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Defying Poverty: Educator Impact On High Performing, High Poverty Students

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DEFYING POVERTY: EDUCATOR IMPACT ON HIGH PERFORMING, HIGH POVERTY STUDENTS

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ABSTRACT

The purpose of this quantitative study was to determine if teacher and administrative experience in public schools has an impact on student standardized test achievement in poverty schools. The study determined the previous school accountability score given by the state provides predictable outcomes for the next year's score within poverty schools. The study also determined the relationship between faculty experience and student success in both math and English language arts (ELA) Indiana Statewide Testing for Educational Progress (ISTEP) test scores within poverty schools was not statistically significant. Additionally, the study determined the relationship between administrator experience and student success in both math and ELA ISTEP test scores within poverty schools was not statistically significant.

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CHAPTER 1

INTRODUCTION

Statement of the Problem

"Poverty matters. Poverty affects children's health and well-being. It affects their emotional lives and their attention spans, their attendance and their academic performance" (Ravitch, 2014, p. 93). Studies have shown that students with low socio-economic status (SES) have low graduation rates and perform poorly on other educational metrics. Recent research claimed the gap between poverty schools and affluent schools is growing (DeArmond, Denice, Gross, Hernandez, & Jochim, 2015).

The 2010 U.S. Census indicated that 16% of the United States student population is poor. The number of poor students increased drastically to 41% nationally when free and reduced lunch is used to measure poverty. The free and reduced lunch metric also places several states with 50% or above of their student population in poverty, clearly indicating a poverty issue within schools (Baker, Sciarra, & Farrie, 2010). Ladd (2011) found several educational risk factors associated with low SES of a student's family. Poor economic opportunity, poor language skills, poor life experiences of the parents, poor access to pre-K education, and poor child healthcare all impact student performance. The effect can be found both nationally and internationally.

Williams-Boyd (2010) stated historically government officials addressed the needs of low SES students and families through government programs. Since the 1600s, the government has provided public services through public schools to promote public prosperity and increase academic success. Martin, Sargrad, and Batel (2016) concurred state and federal governments have attempted to provide equitable education to poor and affluent populations, such as the No Child Left Behind Act (NCLB). Most recently the federal government ratified the Every Student Succeeds Act (ESSA) to ensure school accountability in student success.

Martin et al. (2016) completed a 50-state analysis of school accountability systems. Their report found that all 50 states had produced accountability systems to meet the requirements of NCLB. The authors indicated that states would need to reevaluate their current systems to meet the demands of ESSA while keeping a vision of the importance of educating all students. In their report the authors stated, "The ultimate goal of the K-12 education system is not only to ensure that all students graduate from high school but also that they are college and career ready" (Martin et al. 2016, p. 25).

Murray and Howe (2017) reported 16 states adopted an A-F school report card accountability system in order to comply with federal accountability guidelines. Each of the 16 states utilized different measures to determine the overall score and, ultimately, grade for each school. Often A-F accountability systems used graduation rates, standardized testing achievement, standardized test improvement, ACT/SAT participation, and attendance rates as some of their measures (Murray & Howe, 2017).

Ladd (2017) pointed to flaws found within legislation, such as NCLB. She argued that too much emphasis was placed on standardized tests and that the educational experience was

greater than a few curricular areas. She also concluded the federal government did not support the initiative in a way that would help schools increase achievement at the level desired, especially within poverty schools (Ladd, 2017).

According to the Organization for Economic Co-operation and Development (OECD, 2012) there is a strong correlation between student SES and student academic performance. The lower the student's SES, the more likely the student's academic performance will be low. Both nationally and globally, the correlation is evident when considering academic performance in relation to student SES and the impact on intergenerational poverty (OECD, 2012).

The conditions of poverty have long impacted high school student performance within the state of Indiana. Over the past six years, Indiana public high schools have consistently had 25% to 30% of students fail the End of Course Assessment (ECA) in either English or Math. Those rates increase significantly within poverty schools. Schools with higher rates of student failure often have large amounts of students that are eligible for free and reduced lunch (Indiana Department of Education [IDOE], 2018).

Ravitch (2014) challenged states to improve the overall education profession in order improve the educational process. She stated Governors should only appoint qualified educational professionals to sit on the state board of education. She encouraged colleges to execute more rigorous educator training programs and a decrease in online teacher programs to ensure greater quality. She also encouraged school districts to hire master teachers with experience to serve as building principals.

Poor students are less likely to succeed than their counterparts. Berry, Daughtrey, and Wieder (2009) reported teacher effectiveness directly impacts student success. Schools located

in affluent areas are more likely to employ highly qualified teachers. Conversely, poorly prepared and at times unlicensed teachers are more likely to work in poverty schools. The report indicated that the differences in teacher quality directly impacted student success between the two groups.

Gehrke (2005) stated that large class sizes and underfunded schools help contribute to institutional failure within poverty urban schools. As a result, Gehrke found that there was a high turnover rate of teachers constantly resulting in inexperienced teachers working with high-need, high-poverty students. Ladd (2011) also found that highly credentialed teachers were less likely to teach disadvantaged students. In addition to drawing from underqualified teaching candidates, areas of high poverty also receive less overall funding in several instances (Southern Education Foundation [SEF], 2010).

Fuller, Orr, and Young (2008) found the principal turnover rates increased significantly in poverty schools with 50% or higher economically disadvantaged students than the average principal turnover rate. According to the study, 73% of the principals in high-poverty schools left their respective schools between 2001-2006. High school principals had the highest turnover rate with 81%, followed by 79% of middle school principals, and 70% of elementary principals.

Voight, Austin, and Hanson (2013) stated school climate was a determining factor in students overcoming poverty to attain academic success. The researchers concluded high-poverty students that outperformed expectations often attended schools with a smaller enrollment and smaller student-to-teacher ratios than students who chronically underperform. Student relationships were determined to have a larger impact on achievement than other resources (Voight et al., 2013).

The Education Commission of the States (ECS, 2012) detailed multiple studies that have shown that teacher expectations impact student learning. Teachers that expect less from poor minority students negatively impact student learning. Teachers that set high expectations for all students increase the effects of learning for poor minority students.

Samuel Casey Carter (2001) studied 21 high-performing, high-poverty schools. A majority of Carter's work focused on principal leadership in relation to overcoming student poverty as a barrier. Carter concluded that building leaders must be able to creatively lead with little restrictions. Carter determined effective leadership can drive educational programming that meets the needs of students with low SES.

Hagelskamp and DiStasi (2012) stated hig-poverty, high-performing schools are able to focus on controllable variables within the school parameters. Teachers and administrators in these schools are able to concentrate on growth no matter what the current levels of success may be for a student. Educators that obtain results in high poverty schools are committed to self-reflection and improvement.

Purpose of the Study

The purpose of this quantitative study was to determine if teacher and administrative experience in public schools had an impact on student standardized test achievement in poverty schools. The study also determined if the previous school accountability score given by the state provides predictable outcomes for the next year's score within poverty schools. The study measured the relationship between faculty experience and student success in both math and English language arts (ELA) Indiana Statewide Testing for Educational Progress (ISTEP) test

scores within poverty schools. The study also measured the relationship between administrator experience and student success in both math and ELA ISTEP test scores within poverty schools.

Research Questions

The research questions for the study are as follows:

1. What are the current levels of student performance on standardized testing while considering teacher and administrator years of experience in high schools?
2. Do previous school accountability score, the average teacher years of experience within ELA, and years of principal experience in education explain a statistically significant amount of variance within the ISTEP 10 ELA score in high-poverty schools?
3. Do previous school accountability score, the average teacher years of experience within Math, and years of principal experience in education explain a statistically significant amount of variance within the ISTEP 10 math score in high-poverty schools?

Null Hypotheses

The following null hypotheses were generated through the research questions:

$H_0$1: The previous school accountability score, average teacher years of experience within ELA, and years of principal experience in education do not explain a statistically significant amount of variance within the ISTEP 10 ELA score in high-poverty schools.

$H_0$2: The previous school accountability score, average teacher years of experience within Math, and years of principal experience in education do not explain a

statistically significant amount of variance within the ISTEP 10 math score in high-poverty schools.

Definition of Terms

The definitions below were defined by the researcher. This was intentional so each definition would address the specific need of the study. The definitions clarify the variables of the research questions.

Affluent School: For the purpose of this study, an affluent school will consist of a school with 10% or less of their students that qualify for free and reduced lunch.

Government Programs: For the purpose of this study, government programs will consist of laws designed to help poverty student academic achievement.

Highly Qualified Teachers: For the purpose of this study, highly qualified teachers will consist of teachers with a bachelor's degree, full licensure, and ability to prove that they know each subject they teach.

Poverty School: For the purpose of this study, a poverty school has 50% or more of their students counting as free or reduced lunch.

Poverty Student: For the purpose of this study, a poverty student is defined as a student receiving free or reduced lunch.

Student Achievement: For the purpose of this study, student achievement consists of success as measured by state standardized tests and graduation rates.

Successful Poverty Schools: For the purpose of this study, successful poverty schools will score equivalent to or above their respective state averages on standardized tests.

Teacher Retention: For the purpose of this study, teacher retention will consist of teachers remaining within a school.

Years of Experience: For the purpose of this study, years of experience consists of the number of years a teacher or principal has served in public schools.

Rationale and Significance of the Study

This study benefits the field of education by examining the relationship between adult intervention and student achievement within poverty schools. The quantitative data determined if a relationship exists between an experienced faculty of highly qualified teachers and the achievement of students with low SES in poverty schools. The quantitative data also determined if there is a relationship between experienced administrators and the achievement of students with low SES in poverty schools. The quantitative data further determined if combined teacher experience and principal experience impacts the achievement of students with low SES in poverty schools. This study provides poverty schools with predictors for improved student achievement in relation to educator experience.

This study also benefits the field of educational leadership. A better understanding of the role of teacher and principal experience in relation to student achievement can help shape hiring and retention policies. If experience is a proven predictor of success, administrators may invest more in retaining quality teachers and principals within poverty schools. The literature suggests that currently poverty schools experience high turnover rate, which yields inexperienced teachers working with students with low SES in poverty schools.

Summary and Organization of the Study

This study was written in five chapters. Chapter 1 presented the problem, the statement of the problem, the purpose of the study, the research questions, the null hypotheses, the definition of terms, and the significance of the study. Chapter 2 provides a thorough literature review. Chapter 3 provides the methodology used in the study. Chapter 4 provides the statistical and inferential findings of the quantitative study. Chapter 5 presents the conclusions and implications of the study.

CHAPTER 2

LITERATURE REVIEW

This chapter summarizes the literature related to poverty's effect on students, government initiatives to help students in poverty, and the ability of a minority of administrators and teachers to help students overcome the odds. The review indicates disparity between schools with different populations of students in regards to qualified and experienced teachers and administrators. The literature also points to the importance of teacher and administrator training and retention.

The Impact of Poverty on Student Success

According to a study performed by the OECD (2012), there is a strong correlation between SES and student academic performance. The lower the SES of a student, the lower the overall academic achievement. It is important to note that lower SES also correlates with other academic risk factors, such as single parents, poorly educated parents, high rates of alcoholism and drug use, child abuse and neglect, and an increased rate of experience with the criminal justice system (Petrilli & Wright, 2016). Home life impacts student performance, as parents set expectations and pass on their own understanding of school (Hattie, 2009).

Ravitch (2014) pointed to poverty as a source of humiliation for the nation's poor students who grow up in a society that experiences great affluence in comparison to the rest of

the world. She stated most students who grow up in concentrated poverty fall victim to their circumstances. According to her, our poor students who are at greatest risk are those who grow up in single-parent homes. Impoverished single parents are unlikely to be able to provide for the basic needs of their children. Ravitch also stated many poor children have parents who struggle with mental health issues or addiction. She stated at times poor children are raised by grandparents out of necessity, and some may not know their actual parents. She also pointed to lack of prenatal care and general medical care as the child ages as a distinct disadvantage in terms of cognitive development (Ravitch, 2014).

Ladd (2011) also found several educational risk factors associated with low SES of a student's family. Poor economic opportunity, poor language skills, poor life experiences of the parents, poor access to pre-K education, and poor child healthcare all impact student performance. The effect can be found both nationally and internationally. The standard deviation for the reading achievement gap alone more than doubled from 1940 to 2000 between high-income and low-income families. In comparison, the standard deviation for educational progress between White students and African American students has decreased over the generations (Ladd, 2011).

In 2015, researchers from the Centre for Reinventing Public Education studied 50 cities and the schools located across the United States to identify academic trends. The researchers concluded that students with low SES were at a distinct disadvantage in terms of academic success in relation to standardized tests and graduation. Students that were eligible for free or reduced lunch had a lower graduation rate and underperformed compared to their counterparts on nationally normed tests (DeArmond et al., 2015).

The Center for Poverty Research at the University of California, Davis (2015) reported that adults aged 25 or older without a high school diploma accounted for 28% of the poor in 2014. Those without a high school diploma only made up 12% of the overall population. Adults with a high school diploma but no further education made up 35% of the poor population. Those with a high school diploma accounted for 29% of the overall population. Conversely, adults with a bachelor's or higher accounted for 33% of the overall population but only accounted for 14% of the poor (Center for Poverty Research at the University of California, Davis, 2015).

Using the standards set by the U.S. Census, 16% of the U.S. student population is poor. Nationally, the percentage of poor students increases drastically to 41% when free and reduced lunch is used as the metric to establish poverty. Using the free and reduced lunch metric also places several states with 50% or above of their student population in poverty (Baker et al., 2010).

The SEF (2010) concluded that 5.7 million children in the United States were living under 50% of the established poverty line in 2008. The foundation deemed these children living in extreme poverty. Of those living in extreme poverty, 42% lived in southern states. School districts with 10% or more of their students in extreme poverty had students average 63% on state proficiency tests. Districts with less than 5% of their students in extreme poverty had students average 78% on similar proficiency tests (SEF, 2010).

Krashen (2005) indicated that SES influences student test performance. Students born into a family with high SES typically outperform students with low SES. A study that examined the effects of homework on student performance concluded that although more homework may improve school grades, it has very little meaningful effect on standardized test performance for

students with low SES. The author concluded that reduced access to print materials at an early age hinders students with low SES in their development and consequential performance on later standardized tests (Krashen, 2005).

According to Kaushal (2014), SES and education have a strong correlation. Highly educated people typically have a high SES, and therefore, their children have a greater chance of also gaining a quality education. High SES families live in good neighborhoods with access to high-quality public or private schools. High SES families also have access to better health care, and therefore, their children are properly nourished and able to concentrate on learning while at school. Lower SES families unfortunately experience the opposite reality.

Kaushal (2014) indicated that for both groups, intergenerational education proves to be highly influential. An additional year of schooling increases a family's income by approximately 10%, and the life-time earnings gap between the earnings of a high school graduate and a college graduate continues to increase. Kaushal also said highly educated parents will have a greater SES and a better chance of providing their children with educational and economic opportunities for years to come. The current educational system supports the intergenerational success and failure of families based on SES. The United States spends a vast amount of money each year on education, but more is spent on educating the rich than the poor, which in turn guarantees continued inequality (Kaushal, 2014).

A study completed by Silvernail, Sloan, Paul, Johnson, and Stump (2014) at the Maine Education Policy Research Institute concluded that high-poverty schools negatively impact the success of students not in poverty. Students in higher poverty schools that did not qualify for free and reduced lunch performed worse than students in lower poverty schools that did not

qualify for free and reduced lunch. The study called for more research to examine factors such as peer influences, curriculum standards, and teacher quality to determine why the disparity existed.

The Oregon Department of Education (2015) produced a brief that indicated poverty impacts student absenteeism. The study found lower income students had higher rates of chronic absenteeism across all ethnic groups presented. The brief discussed the negative impacts of chronic absenteeism on student achievement. Only 75% of Oregon students with chronic absenteeism were on track to graduate on time compared to those not chronically absent. Of those not chronically absent, 91% were on track to graduate on time.

Over the past six years, in Indiana public high schools, 25% to 30% of students failed the ECA in either English or math. Most recently, the ISTEP exam has served as the ECA for Indiana schools. Schools with higher rates of student failure often have large amounts of students that are eligible for free and reduced lunch. Conversely, schools with low failure rates often have low numbers of students eligible for free and reduced lunch (IDOE, 2018).

Low student educational performance becomes increasingly problematic as students get older. Fifteen-year-old students that fail to meet educational standards have a high-risk factor of dropping out of school. Reduced educational success then results in those same students becoming at risk for unemployment as adults (OECD, 2012).

Government Intervention

Congress replaced NCLB with the new ESSA in order to give states more control of their educational process (Ladd, 2017). The new law will still require high-stakes testing in an effort to drive student achievement and growth. Schools will also have federal regulations that they

must meet in order to remain in compliance. The overall design is to ensure schools continue to execute rigorous standards, while providing state government with more oversight of their respective schools (Ladd, 2017).

A new federal regulation called State Plans to Ensure Equitable Access to Excellent Educators was introduced in 2014, because law makers wanted to ensure teachers with the proper credentials are utilized in districts across the country (Baker & Weber, 2016). The intent of the regulation is to change school policy to ensure only qualified teachers are hired, even in poor school districts, thereby giving equitable access to high-quality teachers among affluent and impoverished school districts. The regulation does not recognize the many challenges that students and teachers face within impoverished communities (Baker & Weber, 2016).

Historically, government officials addressed the needs of low SES students and families through government programs (Williams-Boyd, 2010). To promote public prosperity and increase academic success, government leaders have provided additional public services through public schools dating back to the 1600s. During the progressive era of the late 1800s, reformers used schools as a vehicle to promote social equity. Many reformers called for "school lunches, medical, dental, and mental health services, for clinics, vocational training and placement, classes for the summer recreational and learning programs" (Williams-Boyd, 2010, p. 3). Many of these same services are still provided at schools today. Traditionally, teachers welcome these additional services, often provided by volunteers, as the services help promote academic success by combating the conditions of poverty. According to Williams-Boyd (2010), in the 1960s, Head Start put emphasis on helping impoverished families by aiding their students as they began their educational journey.

From 1973 to 1983, the U.S. Department of Health and Human Services (DHHS) attempted to provide a two-generation program to help both parents and children in low SES families with social and educational services (Kaushal, 2014). In 1994, the DHSS supported 4,000 families with social, health, and educational services. The DHSS determined that a substantial monetary increase was necessary to impact the plight of the families they serviced (Kaushal, 2014). The NCLB Act of 2001 was also implemented to ensure educational success for all students (Williams-Boyd, 2010).

No Child Left Behind

NCLB was intended to raise student achievement scores on state standardized tests. The original intent was for all students to achieve proficiency by the 2013-2014 school year. Schools were required to make Annual Yearly Progress (AYP) under the statute. The AYP also targeted subgroups, such as minorities and the poor, in order to raise their achievement levels (Ladd, 2017).

Martin et al. (2016) stated NCLB allowed the federal government to hold state governments more accountable for student academic progress. The NCLB introduced state requirements to test both math and ELA. The legislation mandated the testing of third through eighth graders, as well as a year of high school testing. In addition, NCLB required the results to be publicly reported, as well as the results of various subgroups, such as low-income students.

Ladd (2017) stated NCLB implemented some positive initiatives. The increased data sets allowed for a better understanding of our educational trends. She also pointed to the targeting of subgroups as a way to help a population of students that might otherwise be ignored if they were

to have little to no impact on the aggregate score. Ladd suggested requiring all teachers to obtain the status of highly qualified was also a positive effect of the legislation (Ladd, 2017).

Ladd (2017) also pointed to flaws found within NCLB. She argued that there is more to schooling than can be found on standardized tests, making the metric not a true indicator of student and teacher success. She also concluded many schools have now placed a greater emphasis on the subjects that are tested and therefore have reduced other curricular areas. Ladd viewed the expectations as being unrealistic, which forced many schools to bare repercussions due to failing AYP goals. She also concluded the federal government did not support the initiative in a way that would help schools increase achievement at the level desired (Ladd, 2017).

School Accountability Systems

Martin et al. (2016) produced an analysis of school accountability systems within all 50 states. The report stated,

> Statewide accountability measures fall into one of seven main categories of indicators: achievement indicators, such as proficiency in reading and mathematics, student growth indicators in multiple academic subjects; English language acquisition indicators; early warning indicators, such as chronic absenteeism; persistence indicators, such as graduation rates; college- and career- ready indicators, such as participation in and performance on college entry exams; and other indicators, such as access to the arts. (Martin et al., 2016, p. 2)

The authors found that on average states include 11 indicators with a minimum of four indicators and a maximum of 26 indicators. Each state provides an accountability system addressing elementary school, middle school, and high school.

Martin et al. (2016) reported that all 50 states utilize math and ELA achievement indicators, while 29 states use a combination of science, social studies, and writing achievement indicators. The report indicated 5 of the 29 states use a writing achievement indicator. Only 3 of the 29 states include all three science, social studies, and writing achievement indicators.

Martin et al. (2016) found 46 states utilize math and ELA growth indicators. The measurement indicated growth between two points in time of testing. Seven states were reported to utilize growth indicators for science or science and social studies. The definitions of growth vary by state. Some states measure the percentage of students who made one year's growth during the time of testing. Other states measure the percentage of students who are on track to be on grade level within three years.

Martin et al. (2016) reported only six states include English language acquisition indicators within their accountability model. The authors suggested that number will rise with the implementation of ESSA. The authors found different measures are used by each state to include the English language acquisition indicator.

Martin et al. (2016) determined that 24 states use at least one early warning indicator within their school accountability model. Early warning indicators include attendance rate, chronic absenteeism, and the ability to graduate on time. The early warning indicators are designed to identify students at risk of failure and dropping out of school. The intent of early

warning indicators is prompt identification of the at-risk population to enable application of appropriate interventions to increase graduation rates.

Martin et al. (2016) found that all 50 states include a persistence indicator such as four-year graduation rate, additional graduation rates (five or more years), dropout rates, and re-engagement of dropouts. The report stated 49 states include a four-year graduation rate. The report found that Washington does not have a four-year graduation rate indicator, but the state is one of the 37 states to include an additional graduation rate.

Martin et al. (2016) stated 30 states utilize a measure of college and career readiness. The authors stated the K-12 educational system should prepare students for college and career readiness. The college and career readiness indicator varies by state and includes measures such as participation in advanced course work, completion of college entry exams, obtainment of certifications achieved through career and technical education courses, and post-secondary enrollment.

Martin et al. (2016) indicated the importance of states to envision clearly a purposeful accountability model to benefit all students. The authors also emphasized the importance of addressing subgroups, such as impoverished students, that will be reported separately under ESSA. The authors stated,

> In addition to outlining the indicators that states must include in their accountability systems, ESSA also requires that states disaggregate indicators by subgroup. Under No Child Left Behind, states were required to disaggregate academic achievement, graduation rate, and the other academic indicator for elementary and middle schools by several subgroups of students: economically disadvantaged students; students from major

> racial and ethnic groups; students with disabilities; and English language learners. Under ESSA, states will have to disaggregate all indicators by these same subgroups, excluding indicators of English language acquisition. (Martin et al., 2016, p. 31)

A-F School Report Cards

Murray and Howe (2017) reported 16 states adopted an A-F school report card accountability system. They stated the passage of ESSA has caused other states to consider A-F reporting as well. They found the metrics used to determine school letter grades vary state by state. Often A-F accountability systems use graduation rates, standardized testing achievement, standardized test improvement, ACT/SAT participation, and attendance rates as some of their measures (Murray & Howe, 2017).

Murray and Howe (2017) also found many of the A-F accountability systems reward and penalize schools based upon their grade. They stated Florida allows students to enroll in higher performing schools if their assigned school received one "F" or three consecutive "D" grades contingent on enrollment capacity of the higher performing school. They further stated Indiana mandates the State Board of Education intervene in schools that have received an "F". Upon intervention the Indiana State Board of Education may close the school, merge the school with a higher performing school, assign a management team to run the school, or revise the school's improvement plan.

Murray and Howe (2017) said A-F accountability systems typically utilize market accountability systems that allow families to have some choice in their student's school. In these cases, the state funding assigned to the student would then go to the new school of choice rather than the student's school determined by address. Murray and Howe pointed to Indiana's Indiana

Choice Scholarship and other voucher programs as prime examples of market accountability. In these cases, all or a portion of government student funding can be used at other schools, which may include religiously affiliated, private schools. They stated proponents of market accountability believe that as students only choose to attend higher performing schools, lower performing schools will cease to exist.

The Indiana A-F accountability system was adopted in 2011 by the State Board of Education in an overhaul of the previous accountability system. The State Board of Education desired to separate AYP and the required accountability measures. Under the original A-F system, high schools were assigned their grade based on ISTEP performance (60%), graduation rate (30%), and college and career readiness (10%) (IDOE, 2018).

According to the IDOE (2018), the new Indiana A-F accountability system took effect during the 2016-2017 school year. The new A-F system assigns letter grades based on an accountability score determined by school performance from the previous year. The new A-F scores are determined by ISTEP performance, growth in ISTEP scores, students passing the ISTEP who previously failed, graduation rate, fifth-year graduates, and college and career readiness. All areas are weighted with a continued emphasis on the ISTEP.

Murray and Howe (2017) questioned the validity of A-F accountability systems. They stated,

> It appears, then that the chorus in favor of A-F systems seems to be singing the same refrain: A-F systems supposedly are clear, concise systems that let everyone know how schools re doing and encourage parents to be involved in school choices and systems. Embedded in these claims, however, are several assumptions that need to be closely

> examined. One assumption is that these systems accurately and adequately measure what they purport to measure (school quality) and that they actually advance goals they purport to advance (parental empowerment, democratic engagement and citizenship, and so on). Another assumption is that fostering the democratic aims of education need not be among the consideration that go into designing accountability systems and assessing their validity. (Murray & Howe, 2017, p. 6)

Murray and Howe (2017) found no credible validity in a single school grade to measure the quality of the school. They stated that weighted criteria from state to state ineffectively measures varying criteria that does not capture the totality of school performance. They concluded a single composite score is imprecise no matter what measures had been taken by various states.

Murray and Howe (2017) further found the simplistic A-F grading is invalid as a policy instrument, as schools offer more than is measured. They also stated schools are not the only influence on student learning, referencing socioeconomic influences and parental involvement. They further determined that there is little empirical evidence that supports the A-F accountability model advances parental empowerment or citizen engagement. They stated some evidence supports citizens residing in states with more developed testing have higher levels of distrust for the government.

Murray and Howe (2017) reported that the A-F model of accountability does not improve schools overall. They stated education conditions are not optimal for all students that are required to take the respective standardized tests. They also reported states fail to validate reporting categories, leaving some categories capricious in nature.

Murray and Howe (2017) felt state report cards are not a democratic assessment of schools. They stated,

> Even if A-F school grades proved valid as a measure of school quality and valid as a policy instrument – which they do not – they are still strong reason to hold that they are invalid as a democratic assessment framework. They are unsuited to guide schooling democratic society for (at least) three reasons: first, they are blind to democratic education outcome: second, they impose a (neoliberal) conception schooling with little apparent consideration of the range of competing educational and social visions; third, with anti-democratic consequences, they appear to presume that some "pure" conception of schooling and school quality, insulated from the political and ethical values of researchers, policy makers, and citizens, can be discovered and used to drive educational improvement. (Murray & Howe, 2017, p. 13)

Beating the Odds

Ravitch (2014) recognized that despite the crushing reality of poverty's impact on education, it is still possible for some students to overcome their socio-economic barriers. Some students are able to concentrate on their studies and experience great success. Some will experience success at the high school level and perhaps college before moving on to successful careers (Ravitch, 2014). Koon, Petscher, and Foorman (2014) indicated students facing socio-economic challenges are still able to experience high levels of achievement. They stated a small amount of school teachers and administrators can overcome those socio-economic challenges each year and have merited study. For example, in Florida, only 43 of 2,000 public elementary schools were deemed to have outperformed expected results (Koon et al., 2014).

The methodology used by each state's Department of Education may vary and therefore yield different results in determining students that successfully overcome poverty and succeed academically. Several state governments recognize the need to track student and educator success throughout the nation. Commonly, normed or standardized tests are used to determine student success as well as educator success in many states (Abe et al., 2015).

Time

Del Razo and Renée (2013) stated affluent students benefit from their parents extending their learning time in various ways after school and during school breaks. Activities such as camps, sports, academic tutoring, and music lessons serve as enrichment to their already existent education. Affluent parents think of these activities as essential to the development of their children's education. In essence the additional activities are part of the process it takes to achieve future career goals.

Del Razo and Renée (2013) further stated many parents cannot provide extended learning time to their children due to economic barriers. They also claimed these same parents often work during the critical hours after school and during typical school vacation times, making it even more difficult to provide extended learning time. Additionally, the authors felt schools in high-poverty areas are too ill-equipped, underfunded, and poorly staffed to provide additional services after school and during breaks needed to extend learning time adequately .

Del Razo and Renée (2013) pointed to Generation Schools in Brooklyn and Denver as a model for extended learning time in practice. They claimed Generation Schools expand student learning time by 30% by staggering teacher schedules and utilizing technology. The schedule allows for greater professional development and planning time for teachers. Although teachers

work the same traditional 180 days, the students complete 200 days of school. Students are provided opportunities to visit colleges, businesses, community organizations, and public service opportunities within the city.

Del Razo and Renée (2013) provided Citizen Schools Massachusetts as another example of extended learning time. They stated sixth graders have an additional three hours of learning twice a week in order to experience apprenticeships in various fields of work. The extended time is also used for academic enrichment, tutoring, and college to career exploration in an effort to inspire greater achievement. Students who attend Citizen Schools outperform their counterparts on standardized tests, have lower rates of absenteeism, and show greater enthusiasm for school.

Del Razo and Renée (2013) also cited Linked Learning as a successful system in providing extended learning time. It provides choice to students regarding their extended school day. It was designed to offer academic rigor, work-based learning opportunities, a technical component, apprenticeships, and internships. Students from the program graduate at higher rates than their peers.

Relationships

Aronson (2001) studied seven individuals that proved to be academically resilient. Each of the seven individuals faced multiple barriers to academic success. The one barrier all seven had in common was poverty. Aronson concluded that the seven individuals overcame their respective barriers due to strong support from adults. The adults ranged from family members to teachers that had impacted the students' resiliency. The adults served as role models and guiding influences as the children matured to adulthood.

Hattie (2009) suggested that in his conversations with adults he found teachers had an impact on those adults while they were students. Furthermore, he stated that students cited teachers who built relationships as their best teachers. He also indicated teachers that took time to explain processes and how to view the material at hand were appreciated by students. He also indicated schools with low SES were more likely to see an impact from a specific teacher working with students than schools with high SES, meaning that teacher effects are higher in poverty schools (Hattie, 2009).

Ritchhart (2015) suggested teachers identify their success in terms of relationships. He insisted that as social beings, students realize which teachers are working on their behalf through their interactions. It is important for students to feel teachers care and want to work for them instead of against them (Ritchhart, 2015).

Ritchhart (2015) called upon teachers to use interactions to create a culture of thinking for all students regardless of SES. He asked teachers to establish norms within their classroom to identify expectations of relationships clearly as we are creating roles for the purpose of using alternative viewpoints and understanding those that utilize those views. Ritchhart encouraged educators to survey students in order to understand what the students really think and to be prepared to act upon the students' thoughts.

Ritchhart (2015) recommended a connection ritual in order to ensure educators are participating in building relationships with students. He further encouraged teachers to practice genuine relationship building by offering examples of the teacher's struggle as a learner to further the student-teacher relationship. The intent is to create a classroom that redefines student

to student interaction as well as student to teacher interaction in order to generate optimal results (Ritchhart, 2015).

Student Expectations

The ECS (2012) detailed multiple studies that have shown that teacher expectations impact student learning. Teachers that expect less from minority or economically disadvantaged students negatively impact student learning, while teachers that set high expectations for all students increase the effects of learning. The study urged policy makers to bolster teacher preparation, teacher professional development, and teacher evaluation systems. The relationship between teachers and students is too important for academic growth to allow the current systems to exist without refinement (ECS, 2012).

In a similar study performed by Boser, Wilhelm, and Hana (2014), researchers found that the Pygmalion effect has a large impact on student learning outcomes. The study concluded that high school students are more likely to graduate from college if their teachers set high expectations for future success and they have been exposed to college preparatory programs. Conversely, the study also concluded that high school teachers have lower expectations of poor and minority students. The authors implored the United States to expect more from educators and students alike in order to increase overall achievement (Boser et al., 2014).

Santini (2014) found that students with disabilities are treated with lower expectations than other students. In the study teachers spoke to students with disabilities less frequently, gave them less wait time to answer questions, used basic vocabulary, and offered them less academically challenging work. Santini also encouraged educators to raise their expectations in order to maintain optimum results for both general education and special education students.

Tilley, Smith, and Claxton (2012) completed a case study of a high-poverty, high performing rural school. They found that high expectations were essential in developing rigorous instruction. The principal and teachers constantly pushed students for greater improvement. The expectation was that all students would improve, and the thought of a student not showing improvement was unacceptable.

In another study that solely focused on rural poverty, Burney and Cross (2006) concluded that impoverished students are more likely to succeed if they value relationships with the school faculty. The study also found impoverished rural students who participated in rigorous high school curriculum were more likely to succeed in college than affluent students who had not participated in rigorous high school curriculum. The study indicated that rural poverty students benefit from educators that can both connect with students while executing a rigorous curriculum (Burney & Cross, 2006).

Successful Environments

Samuel Casey Carter (2001) performed research to understand better how school personnel can help impoverished students achieve success in his book *No Excuses: Lessons from 21 High-Performing, High-Poverty Schools*. The book highlighted school leaders and the respective initiatives prominent in overcoming socioeconomic barriers. The emphasis of Carter's work was placed on leadership and the ability to lead creatively without daunting restrictions.

Carter (2001) listed seven common traits among the principals he interviewed. The first was that successful principals had freedom to make decisions. The second was that successful principals used measurable goals to ensure achievement. The third was that successful principals

utilized master teachers to help lead the improvement of their school. Carter listed fourth that successful principals utilized testing to help drive curriculum. Fifth, principals use a high emphasis on achievement to help lower school discipline issues. Sixth, they engage parents as partners for student learning. Finally, effective principals demand that students give maximum effort, which means social promotion is not an option (Carter, 2001).

Tilley et al. (2012) recommended principals in high-poverty schools set high expectations and develop a collaborative practice among their teachers. They also stated it was essential for principals in high-poverty schools to create a culture of caring and pride. Teachers and students that participated in a culture of caring and pride were more likely to reach high expectations set by the building leadership.

In a similar report from Hagleskamp and DiStasi (2012), nine high-poverty, high-performing schools in Ohio were studied to determine the factors that led them respectively to success. The schools were chosen for the study due to their success in relation to Ohio's Schools of Promise program that recognizes high-achieving schools within the state. The diverse sample included schools from suburban, urban, and rural areas. Both primary and secondary schools were represented in the Ohio study. The study included public and charter schools.

Hagleskamp and DiStasi (2012) reported principals had a clear vision and purpose. The principals garnered trust among their staff and community and therefore were able to carry out their vision. The report also found that principals and teachers had a true commitment to their students and what was best to ensure student success. Collaboration among teachers was emphasized in the schools.

Hagleskamp and DiStasi (2012) also reported that the Ohio high-performing, high-poverty schools used student data to drive instruction and that staff maintained a high level of expectation for student achievement and behavior. Expectations for behavior were enforced consistently. Tangible incentives were offered to students in order to reward success, such as movies, food, and trips. The students reported personal connections with staff and were aware of school success and achievement.

Hagleskamp and DiStasi (2012) also found that the high-performing, high-poverty schools were able to look past the lack of parental involvement. The schools were able to focus on controllable variables within the school parameters. The school teachers and principals actively participated in improvement of practices despite their overall success in an effort to continue growth. The report noted each school had an authentic means to transformation, but all nine schools improved after the faculty committed to self-evaluation and a willingness to engage in new practices to help students.

Voight et al. (2013) cited school climate as a determining factor in students "beating the odds" in their study. The researchers concluded students who "beat the academic odds" often attended schools with a smaller enrollment and smaller student to teacher ratios than students who chronically underperform. Student relationships were determined to have a larger impact on achievement than other resources (Voight et al., 2013). Southworth (2010) suggested many schools want to lower student to teacher ratios but are unable to do so due to inadequate state funding. She reported academic gains can be found in poor students placed in smaller classroom environments.

Ascher and Maguire (2006) published a report detailing how 13 New York City Schools students and educators outperformed expectations and experienced success. The report suggested four key areas contribute to student success in these disadvantaged populations. The first is academic rigor; students are academically challenged and have the opportunity to take advance placement courses or dual credit courses through local college partners. The second practice is a network of timely supports. Students receive regular guidance in order to ensure academic requirements are being met, as well as receive remediation opportunities if necessary. The third practice referenced by the authors is an expectation of post-secondary schooling. Students have access to college information, college fairs, and even college counselors to help guide them as they prepare for high school graduation and an eventual career path. Students are afforded internship opportunities and other support services from local businesses and organizations. The final common practice is the effective use of data. Student are tracked and their progress is used to help shape curriculum decisions for future generations (Ascher & Maguire, 2006).

Partridge and Koon (2017) conducted a study in the state of Mississippi to identify schools whose students outperformed expectations on normed tests. Only seven of the 639 schools studied had students that outperformed expectations in both English and math. Eighteen schools had students that outperformed expectations in English, and 19 had students that outperformed math expectations. The Mississippi Department of Education is now looking at the leadership practices of those schools' administrators and teachers in order to determine if administrators of schools from similar demographic backgrounds can benefit from adopting

policy and practices from those that have outperformed their respective poor expectations (Partridge & Koon, 2017).

The same educational trends are found internationally as well. The OECD (2012) found that impoverished students in other countries face comparable compounding of risk factors. The high concentration of poor students in some schools makes it difficult for teachers to meet the needs of each individual child adequately. Teachers that can maintain high expectations and high levels of enthusiasm often achieve maximum student engagement and therefore positively influence student success. Students that have access to better materials and additional extra-curricular opportunities have a better chance of performing well as opposed to the other impoverished students without the benefit of such access (OECD, 2012).

Adams (2016) performed a study on New York State Schools to determine if professional learning communities positively impacted student achievement in low-income schools. Specifically, the study focused on schools with poor students that performed well on achievement tests. The study determined that principals that supported and worked with teachers to maintain a focus on learning had a significant impact on student performance. The author concluded that administrators should create a culture of collaboration that allows teachers to be involved with decisions and help determine and implement change in order to support learning for students that are economically challenged (Adams, 2016).

Principal Leadership

A similar study conducted by Suber (2011) was performed in South Carolina to determine the leadership characteristics of principals leading schools with high-poverty, high-performing students. The principalship plays a pivotal role in successful schools with low SES.

The study stated that successful principals perform well in "alignment of instruction, supervision of teacher behavior and student achievement, professional development, and a positive school culture" (Suber, 2011, p. 2).

Allensworth and Hart (2018) conducted research to determine how principals affect student achievement. The research showed principals who were able to create a positive learning climate in cooperation with teachers experienced gains in achievement. Principals who communicated high expectations for students that were accepted universally in the building yielded strong learning climates. Allensworth and Hart also concluded achievement gains were made when principals supported teacher leadership. Teachers were more likely to increase student achievement if principals placed emphasis on teacher teams creating solutions for problems. Principals who recognized teachers needed planned focused meeting times to facilitate school improvements towards school-wide goals experienced student achievement gains. The role of the principal is best seen as a guide, mentor, coordinator, and monitor (Allensworth & Hart, 2018).

Chenoweth (2010) studied high-poverty, high-minority, high-performing schools and learned that the principals shared common insight in regards to overcoming the odds of poverty within the school setting. Chenoweth suggested principals that can stay focused on the big picture and not be bogged down in the day to day decisions have a greater likelihood of producing achievement gains. School leaders must hire competent teachers and support staff capable of making day to day decisions in order to maintain the focus of school improvement (Chenoweth, 2010).

Chenoweth (2010) found successful administrators had the ability monitor student success in terms of meeting or exceeding standards. The successful principal was able to meet with teachers regarding interventions for students that had not met the expected standards. If the teacher was unable to meet the needs of the student, the principal's responsibility was to provide professional development opportunities for the teacher to ensure increased effectiveness. Chenoweth also found respect was essential in attaining success in a high-poverty school. She said that principals demanded that their teachers set a tone of respect for students by being respectful themselves. Likewise, the principals were respectful with students and staff even when having tough conversations.

Chenoweth (2010) concluded achievement data should be used by principals and teachers when evaluating decisions. If a previous decision yielded little to no gain, it was imperative for the principal to make an adjustment to a program in order to ensure student success. Chenoweth's overlying theme was that principals in high-performing, high-poverty schools worked with teachers to do whatever it took to see measurable gains for students.

Principal Turnover

The University Council for Educational Administration (UCEA, 2008) found principal turnover has a large impact on schools. The report indicated principal turnover increased the likelihood of teacher turnover, and teacher turnover negatively impacted student learning. The report further explained principal turnover adversely affected community building within the school that is imperative to create a culture of success. The report also stated principals should ideally remain at a school for a minimum of five years in order to increase the success of school improvement efforts (UCEA, 2008).

In their study of Texas schools, the UCEA (2008) found 52% of principals departed from their schools within a three-year timeframe. The principal turnover rate was the highest at high schools. The report found 61% of high school principals left their building within the first three years, followed by 56% of middle school principals and 48% of elementary principals. The percentages increased when allowing for a five-year window. From 2001 to 2006, 71% of principals had left their respective buildings. During that five years, high school principals had the highest departure rate at 76%, followed by 75% of middle school principals and 68% of elementary principals.

The UCEA (2008) found the rates increased even higher in poverty schools with 50% or higher economically disadvantaged students. According to the study, 73% of the principals in high-poverty schools left their respective schools between 2001-2006. High school principals again had the highest turnover rate with 81%, followed by 79% of middle school principals and 70% of elementary principals.

The UCEA (2008) concluded principals need to remain at a school for longer periods of time in order to ensure school improvement and reform. The report stated the importance for high-quality principals to remain at poverty schools for longer periods of time. The report suggested districts provide economic incentives and general supports to younger administrators at poverty schools in order to support success and retention.

Fuller and Young (2009) studied tenure and retention of principals in Texas. They found tenure and retention rates varied by school levels. Elementary schools were more likely to retain principals and have a higher tenure rate than their high school counterparts. They reported just over 50% of newly hired high school principals stayed at the school for three years, and fewer

than 30% stayed at their respective schools for five years. Their study concluded student success within the first year of the principal being at the school largely impacted the principal's likelihood of longer tenure.

The study also stated principals working in high-poverty schools had much lower tenure and retention rates than principals working in lower poverty schools. The average tenure for low-poverty schools with 25% or less poverty students was 5.76 years for elementary principals, 4.74 years for middle school principals, and 4.34 for high school principals. The average tenure for high-poverty schools with more than 75% poverty students was 4.97 years for elementary principals, 3.98 years for middle school principals, and 3.38 years for high school principals (Fuller & Young, 2009).

Fuller and Young (2009) found four primary factors led to principal turnover. The first factor was accountability pressures to raise student achievement with little support. The next factor was the complexity and intensity of the job due to the wide array of responsibilities held by the principal role. The third was a general lack of support from superiors in the central office. The final factor was lack of adequate compensation. The authors noted experienced teachers often make slightly less than administrators, essentially making the pay not worth the stress of the principal position.

Teacher Training

Ravitch (2014) called on states to improve the education profession in order to better education. She suggested governors only appoint qualified educational professionals to sit on state boards that direct public education. She also implored colleges to deploy rigorous curriculum within their teacher education programs to ensure better results. Furthermore, she

suggested that states mandate more out of teacher certification programs and not rely on online schools to produce teacher candidates.

Ravitch (2014) insisted that principals should be selected only from master teachers with experience. She also concluded the principal's primary role should be to help teacher improvement through an evaluative process. She indicated the primary role of the principal would be jeopardized if the principal had not been a master teacher before taking a leadership role. As for teachers, Ravitch (2014) said,

> Ideally, teachers should have a four-year degree with a major in the subject or subjects they plan to teach. Those who enter teaching should be well educated. They should be able to pass qualifying examinations for entry into the professional education programs by demonstrating their command of reading, writing, and mathematical skills, as well as mastery of their subject or discipline. (p. 275)

Hattie (2009) also pointed to the importance of teacher preparation. He stated teachers must unlearn their respective educational experiences while in college in order to create a new view of learning. By doing so teachers can embrace impactful practices that can help their future students. He also felt teacher education programs must set comprehensive standards and be able to show teacher candidates are able to meet those standards in order to validate the process and preparation. He concluded teachers that have participated in a teacher preparation program are more desirable than those that obtain an emergency license (Hattie, 2009).

Teacher Qualifications

The ECS (2005) posed eight questions regarding teacher recruitment and retention in an extensive study. Within the summary, the study stated,

> While even children who attend the highest-performing schools have, from time to time, teachers who simply don't measure up, the situation for children from low-income families is often reprehensible. High-poverty, low performing schools suffer from severe teacher turnover, which increases the atmosphere of failure; they have far fewer accomplished, veteran teachers, and the qualifications of their faculty, especially in science and mathematics, are often marginal at best. (ECS, 2005, p. iv)

The ECS (2005) looked at characteristics of those that choose to be teachers. The ECS found 86% of teachers were White and 79% of teachers were female. The study discovered there was evidence that college students with the highest intellectual abilities were not as likely to pursue degrees in teaching. Hattie (2009) suggested that the typical teacher was

> White, Anglo-Saxon or middle-class female who has grown up in a suburban or rural area. She is monolingual in English, has traveled very little beyond a 100-mile radius of her home, and hopes to teach in a school similar to those where she grew up. (p. 109)

He suggested that approximately a fifth of teachers did not hold the proper qualifications for their respective fields.

A factor in more teachers teaching without proper qualifications is the current teacher shortage. According to Cross (2017), the United States Department of Education identified teacher shortage areas in all 50 states during the school year of 2016-2017. Some states even had a majority of subject areas listed as teacher shortage areas.

The Learning Policy Institute (2018) reported that many states faced the problem of a teacher shortage and combated that problem with allowing teachers to teach within areas they are not certified. The report cited Arizona with over 2,000 vacancies in the 2015-2016 school year.

Florida was reported to have over 2,000 vacancies during the 2016-2017 school year. According to the report, in the 2015-2016 school year, California had 10,209 teachers that were not fully certified in their respective assignments. Texas was reported to have over 20,000 teachers not fully certified for their positions in the 2015-2016 school year (Learning Policy Institute, 2018). The state of Oklahoma granted over 1,000 emergency teaching certificates during the 2017 fiscal year alone ("Oklahoma Uses," 2017).

Clotfelter, Ladd, and Vigdor (2007) studied student achievement in relation to teacher credentialing. They found clear evidence that traditionally credentialed teachers had a greater effect on student achievement than teachers that entered the field through an alternative pathway. The greatest significance was found in math scores. The study also revealed teachers who performed well on their licensing test outperformed their counterparts with average scores (Clotfelter et al., 2007).

According to Berry et al. (2009), some teachers will work in high-poverty schools if under the right conditions. Strong administrative leadership, collaboration, and autonomy are all factors that can attract highly qualified teachers to work with socio-economically challenged students (Berry et al., 2009). Principals of high-performing, high-poverty students spend more time on professional development than principals who work with low-performing, high-poverty students or high-performing, low-poverty students (Lavigne, Shakman, Zweig, & Greller, 2016).

The ECS (2005) encouraged policy makers to attract a larger number of minority teaching candidates and pursue licensed teachers that have left the field. The ECS looked at how teachers who remain in the field compare to those that leave. The ECS stated beginning teachers

are far more likely to experience attrition than veteran teachers with five or more years of experience.

Teacher Attrition

The ECS (2005) reviewed the characteristics of schools and districts most likely to be successful in recruiting and retaining teachers. The study determined that teacher attrition was greater in poverty schools with high-minority populations. The ECS also concluded that working conditions had a limited impact on teacher attrition. Schools with supportive administration and higher teacher autonomy experienced less attrition. Schools with high-minority populations experienced high teacher turnover.

Glennie, Mason, and Edmunds (2016) stated teachers were more likely to leave schools without organizational stability. They found these schools had principals who could not enforce organizational norms. Schools without perceived positive principal leadership and positive collegial relationships were more likely to see attrition. Relationships with administrators and colleagues impacted decisions to leave schools greater than facilities and safety.

Glennie et al. (2016) further stated high turnover rates negatively impact the organizational stability of a school. Shared goals and processes must be taught to new teachers replacing those that left. The process takes time and resources that often do not exist in poverty schools. Furthermore, relationships take time to build in order to develop trust with administrators and teachers.

Hagelskamp and DiStasi (2012) reported teacher burnout and attrition was a concern even in high-performing, high-poverty schools. In the Ohio schools studied, principals were dedicated to provide additional support to teachers who exhibited signs of fatigue. The report

cited the importance of hiring candidates who are truly dedicated to the school's mission and purpose. Those studied recognized inevitable attrition and that new principals and staff need to work closely with the existing staff members in order to carry on the previous success.

Hanushek, Kain, and Rivkin (2001) also concluded that school characteristics such as student SES, race, and achievement levels impacted teacher retention. Schools that had students with low SES and high-minority populations experienced higher teacher turnover. White teachers accounted for the highest levels of attrition and were more likely to leave schools with high-minority student populations (Hanushek et al., 2001).

The ECS (2005) determined that teacher compensation had an effect on teacher attrition. However, it is important to note that workplace satisfaction had an impact on teachers desiring to leave due to compensation. Hanushek et al. (2001) determined schools with higher amounts of poverty students and minority students may need to pay up to 50% more in salary than more affluent and academically successful schools. The study also concluded that external economic opportunities have an effect on teachers who decide to leave the profession for high wages (Hanushek et al., 2001).

Teacher Experience

King Rice (2010) recognized the importance teacher experience plays within a school. Teachers' decisions such as transfers as well as teaching assignments and reduction in force are often influenced heavily by their years of experience. King Rice confirmed that experience matters but suggested more experience is not always better. She said brand new teachers are less effective than experienced teachers. She also stated that a majority of teacher growth happens within the first few years of teaching and then levels off during later years. King Rice cited

teachers with 20 years of experience are similarly effective as teachers with five years of experience. She did note teachers with 25 years or more experience may prove less effective than their other experienced counterparts.

Clotfelter et al. (2007) showed that most improvement associated with teacher experience was found in the first two years. The authors also concluded experienced teachers showed the same effect in comparison to those teachers with only a few years of experience. The authors also drew attention to the fact that many of the effective experienced teachers no longer teach the core classes tested by state sponsored standardized tests, possibly affecting the data (Clotfelter et al., 2007).

Silvernail et al. (2014) found poverty was the greatest predictor in student success. They also found teacher education was a significant predictor of student success. The group suggested teachers with a master's degree or higher had a positive impact on student success when they studied 8th and 11th grade students in poverty schools. They also suggested teacher years of experience was a significant predictor of student success in elementary schools.

Ladd and Sorensen (2015) conducted a study on the effects of teacher experience among middle school teachers. They found teachers with 12 years of experience had a greater effect than those teachers with only four years of experience. They concluded teachers are able to show growth after the first few years of teaching (Ladd & Sorensen, 2015).

King Rice (2010) found teachers with less than three years of experience were more likely to teach in high-poverty schools. She stated students with the highest need were relegated to a disproportionate number of teachers within the first three years of experience. Teachers within the first three years of experience are proven to be less effective, placing high-poverty,

high-need students at a distinct disadvantage. King Rice also pointed out that experienced teachers in high-poverty schools seem to be less effective than experienced teachers in low-poverty schools, adding to the disparity.

Teacher Retention

Clotfelter et al. (2007) indicated that experienced teachers with the proper credentialing could offset the effect of high-poverty schools. In their findings they, like King Rice, found an unequal distribution of qualified teachers among high-poverty and low-poverty schools. They specifically drew attention to the disadvantages high-poverty students face in regards to teachers without the proper credentials and asked if there was a way to more evenly distribute properly credentialed teachers (Clotfelter et al., 2007).

The Center for Teaching Quality published a report that indicated teacher effectiveness is a large contributing factor to student success. Highly qualified teachers are often employed in schools located in affluent areas. Likewise, underqualified and poorly trained teachers are often employed in schools located in high-poverty areas. Part of the disparity in student success is due to the quality of educators working with disadvantaged youth (Berry et al., 2009).

Southworth (2010) examined the effects of school composition on North Carolina student achievement. According to Southworth (2010),

> Understanding the teacher characteristics that result in higher achievement for students is essential because the majority of school budgets are used to pay teacher salaries and benefits. Having teachers in the classroom with the qualifications that are shown to increase student achievement also means a decrease in the inefficiencies that result from paying salaries to ineffective teachers. It is also important because however defined,

> high-poverty and segregated minority schools are less likely to have qualified teachers than schools with less poverty and fewer minority students. (p. 7)

Gehrke (2005) pointed to large class sizes full of students at risk of academic failure, poor supplies, and poor administrative support as contributing factors to teachers failing to improve poor students' academic performance. Gehrke found that many teachers in urban poor schools had starkly different backgrounds than their students, which negatively impacted results as well. The high demands placed on teachers in poor urban areas leads to a high turnover rate and constant influx of underprepared teachers working with impoverished youth. Ladd (2011) also found highly credentialed teachers were less likely to teach disadvantaged students. Furthermore, school districts with the highest rates of extreme poverty are some of the poorest funded districts in the nation (SEF, 2010).

Glennie et al. (2016) stated greater teacher retention existed in schools with strong rapport between teachers and the principal. Positive teacher collegial relationships impacted retention rates. Greater retention also occurred if the teachers felt a sense of autonomy within the classroom. Teachers that participated in building-level decisions and had access to professional development were also less likely to leave their schools.

Glennie et al. (2016) suggested that novice teachers receive additional supports. They stated, "In the United States, within 5 years of beginning teaching, about 20 percent of new teachers left teaching altogether, and another 10 percent changed schools" (Glennie et al., 2016, p. 245). The claimed mentor programs have shown significant results in teacher retention. Common planning time and collaboration time were also factors in reducing attrition for some schools.

King Rice (2010) suggested that policy makers front load the salary schedule. The change would serve as a recruiting tool for new teachers who are seeking more pay than the field of education typically allows. She stated teacher pay should be tied to the productivity during the early years of experience to yield greater recruitment and retention. King Rice also encouraged the overall evaluative processes to focus on teacher productivity. Policies tied to dismissal, compensation, and professional development opportunities should all reflect an attention to productivity and not just years of service. She also called on policy makers to evenly distribute inexperienced teachers among low-poverty and high-poverty schools (King Rice, 2010).

Summary

Despite government support, the majority of high-poverty schools continue to produce low test scores on standardized tests. Often, these tests are largely used to determine school accountability. Even with the systematic failure to increase test scores among our nation's poor, there are still several administrators and teachers that are able to overcome the odds and work with our low SES students to increase standardized test scores in specific schools.

CHAPTER 3

METHODOLOGY

Introduction

After an extensive review of the literature, there was a need to investigate further the relationship between educator experience and student achievement within poverty schools. The years of experience for teachers and principals in relation to ISTEP Math and ELA scores within poverty schools may act as a predictor for high-performing, high-poverty students. This chapter restates the purpose of the study as well as restates the research questions and null hypotheses provided previously in Chapter 1. In addition, this chapter also includes the rationale for research design, data sources used within the study, data collection methods, data procedures, and finally the method of analysis.

Purpose of the Study

The purpose of this quantitative study was to determine if years of experience in the educational field has an impact on student standardized test achievement within poverty schools. This study examined the impact of poverty on student achievement on the ISTEP exam. This study measured the relationship between faculty experience and student success in both Math and ELA ISTEP test scores within poverty schools. This study also measured the relationship between administrator experience and student success in both Math and ELA ISTEP test scores

within poverty schools. Finally, this study determined if combined teacher and principal experience had an impact on Math and ELA ISTEP test achievement within poverty schools.

Research Questions

The research questions for the study are as follows:

1. What are the current levels of student performance on standardized testing while considering teacher and administrator years of experience in high schools?
2. Do previous school accountability score, the average teacher years of experience within ELA, and years of principal experience in education explain a statistically significant amount of variance within the ISTEP 10 ELA score in high-poverty schools?
3. Do previous school accountability score, the average teacher years of experience within Math, and years of principal experience in education explain a statistically significant amount of variance within the ISTEP 10 Math score in high-poverty schools?

Null Hypotheses

The following null hypotheses were generated through the research questions:

$H_0$1: The previous school accountability score, average teacher years of experience within ELA, and years of principal experience in education do not explain a statistically significant amount of variance within the ISTEP 10 ELA score in high-poverty schools.

$H_0$2: The previous school accountability score, average teacher years of experience within Math, and years of principal experience in education do not explain a

statistically significant amount of variance within the ISTEP 10 Math score in high poverty schools.

Rationale for Research Design

McMillan and Schumacher (2006) stated that quantitative research was originally designed for the hard sciences. The intent was to capture hard evidence objectively to explain phenomena. Quantitative research uses statistics, structure, and control to maximize objectivity. Using a nonexperimental design allows the researcher to examine the relationships between variables in an ex post facto manner.

This quantitative study identified if there was a relationship between teacher experience and SES student success on Math and ELA ISTEP exams. The study will also identified if there was a relationship between administrator experience and SES student success on Math and ELA ISTEP exams. The study utilized pre-collected data reported by the IDOE.

Data Sources and Collection

The IDOE has collected data regarding school accountability scores, free and reduced lunch rates, standardized test results, teacher years of experience, and administrator years of experience. The IDOE website was used to gather necessary archived data from all high schools in the state of Indiana. The data was imported to an Excel spreadsheet to ensure all necessary data points were collected for all reported Indiana high schools. An emailed formal request for records was submitted to the IDOE. A copy of the data request can be found in Appendix A.

Data Procedures

Once the necessary archived data was collected from the IDOE website and placed within an Excel spreadsheet, the data were reviewed for accuracy. Schools that did not have all data points reported to the IDOE were removed from the study to ensure inferential findings that encompass all aspects of the study. After accuracy was confirmed, the data were exported to SPSS version 23, and proper coding occurred. All coding was completed in SPSS to generate descriptive and inferential findings.

A simple linear regression model test was used to determine if free and reduced lunch was a significant predictor of ISTEP scores for ELA and Math. The unstandardized regression coefficient and Y intercept was used to create a regression equation to determine expected ISTEP outcomes based on free and reduced lunch populations within a high school. Actual ISTEP scores were compared to the regression model to obtain a residual score to determine which schools surpassed their predicted outcomes. The predicted percentage of students passing the ISTEP was subtracted from the actual percentage of students passing the ISTEP to determine if schools outperformed their predicted ISTEP scores based on student poverty level.

Method of Analysis

Descriptive statistics and simultaneous multiple regression tests were used to answer the research questions within the study. Research Question 1 used means, standard deviation, frequencies, and percentages to report the current state throughout Indiana on all variables within this study. Research Questions 2 and 3 used simultaneous multiple regression since I had three predictor variables attempting to explain variance with one criterion variable. The multiple regression test allowed each predictor variable within the research question to be tested. The use

of a regression coefficient determined each factor's predicted impact on student success. Due to the reliability of the data set, a multiple regression accurately provided predictability (McMillan & Schumacher, 2006).

The assumptions of linearity, homoscedasticity, and multicollinearity were assessed. Linearity assumes a straight-line relationship between the predictor variables and the criterion variable. Homoscedasticity assumes that scores are normally distributed around the regression line. A scatter plot was used to assess linearity and homoscedasticity. The absence of multicollinearity assumes that predictor variables are not too related and was assessed using variance inflation factors (VIF). VIF values over 10 suggested the presence of multicollinearity (Statistics Solutions, 2013).

According to Statistics Solutions (2013), a multiple linear regression assesses the relationship among a set of dichotomous, ordinal, or interval/ratio predictor variables on an interval/ratio criterion variable. In this instance, the independent variables included previous accountability score, teacher experience, and principal experience, and the dependent variable was the ISTEP test pass rate. The following regression equation was used: y = b1*x1 + b2*x2 + b3*x3…+ c, where Y = estimated dependent variable, c = constant (which includes the error term), b = regression coefficients, and x = each independent variable. As stated on the Statistical Solutions (2018) website,

> Variables will be evaluated by what they add to the prediction of the dependent variable which is different from the predictability afforded by the other predictors in the model. The *F*-test will be used to assess whether the set of independent variables collectively predicts the dependent variable. *R*-squared—the multiple correlation

> coefficient of determination—will be reported and used to determine how much variance in the dependent variable can be accounted for by the set of independent variables. The *t* test will be used to determine the significance of each predictor and beta coefficients will be used to determine the magnitude of prediction for each independent variable. For significant predictors, every one unit increase in the predictor, the dependent variable will increase or decrease by the number of unstandardized beta coefficients. (para. 2)

A simultaneous multiple regression provided the predicted combined effect of previous school accountability score, teacher experience, and administrator experience on student achievement.

The simultaneous multiple regression addressed both research questions to determine each variable's impact on student performance. Previous accountability score, teacher experience, and administrator experience predicted effect on student performance on the ISTEP ELA exam addressed the first research question. Previous accountability score, teacher experience, and administrator predicted effect on student performance on the ISTEP Math exam addressed the second research question. Although the tests did not show causation, the ability to predict student success based on these three predictors helped create a better understanding of the impact of educator experience on student achievement.

The analysis of variance (ANOVA) output determined if the linear combination of the predictors of previous accountability score, teacher experience, and principal experience were significant using an alpha level of .05. For each significant predictor, the unstandardized partial regression coefficient was reported to illustrate how much change in the dependent variable would result from a one unit increase in that significant predictor while holding all other

predictor variables constant. If there was significance within the model, each significant predictor was reported. The standardized partial regression coefficient was reported for those multiple predictors that proved significant. The partial regression coefficient was interpreted to determine which independent variable had the strongest linear relationship (Statistics Solutions, 2013).

Summary

It is imperative to determine factors that allow poverty schools to yield high-performing students. This study provided quantitative data that determined if experienced educators impact poverty students' standardized test scores. Specifically, this study measured the predictability of teacher experience and student achievement on the Indiana ISTEP exam for Math and ELA. This study also measured the predictability of principal experience and student achievement on the Indiana ISTEP exam for Math and ELA. This chapter described the purpose of the study, the research questions, the null hypotheses, the rationale of research design, the data sources and collection, the data procedures, and the method of analysis.

CHAPTER 4

ANALYSIS OF DATA

The purpose of this quantitative study was to determine if years of experience in the educational field has an impact on student standardized test achievement within poverty schools. This study examined the impact of poverty on student achievement on the ISTEP exam. This study measured the relationship between faculty experience and student success in both Math and ELA ISTEP test scores within poverty schools. This study also measured the relationship between administrator experience and student success in both Math and ELA ISTEP test scores within poverty schools. Finally, this study also determined if combined teacher and principal experience has an impact on Math and ELA ISTEP test achievement within poverty schools.

Descriptive statistics and simultaneous multiple regression tests were used to answer the research questions within the study. Research Question 1 used means, standard deviation, frequencies, and percentages to report the current state throughout Indiana on all variables within this study. Research Questions 2 and 3 used simultaneous multiple regression since there are three predictor variables attempting to explain variance with one criterion variable. The multiple regression test allowed each predictor variable within the research question to be tested. The use of a regression coefficient determined each factor's predicted impact on student success. Due to

the reliability of the data set a multiple regression should accurately provide predictability (McMillan & Schumacher, 2006).

This chapter provides the results of the study and description of the data. This chapter restates the methodology and research questions. In addition, this chapter presents the residual score calculations, descriptive analysis, and the inferential output.

Research Questions

The research questions for the study were as follows:

1. What are the current levels of student performance on standardized testing while considering teacher and administrator years of experience in high schools?
2. Do previous school accountability score, the average teacher years of experience within ELA and years of principal experience in education explain a statistically significant amount of variance within the ISTEP 10 ELA score in high-poverty schools?
3. Do previous school accountability score, the average teacher years of experience within Math and years of principal experience in education explain a statistically significant amount of variance within the ISTEP 10 Math score in high-poverty schools?

Residual Score Calculations

The residual scores for ELA were calculated by taking the achieved results and subtracting the predicted value. A positive value means the school was achieving above expected value, whereas a negative value demonstrates the school is below predicted value for working with building-wide poverty. To determine what that predicted value would be for each

school, a simple linear regression was calculated based on actual ELA pass rates and the building's free/reduced lunch rates.

For ELA, the model demonstrated a strong correlation between these two variables, with a correlation coefficient of .70. The free/reduced lunch rates explained 48.4% of the variance within the ELA pass rates, with only a .2% shrinkage of the model when adjusted for sample size. The average residual distance for each data point from the line of best fit was 10.96. The free/reduced lunch rate served as a significant predictor for the ELA passing percentage, $F(1, 382) = 357.67$, $p < .001$.

The unstandardized partial regression coefficient and Y-intercept were used to calculate the predicted value of each school. The Y-intercept indicates that a school with 0% free/reduced lunch is predicted to have an ELA pass rate of 82.37%. For every 1% increase in the free/reduced lunch percentage for the building, the pass rate is expected to decrease by .57%. The predicted score was calculated for each of the schools in this study and then subtracted from the actual score to create the residual score that would be utilized as the dependent variable for all inferential testing later in this chapter.

The residual scores for math were calculated by taking the achieved results and subtracting the predicted value. A positive value means the school was achieving above expected value, whereas a negative value demonstrates the school is below predicted value for working with high poverty levels. To determine what that predicted value would be for each school, a simple linear regression was calculated based on actual math pass rates and the building's free/reduced lunch rates.

For math, the model demonstrated a strong correlation between these two variables, with a correlation coefficient of .62. The free/reduced lunch rates explained 38.4% of the variance within the math pass rates, with only a .2% shrinkage of the model when adjusted for sample size. The average residual distance for each data point from the line of best fit was 12.62. The free/reduced lunch rate served as a significant predictor for the math passing percentage, $F(1, 382) = 237.81$, $p < .001$.

The unstandardized partial regression coefficient and Y-intercept were used to calculate the predicted value of each school. The Y-intercept indicates that a school with 0% free/reduced lunch is predicted to have a math pass rate of 59.63%. For every 1% increase in the free/reduced lunch percentage for the building, the pass rate is expected to decrease by .53%. The predicted score was calculated for each of the schools in this study and then subtracted from the actual score to create the residual score that would be utilized as the dependent variable for all inferential testing later in this chapter.

Descriptive Analysis

Of the 376 schools that were part of this study, the average ELA years of experience was five years or less for 29 schools (7.7%). Schools averaging between six to 10 years accounted for 100 schools (26.6%). Schools averaging between 11-15 years of experience accounted for 152 schools (40.4%). Schools averaging 16 or more years accounted for 95 schools (25.3%).

The average math years of experience was five years or less for 24 schools (6.4%). Schools averaging between six to 10 years accounted for 83 schools (22.1%). Schools averaging between 11-15 years accounted for 156 schools (41.5%). Schools averaging 16 or more years accounted for 113 schools (30.1%).

The average principal years of experience was 10 years or less for 21 schools (5.6%). Schools averaging between eleven to twenty years accounted for 114 schools (30.3%). Schools averaging 21 or more years accounted for 237 schools (63%). Four schools did not have available data.

The average free and reduced lunch percentage was 24.99 % or less for 62 schools (16.5%). Schools averaging between 25% to 49.99% accounted for 212 schools (56.4%). Schools averaging between 50% to 74.99% accounted for 75 schools (19.9%). Schools averaging between 75% to 100% accounted for 27 schools (7.2%).

The ELA passing rate ranged from 11.11% to 100% with an average of 58.74% (SD = 13.98). The math passing rate ranged from .89% to 100% with an average of 37.39% (SD = 15.39). The accountability score ranged from 24.20% to 108.50% with an average of 81.89% (SD = 10.27). The years of experience for ELA teachers ranged from 0 years to 30 years with an average of 12.39 years (SD = 4.96). The years of experience for math teachers ranged from 0 years to 36 years with an average of 13.28 years (SD = 5.22). The years of experience for principals ranged from 3 years to 46 years with an average of 24.34 years (SD = 9.31).

The free and reduced lunch percentage for schools ranged from 4.40% to 100% with an average of 42.50% (SD = 18.45). The average ELA residual ranged from -32.73% to 33.40% with an average of .71% (SD = 9.42). The average math residual ranged from -42.98% to 51.12% with an average of .62% (SD = 11.90%).

Table 1 provides information on schools with ELA teachers ranging from zero to five years of experience. Years were calculated from the IDOE's database of teachers with experience in public schools working within the ELA subject area. Twenty-nine (7.7%) schools

fell within this area. Table 1 demonstrates the descriptive data for schools that fell within the range.

Table 1

Descriptive Statistics (English Language Arts 0-5 Years of Experience)

	Minimum	**Maximum**	***M***	***SD***
ELA Pass Rate	11.11	84.15	47.68	19.82
Math Pass Rate	3.51	62.15	31.51	17.11
Accountability Score	39.60	92.60	72.02	15.46
FR Lunch Rate	23.99	100.00	61.68	25.60
ELA Residual	-32.16	33.40	.66	13.17
Math Residual	-35.81	34.00	5.06	14.14

Note. *M* = mean; *SD* = standard deviation; ELA = English language arts; FR = free and reduced.

The 29 schools with ELA teachers ranging from zero to five years of experience (*M* = 47.68, *SD* = 19.82) had less success on average than the whole sample (*M* = 58.74, *SD* = 13.98). These schools had a higher population of students receiving free and reduced lunch (*M* = 61.68, *SD* = 25.60) than the whole sample (*M* = 42.50, *SD* = 18.45). The ELA residual (*M* = .66, *SD* = 13.17) was also lower than the whole sample (*M* = .71, *SD* = 9.43). The ELA residual standard deviation for this group was larger than the whole group, indicating a larger spread of scores with younger teachers than the whole sample.

The 29 schools (M = 31.51, *SD* = 17.11) experienced a lower math pass rates than the whole sample (*M* = 37.39, *SD* = 15.39). The schools' math residual (*M* = 5.06, *SD* = 14.14) was higher than the whole sample (*M* = .62, *SD* = 11.90). The schools' accountability score (*M* = 72.02, *SD* = 15.46) was lower than the whole sample (*M* = 81.89, *SD* = 10.27).

Table 2 provides information on schools with ELA teachers ranging from six to 10 years of experience. One hundred (26.6%) schools fell within this area. Table 2 demonstrates the descriptive data for schools that fell within this range.

Table 2

Descriptive Statistics (English Language Arts 6-10 Years of Experience)

	Minimum	**Maximum**	***M***	***SD***
ELA Pass Rate	13.08	88.74	58.85	13.99
Math Pass Rate	2.36	79.91	37.89	15.28
Accountability Score	24.20	108.50	81.29	12.38
FR Lunch Rate	12.20	92.01	42.24	18.62
ELA Residual	-26.06	33.33	1.26	10.10
Math Residual	-19.44	36.99	1.52	11.80

Note. *M* = mean; *SD* = standard deviation; ELA = English language arts; FR = free and reduced.

The 100 schools with ELA teachers ranging from six to 10 years of experience (*M* = 58.85, *SD* = 13.99) had similar success on average compared to the whole sample (*M* = 58.74, *SD* = 13.98). These schools had a similar population of students receiving free and reduced lunch (*M* = 42.24, *SD* = 18.62) compared to the whole sample (*M* = 42.50, *SD* = 18.45). The ELA residual (*M* = 1.26, *SD* = 10.10) was greater than the whole sample (*M* = .71, *SD* = 9.43).

The 100 schools (M = 37.89, *SD* = 15.28) experienced similar pass rates to the whole sample (*M* = 37.39, *SD* = 15.39). The schools' math residual (*M* = 1.52, *SD* = 11.80) was higher than the whole sample (*M* = .62, *SD* = 11.90). The schools' accountability score (*M* = 81.29, *SD* = 12.38) was similar to the whole sample (*M* = 81.89, *SD* = 10.27).

Table 3 provides information on schools with ELA teachers ranging from 11 to 15 years of experience. One hundred and fifty-two (40.4%) schools fell within this area. Table 3 demonstrates the descriptive data for schools that fell within this range.

Table 3

Descriptive Statistics (English Language Arts 11-15 Years of Experience)

	Minimum	**Maximum**	***M***	***SD***
ELA Pass Rate	15.53	98.88	59.94	13.37
Math Pass Rate	.89	85.39	37.91	15.46
Accountability Score	52.70	99.20	83.65	7.43
FR Lunch Rate	4.40	84.73	39.63	16.70
ELA Residual	-32.73	27.21	.28	8.85
Math Residual	-42.98	31.27	-.41	11.57

Note. *M* = mean; *SD* = standard deviation; ELA = English language arts; FR = free and reduced.

The 152 schools with ELA teachers ranging from 11 to 15 years of experience (*M* = 59.94, *SD* = 13.37) had more success on average than the whole sample (*M* = 58.74, *SD* = 13.98). These schools had a smaller population of students receiving free and reduced lunch (*M* = 39.63, *SD* = 16.70) than the whole sample (*M* = 42.50, *SD* = 18.45). The ELA residual (*M* = .28, *SD* = 8.85) was also lower than the whole sample (*M* = .71, *SD* = 9.43).

The 152 schools (M = 37.91, *SD* = 15.46) experienced a similar math pass rate to the whole sample (*M* = 37.39, *SD* = 15.39). The schools' math residual (*M* = -.41, *SD* = 11.57) was lower than the whole sample (*M* = .62, *SD* = 11.90). The schools' accountability score (*M* = 83.65, *SD* = 7.43) was higher than the whole sample (*M* = 81.89, *SD* = 10.27).

Table 4 provides information on schools with ELA teachers ranging from 16 years or more of experience. Ninety-five (25.3%) schools fell within this area. Table 4 demonstrates the descriptive data for schools that fell within this range.

Table 4

Descriptive Statistics (English Language Arts 16 Years or More of Experience)

	Minimum	**Maximum**	***M***	***SD***
ELA Pass Rate	18.52	100.00	60.10	11.29
Math Pass Rate	3.70	100.00	37.82	14.72
Accountability Score	34.20	100.70	82.72	7.96
FR Lunch Rate	11.85	85.69	40.48	14.76
ELA Residual	-16.36	29.09	.88	8.32
Math Residual	-24.48	51.12	-.03	11.60

Note. *M* = mean; *SD* = standard deviation; ELA = English language arts; FR = free and reduced.

The 95 schools with ELA teachers with 16 or more years of experience (*M* = 37.82, *SD* = 11.29) had less success on average than the whole sample (*M* = 58.74, *SD* = 13.98). These schools had a lower population of students receiving free and reduced lunch (*M* = 40.48, *SD* = 14.76) than the whole sample (*M* = 42.50, *SD* = 18.45). The ELA residual (*M* = .88, *SD* = 8.32) was higher than the whole sample (*M* = .71, *SD* = 9.43).

The 95 schools (M = 37.82, *SD* = 14.72) experienced a similar math pass rate to the whole sample (*M* = 37.39, *SD* = 15.39). The schools' math residual (*M* = -.03, *SD* = 11.60) was lower than the whole sample (*M* = .62, *SD* = 11.90). The schools' accountability score (*M* = 82.72, *SD* = 7.96) was higher than the whole sample (*M* = 81.89, *SD* = 10.27).

Table 5 provides information on schools with math teachers ranging from 0 to five years of experience. Twenty-four (6.4%) schools fell within this area. Table 5 demonstrates the descriptive data for schools that fell within this range.

Table 5

Descriptive Statistics (Math 0-5 Years of Experience)

	Minimum	**Maximum**	***M***	***SD***
ELA Pass Rate	11.11	98.88	48.29	20.87
Math Pass Rate	3.51	85.39	33.30	20.29
Accountability Score	39.60	99.20	75.51	15.89
FR Lunch Rate	10.25	100.00	58.93	29.36
ELA Residual	-32.16	31.84	-.31	15.27
Math Residual	-35.81	36.99	5.37	17.54

Note. *M* = mean; *SD* = standard deviation; ELA = English language arts; FR = free and reduced.

The 24 schools with math teachers ranging from zero to five years of experience (*M* = 48.29, *SD* = 20.87) had greater success on average than the whole sample (*M* = 37.39, *SD* = 15.39). These schools had a higher population of students receiving free and reduced lunch (*M* = 58.93, *SD* = 29.36) than the whole sample (*M* = 42.50, *SD* = 18.45). The math residual (*M* = 5.37, *SD* = 17.54) was greater than the whole sample (*M* = .62, *SD* = 11.90).

The 24 schools (*M* = 48.29, *SD* = 20.87) experienced lower ELA scores than the whole sample (*M* = 58.74, *SD* = 13.98). These schools (*M* = -.31, *SD* = 15.27) also experienced lower ELA residual scores than the whole sample (*M* = .71, *SD* = 9.43). The schools' accountability score (*M* = 75.51, *SD* = 15.89) was lower than the whole sample (*M* = 81.89, *SD* = 10.27).

Table 6 provides information on schools with math teachers ranging from six to 10 years of experience. Eighty-three (22.1%) schools fell within this area. Table 6 demonstrates the descriptive data for schools that fell within this range.

Table 6

Descriptive Statistics (Math 6-10 Years of Experience)

	Minimum	**Maximum**	***M***	***SD***
ELA Pass Rate	13.08	86.47	57.26	14.54
Math Pass Rate	2.36	78.42	36.33	16.73
Accountability Score	24.20	95.50	79.44	13.12
FR Lunch Rate	5.17	92.01	44.14	19.78
ELA Residual	-26.06	16.29	-.18	8.59
Math Residual	-18.06	31.94	.44	11.36

Note. *M* = mean; *SD* = standard deviation; ELA = English language arts; FR = free and reduced.

The 83 schools with math teachers ranging from six to 10 years of experience (*M* = 36.33, *SD* = 16.73) had less success on average than the whole sample (*M* = 37.39, *SD* = 15.39). These schools had a higher population of students receiving free and reduced lunch (*M* = 44.14, *SD* = 19.78) than the whole sample (*M* = 42.50, *SD* = 18.45). The math residual (*M* = .44, *SD* = 11.36) was lower than the whole sample (*M* = .62, *SD* = 11.90).

The 83 schools (*M* = 57.26, *SD* = 14.54) experienced lower ELA scores than the whole sample (*M* = 58.74, *SD* = 13.98). These schools (*M* = -.18, *SD* = 8.59) also experienced lower ELA residual scores than the whole sample (*M* = .71, *SD* = 9.43). The schools' accountability score (*M* = 79.44, *SD* = 13.12) was lower than the whole sample (*M* = 81.89, *SD* = 10.27).

Table 7 provides information on schools with math teachers ranging from 11 to 15 years of experience. One hundred and fifty-six (41.5%) schools fell within this area. Table 7 demonstrates the descriptive data for schools that fell within this range.

Table 7

Descriptive Statistics (Math 11-15 Years of Experience)

	Minimum	**Maximum**	***M***	***SD***
ELA Pass Rate	15.53	83.66	58.68	12.72
Math Pass Rate	.89	67.80	36.48	13.51
Accountability Score	52.70	108.50	83.22	7.52
FR Lunch Rate	4.40	85.69	41.44	16.50
ELA Residual	-32.73	33.33	.05	8.51
Math Residual	-42.98	33.89	-.87	10.76

Note. *M* = mean; *SD* = standard deviation; ELA = English language arts; FR = free and reduced.

The 156 schools with math teachers ranging from 11 to 15 years of experience (*M* = 36.48, *SD* = 13.51) had lower success on average than the whole sample (*M* = 37.39, *SD* = 15.39). These schools had a lower population of students receiving free and reduced lunch (*M* = 41.44, *SD* = 16.50) than the whole sample (*M* = 42.50, *SD* = 18.45). The math residual (*M* = -.87, *SD* = 10.76) was lower than the whole sample (*M* = .62, *SD* = 11.90).

The 156 schools (*M* = 58.68, *SD* = 12.72) experienced similar ELA scores to the whole sample (*M* = 58.74, *SD* = 13.98). These schools (*M* = .05, *SD* = 8.51) experienced lower ELA residual scores than the whole sample (*M* = .71, *SD* = 9.43). The schools' accountability score (*M* = 83.22, *SD* = 7.51) was higher than the whole sample (*M* = 81.89, *SD* = 10.27).

Table 8 provides information on schools with math teachers ranging from 16 or more years of experience. One hundred thirteen (30.0%) schools fell within this area. Table 8 demonstrates the descriptive data for schools that fell within this range.

Table 8

Descriptive Statistics (Math 16 or More Years of Experience)

	Minimum	**Maximum**	***M***	***SD***
ELA Pass Rate	18.52	100.00	62.11	12.24
Math Pass Rate	3.70	100.00	40.29	15.40
Accountability Score	34.20	100.70	83.20	8.92
FR Lunch Rate	11.87	84.73	39.28	15.10
ELA Residual	-20.31	33.40	2.25	9.60
Math Residual	-24.48	51.12	1.80	12.12

Note. *M* = mean; *SD* = standard deviation; ELA = English language arts; FR = free and reduced.

The 113 schools with math teachers with 16 or more years of experience (*M* = 40.29, *SD* = 15.40) had greater success on average than the whole sample (*M* = 37.39, *SD* = 15.39). These schools had a lower population of students receiving free and reduced lunch (*M* = 39.28, *SD* = 15.10) than the whole sample (*M* = 42.50, *SD* = 18.45). The math residual (*M* = 1.80, *SD* = 12.12) was greater than the whole sample (*M* = .62, *SD* = 11.90).

The 113 schools (*M* = 62.11, *SD* = 12.24) experienced higher ELA scores than the whole sample (*M* = 58.74, *SD* = 13.98). These schools (*M* = 2.25, *SD* = 9.60) also experienced higher ELA residual scores than the whole sample (*M* = .71, *SD* = 9.43). The schools' accountability score (*M* = 83.20, *SD* = 15.89) was higher than the whole sample (*M* = 81.89, *SD* = 10.27).

Table 9 provides information on schools with principals ranging from zero to 10 years of experience. Twenty-one (5.6%) schools fell within this area. Table 9 demonstrates the descriptive data for schools that fell within this range.

Table 9

Descriptive Statistics (Principal 0 - 10 Years of Experience)

	Minimum	**Maximum**	***M***	***SD***
ELA Pass Rate	11.11	80.00	49.02	20.15
Math Pass Rate	3.51	60.00	29.18	16.49
Accountability Score	34.20	108.50	77.10	16.79
FR Lunch Rate	17.54	100.00	59.25	26.82
ELA Residual	-25.20	33.33	.61	13.70
Math Residual	-19.44	33.89	1.44	14.57

Note. *M* = mean; *SD* = standard deviation; ELA = English language arts; FR = free and reduced.

The 21 schools with principals with zero to 10 years of experience ELA pass rate (*M* = 49.02, *SD* = 20.15) was lower on average than the whole sample (*M* = 58.74, *SD* = 13.98). These schools had a higher population of students receiving free and reduced lunch (*M* = 59.25, *SD* = 26.82) than the whole sample (*M* = 42.50, *SD* = 18.45). The ELA residual (*M* = .61, *SD* = 13.70) was lower than the whole sample (*M* = .71, *SD* = 9.43).

The 21 schools (M = 29.18, *SD* = 16.49) experienced a lower math pass rate than the whole sample (*M* = 37.39, *SD* = 15.39). The schools' math residual (*M* = 1.44, *SD* = 14.57) was higher than the whole sample (*M* = .62, *SD* = 11.90). The schools' accountability score (*M* = 77.10, *SD* = 16.79) was lower than the whole sample (*M* = 81.89, *SD* = 10.27).

Table 10 provides information on schools with principals ranging from 11 to 20 years of experience. One hundred fourteen (30.6%) schools fell within this area. Table 10 demonstrates the descriptive data for schools that fell within this range.

Table 10

Descriptive Statistics (Principal 11 – 20 Years of Experience)

	Minimum	**Maximum**	***M***	***SD***
ELA Pass Rate	21.43	82.56	59.28	11.94
Math Pass Rate	6.25	73.94	37.87	14.79
Accountability Score	24.20	93.90	81.24	11.30
FR Lunch Rate	11.85	92.01	41.25	16.49
ELA Residual	-32.16	31.84	.55	9.25
Math Residual	-35.81	36.99	.43	12.14

Note. *M* = mean; *SD* = standard deviation; ELA = English language arts; FR = free and reduced.

The 114 schools with principals with 11 to 20 years of experience ELA pass rate (*M* = 59.28, *SD* = 11.94) was higher on average than the whole sample (*M* = 58.74, *SD* = 13.98). These schools had a lower population of students receiving free and reduced lunch (*M* = 41.25, *SD* = 16.49) than the whole sample (*M* = 42.50, *SD* = 18.45). The ELA residual (*M* = .55, *SD* = 9.25) was lower than the whole sample (*M* = .71, *SD* = 9.43).

The 114 schools (*M* = 37.87, *SD* = 14.79) experienced a similar math pass rate to the whole sample (*M* = 37.39, *SD* = 15.39). The schools' math residual (*M* = .43, *SD* = 12.14) was lower than the whole sample (*M* = .62, *SD* = 11.90). The schools' accountability score (*M* = 81.24, *SD* = 11.30) was similar than the whole sample (*M* = 81.89, *SD* = 10.27).

Table 11 provides information on schools with principals ranging from 21 or more years of experience. Two hundred thirty-seven (63.7%) schools fell within this area. Table 11 demonstrates the descriptive data for schools that fell within this range.

Table 11

Descriptive Statistics (Principal 21 or More Years of Experience)

	Minimum	**Maximum**	***M***	***SD***
ELA Pass Rate	13.08	100.00	59.45	13.92
Math Pass Rate	.89	100.00	38.20	15.32
Accountability Score	30.60	100.70	82.84	8.67
FR Lunch Rate	5.17	100.00	41.59	17.68
ELA Residual	-32.73	33.40	.91	9.01
Math Residual	-25.42	51.12	.94	11.24

Note. *M* = mean; *SD* = standard deviation; ELA = English language arts; FR = free and reduced.

The 237 schools with principals with 21 or more years of experience ELA pass rate (*M* = 59.45, *SD* = 13.92) was higher on average than the whole sample (*M* = 58.74, *SD* = 13.98). These schools had a lower population of students receiving free and reduced lunch (*M* = 41.59, *SD* = 17.68) than the whole sample (*M* = 42.50, *SD* = 18.45). The ELA residual (*M* = .91, *SD* = 9.01) was higher than the whole sample (*M* = .71, *SD* = 9.43).

The 237 schools (M = 38.20, *SD* = 15.36) experienced a higher math pass rate to the whole sample (*M* = 37.39, *SD* = 15.39). The schools' math residual (*M* = .94, *SD* = 11.24) was higher than the whole sample (*M* = .62, *SD* = 11.90). The schools' accountability score (*M* = 82.84, *SD* = 8.67) was also higher than the whole sample (*M* = 81.89, *SD* = 10.27).

Table 12 provides information on schools with free and reduced lunch percentages ranging from 0% to 24.99%. Sixty-two (16.5%) schools fell within this area. Table 12 demonstrates the descriptive data for schools that fell within this range.

Table 12

Descriptive Statistics (Free and Reduced Lunch 0 – 24.99%)

	Minimum	**Maximum**	***M***	***SD***
ELA Pass Rate	36.17	100.00	72.70	10.22
Math Pass Rate	10.64	100.00	52.14	15.20
Accountability Score	39.60	100.70	87.73	8.72
Years ELA	4.00	30.00	12.47	4.31
Years Math	3.00	27.00	13.24	4.19
Years Principal	4.00	43.00	26.70	9.78
ELA Residual	-32.16	29.09	1.00	9.62
Math Residual	-42.98	51.12	2.52	14.94

Note. *M* = mean; *SD* = standard deviation; ELA = English language arts.

The 62 schools with 0% to 24.99% free and reduce lunch populations had higher ELA scores (*M* = 72.70, *SD* = 10.22) than the whole sample (*M* = 58.74, *SD* = 13.98). These schools also had higher math scores (*M* = 52.14, *SD* = 15.20) than the whole sample (*M* =37.39, *SD* = 15.39). The ELA residual scores (*M* = 1.00, *SD* = 9.62) were greater than the whole sample (*M* = .72, *SD* = 9.43). The math residual scores (*M* = 2.52, *SD* = 14.94) were also greater than the whole group (*M* = .62, *SD* = 11.90).

The 62 schools experienced higher accountability scores (*M* = 87.73, *SD* = 8.72) compared to the whole sample (*M* = 81.89, *SD* = 10.27). These schools had similar ELA experience (*M* = 12.47, *SD* = 4.31) compared to the whole sample (*M* = 12.39, *SD* = 4.96). The math years of experience (*M* = 13.24, *SD* 4.19) was also similar to the whole sample (*M* = 13.28, *SD* = 5.22). The years of principal experience (*M* = 26.70, *SD* = 9.78) was greater than the whole sample (*M* = 24.34, *SD* = 9.31).

Table 13 provides information on schools with free and reduced lunch percentages ranging from 25% to 49.99%. Two hundred and twelve (56.4%) schools fell within this area. Table 13 demonstrates the descriptive data for schools that fell within this range.

Table 13

Descriptive Statistics (Free and Reduced Lunch 25 – 49.99%)

	Minimum	**Maximum**	***M***	***SD***
ELA Pass Rate	39.83	83.33	61.05	8.35
Math Pass Rate	15.79	73.94	39.30	11.09
Accountability Score	52.50	93.50	83.85	5.65
Years ELA	2.00	28.00	13.09	4.79
Years Math	.00	29.00	13.74	4.94
Years Principal	5.00	46.00	24.02	8.55
ELA Residual	-23.16	21.99	.38	7.67
Math Residual	-24.48	31.94	.03	10.47

Note. *M* = mean; *SD* = standard deviation; ELA = English language arts.

The 212 schools with 25% to 49.99% free and reduce lunch populations had higher ELA scores (*M* = 61.05, *SD* = 8.35) than the whole sample (*M* = 58.74, *SD* = 13.98). These schools also had higher math scores (*M* = 39.30, *SD* = 11.09) than the whole sample (*M* =37.39, *SD* = 15.39). The ELA residual scores (*M* = .38, *SD* = 7.67) were lower than the whole sample (*M* = .72, *SD* = 9.43). The math residual scores (*M* = .03, *SD* = 10.47) were also lower than the whole group (*M* = .62, *SD* = 11.90).

The 212 schools experienced higher accountability scores (*M* = 83.85, *SD* = 5.65) compared to the whole sample (*M* = 81.89, *SD* = 10.27). These schools had higher ELA experience (*M* = 13.09, *SD* = 4.79) compared to the whole sample (*M* = 12.39, *SD* = 4.96). The math years of experience (*M* = 13.74, *SD* = 4.19) was similar to the whole sample (*M* = 13.28,

SD = 5.22). The years of principal experience (*M* = 24.02, *SD* = 8.55) was greater than the whole sample (*M* = 24.34, *SD* = 9.31).

Table 14 provides information on schools with free and reduced lunch percentages ranging from 50% to 74.99%. Seventy-five (19.9%) schools fell within this area. Table 14 demonstrates the descriptive data for schools that fell within this range.

Table 14

Descriptive Statistics (Free and Reduced Lunch 50 – 74.99%)

	Minimum	**Maximum**	***M***	***SD***
ELA Pass Rate	15.53	84.15	48.99	12.91
Math Pass Rate	.89	60.00	26.10	12.98
Accountability Score	38.50	108.50	77.79	10.71
Years ELA	.00	28.00	11.56	4.80
Years Math	2.00	31.00	13.22	5.10
Years Principal	3.00	45.00	24.95	9.79
ELA Residual	-32.73	33.40	1.04	11.73
Math Residual	-25.42	33.89	-1.22	11.62

Note. *M* = mean; *SD* = standard deviation; ELA = English language arts.

The 75 schools with 50% to 74.99% free and reduce lunch populations had lower ELA scores (*M* = 48.99, *SD* = 12.91) than the whole sample (*M* = 58.74, *SD* = 13.98). These schools also had lower math scores (*M* = 26.10, *SD* = 12.98) than the whole sample (*M* =37.39, *SD* = 15.39). The ELA residual scores (*M* = 1.04, *SD* = 11.43) were greater than the whole sample (*M* = .72, *SD* = 9.43). The math residual scores (*M* = -1.22, *SD* = 11.62) were lower than the whole group (*M* = .62, *SD* = 11.90).

The 75 schools experienced lower accountability scores (*M* = 77.79, *SD* = 10.71) compared to the whole sample (*M* = 81.89, *SD* = 10.27). These schools had lower ELA

experience (*M* = 11.56, *SD* = 4.80) compared to the whole sample (*M* = 12.39, *SD* = 4.96). The math years of experience (*M* = 13.22, *SD* 5.10) was similar to the whole sample (*M* = 13.28, *SD* = 5.22). The years of principal experience (*M* = 24.95, *SD* =9.79) was similar to the whole sample (*M* = 24.34, *SD* = 9.31).

Table 15 provides information on schools with free and reduced lunch percentages ranging from 75% to 100%. Twenty-seven (7.2%) schools fell within this area. Table 15 demonstrates the descriptive data for schools that fell within this range.

Table 15

Descriptive Statistics (Free and Reduced Lunch 75 – 100%)

	Minimum	**Maximum**	***M***	***SD***
ELA Pass Rate	11.11	65.83	35.59	13.99
Math Pass Rate	2.36	50.99	19.92	12.90
Accountability Score	24.20	91.40	64.50	16.82
Years ELA	1.00	27.00	8.96	6.42
Years Math	1.00	36.00	9.96	8.18
Years Principal	3.00	45.00	19.78	11.16
ELA Residual	-26.06	31.84	1.88	13.89
Math Residual	-16.68	36.99	5.97	13.85

Note. *M* = mean; *SD* = standard deviation; ELA = English language arts.

The 27 schools with 75% to 100% free and reduce lunch populations had lower ELA scores (*M* = 35.59, *SD* = 13.99) than the whole sample (*M* = 58.74, *SD* = 13.98). These schools also had lower math scores (*M* = 19.92, *SD* = 12.90) than the whole sample (*M* =37.39, *SD* = 15.39). The ELA residual scores (*M* = 1.88, *SD* = 13.89) were greater than the whole sample (*M* = .72, *SD* = 9.43). The math residual scores (*M* = 5.97, *SD* = 13.85) were also greater than the whole group (*M* = .62, *SD* = 11.90).

The 27 schools experienced lower accountability scores (M = 64.50, SD = 16.82) compared to the whole sample (M = 81.89, SD = 10.27). These schools had lower ELA experience (M = 8.96, SD = 6.42) compared to the whole sample (M = 12.39, SD = 4.96). The math years of experience (M = 9.96, SD 8.18) was also lower than the whole sample (M = 13.28, SD = 5.22). The years of principal experience (M = 19.78, SD = 11.16) was lower than the whole sample (M = 24.34, SD = 9.31).

Inferential Analysis

Inferential analysis of the data focused on the impact of ELA, math, and principal experience on Math and ELA ISTEP scores. The inferential analysis also measured the ability of accountability scores to predict ISTEP scores. The research questions and null hypotheses were designed to determine the significance of each variable in determining ELA and math scores.

Null Hypotheses

$H_0$1

$H_0$1 stated that the previous school accountability score, average teacher years of experience within English Language Arts, and years of principal experience in education do not explain a statistically significant amount of variance within the ISTEP 10 ELA score in high-poverty schools. The impact of accountability scores, teacher experience, and principal experience were examined. A simultaneous multiple regression was used to determine the impact of the predictor variables on ELA scores.

Multiple measures were taken to ensure all assumptions were met. A Durbin Watson test was used to ensure independence of the residuals by determining that there is no correlation between residuals within a model. The test calculated a value of 1.68, which falls between the

desired values of 1 and 3. The assumption of linearity is tested by plotting the studentized residuals and the unstandardized predicted values to determine a linear relationship. The assumption was met as the residuals formed a linear band indicating a linear relationship between the criterion variable and the collective predictor variables (Statistics Solutions, 2013).

The assumption of homoscedasticity requires that the residuals are equal for all predicted values of the criterion. The assumption was met as the plot of the residuals and predicted variables did not show evidence of the residual spread increasing or decreasing as the predicted value of the criterion variable increased. The assumption of multicollinearity ensures that the predictor variable is not heavily correlated in order to determine which predictor variables explain the variance. The assumption of multicollinearity was met as the tolerance level for each predictor variable was above the recommended .2 level (Statistics Solutions, 2013).

The assumption of outliers ensures that one or more data points do not fall outside of the typical pattern, therefore skewing the data. The assumption was met as all data points fell within 1.5 standard deviations of the edge of boxplots. The assumption of normality of residuals ensures the residuals are normally distributed within the model. The assumption was met as the data points were along the diagonal line on the Normal P-P plot of regression standardized residual (Statistics Solutions, 2013).

A one-way ANOVA was conducted to determine the impact of accountability score, teacher experience, and principal experience on ELA scores. The regression model determined that 11% of variance in ELA scores was explained by the predictor variables. There was a statistically significant impact on ELA scores by the predictor variables, $F(3, 368) = 15.34$, $p < .001$. Table 16 shows the ANOVA summary table. The null was accepted.

Table 16

Analysis of Variance Summary Table for Impact on English Language Arts Score

Source	***SS***	***df***	***MS***	***F***
Between	3622.75	3	1207.58	15.34
Within	28976.535	368	78.74	
Total	32599.285	371		

Note. $*p < .001$

The accountability score was a significant predictor of the ELA residual value. This was evident with a significance level less than the .05 alpha level ($p < .001$). The unstandardized partial regression coefficient indicates that for every one-point increase in the accountability score, the ELA residual value is expected to increase by .31 points, while holding all other predictors constant. All other predictors were non-significant.

$H_0$2

$H_0$2 stated that the previous school accountability score, average teacher years of experience within math, and years of principal experience in education do not explain a statistically significant amount of variance within the ISTEP 10 math score in high-poverty schools. The impact of accountability scores, teacher experience, and principal experience were examined. A simultaneous multiple regression was used to determine the impact of the predictor variables on math scores.

Multiple measures were taken to ensure all assumptions were met. A Durbin Watson test was used to ensure independence of the residuals by determining that there is no correlation between residuals within a model. The test calculated a value of 1.38, which falls between the desired values of 1 and 3. The assumption of linearity is tested by plotting the studentized

residuals and the unstandardized predicted values to determine a linear relationship. The assumption was met as the residuals formed a linear band indicating a linear relationship between the criterion variable and the collective predictor variables (Statistics Solutions, 2013).

The assumption of homoscedasticity requires that the residuals are equal for all predicted values of the criterion. The assumption was met as the plot of the residuals and predicted variables did not show evidence of the residual spread increasing or decreasing as the predicted value of the criterion variable increased. The assumption of multicollinearity ensures that the predictor variable is not heavily correlated in order to determine which predictor variables explain the variance. The assumption of multicollinearity was met as the tolerance level for each predictor variable was above the recommended .2 level.

The assumption of outliers ensures that one or more data points do not fall outside of the typical pattern, therefore skewing the data. The assumption was met as all data points fell within 1.5 standard deviations of the edge of boxplots. The assumption of normality of residuals ensures the residuals are normally distributed within the model. The assumption was met as the data points were along the diagonal line on the Normal P-P plot of regression standardized residual.

A one-way ANOVA was conducted to determine the impact of accountability score, teacher experience, and principal experience on math scores. The regression model determined that 7% of variance in math scores was explained by the predictor variables. There was a statistically significant impact on math scores by the predictor variables, $F(3, 368) = 8.63$, $p < .001$. Table 17 shows the ANOVA summary table. The null was accepted.

Table 17

Analysis of Variance Summary Table for Impact on Math Score

Source	***SS***	***df***	***MS***	***F***
Between	3335.37	3	1111.79	8.63
Within	47409.44	368	128.30	
Total	50744.82	371		

The accountability score was a significant predictor of the math residual value. This was evident with a significance level less than the .05 alpha level ($p < .001$). The unstandardized partial regression coefficient indicates that for every one-point increase in the accountability score, the math residual value is expected to increase by .30 points, while holding all other predictors constant. All other predictors were non-significant.

Summary

Two hypotheses were tested in this quantitative study. The first hypothesis stated the previous school accountability score, average teacher years of experience within ELA, and years of principal experience in education do not explain a statistically significant amount of variance within the ISTEP 10 ELA score in high-poverty schools. The impact of accountability scores, teacher experience, and principal experience were examined. A simultaneous multiple regression was used to determine the impact of the predictor variables on ELA scores. It was determined that the previous school accountability score explained a statistically significant amount of variance in the ELA scores. Principal experience and ELA experience were not statically significant.

The second hypothesis stated the previous school accountability score, average teacher years of experience within math, and years of principal experience in education do not explain a statistically significant amount of variance within the ISTEP 10 math score in high-poverty schools. The impact of accountability scores, teacher experience, and principal experience were examined. A simultaneous multiple regression was used to determine the impact of the predictor variables on math scores. It was determined that the previous school accountability score explained a statistically significant amount of variance in the math scores. Principal experience and math experience were not statically significant.

CHAPTER 5

RESULTS, IMPLICATIONS, AND RECOMMENDATIONS

The final chapter of this study is organized into 6 sections: summary of the study, limitations, delimitations, results, implications, and recommendations for further study. The summary presents the overall purpose of the study. The limitations and delimitations are presented in their respective sections. The results section presents a summary of the results found in Chapter 4. The implications section provides possible reasons for the results and interpretation of the data presented. The last section includes recommendations for further study regarding the information presented within the study.

The purpose of this quantitative study was to determine if teacher and administrative experience in public schools has an impact on student standardized test achievement in poverty schools. The study determined if the previous school accountability score given by the state provides predictable outcomes for the next year's score within poverty schools. The study also measured the relationship between faculty experience and student success in both Math and ELA ISTEP test scores within poverty schools. Additionally, the study measured the relationship between administrator experience and student success in both Math and ELA ISTEP test scores within poverty schools. A simultaneous multi-regression was used to ascertain the information. The study used the following questions:

1. What are the current levels of student performance on standardized testing while considering teacher and administrator years of experience in high schools?
2. Do previous school accountability score, the average teacher years of experience within ELA, and years of principal experience in education explain a statistically significant amount of variance within the ISTEP 10 ELA score in high poverty schools?
3. Do previous school accountability score, the average teacher years of experience within Math, and years of principal experience in education explain a statistically significant amount of variance within the ISTEP 10 Math score in high poverty schools?

Limitations

During the course of the study, limitations became apparent. The following limitations need to be considered:

1. The data do not account for rural poverty and urban poverty.
2. It is possible the IDOE data are flawed.
3. Administrators may change during the school year.
4. The data do not account for special education populations.

Delimitations

1. The study only accounted for Indiana principals.
2. The study only accounted for Indiana high school ELA and math teachers.
3. The study only accounted for achievement data.

Results of the Study

As a result of the study, the previous year's accountability score proved to be a valid predictor of both ELA and math ISTEP scores in poverty schools. However, the data in Chapter 4 indicated principal experience does not significantly impact ELA or math ISTEP scores in poverty schools. The data also indicated that ELA teacher experience does not significantly impact ELA ISTEP scores in poverty-schools. Furthermore, the data indicated math teachers' experiences does not significantly impact math ISTEP scores in poverty schools.

The descriptive data from Chapter 4 revealed a strong correlation between ELA ISTEP scores and free and reduced lunch populations. Schools with less than 25% of their students receiving free and reduced lunch averaged a 73% pass rate on ELA ISTEP scores. Schools with 75% or more of their students receiving free and reduced lunch averaged a 36% pass rate on ELA ISTEP scores.

The data presented indicated a strong correlation between math ISTEP scores and free and reduced lunch populations. Schools with less than 25% of their students receiving free and reduced lunch averaged a 52% pass rate on mat ISTEP scores. Schools with 75% or more of their students receiving free and reduced lunch averaged a 20% pass rate on math ISTEP scores.

The data also indicated a strong correlation between accountability scores and free and reduced lunch populations. Schools with less than 25% of their students receiving free and reduced lunch averaged 88% accountability scores. Schools with 75% or more of their students receiving free and reduced lunch averaged 65% accountability scores.

There was a slight correlation between years of experience and free and reduced lunch rates. Schools with less than 25% of their students receiving free and reduced lunch averaged 12

years of ELA teaching experience. Schools with 75% or more of their students receiving free and reduced lunch averaged nine years of ELA teaching experience. Schools with less than 25% of their students receiving free and reduced lunch averaged 13 years of math teaching experience. Schools with 75% or more of their students receiving free and reduced lunch averaged 10 years of math teaching experience. Principal experience in schools with less than 25% of their students receiving free and reduced lunch was 27 years on average. In schools with 75% or more of their students receiving free and reduced lunch, principal experience was 20 years on average.

ELA teachers with 0 to five years of experience were more likely to work in poverty schools than teachers with more experience. The ELA teachers with 0 to five years of experience averaged 62% of their students receiving free and reduced lunch. ELA teachers with six to 10 years of experience averaged 43% free and reduced rates. ELA teachers with 11 to 15 years of experience averaged 40% free and reduced rates. Finally, ELA teachers with 16 or more years of experience averaged 40% free and reduced rates.

Math teachers with 0 to five years of experience were also more likely to work in poverty schools than teachers with more experience. The math teachers with 0 to five years of experience averaged 59% of their students receiving free and reduced lunch. Math teachers with six to 10 years of experience averaged 44% free and reduced rates. Math teachers with 11 to 15 years of experience averaged 41% free and reduced rates. Finally, math teachers with 16 or more years of experience averaged 39% free and reduced rates.

Principals with less experience are also more likely to work in poverty schools. Principals with 0 to 10 years of experience had on average 59% free and reduced lunch

populations. Principals with 11 to 20 years of experience had an average of 41% of their students with free and reduced lunch. Principals with 21 years or more of experience averaged 42% of students receiving free and reduced lunch.

Implications

It is clear that students living in poverty are at an academic disadvantage. As noted, the OECD (2012) stated students with low SES are likely to experience low academic success. Kaushal (2014) stated there is a direct correlation of student SES and student educational results. In concurrence, the data from this study proved there is a strong correlation between free and reduced lunch rates within schools and ISTEP performance. Schools with higher populations of students with low SES experienced lower overall test scores. Conversely, schools with lower populations of students with low SES experienced higher overall test scores. What is not clear is how to serve our poverty schools better in order to increase student performance substantially.

The study showed that the A to F accountability system is valid when considering student performance on standardized tests. The IDOE A to F system accounts for high school ISTEP achievement, graduation rate, and college and career readiness (IDOE, 2018). Based on this study it is probable a school's previous IDOE grade would indicate the next year's level of ISTEP achievement. Given Indiana has gone to a school of choice system, it is also reasonable to believe parents of academically minded students could possibly be more likely to choose academically successful schools, with high letter grades, when enrolling a student in high school. Likewise, quality teaching professionals could choose to work for more academically successful schools based on the school grade.

The overall impact of the A to F system on poverty schools is to be determined. It is possible that poverty schools will be harmed by this system, creating an even greater imbalance of resources attributed to students with low SES. It is possible the stigma associated with a "D" or "F" grade will be hard for many teachers, students, and parents to overlook. Although the grade may be accurate in terms of predicting ISTEP performance, it does not account for other services provided by the schools that aim at social and emotional needs of their respective students.

The high school letter grade could have greater implications for an overall school district. As parents choose to enroll their students in elementary and junior high schools, the high school grade may be a factor in making the choice. Should parents take the high school letter grade in consideration, it is likely many good students will avoid poverty schools K-12 due to the increased chances of academic success. This act would decrease standardized test performance district wide in many cases.

The study indicated ELA and math teacher experience does not significantly impact poverty-school ISTEP performance. The ELA teachers with 11 to 15 years of experience had an average pass rate of 59.9%; however, the ELA residual for this group was only .3%. Likewise, math teaches with 11 to 15 years of experience had an average of 36.5% pass rate and only a .1% math residual. This suggests that perhaps teachers with greater experience may not be able to provide all of the necessary components needed to help students with low SES perform to optimal levels.

Clotfelter et al. (2007) called attention to the fact that many experienced teachers do not teach the core classes that are tested. Rather, effective teachers that gain experience move on to upper level courses not tested by the state. Another possible reason for this is that in some cases strong ELA and math teachers have the ability to move to better performing schools after gaining some experience. Conversely, weaker ELA and math teachers do not have the opportunity to work elsewhere and accumulate experience at the poverty school, skewing the data. The overall quality of the teacher was something this study could not account for within its structure. It is also important to note that King Rice (2010) found that more experienced teachers in poverty schools had less effect than experienced teachers in affluent schools.

There was a slight positive impact of ELA and math teacher experience on overall ISTEP scores. After five years of experience the average ELA ISTEP pass rate increased by over 10%. After math teachers gained five years of experience, math scores increased by 3%. This study is consistent with the findings of King Rice (2010), who found that a majority of teacher growth occurred during the first five years. She stated teacher effectiveness leveled off after the first five years, which is true within this study as average ELA performance only varied by 1% after 6 years of experience. Math scores were slightly different as there was another increase of 4% after 16 years of experience.

When making recruitment and retention decisions, the level of experience should have baring based on this and similar studies. Teachers with five years of experience or more will most likely perform consistently for the duration of their career. After conducting my research, I would suggest it is prudent to hire someone with 0 years of experience rather than someone with five years or more experience that has not consistently achieved positive results.

However, anyone with five or more years of experience that has proven to achieve positive results should be a more appealing candidate than someone with 0 years of experience even though the salary would be higher. It is wiser to invest in an experienced teacher with proven capacity to produce results than an unknown entity. Should a first-year hire prove unsuccessful, it may be five years before an employer knows if the teacher can significantly improve. According to Clotfelter et al. (2007) teachers see the most improvement associated with experience within the first two years, which would mean at minimum should a first-year teacher prove ineffective it could take two years to determine if improvement was possible. Due to the high stakes of student academic success, it is beneficial to hire proven, experienced teachers, when available.

Additionally, the five-year experience threshold should be considered during the collective bargaining process between school administration and teacher representation. The first five years should be viewed as a probationary period allowing teachers to show growth from their first years of experience. Teachers that show positive growth should be retained and possibly economically rewarded. Consequently, teaches that fail to improve and show positive academic gains during the first five years should be let go as it is unlikely they will show growth during their career. The retention of quality teachers is imperative in all schools, but Hattie (2009) suggested that perhaps even more so in poverty schools. He stated quality teachers had a greater effect on students with low SES than quality teachers had on students with high SES.

Recommendations for Further Study

To further expand this study, research should be conducted on a national level using longitudinal data. In addition to the original information, special education populations should

be included. Utilizing the extended data should provide greater validity to school accountability scores if the results are consistent with this study. The additional data would also confirm or refute the findings of this study regarding the impact of principal and teacher experience on standardized test scores in poverty schools.

The impact of A to F accountability systems on education could yield several interesting studies. Utilizing traditional grades within this model provides both positive and negative stigmas that may impact decision making more so than the old accountability systems. As the A to F accountability model is used in more states, it would be interesting to see the impact on student standardized scores in comparison to previous years without the model.

Another topic of interest would be the impact of A to F on school choice in comparison to the AYP model. It would also be worthwhile to investigate the impact of A to F on principal and teacher retention in poverty schools and affluent schools. Principal and teacher recruitment should also be studied under the A to F model in comparison to previous systems. Finally, it would also be beneficial to investigate the impact of high school letter grades on elementary and junior high transfers in comparison to previous to AYP systems and the overall impact of those transfers on school performance at the elementary and junior high levels. The high school culminates the overall K-12 experience and could have a large impact on parents' enrollment decisions.

An area of further research to consider is the impact of time on standardized test scores in poverty schools. The literature suggested time may impact student learning. A topic of consideration should be the impact of traditional schedules in comparison to the impact of block scheduling on poverty schools. The impact of alternative schedules that flex the time of students

in comparison to the time of teachers would also be a worthy topic of further study. Another consideration would be the impact of increased school time per day versus traditional schedules and block schedules on standardized tests.

Teacher qualifications within poverty schools should also be extensively reviewed. The need for highly qualified teachers within poverty schools is evident. The effectiveness of teachers without a traditional license within rural poverty schools should be compared to urban poverty schools.

Furthermore, if teacher and principal experience do not significantly impact student performance in high-poverty schools, it would be worthwhile to investigate attributes exhibited by teachers and principals of high-performing, high-poverty students. It would be beneficial to know if successful teachers with 0 to five years of experience have the same attributes as successful teachers with six or more years of experience. If specific attributes can be identified, the recruitment and retention of teachers could be simplified.

Finally, the non-cognitive attributes of high-performing, high-poverty students should be studied extensively. If students are able to overcome low SES, perhaps it is due to their own attributes and not those of teachers and principals. If determined students hold the key to their own success through their own attributes, programs could be designed to help develop those attributes to aid in overcoming the odds.

Summary

The previous year's accountability score proved to be a valid predictor of both ELA and Math ISTEP scores in poverty schools. However, the data indicated math, ELA, and principal experience does not significantly impact ELA or Math ISTEP scores in poverty schools. Further

studies are needed to better understand why teacher and principal experience does not increase student achievement significantly, Furthermore, future studies are needed to help identify the best practices of poverty schools that outperform their predicted achievement rates.

REFERENCES

Abe, Y., Weinstock, P., Chan, V., Meyers, C., Gerdeman, R. D., & Brandt, W. C. (2015). *How methodology decisions affect the variability of schools identified as beating the odds*. Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Midwest. Retrieved from http://eric.ed.gov.ezproxy.indstate.edu/?id=ED558161

Adams, A. (2016). Principal professional learning community behavior in low wealth high schools with higher and lower student achievement as measured by mastery scores on the New York State Eleventh Grade ELA Regents Exam. *Journal for Leadership and Instruction,* 13-21. Retrieved from http://files.eric.ed.gov/fulltext/EJ1121157.pdf

Allensworth, E., & Hart, H. (2018). *How do principals influence student achievement?* Retrieved from University of Chicago Consortium on School Research website: http://consortium.uchicago.edu/publication-tags/principals-leadership

Aronson, R. (2001). When at-risk students defy the odds. *Improving Schools, 4*(3), 9-22. Retrieved from https://journals.sagepub.com/doi/10.1177/136548020100400303

Ascher, C. & Maguire, C. (2006). *Beating the odds: How thirteen NYC schools bring low-performing ninth-grader to timely graduation and college enrollment*. New York, NY: Brown University. Retrieved from files.eric.ed.gov/fulltext/ED522199.pdf

Baker, B. D., Sciarra, D. G., & Farrie, D. (2010). *Is school funding fair? A national report card*. Newak, NJ: Education Law Center. Retrieved from http://files.eric.ed.gov/fulltext/ED520522.pdf

Baker, B. D., & Weber, M. (2016, April 18). State school finance inequities and the limits of pursuing teacher equity through departmental regulation. *Education policy anlaysis archives, 24*(47), 1-36. Retrieved from http://files.eric.ed.gov/fulltext/EJ1100175.pdf

Berry, B., Daughtrey, A., & Wieder, A. (2009). *Teaching effectiveness and the conditions that matter most in high-needs schools: A policy brief*. Chapel Hill, NC: Center for Teaching Quality. Retrieved from http://eric.ed.gov.ezproxy.indstate.edu/?id=ED508532

Boser, U., Wilhelm, M., & Hanna, R. (2014, October 6). *The power of the Pygmalion Effect*. Retrieved from ERIC database. (EDS54606)

Burney, V. H., & Cross, T. L. (2006). Impoverished students with academic promise in rural settings: 10 lessons from project aspire. *Gifted Child Today, 29*(2), 14-21. Retrieved from http://web.a.ebscohost.com.ezproxy.indstate.edu/ehost/detail/detail?sid=e6317ff5-bdda-42d8-ad2e-ad1528647f97%40sessionmgr4009&vid=0&hid=4201&bdata=JnNpdGU9ZWhvc3QtbGl2ZSZzY29wZT1zaXRl#AN=20533411&db=eue

Carter, S. C. (2001). *No excuses: Lessons from 21 high-performing, high-poverty schools*. Washington, DC: The Heritage Foundation.

Center for Poverty Research at the University of University California, Davis. (2015). How does level of education relate to poverty? Retrieved from https://povertyucdavis.edu

Chenoweth, K. (2010, November). Leaving nothing: Principals from high-performing, high-poverty, and high-minority schools discuss what it takes to ensure that all students achieve. *Educational Leadership,* 16-21. Retrieved from www.ascd.org

Clotfelter, C. T., Ladd, H. F., & Vigdor, J. L. (2007). *Teacher credentials and student achievement in high school: A cross-subject analysis with student fixed effects*. Retrieved from National Bureau of Economic Research website: www.nber.org/papers/w13617.pdg

Cross, F. (2017). Teacher shortage areas nationwide listing. Retrieved from www2.ed.gov/about/offices/list/ope/pol/tsa.html#list

DeArmond, M., Denice, P., Gross, B., Hernandez, J., & Jochim, A. (2015). *Meassuring up: Educational improvement and opportunity in 50 cities*. Retrieved from ERIC database. (ED560764)

Del Razo, J. L., & Renée, M. (2013). Expanding equity through more and better learning time. *Voices in Urban Education,* 27-34. Retrieved from https://files.eric.ed.gov.ezproxy.indstate.edu/fulltext/EJ1046179.pdf

Education Commission of the States. (2005). *Eight questions on teacher recruitment and retention: What does the research say?* Retrieved from ERIC database. (ED489332)

Education Commission of the States (2012). Teacher expectations of students: A self-fulfilling prophecy? *The Progress of Education Reform, 13*(6), 1-7. Retrieved from http://www.ecs.org/clearinghouse/01/05/51/10551.pdf

Fuller, E., Orr T. & Young, M. D. (2008). *The revolving door of the principalship. Implications from UCEA.* Retrieved from ERIC database. (ED520570)

Fuller, E., & Young, M. D. (2009). *Tenure and retention of newly hired principals in Texas*. Retrieved from University Council for Educational Administration website: www.casciac.org/pdfs/ucea_tenure_and_retention_report_10_8_09.pdf

Gehrke, R. S. (2005). Poor schools poor students successful teachers. *Kappa Delta Pi,* 14-17. Retrieved from ERIC database. (EJ724902)

Glennie, E. J., Mason, M., & Edmunds, J. A. (2016, March 14). Retention and satisfaction of novice teachers: Lessons from a school reform model. *Journal of Education and Training Studies, 4,* 244-258. https://doi.org/10.11114/jets.v4i4.1458

Hagelskamp, C., & DiStasi, C. (2012). *Failure is not an option: How principals, teachers, students, and parents from Ohio's high-achieving, high-poverty schools explain their success*. Retrieved from Public Agenda website: www.publicagenda.org/pages/failure-is-not-an-option

Hanushek, E. A., Kain, J. F., & Rivkin, S. G. (2001). Why public schools lose teachers [NBER Working Paper No. B599]. Retrieved from National Bureau of Economic Resesarch website: www.nber.org/papers/w8599.pdf

Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. New York, NY: Corwin.

Indiana Department of Education. (2018). Retrieved from http://www.doe.in.gov

Kaushal, N. (2014). Intergenerational payoff of education. *The Future of Children, 24*(1), 61-78. Retrieved from http://files.eric.ed.gov/EJ1029030.pdf

King Rice, J. (2010, August). *The impact of teacher experience: Examining the evidence and policy implications*. Retrieved from Urban Institute website: https://www.urban.org/sites/default/files/publication/33321/1001455-The-Impact-of-Teacher-Experience.PDF

Koon, S., Petscher, Y., & Foorman, B. R. (2014). *Beating the odds: Finding schools exceeding achievement expectations with high-risk students*. Washington, DC: Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Southeast. Retrieved from http://eric.ed.gov.ezproxy.indstate.edu/?id=ED544802

Krashen, S. (2005). The hard work hypothesis: Is doing your homework enough to overcome the effects of poverty? *Multicultural Education,* 16-19. Retrieved from http://files.eric.ed.gov/fulltext/EJ727795.pdf

Ladd, H. F. (2011). *Education and poverty: Confronting the evidence* [SAN Working Paper No. SAN11-01]. Retrieved from ERIC database. (ED536952)

Ladd, H. F. (2017, January 30). No Child Left Behind: A deeply flawed federal policy. *Journal of Policy Analysis and Management,* 461-469. Retrieved from https://onlinelibrary.wiley.com/doi/epdf/10.1002/pam.21978

Ladd, H. F., & Sorensen, L. C. (2015). *Returns to teacher experience: Student achievement and motivation in middle school*. Retrieved from National Center for Analysis of Longitudinal Data in Education Research website: https://caldercenter.org/sites/default/files/WP%20112%20Update_0.pdf

Lavigne, H. J., Shakman, K., Zweig, J., & Greller, S. L. (2016). *Principals' time, tasks, and professional development: An analysis of schools and staffing survey data*. Retrieved from ERIC database. (ED569168)

Learning Policy Institute. (2018) Uncertified teacher and teacher vacancies by state. Retrieved from https://learningpolicyinstitute.org/uncertified-teachers-and-teacher-vacancies-state

Martin, C., Sargrad, S., & Batel, S. (2016). *Making the grade: A 50-state analysis of school accountability systems*. Retrieved from Center for American Progress website: www.americanprogress.org: https://files-eric-ed.ezproxy.indstate.edu/fulltext/ED567858.pdf

McMillan, J. H., & Schumacher, S. (2006). *Research in education: Evidence-based inquiry*. Boston, MA: Pearson.

Murray, K., & Howe, K. R. (2017, October 23). Neglecting democracy in education policy: A-F school report card accountability systems. *Education Policy Analysis Archives, 25*(109), 1-32. https://doi.org/10.14507/epaa.25.3017

Oklahoma uses emergency certified teachers during shortage. (2017, June 23). *US News and World Report*. Retrieved from https://www.usnews.com/news/best-states/oklahoma/articles/2018-09-28/oklahoma-emergency-teacher-certificates-surpass-2-500

Oregon Department of Education. (2015). *School attendance, absenteeism, and student success*. Retrieved from ERIC database. (ED578924)

Organization for Economic Co-operation and Development. (2012). *Pisa in Focus: Who are the low-performing students?* Retrieved from http://www.oecd-library.org

Partridge, M. A., & Koon, S. (2017). *Beating the odds in Mississippi: Identifying schools exceeding achievement expectations*. Washington, DC: Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Southeast. Retrieved from http://files.eric.ed.gov/fulltext/ED572606.pdf

Petrilli, M. J., & Wright, B. L. (2016). America's mediocre test scores: Education crisis or poverty crisis. *Education Next,* 47-52. Retrieved from http://web.a.ebscohost.comezproxy.indstate.edu/ehost/pdfviewer/pdfviewer?vid=3&sid=179c9494c4c9-41d2-8d44-dc3ab173756e%40sessionmgr4009&hid=4107

Ravitch, D. (2014). *Reign of error: The hoax of the privatization movement and the danger to America's public schools*. New York, NY: Vintage Books.

Ritchhart, R. (2015). *Creating cultures of thinking: The 8 forces we must master to truly transform our schools*. San Francisco, CA: Jossey-Bass.

Santini, J. (2014). Reflections on expectations. *Odyssey, 15,* 74-78. Retrieved from http://filed.eric.ed.gov/fulltext/EJ1031352.pdf

Silvernail, D. L., Sloan, J. E., Paul, C. R., Johnson, A. F., & Stump, E. K. (2014). *The relationship between school poverty and student achievement in Maine*. Retrieved from ERIC database. (ED561363)

Southern Education Foundation. (2010). *The worst of times: Children in extreme poverty in the south and nation*. Atlanta, GA: Southern Education Foundation. Retrieved from http://files.eric.ed.gov/fulltext/ED524095.pdf

Southworth, S. (2010, November 30). Examining the effects of school composition on North Carolina student achievement over time. *Education Policy Analysis Archives, 18*(29), 1-45. Retrieved from http://www.eric.ed.gov.ezproxy.indstate.edu/contentdelivery/servlet/ERICServlet?accno=EJ913483

Statistics Solutions. (2013). Multiple linear regression. Retrieved from http://www.statisticssolutions.com/academic-solutions/member-resources/member-profile/data-analysis-plan-templates/data-analysis-plan-multiple-linear-regression/

Suber, C. (2011). *Characteristics of effective principals in high-poverty South Carolina elementary schools*. Retrieved from ERIC database. (EJ971503)

Tilley, T. B., Smith, S. J., & Claxton, R. L. (2012). Success despite socioeconomics: A case study of a high-achieving, high-poverty school. *Journal of School Public Relations, 33,* 292-317. Retrieved from http://web.b.ebscohost.com.ezproxy.indstate.edu/ehost/pdfviewer/pdfviewer?vid=6&sid=de5e97a9-0406-46cc-ba44-de65169b3c38%40sessionmgr120

University Council for Educational Administration. (2008). *The revolving door of the principalship*. Retrieved from ERIC database. (ED520570)

Voight, A., Austin, G., & Hanson, T. (2013). *A climate for academic success: How school climate distinguishes schools that are beating the achievement odds*. San Francisco, CA: WestEd Publications Center. Retrieved from https://eric.ed.gov/?q=A+climate+for+academic+success&id=ED559745

Williams-Boyd, P. (2010). Breaking bonds, actualizing possibility: Schools as community hubs of social justice. *Forum on Public Policy,* 1-22. Retrieved from http://files.eric.ed.gov/fulltext/EJ912981.pdf