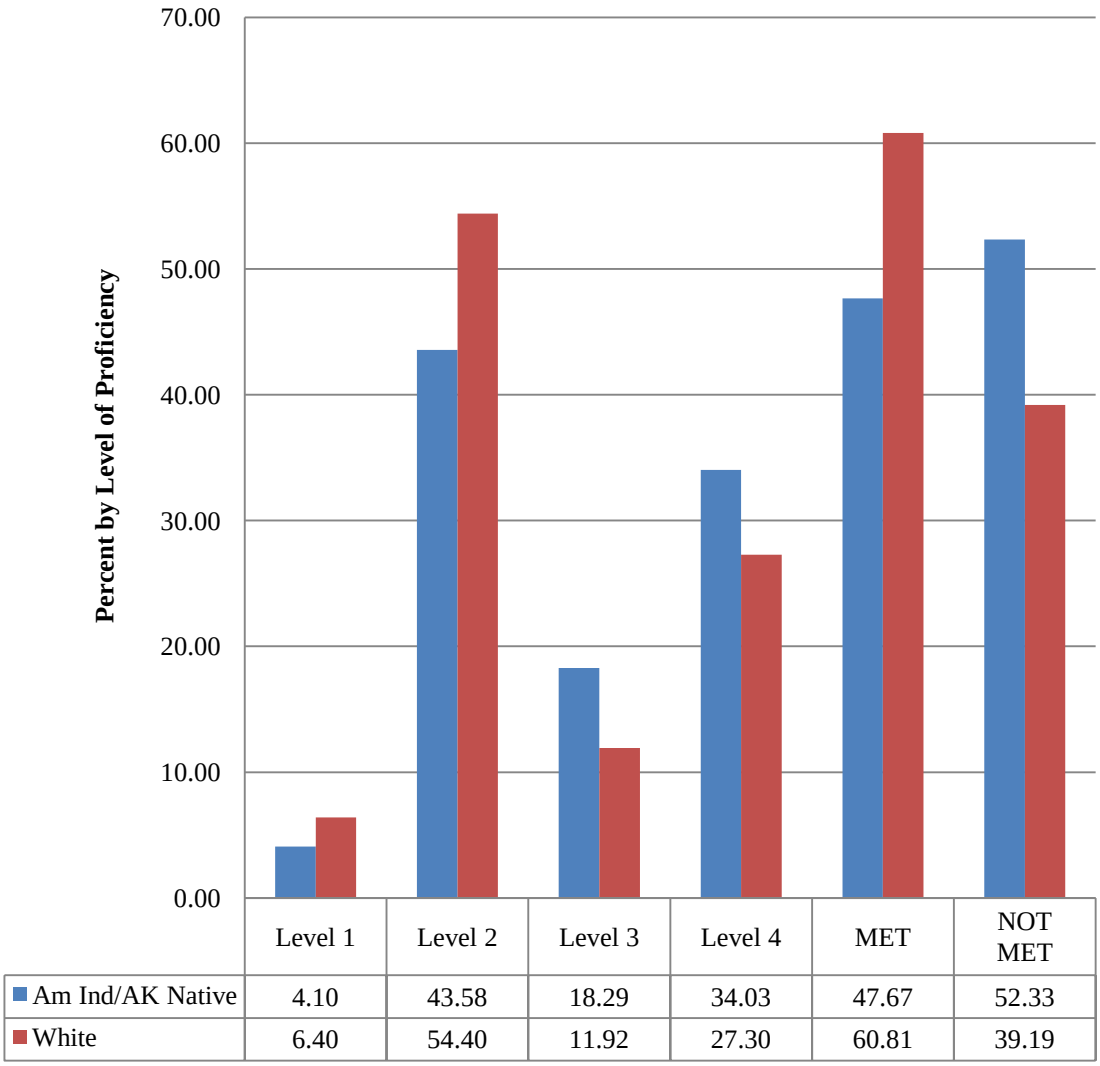

| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Am Ind/AK Native | 20.62 | 58.30 | 17.99 | 3.11 | 78.91 | 21.10 |
| White | 33.42 | 47.09 | 15.39 | 4.11 | 80.51 | 19.49 |

| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 15.99 | 19.71 | 13.35 | 5.13 | 14.29 | 14.29 |
| Standard Deviation | White | 21.07 | 8.34 | 9.08 | 5.86 | 12.83 | 12.83 |
| T-TEST | | 0.0055 | 0.0139 | 0.2404 | 0.2874 | 0.3569 | 0.3569 |

**N=272 AI/AN and 1,323 White**

**Shaded Cell Indicates Statistical Significance at p ≤ .05**

*Figure 85.* 8th Grade 2010 MEAP Science Score for All Selected Districts




| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Am Ind/AK Native | 4.10 | 43.58 | 18.29 | 34.03 | 47.67 | 52.33 |
| White | 6.40 | 54.40 | 11.92 | 27.30 | 60.81 | 39.19 |

| | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|
| Standard Deviation | Am Ind/AK Native | 6.73 | 23.92 | 22.54 | 26.50 | 25.18 | 25.18 |
| Standard Deviation | White | 5.36 | 22.45 | 7.34 | 28.04 | 25.37 | 25.37 |
| T-TEST | | 0.1131 | 0.0693 | 0.1149 | 0.2141 | 0.0499 | 0.0499 |

**N=249 AI/AN and 1,290 White**

**Shaded Cells Indicate Statistical Significance at p ≤ .05**

*Figure 86.* 11th Grade 2010-2011 MME Science Score for All Selected Districts

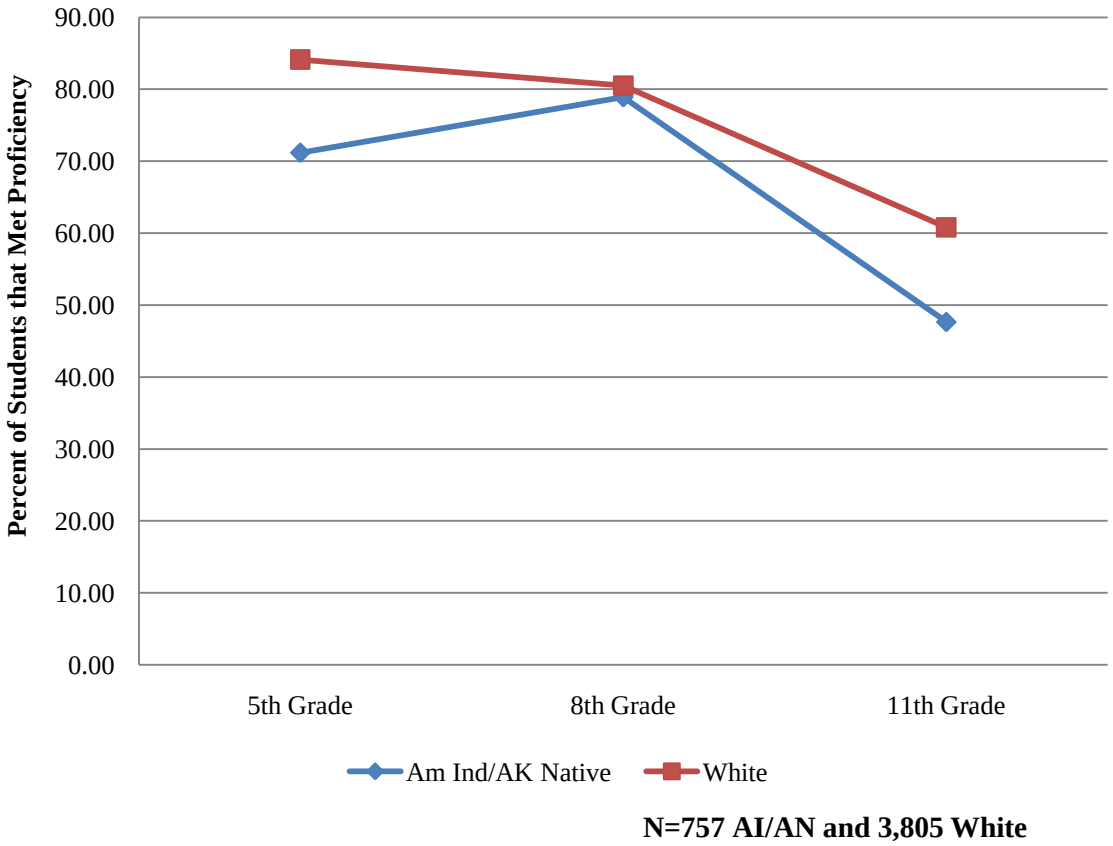
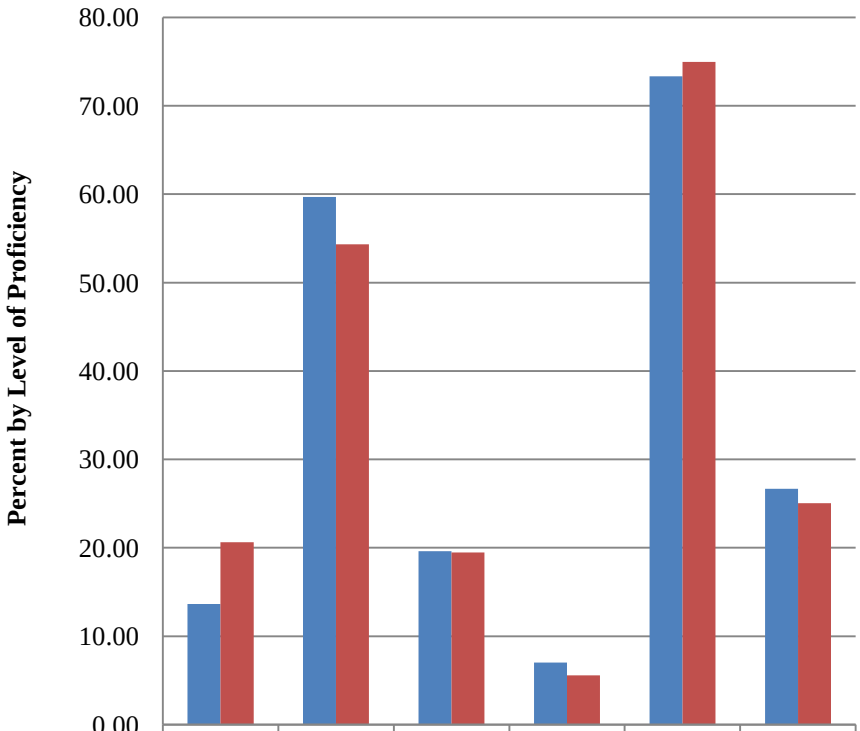



*Figure 87.* Percent of Students that Met Proficiency on 2010 MEAP Science and 2010-2011 MME Science by Grade and Subgroup for All Selected Districts

Statistical Significance demonstrated in 5$^{th}$ and 11th grade only with $p \leq .05$

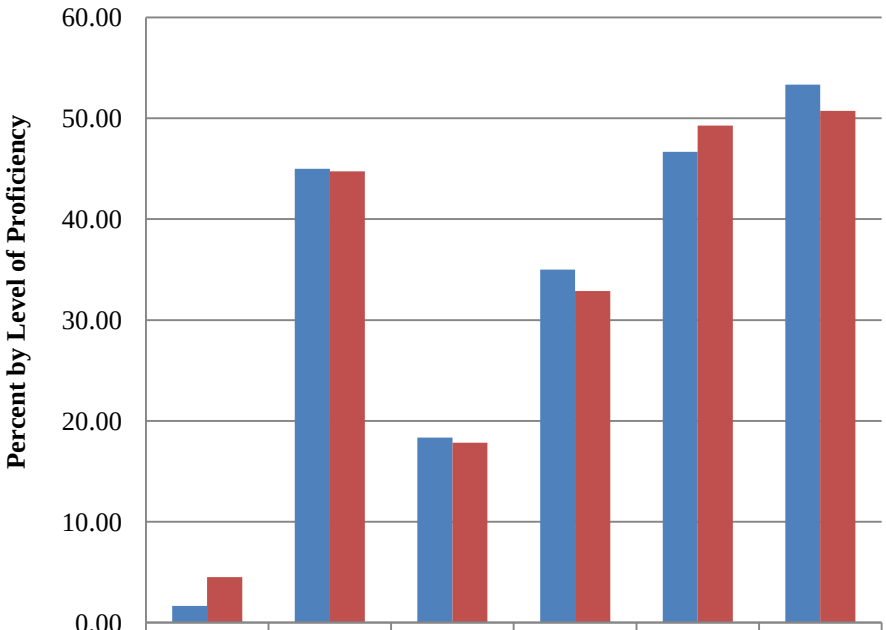



| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Charter Schools 5th - 8th Grade Science | 13.66 | 59.69 | 19.63 | 7.03 | 73.33 | 26.67 |
| Public Schools 5th - 8th Grade Science | 20.64 | 54.32 | 19.46 | 5.58 | 74.95 | 25.05 |

| | | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|---|
| Charter Schools | Stand. Dev. | Am Ind/AK Native | 15.25 | 27.51 | 17.20 | 12.46 | 28.20 | 28.20 |
| Public Schools | Stand. Dev. | Am Ind/AK Native | 16.49 | 19.38 | 20.06 | 10.59 | 19.31 | 19.31 |
| | T-TEST | | 0.1509 | 0.3183 | 0.4913 | 0.3901 | 0.4439 | 0.4439 |

**N= 67 AI/AN in Charter Schools and 441 AI/AN in Public Schools**

*Figure 88.* 5th Grade and 8th Grade 2010 MEAP Science Scores for American Indian/Alaska Native in Charter Schools versus Public Schools




| | Level 1 | Level 2 | Level 3 | Level 4 | MET | NOT MET |
|---|---|---|---|---|---|---|
| Charter Schools 11th Grade Science | 1.67 | 45.00 | 18.33 | 35.00 | 46.67 | 53.33 |
| Public Schools 11th Grade Science | 4.53 | 44.74 | 17.85 | 32.88 | 49.27 | 50.73 |

| | | | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **MET** | **NOT MET** |
|---|---|---|---|---|---|---|---|---|
| Charter Schools | Stand. Dev. | Am Ind/AK Native | 2.89 | 22.91 | 7.64 | 18.03 | 25.66 | 25.66 |
| Public Schools | Stand. Dev. | Am Ind/AK Native | 6.95 | 24.79 | 23.69 | 27.62 | 25.88 | 25.88 |
| | T-TEST | | 0.1283 | 0.4935 | 0.4730 | 0.4355 | 0.4410 | 0.4410 |

**N= 29 AI/AN in Charter Schools and 240 AI/AN in Public Schools**

*Figure 89.* 11th Grade 2010-2011 MME Science Scores for American Indian/Alaska Native in Charter Schools versus Public Schools

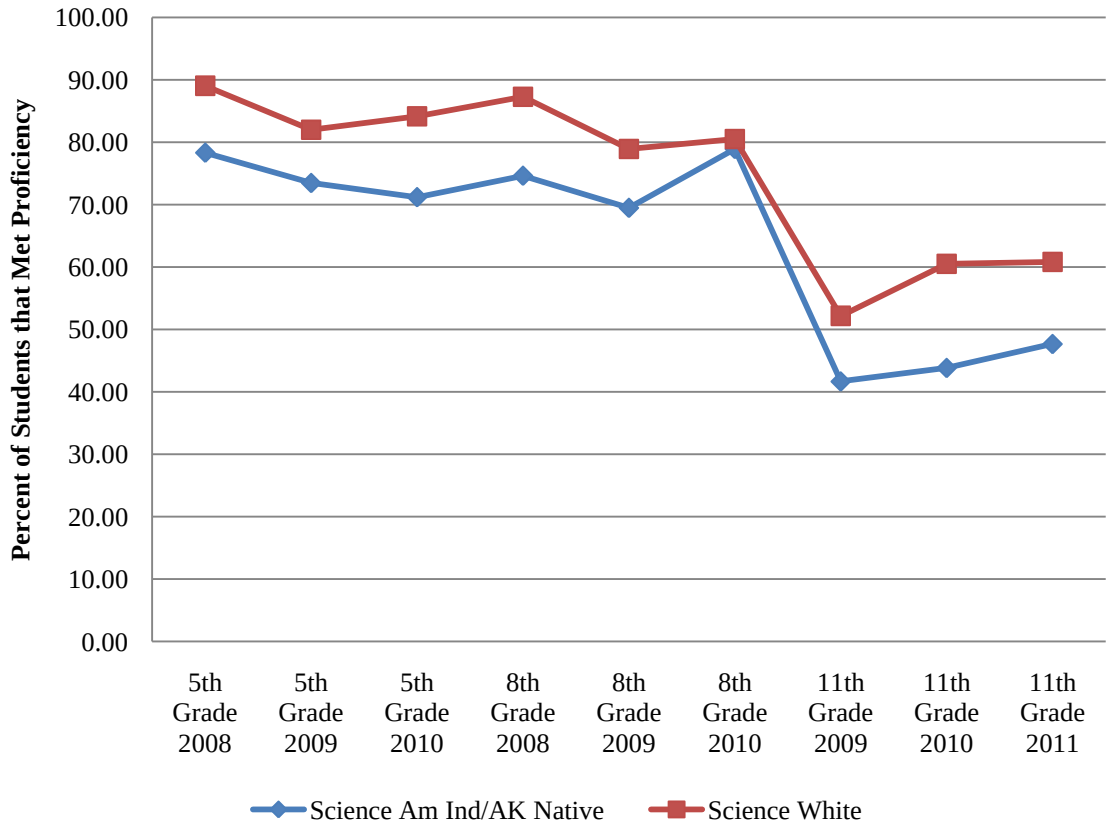



*Figure 90.* Percent of Students that Met Proficiency on the MEAP Science and the MME Science by Grade and Subgroup from 2008-2011 in All Selected Districts

**Science Key Point Summary:**

- This test is administered to 5th, 8th, and 11th grade students in Michigan. Upon review of the data, American Indian students begin with a gap in their performance in Science in the 5th grade and that gap continued to exist in 11th grade.
- The greatest likelihood for significant difference continues to occur when comparing students from the American Indian cohort and White cohort in Level 1performance. In this area, the students have demonstrated that they exceeded performance expectations on the achievement measure.

- There appears to be no significant difference in performance for American Indian students that are in the traditional school setting versus a charter school setting when comparing performance on the science assessment.

**11th Grade College Ready Scores for All Subjects**

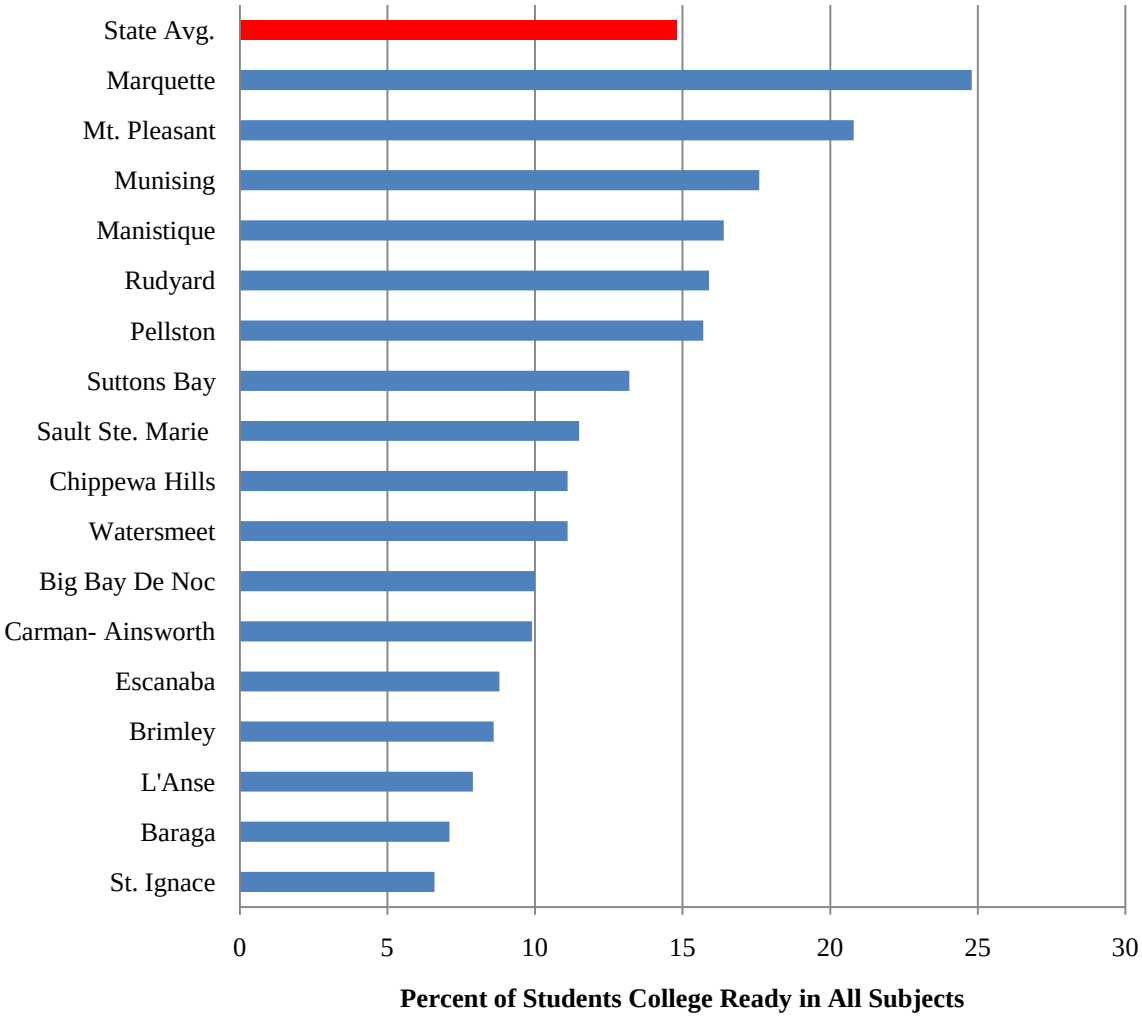



*Figure 91.* Percent of 11th Grade Students College Ready for All Subjects in 2008 by District

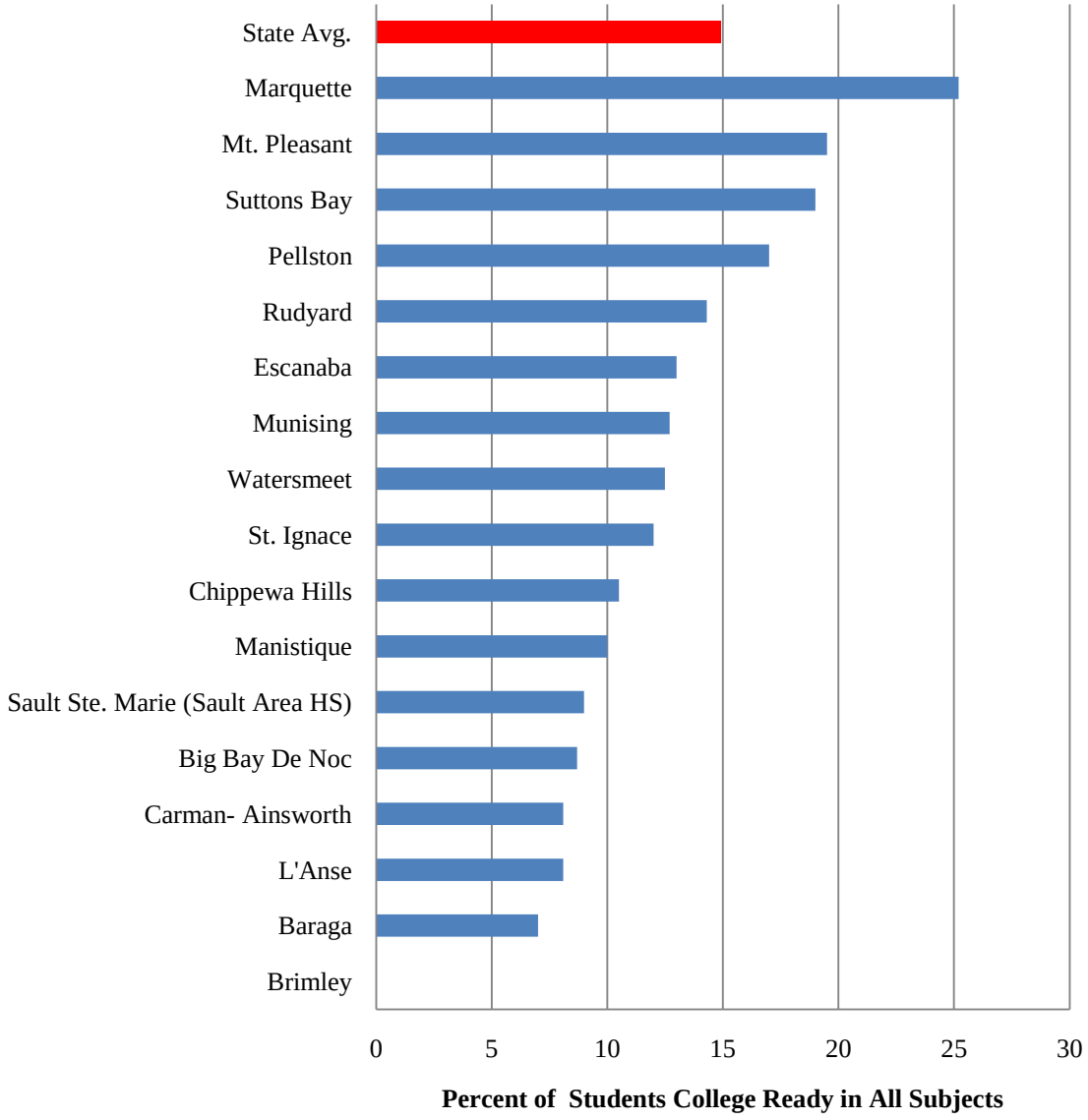



*Figure 92.* Percent of 11th Grade Students College Ready for All Subjects in 2009 by District

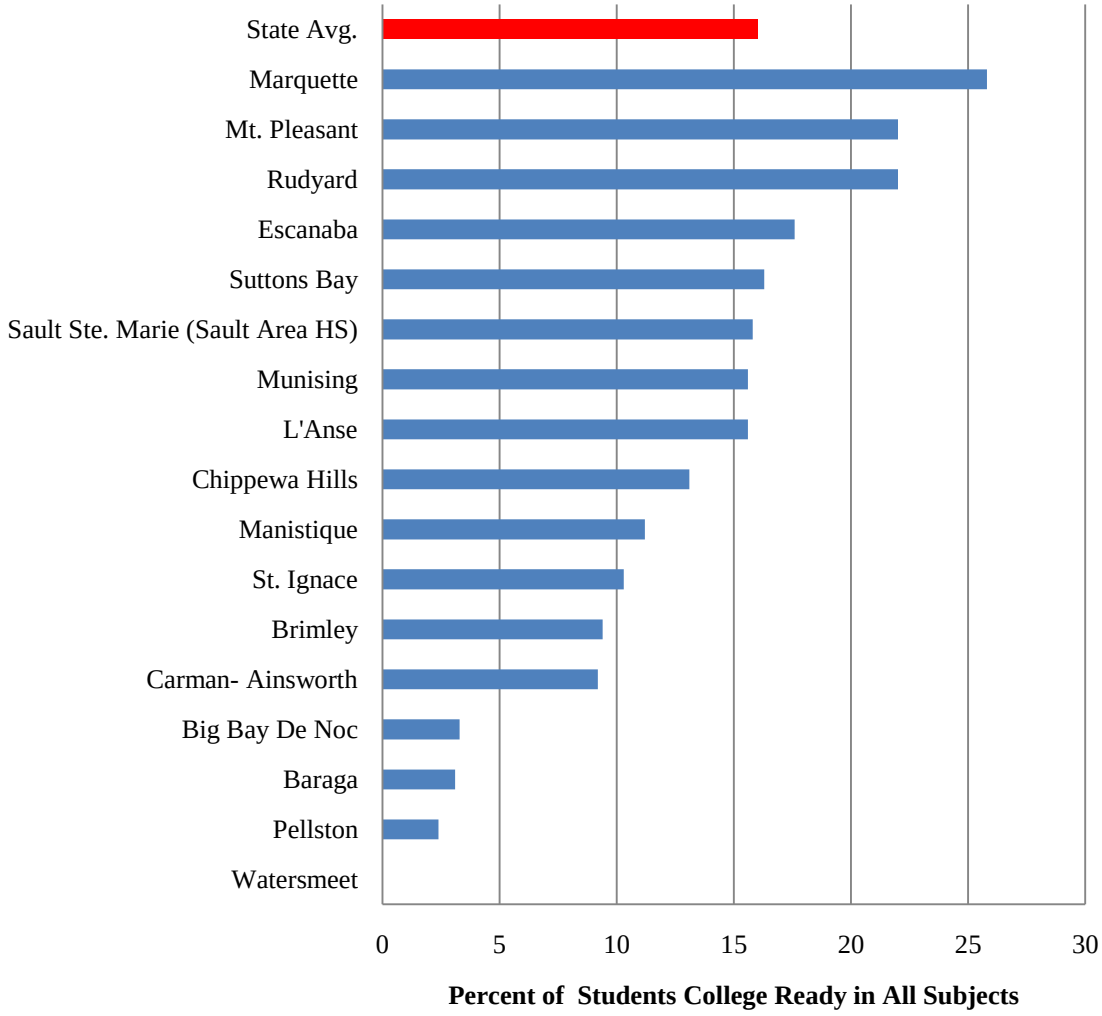



*Figure 93.* Percent of 11th Grade Students College Ready for All Subjects in 2010 by District

The state of Michigan provides the summary of the performance by district on the core subject areas of reading, mathematics, science, and social studies. Per that summary on all subjects, the information shared by the state indicates the percentage of students that are college ready in all subject areas. As indicated by Figures 13-1, 13-2, and 13-3, Marquette continued to have the highest percentage of students that are deemed to be college ready in all subject areas. As demonstrated in Appendix A (Statewide Top to Bottom Percentile Rank and Percent of Students Eligible for Free and Reduced-Price

Lunch by School Building in All Selected Districts) of this study, Marquette also had the lowest number of students eligible for free and reduced-price lunch.

**Free and Reduced-Price Lunch Analysis in the Selected School Districts**

One factor in determining the socioeconomic status of the students who attend a school district and a school building is the number of students that receive a free or reduced-price lunch. As indicated throughout the cited research in this study and in related studies, there appears to be a direct correlation between the socioeconomic status of the school building and the student performance on local, state, and federal assessment measures. Over the past several years, the Michigan Department of Education worked to align school performance standards with the Federal requirements from No Child Left Behind legislation. Each school and school district within the state of Michigan is held accountable for the performance of their students on statewide assessment measures and accountability factors. The Michigan Department of Education has initiated several methods and programs that served to identify the schools that are persistently performing below the standards of academic achievement and continue to be identified as failing schools. To better identify the schools that are" persistently low performing," the Michigan Department of Education developed a statewide *Top to Bottom* ranking. In developing this *Top to Bottom* ranking, several educational factors were a part of the analysis and the determination of the school building's ranking. The factors in the determination of the ranking included the school building's graduation rate and improvement in the rate, as well as, the achievement gap between two subgroups "based on the top scoring 30% of students versus the bottom scoring 30% of students." The proposed intent of the *Top to Bottom* ranking of school districts and school buildings was

to help identify low performing school districts and school buildings needing assistance in the improvement of student achievement. In Figure 94 below, the chart demonstrated the correlation of students from the school buildings in this study with the percentage of students on free and reduced-priced lunch.

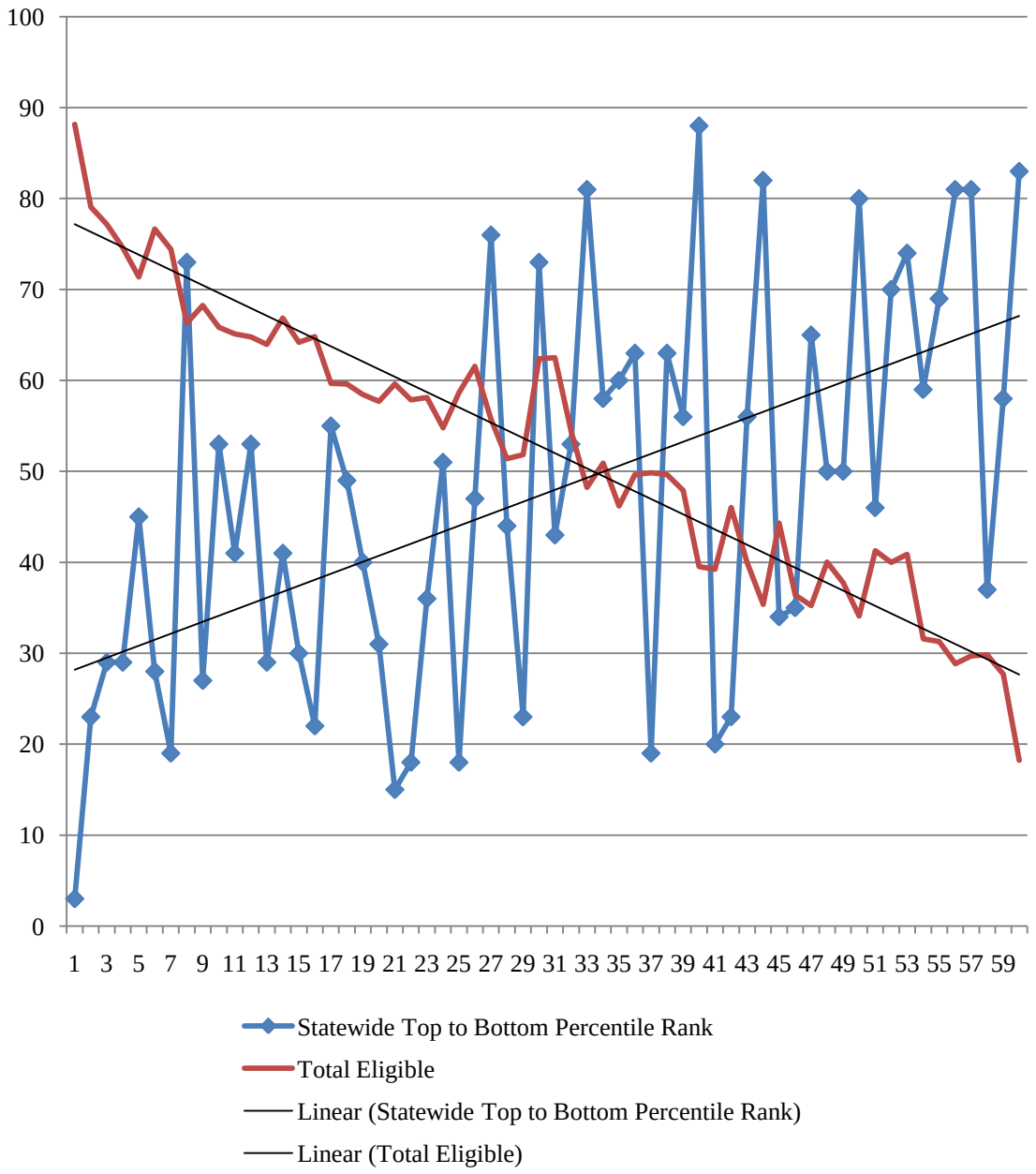



*Figure 94.* Statewide Top to Bottom Percentile Rank Compared to Total Students in the Select Districts Eligible for Free and/or Reduced-Price Lunch

In the statistical analysis of this comparison data, the Pearson r correlation resulted in r = - 0.58. This correlation exceeded an absolute r value $\geq$ 0.50 where the association is considered large and at least 25% of the variance is shared between the two variables. Figure 94 reflects the significant direct correlation between socoioeconomic (total eligible for free and reduced-price lunch) status and state ranking of school performance.

**An Analysis of Special Education Students from Select Michigan Schools with a Larger Subgroup Native American Student Population**

The Michigan Department of Education also obtained data on special education students by year as part of their Michigan Compliance Information System (MI-CIS). From the special education data portrait per the December 2010 count collection date, 837 school districts in the state (public schools and public school academies) are represented by the data in this report. In the 837 school districts, there were 226,680 special education students which represented approximately 13.9% of the total student population in the state of Michigan. This information summarized the distribution of special education students by gender, race/ethnicity, and special education category per the MI-CIS December 2010 special education collection data portrait. The following is a summary of the distribution by state average percentages:

**Gender:**

| | |
|---|---|
| Male | 66.5% |
| Female | 33.5% |

**Count by Disability:**

| | |
|---|---|
| Cognitive Impairment | 9.8% |
| Emotional Impairment | 6.1% |
| Hearing Impairment | 1.4% |
| Visual Impairment | 0.4% |
| Physical Impairment | 1.3% |
| Speech/Language Impairment | 25.3% |
| Early Childhood Developmental Delay | 3.2% |
| Specific Learning Disability | 34.3% |

| | |
|---|---|
| Severe Multiple Impairments | 1.8% |
| Autism | 6.8% |
| Traumatic Brain Injury | 0.3% |
| Other Health Impairments | 9.3% |
| Deaf-Blindness | <0.1% |

**% of Special Education Students by Race/Ethnicity per Total Subgroup Population in Michigan schools:**

| | |
|---|---|
| White | 13.9% |
| Black | 15.0% |
| Hispanic | 12.9% |
| American Indian | 16.7% |
| Asian/Pacific Islander | 7.0% |
| Multi-Ethnic | 12.4% |

**Race/Ethnicity as a % of Total Special Education Population in Michigan schools:**

| | |
|---|---|
| White | 69.8% |
| Black | 20.7% |
| Hispanic | 5.5% |
| American Indian | 1.0% |
| Asian/Pacific Islander | 1.3% |
| Multi-Ethnic | 1.6% |

(Michigan Department of Education, Michigan Compliance Information System, 2010).

Upon review of this state summary data, the Native American special education students represented 1.0% of the total special education population in the state of Michigan. This 1.0% representation of Native Americans in the special education total population in the state of Michigan is only slightly higher than the 0.88% of Native Americans of the total student population in the state of Michigan. However, when consideration is given to the percentage of Native American students that are certified as needing special education services out of the total Native American population, the percentage is 16.7%. In other words, for every 100 Native American students in the state of Michigan, approximately 17 of the students would receive special education services. For the White student population, approximately 14 out of 100 students would receive

special education services and the Asian/Pacific Islander population would have approximately 7 out of 100 students receiving special education services.

In the state of Michigan, the average percentage of the White subgroup student population that received special education services was 13.9%. For the Native American subgroup population that received special education services in Michigan, the state average is 16.7%. Upon further analysis of the 20 school districts in this study that served a larger Native American population in the state of Michigan, the percentage of students who received special education services ranged from 6.75% to 36.30% of the Native American students in that public school district or charter school/PSA. There was a mixture of these districts where the percentage of students identified for special education services were larger for Native American students in comparison to the state average and there are some where the percentage for the White students were larger in comparison to the state average. In some districts, the percentage of Native American special education students identified was much lower than the state average. This issue was observed in the Chippewa Hills School District where the Native American special education population was at 7.64% or where only 11 Native American special education students were identified out of a total Native American population of 144 students. However, in this same Chippewa Hills School District, the percentage of White students identified for special education services was at 19.25% which represented that 396 White special education students were identified out of a total White student population of 2,057 (Michigan Department of Education/CEPI, 2009).

Table 19

*Percent of Special Education Students Across All Disability Areas in Selected Districts by Trend From 1994-1995 School Year to the 2010-2011 School Year Sorted by Lowest Percentage to Highest Percentage*

| **Percent of Special Education Students in the School District Across All Disability Areas** | | | | |
|---|---|---|---|---|
| **School Year** | **94 95** | **08 09** | **09 10** | **10 11** |
| St. Ignace Area Schools | 8.83% | 9.64% | 10.50% | 10.06% |
| L'Anse Area Schools | 8.49% | 12.37% | 12.03% | 11.23% |
| Manistique Area Schools | 13.59% | 12.92% | 12.46% | 12.04% |
| Brimley Area Schools | 8.93% | 14.66% | 12.87% | 13.32% |
| Pellston Public Schools | 9.14% | 14.47% | 12.72% | 13.41% |
| Joseph K. Lumsden Bahweting Anishnabe Academy | | 14.41% | 15.47% | 13.48% |
| Baraga Area Schools | 5.99% | 14.23% | 14.21% | 13.55% |
| Escanaba Area Public Schools | 8.89% | 14.92% | 15.60% | 14.88% |
| Munising Public Schools | 6.18% | 18.90% | 18.46% | 15.02% |
| Big Bay De Noc School District | 8.72% | 16.17% | 16.13% | 15.10% |
| Sault Ste. Marie Area Schools | 9.38% | 17.77% | 18.48% | 15.26% |
| Suttons Bay Public Schools | 9.05% | 17.35% | 14.45% | 15.86% |
| Marquette Area Public Schools | 11.36% | 17.82% | 18.58% | 16.05% |
| Chippewa Hills School District | 13.45% | 19.59% | 19.03% | 16.13% |
| Carman-Ainsworth Community Schools | 11.38% | 16.68% | 16.21% | 16.66% |
| Rudyard Area Schools | 8.69% | 17.09% | 17.30% | 16.84% |
| Mt. Pleasant City School District | 13.37% | 19.20% | 19.15% | 17.49% |
| Watersmeet Township School District | 12.92% | 15.34% | 15.88% | 17.86% |
| Ojibwe Charter School | * | 24.47% | 24.53% | 25.58% |
| Nah Tah Wahsh Public School Academy | * | 30.00% | 28.74% | 31.58% |

*School was not yet in operation.

Table 20

*Percent of American Indian Students, White Students, and Total Student Population in Special Education for Selected Districts Compared to the State Average for the 2010-2011 School*

| School District (2010) | Category | Spec. Ed. Count | % in Sp. Ed. | State Avg | Difference |
|---|---|---|---|---|---|
| Baraga Area | American Indian | 26 | 18.44% | 16.70% | 1.74% |
| | White | 44 | 13.33% | 13.90% | -0.57% |
| | Total LEA | 70 | 12.87% | 13.90% | -1.03% |
| L'Anse Area | American Indian | 14 | 7.22% | 16.70% | -9.48% |
| | White | 70 | 12.68% | 13.90% | -1.22% |
| | Total LEA | 87 | 11.52% | 13.90% | -2.38% |
| Big Bay De Noc | American Indian | 3 | 15.00% | 16.70% | -1.70% |
| | White | 24 | 12.70% | 13.90% | -1.20% |
| | Total LEA | 36 | 14.57% | 13.90% | 0.67% |
| Escanaba Area | American Indian | 27 | 22.88% | 16.70% | 6.18% |
| | White | 355 | 14.71% | 13.90% | 0.81% |
| | Total LEA | 390 | 14.97% | 13.90% | 1.07% |
| Manistique Area | American Indian | 11 | 6.75% | 16.70% | -9.95% |
| | White | 99 | 13.41% | 13.90% | -0.49% |
| | Total LEA | 114 | 12.46% | 13.90% | -1.44% |
| Nah Tah Wahsh Academy | American Indian | 22 | 28.95% | 16.70% | 12.25% |
| | White | 25 | 40.32% | 13.90% | 26.42% |
| | Total LEA | 49 | 32.24% | 13.90% | 18.34% |
| Brimley Area | American Indian | 35 | 12.41% | 16.70% | -4.29% |
| | White | 33 | 16.18% | 13.90% | 2.28% |
| | Total LEA | 72 | 14.15% | 13.90% | 0.25% |
| J. Lumsden Bahweting Anishnabe | American Indian | 26 | 10.97% | 16.70% | -5.73% |
| | White | 22 | 14.97% | 13.90% | 1.07% |
| | Total LEA | 62 | 13.42% | 13.90% | -0.48% |
| Ojibwe Charter School | American Indian | 19 | 23.75% | 16.70% | 7.05% |
| | White | 4 | 57.14% | 13.90% | 43.24% |
| | Total LEA | 23 | 25.84% | 13.90% | 11.94% |

| School District (2010) | Category | Spec. Ed. Count | % in Sp. Ed. | State Avg | Difference |
|---|---|---|---|---|---|
| Rudyard Area | American Indian | 33 | 14.16% | 16.70% | -2.54% |
| | White | 105 | 18.20% | 13.90% | 4.30% |
| | Total LEA | 150 | 17.34% | 13.90% | 3.44% |
| Sault Ste. Marie | American Indian | 157 | 18.67% | 16.70% | 1.97% |
| | White | 280 | 17.63% | 13.90% | 3.73% |
| | Total LEA | 456 | 17.91% | 13.90% | 4.01% |
| St. Ignace | American Indian | 34 | 9.29% | 16.70% | -7.41% |
| | White | 34 | 13.49% | 13.90% | -0.41% |
| | Total LEA | 70 | 10.89% | 13.90% | -3.01% |
| Watersmeet Township | American Indian | 8 | 9.76% | 16.70% | -6.94% |
| | White | 21 | 24.14% | 13.90% | 10.24% |
| | Total LEA | 29 | 16.86% | 13.90% | 2.96% |
| Mt. Pleasant City | American Indian | 98 | 21.68% | 16.70% | 4.98% |
| | White | 486 | 16.12% | 13.90% | 2.22% |
| | Total LEA | 644 | 16.65% | 13.90% | 2.75% |
| Marquette Area | American Indian | 29 | 22.31% | 16.70% | 5.61% |
| | White | 437 | 15.94% | 13.90% | 2.04% |
| | Total LEA | 521 | 16.84% | 13.90% | 2.94% |
| Munising | American Indian | 16 | 16.49% | 16.70% | -0.21% |
| | White | 84 | 16.22% | 13.90% | 2.32% |
| | Total LEA | 113 | 16.69% | 13.90% | 2.79% |
| Chippewa Hills | American Indian | 11 | 7.64% | 16.70% | -9.06% |
| | White | 396 | 19.25% | 13.90% | 5.35% |
| | Total LEA | 429 | 18.38% | 13.90% | 4.48% |
| Suttons Bay | American Indian | 49 | 36.30% | 16.70% | 19.60% |
| | White | 57 | 13.07% | 13.90% | -0.83% |
| | Total LEA | 120 | 16.76% | 13.90% | 2.86% |
| Carman-Ainsworth Comm. | American Indian | 37 | 24.67% | 16.70% | 7.97% |
| | White | 404 | 19.27% | 13.90% | 5.37% |
| | Total LEA | 776 | 16.83% | 13.90% | 2.93% |
| Pellston | American Indian | 14 | 21.21% | 16.70% | 4.51% |
| | White | 70 | 12.75% | 13.90% | -1.15% |
| | Total LEA | 85 | 12.98% | 13.90% | -0.92% |

Table 21

*Percent of American Indian Students in Special Education for Selected Districts Compared to the State Average for the 2010-2011 School Year and Sorted by the Largest Percent to Smallest Percent*

| School District (2010) | Category | Spec. Ed. Count | % in Spec. Ed | State Avg. | Diff. |
|---|---|---|---|---|---|
| Suttons Bay | American Indian | 49 | 36.30% | 16.70% | 19.60% |
| Nah Tah Wahsh Academy | American Indian | 22 | 28.95% | 16.70% | 12.25% |
| Carman-Ainsworth Comm. | American Indian | 37 | 24.67% | 16.70% | 7.97% |
| Ojibwe Charter School | American Indian | 19 | 23.75% | 16.70% | 7.05% |
| Escanaba Area | American Indian | 27 | 22.88% | 16.70% | 6.18% |
| Marquette Area | American Indian | 29 | 22.31% | 16.70% | 5.61% |
| Mt. Pleasant City | American Indian | 98 | 21.68% | 16.70% | 4.98% |
| Pellston | American Indian | 14 | 21.21% | 16.70% | 4.51% |
| Sault Ste. Marie | American Indian | 157 | 18.67% | 16.70% | 1.97% |
| Baraga Area | American Indian | 26 | 18.44% | 16.70% | 1.74% |
| Munising | American Indian | 16 | 16.49% | 16.70% | -0.21% |
| Big Bay De Noc | American Indian | 3 | 15.00% | 16.70% | -1.70% |
| Rudyard Area | American Indian | 33 | 14.16% | 16.70% | -2.54% |
| Brimley Area | American Indian | 35 | 12.41% | 16.70% | -4.29% |
| J. Lumsden Bahweting Anishnabe | American Indian | 26 | 10.97% | 16.70% | -5.73% |
| Watersmeet Township | American Indian | 8 | 9.76% | 16.70% | -6.94% |
| St. Ignace | American Indian | 34 | 9.29% | 16.70% | -7.41% |
| Chippewa Hills | American Indian | 11 | 7.64% | 16.70% | -9.06% |
| L'Anse Area | American Indian | 14 | 7.22% | 16.70% | -9.48% |
| Manistique Area | American Indian | 11 | 6.75% | 16.70% | -9.95% |

Table 22

*Percent of White Students in Special Education for Selected Districts Compared to the State Average for the 2010-2011 School Year and Sorted by the Largest Percent to Smallest Percent*

| School District (2010) | Category | Spec. Ed. Count | % in Spec. Ed | State Avg. | Diff. |
|---|---|---|---|---|---|
| Ojibwe Charter School | White | 4 | 57.14% | 13.90% | 43.24% |
| Nah Tah Wahsh Academy | White | 25 | 40.32% | 13.90% | 26.42% |
| Watersmeet Township | White | 21 | 24.14% | 13.90% | 10.24% |
| Carman-Ainsworth Comm. | White | 404 | 19.27% | 13.90% | 5.37% |
| Chippewa Hills | White | 396 | 19.25% | 13.90% | 5.35% |
| Rudyard Area | White | 105 | 18.20% | 13.90% | 4.30% |
| Sault Ste. Marie | White | 280 | 17.63% | 13.90% | 3.73% |
| Munising | White | 84 | 16.22% | 13.90% | 2.32% |
| Brimley Area | White | 33 | 16.18% | 13.90% | 2.28% |
| Mt. Pleasant City | White | 486 | 16.12% | 13.90% | 2.22% |
| Marquette Area | White | 437 | 15.94% | 13.90% | 2.04% |
| J. Lumsden Bahweting Anishnabe | White | 22 | 14.97% | 13.90% | 1.07% |
| Escanaba Area | White | 355 | 14.71% | 13.90% | 0.81% |
| St. Ignace | White | 34 | 13.49% | 13.90% | -0.41% |
| Manistique Area | White | 99 | 13.41% | 13.90% | -0.49% |
| Baraga Area | White | 44 | 13.33% | 13.90% | -0.57% |
| Suttons Bay | White | 57 | 13.07% | 13.90% | -0.83% |
| Pellston | White | 70 | 12.75% | 13.90% | -1.15% |
| Big Bay De Noc | White | 24 | 12.70% | 13.90% | -1.20% |
| L'Anse Area | White | 70 | 12.68% | 13.90% | -1.22% |

Table 23

*Percent of American Indian and White Students in Special Education for Selected Districts Compared to the State Average for the 2010-2011 School Year and Sorted by the Largest Percent to Smallest Percent*

| School District | American Indian | White |
|---|---|---|
| Suttons Bay | 36.30% | 13.07% |
| Nah Tah Wahsh Academy | 28.95% | 40.32% |
| Carman-Ainsworth Comm. | 24.67% | 19.27% |
| Ojibwe Charter School | 23.75% | 57.14% |
| Escanaba Area | 22.88% | 14.71% |
| Marquette Area | 22.31% | 15.94% |
| Mt. Pleasant City | 21.68% | 16.12% |
| Pellston | 21.21% | 12.75% |
| Sault Ste. Marie | 18.67% | 17.63% |
| Baraga Area | 18.44% | 13.33% |
| Munising | 16.49% | 16.22% |
| Big Bay De Noc | 15.00% | 12.70% |
| Rudyard Area | 14.16% | 18.20% |
| Brimley Area | 12.41% | 16.18% |
| J. Lumsden Bahweting Anishnabe | 10.97% | 14.97% |
| Watersmeet Township | 9.76% | 24.14% |
| St. Ignace | 9.29% | 13.49% |
| Chippewa Hills | 7.64% | 19.25% |
| L'Anse Area | 7.22% | 12.68% |
| Manistique Area | 6.75% | 13.41% |

| | | |
|---|---|---|
| Selected District Avg. % in Spec. Ed | 17.43% | 19.08% |
| State Average % in Spec. Ed. | 16.70% | 13.90% |

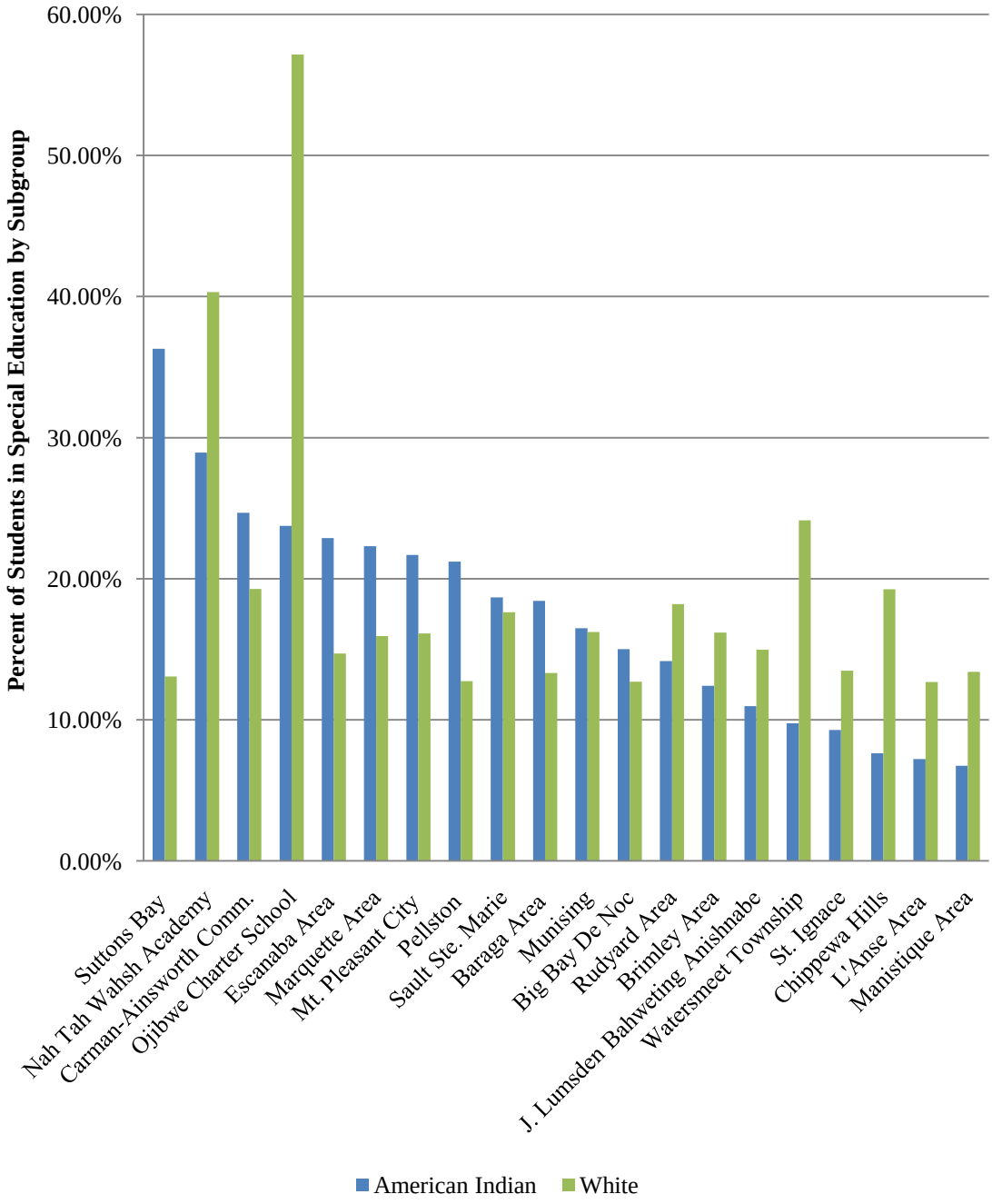



*Figure 95.* Percent of Students in Special Education by Subgroup Population of American Indian and White Students based on Total Subgroup Population

As demonstrated by the charts in this section on special education, the number of Native American students identified for special education and their White student peer group was not consistent across the 20 selected districts. In the previous section, there was a demonstrated gap in achievement; however, the percentage overall of the students in special education that are Native American is below the percentage of their White peer group. The previous section provided a comparison of the White subgroup percentage in special education in relation to the state percentage of that same racial subgroup. This information is also provided when comparing the American Indian special education subgroup and the percentage of American Indians in special education to the state percentage for American Indians. This inconsistency in the percentages of identified special education populations by subgroup warrants further study. The extent that Native Americans engaged in self-advocacy may be an important factor. Proper utilization and implementation of effective and appropriate test measures for determining whether Native American students receive certification in special education also warrants further study.

## Chapter 5: Conclusion

The push/pull of federal control by the United States government has, at times, occurred in direct contrast to the local control by tribal nations in regard to educational and institutional support. This has occurred for the past two centuries. As Lomawaima and McCarty (2002) stated, there can appear to be a national ambivalence toward diversity" in a country established by a democracy where equal services and opportunities for all citizens is a foundational right. When the requirements of the No Child Left Behind Act of 2001 took effect, the curriculum standards of uniformity of schools and underlying achievement expectations became even more evident in all school districts across the nation. Such standardization of educational programs may resurrect the concerns of the Native American tribes of the past where federal involvement into the lives of the Native American consisted of the need to "assimilate" and "civilize."

Most Native American students today are educated in the traditional public school setting. The structure of the classroom may or may not recognize the unique and varied culture of the Native American student and may not recognize any symbols, rituals, historical stories, interests, or rich traditions of the Native American tribe. The Native American student's culture is based on their family connection to the tribe and the practices and relationships with their cultural heritage. For each Native American family and for each Native American student, the factors that bind or separate their connection to their own native tribe may be different and unique only to them. The additional personal and family circumstances of socioeconomic status, parental involvement, language development (both within the tribal language and the English language), health (both medical and psychological), early childhood experiences and trauma, and

educational history (both for the family and the student) can each affect the culture that the Native American student brings to the school setting on a daily basis. For the Native American student, they must educationally achieve based on the established educational standards and practices of the dominant "Euro-American" culture. These academic achievement standards and measures of success may conflict with the goals and expectations of the Native American culture (Reyhner, 1992; Demmert, 2001; Lindeen, 2005; Oakes & Maday, 2009; and McCarty, 2009).

As demonstrated in a previous section of this paper, the percentage of Native American teachers in the state of Michigan is 0.22% with the average Native American student population just less than 1% for 2009 (Michigan Department of Education, 2009). The effectiveness of the teacher responsible for the education of the Native American student in the classroom will be dependent upon their training and understanding of the diversity of the Native American culture and how to best support their learning. As demonstrated by leading authors in the field on Native American education needs and practices, Lindeen (2005) and McCarty (2009) emphasize the importance of recognizing the cultural language and literacy differences that the Native American student brings to the classroom. In some circumstances, the Native American student would be identified as an "English as Second Language" learner as a result of their tribal language being the primary language spoken in the home.

Along with the Native American Language Act of 1990 (25 U.S.C. 2901 et seq.) that served "to provide for the support of Native American language survival schools," Krauss (1998) and Romero-Little, McCarty, Warhol, and Zepeda (2007) continued to recognize the importance of integrating a culturally-based curriculum that supports and

reinforces the Native American language in the school setting. As recent as January 24, 2011, the Michigan State Board of Education approved *Standards for the Preparation of Teachers of Anishinaabemowin Language and Culture* to be adopted in teacher preparation programs to improve teacher quality. In the state of Michigan, there are new Michigan Curriculum Standards that must be met in order to receive a state-endorsed high school diploma. As part of the high school graduation requirements, students in the state of Michigan must demonstrate that they received credit for two years of a foreign language. This State Board of Education approval of supporting the teacher preparation program and the need to continue the Anishinaabemowin language (spoken by the Potowatomi, Odawa, and Ojibwe tribes) and culture is critical to the stabilization and recognition of the Native American families and students within the state of Michigan. The teachers prepared in the language of Anishinaabemowin would be recognized and certified as part of the World Languages, Bilingual Education, and English as Second Language endorsement areas (Michigan Department of Education, 2011).

The Bureau of Indian Affairs (BIA) has financial and educational programming oversight responsibilites for the tribal schools across the nation. Some of the tribal schools are either recognized in the states as charter schools/public school academies or as separate educational facilities designed specifically to serve the local Native American tribe. As referenced in Lindeen (2005), "Schools located on Indian Reservations that are either federally funded or directly run by the BIA, a branch of the U.S. Department of the Interior, are subject to the requirements of NCLB" (Lindeen, 2005, p. 372). From the requirements of NCLB, the BIA must report to the Secretary of Education the results of student achievement and the plan for monitoring and implementing the academic

standards associated with NCLB. Based on findings and analysis of a report by the U.S. Department of Education, National Center for Education Statistics: Characteristics of American Indian and Alaskan Native Education (1995), Lindeen (2005) summarized the findings in regard to tribal school students. In Lindeen's (2005) article, he cited the following statistical conclusions and "social problems" associated with Bureau of Indian Affairs (BIA) tribal schools:

1. Students in tribal schools were more likely than those in public schools to receive special education services (seventeen percent versus nine percent respectively);
2. Students at tribal schools were less than half as likely to receive career counseling services as students in public schools with low Native American enrollment;
3. Students in tribal school were twice as likely as public school students to be retained at least one grade level; and
4. The percentage of students enrolled in higher mathematics and sciences remained highly disparate between tribal and public schools. (Lindeen, 2005, p. 368)

The comparison and differences between traditional public schools and tribal schools warrants further study to identify contributing factors that result in the positve or negative academic outcomes of the Native American student. Factors such as teacher training and effectiveness, class size, immersion of the cultural language and practices, curriculum standards and instructional practices, student demographics, and funding structures must be analyzed to see where differences may occur in the education of the Native American student in the public versus the tribal or charter school.

**Implications for Further Study on Native American Academic Achievement**

Based on the random and limited numbers of concentrated students in the school system that are Native Americans, limited attention has been given to this subgroup population when addressing the achievement gap concerns. It appears that most of the literature on achievement gap tends to center on the Black-White achievement gap given the larger concentration of the minority group in desegregated settings across the United States. The subgroup population of Native Americans may experience as great of an achievement gap as observed between the Black and the White peer groups. Also, the number of Native American students who are identified as requiring special education services, especially in the area of "Specific Learning Disability," is greater than their White peer group (U.S. Department of Education, 2005). According to the 25th Annual Report to Congress on the statistical student demographic data and analysis summaries of special education programs throughout the nation, the Native American student was 1.5 times more likely to be identified for services as a specific learning disabled student than all other ethnic subgroups (Asian/Pacific Islander, Black – Not Hispanic, Hispanic, and White – Not Hispanic) combined. For Native American children between the ages of 3 and 5, they were 1.3 times more likely to be provided additional educational support services under Part B (Preschool Special Education) than another other ethnic subgroup combined. The report also showed that the dropout rate for Native Americans was the highest at 52.2 percent (U.S. Department of Education, 2005).

Studies on Native American academic achievement can occur with two different groups of students. Native American students in a neighborhood public school setting may be identified as a primary group for study of academic achievement. The secondary

group of Native American students studied for academic achievement would involve the students who attend tribal, charter, or Bureau of Indian Affairs (BIA) schools with different achievement expectations and different cultural and curriculum standards. Upon review of the literature and research studies, some findings may be associated with the primary neighborhood/local school group, or the secondary tribal school group, or a combination of both. Research literature on *Effective Standards-Based Practices for Native American Students* prepared by Apthorp, D'Amoto, and Richardson (2003), the authors cite that:

> Often the type of school where the reviewed research was conducted was tribally controlled or had a student population characterized by a Native American majority. In contrast, the majority of Native American students does not attend tribally controlled schools, but, rather attend public schools where they are in the minority. (Apthorp, D'Amoto, & Richardson, 2003, p. 14, U.S. Department of Education & U.S. Department of the Interior, 2001)

Lindeen (2005), also stated that "due to various factors such as tribal and linguistic diversity, wide ranging geographical dispersal, and the largely rural nature of tribal schools, educational studies of tribal schools are rare and often too costly to implement (U.S. Department of Education report from the National Center for Educational Statistics: Characteristics of American Indians and Alaska Native education: Results from the 1990-1991 and 1993-1994 schools and staffing surveys, 1995). Further research studies are warranted to effectively analyze the achievement gap that exists between Native Americans and their White peer group. Additional research would involve both tribal schools, charter schools, and neighborhood schools to identify

contributing factors for the presence of an achievement gap and successful educational strategies, programs, and settings that work to improve the academic achievement of the Native American student.

**Health Care Concerns and Factors**

In June of 2010, the Michigan Department of Community Health published a document entitled, *Michigan Health Equity Roadmap: A vision and framework for improving the social and health status of racial and ethnic populations in Michigan* (Michigan Department of Community Health, Division of Health, Wellness, and Disease Control, 2010). This "roadmap" includes some very significant statistics and information related to the social and physical health of minorities in the state of Michigan, including the American Indian/Alaska Native (AI/AN) population. In the Health Equity Data Reference Table (Table 24), the investigators compared the American Indians/Alaska Natives (AI/AN) to Whites. A comparison of social determinants; health status, behaviors, and healthcare; and diseases and death is summarized in the charts when comparing data from 1999-2002 to data from 2006-2008. Upon review of this data, the all-cancer mortality rate per 100K had a significant difference of 39.4 in 2002. However, in 2007, the White rate is greater by 5.2. In all other areas of determinants, the gap between the AI/AN rate compared to the White rate has grown significantly. In the areas of median income, the gap in the percentage of children at or below poverty and infant mortality rate per 1,000 births is also significant as it affects the daily health and well-being of the children in the Native American household.

Table 24

*Summary of Health Care Status of the American Indian/Alaskan Native and White Populations for 1999 and 2006-2008*

| **Social Determinants** | **Year(s)** | **AI/AN Rate** | **White Rate** | **Rate Difference** |
|---|---|---|---|---|
| Median Annual Income | 1999 | $37,043 | $46,838 | -$9,795 |
| Median Annual Income | 2006-2008 | $46,676 | $65,057 | -$18,381 |
| | | | | |
| Children at or below poverty, % | 2000 | 24.7% | 8.7% | 16.0 |
| Children at or below poverty, % | 2006-2008 | 28.5% | 13.2% | 15.3 |
| | | | | |
| High School Dropout rate, % | 2007 | 18.7% | 9.9% | 8.8 |
| High School Dropout rate, % | 2008 | 19.4% | 10.3% | 9.3 |

| **Health Status, Behaviors, Health Care** | **Year(s)** | **AI/AN Rate** | **White Rate** | **Rate Difference** |
|---|---|---|---|---|
| Self-reported fair/poor | 2006-2008 | 27.1% | 13.0% | 14.1 |
| Prevalence, obese | 2006-2008 | 45.9% | 26.6% | 19.3 |
| Tobacco use – current smoker, % | 2006-2008 | 33.2% | 21.9% | 11.3 |

| Diseases and Death | Year(s) | AI/AN Rate | White Rate | Rate Difference |
|---|---|---|---|---|
| Heart Disease mortality rate, per 100K | 2002 | 231.3 | 252.3 | -21.0 |
| Heart Disease mortality rate, per 100K | 2008 | 243.3 | 210.2 | 33.1 |
| | | | | |
| All-cancer mortality rate, per 100K | 2002 | 231.9 | 192.5 | 39.4 |
| All-cancer mortality rate, per 100K | 2007 | 176.2 | 181.4 | -5.2 |
| | | | | |
| HIV infection rate, per 100K | 2000 | 234.0 | 62.8 | 171.2 |
| HIV infection rate, per 100K | 2008 | 116.0 | 79.9 | 36.1 |
| | | | | |
| Infant mortality rate, per 1,000 births | 2002 | 9.0 | 6.0 | 3.0 |
| Infant mortality rate, per 1,000 births | 2007 | 11.1 | 5.8 | 5.3 |

**SOURCE: Michigan Department of Community Health, 2010, pg. A-2)**

As a part of this report and study on the status of the health of Michigan minority groups in comparison to their White peers, a section on "Public issues and comments about health equity" was included where the authors conducted interviews during the summer and fall of 2009 to obtain views on health care. They summarized the key themes that emerged from their interviews. The greatest correlate to poor health as recognized by the informants was "poverty and class" more than race and ethnicity. In the state of Michigan, the unemployment rate has been high (>14%) in comparison to other states. As a result, the authors of this report recognized that this unemployment rate

and the associated poverty rate made "providing basic outreach and services more complicated" (Michigan Department of Community Health, p. 21).

From the information obtained per the surveys and questions, the American Indian/Native American comments recorded were:

> The American Indian community conversation participants focused on the lack of acceptance of their spiritual beliefs, practices, and culture by other groups. They also expressed concerns regarding economics, education, and racism, citing that documentation of facts related to their population was influenced by racism. Broken treaties and contracts, lack of trust of immunizations, and poor quality of housing were contributing factors to the lack of trust voiced in the American Indian community. (Michigan Department of Community Health, p. 24)

As evidenced by the Michigan Department of Community Health (2010) *Health Equity Roadmap* report, the prevalence rate of obesity for Native Americans in 2008 was listed at 45.9 compared to the White rate at 26.6 for that same year. This prevalence rate of obesity can impact several other health related issues. Another associated health concern is the potential increase in the rate of children with Type II diabetes. In Dabelea, Hanson, Bennett, Roumain, Knowler, and Pettitt (1998), their study recognized the growing rate of Type II diabetes amongst American Indian children. As the authors noted, Type II diabetes is rare in children. The study compares rates from 1967-1976 to 1987-1996. The summary of their finding were:

- American Indian boys between the ages of 10-14, the rate went from 0% in 1967-1976 to 1.4% in 1987-1996;

- American Indian boys between the ages of 15-19, the rate went from 2.43% in 1967-1976 to 3.78% in 1987-1996;
- American Indian girls between the ages of 10-14, the rate went from 0.72% in 1967-1976 to 2.88% in 1987-1996; and,
- American Indian girls between the ages of 15-19, the rate went from 2.73% in 1967-1976 to 5.31% in 1987-1996.

The authors of this study also correlated an increase in weight ($p<0.0001$) and frequency of exposure to diabetes in utero ($p<0.0001$) (Dabelea et. al, 1998).

**Psychoeducational Assessment Measures**

Another factor that warrants further study is in the the administration of psychological tests and tests of language deficits with Native American students. Such tests are used to determine discrepencencies in their academic peformance and intellectual abilities that could lead to identification and needing special education services. In Dauphinais and King (1992), the authors reviewed the literature on psychoeducational and personality testing of American Indian children and they determined that further reliability and validity studies need to occur with the Native American students and that the diversity of their culture is a factor that needs to be considered in the interpretation of testing results.

In Coutinho and Oswald (2000), the authors outlined the concerns surrounding disproportionate representation of ethnic minorities in special education. In this article, the authors referenced their previous work (Coutinho and Oswald, 2000) where they developed two hypotheses on the reasons and causes for a disproportionate representation of ethnic minorities in special education. Their first hypothesis was that "ethnic groups

are differentially susceptible to educational disability." With this hypothesis, there would be concerns regarding teacher bias and expectations, socioeconomic factors, health care factors, and cultural influence. The second hypothesis was "that special education referral, assessment, and eligibility rely on processes and instruments that are culturally and linguistically loaded, and that measure and interpret the ability, achievement, and behavior of students differently across ethnic groups (Coutinho and Oswald, 2000, p. 147). In the concluding remarks by Coutinho and Oswald (2000), they summarize their impressions of the literature and the available studies at that time by the following statement:

> The frequently polarized discourse surrounding disproportionality interferes with achievement of equitable and excellent educational experiences for minority students. We believe the development of a conceptual framework for understanding the causes and significance of ethnic disproportionality will be strengthened by discussion and inquiry that embrace both the sociopolitical and historical context in which minority cultures have been viewed (Artiles, 1998) and the Criteria of Equal Treatment and Outcomes (Reschly, 1988a). An empirically and ethically based understanding of the causes and significance of the disproportionate representation in special education is a vital component of efforts to improve the educational success of minority students. (Coutinho and Oswald, 2000, pg. 152)

The varied number and percentage of Native American students that are certified for special education services in the 20 identified school districts from this study in Michigan warrants further research to determine what factors are contributing to the eligibility for

special education of Native American students in each of these districts and the potential for under- or over-representation.

There can be some factors that may influence the higher rate of Native American students identified for special education in the state of Michigan. As indicated in the articles by Lambie (2005) and Joe (1997), the Native American culture involves a close connection to the tribe and the family with values communicated through the elders. The recognition of the disability and the need for support may be dependent upon the family's connection to the tribal culture. As indicated in Joe (1997), the explanation of a disability may become "a private explanation within the family or within the kin group" (Joe, 1997, p. 252). It is the Native American family that would work together to address the initial needs of the disabled child. Based on their ability to interact in a bicultural world, the additional resources and outside support systems may not be utilized by the Native Americans to the extent that other ethnic groups may use such services.

There are several factors that can result in an increase likelihood of having significant delays in educational performance that may lead the student to have a greater risk of being in need of special education services. Such factors may include: socioeconomic/poverty status; parenting skills; parental educational history; early intervention education; health/medical concerns; language barriers; limited or minimal exposure to educational materials and activities; teacher quality and effectiveness; appropriately administered normed testing instruments and measures; and available resources to the family and school. There is also the concern of lower teacher expectations that Reyhner (1992) identified when analyzing the larger drop out rates of Native Americans. In the Reyhner (1992) article, the author states:

> The idea that Indian students are "culturally disadvantaged" or "culturally deprived" reflects ethnocentism rather than the results of educational research. When schools do not recognize, value, and build on what Indian students learn at home, the students are given a watered-down curriculum (meant to guarantee student learning) which often results in a tedious education, and their being "bored out" of school.
>
> (Reyhner, 1992, p. 2)

**Concluding Summary**

This study attempted to look at many different aspects of school districts that serve a larger Native American population (16.5% in the selected districts when compared to less than 1 percent in most districts in the state of Michigan). There are many additional areas that would warrant further study and analysis. Researchers that conduct both qualitative and quantitative studies of the Native American population in Michigan would find that there are significant numbers in certain regions of the state that would warrant a sound empirical study with enough evidence to draw conclusions. As indicated in this study, the impact of a culturally responsive environment would be a continued area of interest to determine the qualitative and quantitative benefits of such an environment on academic performance. A study on course selection and the rigor of the curriculum in these more rural and charter school settings would be warranted as the lower number of Native American students achieving at Level 1 was significant to those of their White peer group. There is strong evidence from this study that socioeconomic factors play a key role in the student's performance and the resulting data are not discriminatory with any particular ethnic group. The socioeconomic factors continued to

be a major factor in the success of any student. In looking at the staffing for each of the districts, a program that encourages, supports, and facilitates more Native Americans to enter the field of education is worth studying. And finally, the availability of services for students with special needs and the appropriate implementation of assessment for qualifying a student with special needs warrant further studies in these school districts. A comparison of the process and procedures utilized by the staff in these districts would help assist the professional staff assigned to perform these duties and to provide assurances that the Native American student is provided access to academic supports and assistance where needed and appropriate.

Educational communities across the nation will continue to review their more diverse student population to determine the most effective and best educational practices to improve student growth and achievement. Teaching practices that incorporate a greater understanding about how students can best learn is still evolving in the literature and in the field of education. Students, parents, and teachers will need to engage, share, and listen to supportive practices that improve the quality of education in the classroom. Effective instructional materials and technology will expand the opportunities for learning and student engagement outside of the classroom and into the homes and diverse settings for all students. These instructional tools will be a major factor in improving academic success and achievement for the students. Multisensory tools and immediate feedback on student performance will provide many different opportunities for student learning. In the smaller and rural communities, professional staff development is crucial in expanding the quality of instructional practices for all diverse learners. Improving instructional practices and teaching strategies for the Native American student population

must include the opportunities to engage both students and parents in the learning process. To improve engagement and interest for students, the school needs to facilitate a rigorous curriculum, incorporate the necessary relationship of concepts and daily practice, and provide relevance of this work in the day to day environments of the students. The world of education and learning is expanding beyond the walls of the everyday classroom. Even small, rural, and regional centers can access these different modalities of instruction and curriculum practices that will serve to enhance all students in their quest for learning and growth.

The research on quality instructional practices is readily available. As an instructional leader, it is important to be continuously connected to the instructional strategies and approaches that engage the Native American and minority students in their learning. In environments where there may exist a cultural dissonance and a different set of academic expectations, the instructional leader will need to effectively collaborate with the community leaders, parents, staff, and students to ensure engagement of learning to increase the likelihood of student academic success. The essence of a professional learning community would evolve to specifically address the instructional practices, the assessment tools, and the curriculum that will provide the necessary foundation for learning for each and every student in that school setting. The instructional leader will need to bring forth and encourage a better understanding of how students learn and grow in a diverse environment with many factors that compete and hinder the student's ability to successfully achieve.

For the educational leaders and school boards in these selected districts, a review of current policies on attendance, discipline, grading, assessment, and special education

services is warranted to determine whether these policies can help or hinder the student to stay engaged in the learning environment. The procedural safeguards and identification of students that have special needs or that are at risk of academic failure need to be guaranteed for each student as a foundation of good policy within the district. As a policy, administrative guideline, or procedure, the district will need to adopt practices that utilize a positive behavior support (PBS) model and a response-to-intervention (RTI) model in the school setting. Policy and procedure should encourage early identification of students that are at risk of failure and initiate early support methods that help assist the student and families where there is the likelihood of academic failure. The recognition of student cultural differences and the recognition of diversity in the schools is also a matter of demonstrating support and action at the school board level in their decisions of supporting best instructional practices and programs.

This study is a quantitative study that primarily reviewed student achievement data for Native American students and White students over a three year period. The results were not unique in finding significant achievement gaps in the core subject areas as demonstrated by previous research literature in the field. An extensive qualitative study would enhance and expand this study. Individual classrooms and environments for learning should be clinically observed. Surveys of students, parents, tribal community members, administrators, and teachers could further explore factors that are affecting student learning in the Native American communities. The direct conversations and themes obtained through this qualitative approach could lend to a greater understanding of the approaches that are leading to academic success for Native Americans in these

selected districts and the areas where there are struggles and difficulties in obtaining academic achievement.

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# APPENDICES

Appendix A: Statewide Top to Bottom Percentile Rank and Percent of Students Eligible for Free and Reduced-Price Lunch by School Buildings in All Selected Districts

## Statewide Top to Bottom Percentile Rank and Percent of Students Eligible for Free and Reduced-Price Lunch by School Buildings in All Selected Districts

| Statewide Top to Bottom Percentile Rank | School Name | District Name | Grade List | Total Percent of Students Eligible | Percent of Students Free Lunch Eligible | Percent of Students Reduced -Price Lunch Eligible |
|---|---|---|---|---|---|---|
| 3 | Nah Tah Wahsh Public School Academy | Nah Tah Wahsh Public School Academy | KG,1,2,3,4,5,6,7,8,9,10,11,12 | 88.16 | 77.63 | 10.53 |
| 23 | Woodland Elem. School | Carman-Ainsworth Comm. Schools | KG,1,2,3,4,5 | 79.05 | 75 | 4.05 |
| 29 | Gladys Dillon Elem. School | Carman-Ainsworth Comm. Schools | KG,1,2,3 | 77.19 | 71.23 | 5.96 |
| 28 | Turner-Howson Elem. School | Rudyard Area Schools | KG,1,2,3,4,5 | 76.64 | 65.33 | 11.31 |
| 29 | Dye Elem. School | Carman-Ainsworth Comm. Schools | KG,1,2,3,4,5 | 74.62 | 68.98 | 5.64 |
| 19 | Ojibwe Charter School | Ojibwe Charter School | KG,1,2,3,4,5,6,7,8,9,10,11,12 | 74.42 | 63.95 | 10.47 |
| 45 | Barryton Elem. School | Chippewa Hills School District | KG,1,2,3,4 | 71.38 | 67.14 | 4.24 |
| 27 | Carman-Ainsworth Middle School | Carman-Ainsworth Comm. Schools | 6,7,8 | 68.24 | 60.42 | 7.83 |
| 41 | Chippewa Hills Interm. School | Chippewa Hills School District | 7,8 | 66.86 | 55.72 | 11.14 |

| Statewide Top to Bottom Percentile Rank | School Name | District Name | Grade List | Total Percent of Students Eligible | Percent of Students Free Lunch Eligible | Percent of Students Reduced -Price Lunch Eligible |
|---|---|---|---|---|---|---|
| 73 | Mecosta Elem. School | Chippewa Hills School District | KG,1,2,3,4 | 66.3 | 61.17 | 5.13 |
| 53 | Rankin Elem. School | Carman-Ainsworth Comm. Schools | KG,1,2,3,4,5 | 65.84 | 58.68 | 7.16 |
| 41 | Randels Elem. School | Carman-Ainsworth Comm. Schools | KG,1,2,3,4,5 | 65.11 | 58.58 | 6.53 |
| 22 | Washington Elem. School | Sault Ste. Marie Area Schools | KG,1,2,3,4,5 | 64.81 | 54.7 | 10.1 |
| 53 | Weidman Elem. School | Chippewa Hills School District | KG,1,2,3,4 | 64.79 | 57.99 | 6.8 |
| 30 | Rudyard Middle School | Rudyard Area Schools | 4,5,6,7,8 | 64.2 | 55.03 | 9.17 |
| 29 | Pellston Elem. School | Pellston Public Schools | KG,1,2,3,4,5 | 63.95 | 56.46 | 7.48 |
| 43 | Watersmeet Township School | Watersmeet Township School District | KG,1,2,3,4,5,6,7,8,9,10,11,12 | 62.5 | 42.86 | 19.64 |
| 73 | St. Ignace Middle School | St. Ignace Area Schools | 5,6,7,8 | 62.37 | 43.01 | 19.35 |
| 47 | Philip Latendresse School | Baraga Area Schools | 3,4,5,6 | 61.54 | 46.85 | 14.69 |

| Statewide Top to Bottom Percentile Rank | School Name | District Name | Grade List | Total Percent of Students Eligible | Percent of Students Free Lunch Eligible | Percent of Students Reduced -Price Lunch Eligible |
|---|---|---|---|---|---|---|
| 55 | Graveraet Intermediate School | Marquette Area Public Schools | 5 | 59.68 | 53.23 | 6.45 |
| 15 | St. Ignace Elem. School | St. Ignace Area Schools | KG,1,2,3,4 | 59.62 | 49.52 | 10.1 |
| 49 | Lincoln School | Sault Ste. Marie Area Schools | KG,1,2,3,4,5 | 59.61 | 52.12 | 7.49 |
| 18 | Emerald Elem. School | Manistiqu e Area Schools | KG,1,2,3,4,5 | 58.64 | 47.22 | 11.42 |
| 40 | Webster Elem. School | Escanaba Area Public Schools | KG,1,2,3,4 | 58.46 | 51.47 | 6.99 |
| 36 | Sullivan Elem. School | L'Anse Area Schools | KG,1,2,3,4,5 ,6 | 58.11 | 48.11 | 10 |
| 18 | Suttons Bay Elem. School | Suttons Bay Public Schools | KG,1,2,3,4,5 ,6 | 57.86 | 49.29 | 8.57 |
| 31 | Carman-Ainsworth High School | Carman-Ainsworth Comm. Schools | 9,10,11,12 | 57.68 | 51.31 | 6.36 |
| 76 | Chippewa Hills High School | Chippewa Hills School District | 9,10,11,12 | 55.71 | 45.87 | 9.84 |
| 51 | Joseph K. Lumsden Bahweting Anishnabe Academy | Joseph K. Lumsden Bahwetin g Anishnabe Academy | KG,1,2,3,4,5 ,6,7,8 | 54.78 | 47.39 | 7.39 |

| Statewide Top to Bottom Percentile Rank | School Name | District Name | Grade List | Total Percent of Students Eligible | Percent of Students Free Lunch Eligible | Percent of Students Reduced -Price Lunch Eligible |
|---|---|---|---|---|---|---|
| 53 | Pellston Middle/High School | Pellston Public Schools | 6,7,8,9,10,11,12 | 54.42 | 42.82 | 11.6 |
| 23 | Big Bay De Noc School | Big Bay De Noc School District | KG,1,2,3,4,5,6,7,8,9,10,11,12 | 51.84 | 45.31 | 6.53 |
| 44 | Rudyard High School | Rudyard Area Schools | 6,7,8,9,10,11,12 | 51.41 | 45.78 | 5.62 |
| 58 | Brimley Elem. School | Brimley Area Schools | KG,1,2,3,4,5,6 | 50.92 | 41.76 | 9.16 |
| 19 | William G. Mather Elem. School | Munising Public Schools | KG,1,2,3,4,5,6 | 49.86 | 39.26 | 10.6 |
| 63 | Sault Area Middle School | Sault Ste. Marie Area Schools | 6,7,8 | 49.66 | 39.69 | 9.97 |
| 63 | Escanaba Middle School | Escanaba Area Public Schools | 5,6,7 | 49.64 | 38.32 | 11.31 |
| 81 | Soo Township School | Sault Ste. Marie Area Schools | KG,1,2,3,4,5 | 48.24 | 42.35 | 5.88 |
| 56 | Baraga Area High School | Baraga Area Schools | 7,8,9,10,11,12 | 47.92 | 36.23 | 11.7 |
| 60 | Mary McGuire School | Mt. Pleasant City School District | 4,5,6 | 46.18 | 40.53 | 5.65 |

| Statewide Top to Bottom Percentile Rank | School Name | District Name | Grade List | Total Percent of Students Eligible | Percent of Students Free Lunch Eligible | Percent of Students Reduced -Price Lunch Eligible |
|---|---|---|---|---|---|---|
| 23 | Manistique Middle and High School | Manistique Area Schools | 6,7,8,9,10,11,12 | 46.03 | 34.3 | 11.73 |
| 34 | LaSalle High School | St. Ignace Area Schools | 9,10,11,12 | 44.3 | 32.46 | 11.84 |
| 46 | L'Anse High School | L'Anse Area Schools | 7,8,9,10,11,12 | 41.27 | 31.22 | 10.05 |
| 74 | Brimley Jr./Sr. High | Brimley Area Schools | 7,8,9,10,11,12 | 40.87 | 30.87 | 10 |
| 50 | Escanaba Area Public High School | Escanaba Area Public Schools | 8,9,10,11,12 | 40.04 | 31.8 | 8.24 |
| 56 | Lemmer Elem. School | Escanaba Area Public Schools | KG,1,2,3,4 | 40 | 34.08 | 5.92 |
| 70 | Sault Area High School | Sault Ste. Marie Area Schools | 9,10,11,12 | 39.98 | 30.88 | 9.1 |
| 88 | Sandy Knoll School | Marquette Area Public Schools | KG,1,2,3,4 | 39.54 | 35.82 | 3.72 |
| 20 | Pullen Elem. School | Mt. Pleasant City School District | KG,1,2,3 | 39.23 | 35.13 | 4.1 |
| 50 | Munising High and Middle School | Munising Public Schools | 7,8,9,10,11,12 | 37.74 | 31.61 | 6.13 |

| Statewide Top to Bottom Percentile Rank | School Name | District Name | Grade List | Total Percent of Students Eligible | Percent of Students Free Lunch Eligible | Percent of Students Reduced -Price Lunch Eligible |
|---|---|---|---|---|---|---|
| 35 | Suttons Bay Senior High School | Suttons Bay Public Schools | 7,8,9,10,11, 12 | 36.41 | 32.17 | 4.24 |
| 82 | Vowles School | Mt. Pleasant City School District | KG,1,2,3,4 | 35.38 | 33.73 | 1.65 |
| 65 | Fancher School | Mt. Pleasant City School District | 5,6 | 35.23 | 31.88 | 3.36 |
| 80 | Ganiard School | Mt. Pleasant City School District | KG,1,2,3,4 | 34.1 | 31.55 | 2.54 |
| 59 | West Intermediate School | Mt. Pleasant City School District | 7,8 | 31.6 | 28.4 | 3.2 |
| 69 | Superior Hills Elem. School | Marquette Area Public Schools | KG,1,2,3,4 | 31.3 | 26.53 | 4.77 |
| 37 | Bothwell Middle School | Marquette Area Public Schools | 5,6,7,8 | 29.84 | 24.83 | 5.01 |
| 81 | Cherry Creek Elem. School | Marquette Area Public Schools | KG,1,2,3,4 | 29.71 | 26.06 | 3.64 |
| 81 | Mt. Pleasant Senior High School | Mt. Pleasant City School District | 9,10,11,12 | 28.84 | 26.06 | 2.79 |

| Statewide Top to Bottom Percentile Rank | School Name | District Name | Grade List | Total Percent of Students Eligible | Percent of Students Free Lunch Eligible | Percent of Students Reduced -Price Lunch Eligible |
|---|---|---|---|---|---|---|
| 58 | Soo Hill Elem. School | Escanaba Area Public Schools | KG,1,2,3,4 | 27.68 | 21.03 | 6.64 |
| 83 | Marquette Senior High School | Marquette Area Public Schools | 9,10,11,12 | 18.24 | 14.57 | 3.67 |

Appendix B:  University Human Subjects Review Committee Approval Letter

EASTERN MICHIGAN UNIVERSITY

*Education First*

May 19, 2011

UHSRC Initial
Application Determination
**EXEMPT APPROVAL**

To: Thomas Harwood
Leadership and Counseling

Re: **UHSRC** #110414 Category: EXEMPT #4
**Approval Date:** May 19, 2011

Title: "An Examination of Factors Contributing to the Achievement Gap of Native American Students in Select School Districts in Michigan"

The Eastern Michigan University Human Subjects Review Committee (UHSRC) has completed their review of your project. I am pleased to advise you that **your research has been deemed as exempt** in accordance with federal regulations.

The UHSRC has found that your research project meets the criteria for exempt status and the criteria for the protection of human subjects in exempt research. **Under our exempt policy the Principal Investigator assumes the responsibility for the protection of human subjects** in this project as outlined in the assurance letter and exempt educational material.

**Renewals:** Exempt protocols do not need to be renewed. If the project is completed, please submit the **Human Subjects Study Completion Form** (found on the UHSRC website).

**Revisions:** Exempt protocols do not require revisions. However, if changes are made to a protocol that may no longer meet the exempt criteria, a **Human Subjects Minor Modification Form** or new **Human Subjects Approval Request Form** (if major changes) will be required (see UHSRC website for forms).

**Problems:** If issues should arise during the conduct of the research, such as unanticipated problems, adverse events, or any problem that may increase the risk to human subjects and change the category of review, notify the UHSRC office within 24 hours. Any complaints from participants regarding the risk and benefits of the project must be reported to the UHSRC.

**Follow-up:** If your exempt project is not completed and closed after three years, the UHSRC office will contact you regarding the status of the project and to verify that no changes have occurred that may affect exempt status.

Please use the UHSRC number listed above on any forms submitted that relate to this project, or on any correspondence with the UHSRC office.

Good luck in your research. If we can be of further assistance, please contact us at 734-487-0042 or via e-mail at human.subjects@emich.edu. Thank you for your cooperation.

Sincerely,

Deb de Laski-Smith, Ph.D.
Interim Dean
Graduate School
Administrative Co-Chair
University Human Subjects Review Committee

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