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A Review Of Indiana's 1003(G) School Improvement Grants: Measuring Instructional Strategies, Data Use, And Culture

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A REVIEW OF INDIANA'S 1003(g) SCHOOL IMPROVEMENT GRANTS: MEASURING INSTRUCTIONAL STRATEGIES, DATA USE, AND CULTURE

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ABSTRACT

The purpose of this quantitative study was to find differences based on student achievement outcomes on the implementation of instructional strategies, data use, and culture of schools in Indiana that received 1003(g) School Improvement Grants. This research study sorted 35 schools into three performance bands – high band, average band, and low band – in both English language arts and mathematics. Teachers from those schools were invited to respond to a surveys that looked at implementation of three focal areas: instructional strategies, data use, and culture. ANOVA tests were run on null hypothoses to find statistical signifance. There were no statistically significant findings between the implementation of key school improvement practices and achievement outcomes.

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CHAPTER 1

INTRODUCTION

"As president of the United States, I believe deeply no law I have signed or will ever sign means more to the future of America" (LBJ Presidential Library, 1965). Those words were spoken by President Lyndon B. Johnson on April 11, 1965, when he signed the Elementary and Secondary Education Act of 1964 (ESEA). This law was part of his *War on Poverty* designed to give low-income schools supplemental funds for additional or specialized staff, additional learning time (e.g., after school or summer programs), or materials and resources such as books to close achievement gaps between rich and poor American children (Cohen & Moffitt, 2009). More than 50 years later, the latest authorization of the ESEA, known as the Every Student Succeeds Act, or ESSA (2015), opened with a similar statement that says "the purpose of this title is to provide all children significant opportunity to receive a fair, equitable, and high-quality education, and to close achievement gaps" (ESSA, 2015, p. 8).

Federal statute and funding continue to be driving forces in state and local decisions around education by defining academic content standards, accountability systems, parental involvement, and teacher training. "Categorical aid seems to proceed in cycles of expansion and consolidation, but the big ones like special education and Title I persist," (Kirst & Wirt, 2009, p. 296). Title I, Part A of the Elementary and Secondary Education Act (ESEA) was—and continues to be—the most comprehensive federal education legislation, serving more than

55,000 public schools and 26 million children in preschool through grade 12 (Cohen & Moffitt, 2009; U.S. Department of Education, 2018b). In 2018, federal sources such as Title I, Title II, etc., accounted for about eight percent of all educational funding (U.S. Census Bureau, n.d.). Title I, Part A targets supplemental funding to high-poverty schools to ensure high-quality programming for disadvantaged students (Cohen & Moffitt, 2009; U.S. Department of Education, 2018b). ESEA funding must be directed to schools that are categorized as low-income based on their student population (Office of Education, 1969). Within the first few years of ESEA (1965) implementation, eligibility and funding for services defined programs and services for "educationally deprived children" (Office of Education, 1969, p. 1), which included students who were identified as low-income, handicapped, neglected or delinquent, and migratory (Office of Education, 1969). Accountability for such programming ushered in softly through the 1994 reauthorization of the law, the Improving America's Schools Act (IASA, 1994; Riley, 1995). Similarly, under the IASA, funding for school improvement programs and services was reserved from a state's Title I allocation until later, in 1997, incentive funding became available through a program called the Comprehensive School Reform Demonstration grant (CSRD) for Title I schools to "implement research-based reform models" (Church, 2000, p. 2). The 2001 passage of No Child Left Behind (NCLB) ramped up school improvement efforts to increase accountability and action with rigorous, prescriptive actions for the state to take with low-performing districts and schools. Funding was available through a larger reservation of a state's Title I allocation and additional incentive funding through School Improvement Grants (U.S. Department of Education,

2010b). The newly minted ESSA builds upon those models and requires a state to make grant awards for low-performing schools based on a reservation that is

> The greater of: 7 percent of the State's total Title I, Part A allocation, or the sum of the amounts it reserved for fiscal year 2016 for school improvement under the ESEA, as amended by No Child Left Behind (NCLB), and the amount it received for fiscal year 2016 for its School Improvement Grant (SIG) allocation under NCLB. (U.S. Department of Education, 2018a, slide 5)

School Improvement Grants, or SIG, were authorized under section 1003(g) of the No Child Left Behind Act (NCLB, 2002). "The School Improvement Grants program is providing courageous school leaders and teacher teams in more than 1,200 schools nationwide with the means to accomplish the very difficult work of turning around some of our hardest to serve schools" (U.S. Department of Education, 2012, para 3). State education agencies, such as the Indiana Department of Education (IDOE), awarded sub-grants through competitive grant rounds to schools in districts. Districts that applied for competitive grants had to demonstrate to their state through a "strong commitment" (U.S. Department of Education, 2010b, p. 663655) to change, through use of funding for resources to implement specific interventions targeted to their schools' needs. Schools that were eligible for such funding showed strong correlations between poverty and school improvement needs, as noted in a study that reviewed the progress of SIG schools from the 2009–2010 school year where more than 70% of students were eligible (Dragoset et al., 2017). The Indiana SIG schools included in this study demonstrated (Table 1) the same trend, as 80% of the SIG schools awarded reported more than 70% of their students in poverty in the year they were awarded (Indiana Department of Education, 2021). Indiana schools were awarded SIG annually beginning in 2010. Each annual group of schools that received

funding was referred to by the IDOE as a cohort. Cohorts One, Two, Three, and Four were awarded three-year grants and concluded their programs prior to the start of this study. Cohorts Five, Six, Seven, and Eight (awarded in 2014, 2015, 2016, and 2017 respectively) were implementing SIG at the beginning of the 2019–2020 school year during which this study was conducted.

Table 1

Indiana School SIG Poverty Percentages

School	Percent Poverty in Year Awarded SIG
Cedar Hall School	97.27%
Lincoln Community School	95.94%
Pettit Park Elementary	95.67%
Hosford Park New Tech Elementary	91.59%
Lena Dunn Elementary	90.71%
Bon Air Middle School	89.47%
Bon Air Elementary	89.40%
Chamberlain Elementary	89.33%
Fairview Elementary	88.05%
Madison Primary School	87.93%
Southside Middle School	86.98%
Mary Beck Elementary	85.85%
Lake Ridge Middle School	84.95%
Sunny Heights Elementary	84.94%
Sarah Scott Middle School	84.42%
Medora Elementary School	84.31%
Phalen Leadership Academy @ 103	83.87%
Green Valley Elementary	82.98%
Highland Middle School	82.66%
George Fisher #93 Elementary	82.53%
S Ellen Jones Elementary	80.80%
Washington Middle School	76.81%
Pierre Moran Middle School	76.74%
Stonybrook Middle School	75.82%
McCulloch JR High School	74.58%
Maple Crest Middle School	74.42%
Edgewood Elementary	72.70%
Bridgepoint Elementary	72.61%
Elwood Intermediate School	69.40%
Roosevelt STEAM	66.83%
River Valley Middle School	60.88%
Parkview Middle School	56.94%
Highland Park Elementary	56.40%
Lakeview Middle School	54.61%
Eminence Elementary	47.44%

Federal Accountability and School Improvement Funding

The intent and purpose of the largest federal education program was to "strengthen and improve educational quality and education opportunities in the Nation's elementary and secondary schools" (ESEA, 1965, p. 1). The impact of Title I funds show a wide variance in the effectiveness of such supplemental funding due to a wide range of implementation and spending habits by local educational agencies (i.e., school districts), thus creating ambiguity around the effectiveness of such programs (Borman & D'Agostino, 1996). An economic review by Gordon in 2004 analyzed Title I spending and found that "while school districts comply with the letter of the law, Title I ultimately fails to fully meet the spirit of its mandate to supplement instructional spending" (p. 1790) and suggested that education research should "establish that money is spent in ways that should matter" (p. 1791). The impact of school improvement funding has been studied, too, and results of systemic changes and student outcomes in English language arts and mathematics are also inconsistent (Calkins et al., 2007; Dragoset et al., 2017; Sun et al., 2017).

The ESEA (1965) has long held provisions for school improvement, reaching back to original intent and language that required student achievement and program reviews and plans to address deficiencies. Before the 1003(g) School Improvement Grants (SIG) existed, there were similar grants authorized by the ESEA, for example, the Comprehensive School Reform Demonstration, or CSRD, grant (and a renewed version simply called the Comprehensive School Reform, or CSR, grant). The CSRD and CSR grants were embedded into the Improving America's School Act (1994). The grants identified eleven components that included "proven methods and strategies based on

scientifically based research, ongoing, high-quality professional development for teachers and staff, provides for meaningful parent and community involvement, and identifies resource to support and sustain the school's comprehensive reform effort" (U.S. Department of Education, 2002, para. 7). The intent of the CSRD/CSR program was to improve academic achievement through intensive and focused school improvement activities (U.S. Department of Education, 2002). Results from those grants were mixed (Borman et al., 2003), with just over half the schools showing improvement over similar, non-CSR schools when using an approved and highly effective model or program. It was in the next authorization, NCLB, that the term "scientifically based research" was included in statute (as opposed to school improvement guidance) and directed federal funds to be spent on activities that showed high success with particular at-risk populations (U.S. Department of Education, 2002). The Improving America's School Act introduced the idea of state standards (Riley, 1995) while No Child Left Behind ramped up local district and state accountability for schools that did not demonstrate progress in meeting those standards (Cohen & Moffitt, 2009).

Accountability is a highly sensitive subject, not only from the perspective of federal education grants, but for progress of all schools. American schools are under constant scrutiny from the outside, and include several forms of assessments used to measure how good a school is preparing its students to progress from one grade level to the next, and ultimately into college or a career. The problem, according to Dianne Ravitch (2010), is that "accountability as we know it now is not helping our schools. Its measures are too narrow and imprecise, and its consequences too severe" (p. 163). Ravitch referred to two major assessments: the National Assessment of Educational Progress (NAEP) and the Program for International Student Assessment (PISA). U.S. Commissioner of Education Francis Keppel believed the nation needed a standardized

measurement of U.S. schools to look at student progress (National Center for Education Statistics, n.d.-a) and so introduced NAEP around the mid-1960s. Information available through The Nation's Report Card website (n.d.) indicated that Indiana has mostly shown significantly higher achievement compared with average U.S. scores in the last three assessment years Table 2 shows Indiana's 2017, 2015, and 2013 mathematics and reading NAEP scores compared with national scores for grades four and eight.

Table 2

Indiana NAEP Scores Compared to National Scores

Grade	Mathematics			Reading		
	2017	2015	2013	2017	2015	2013
4th Grade	Significantly Higher	Significantly Higher	Significantly Higher	Significantly Higher	Significantly Higher	Significantly Higher
8th Grade	Significantly Higher	Significantly Higher	Significantly Higher	Significantly Higher	Significantly Higher	No diff

The PISA, started in 2000, assesses high school students' proficiency in the content areas of reading, mathematics, and science (National Center for Education Statistics, n.d.-b). The assessment is conducted every three years and has been cited by many as evidence that the United States is behind other countries in the rigor and efficacy of its educational system (Sahlberg, 2015; Wagner, 2008). In the 2015 assessment, scores for reading and science in the United States were above average, but slightly below average in mathematics (Jackson & Kiersz, 2016). In 2017, Rutkowski conducted a study of PISA that identified achievement gaps between students based on their socio-economic status (Rutkowski et al., 2018). This matched findings from a report published by the Organisation for Economic Cooperation and Development, or OECD, where the percentage of disadvantaged students (i.e., students in the bottom quarter of

the national distribution of the PISA index based on economic, social, and cultural status) who attended a socio-economically disadvantaged school in the United States was 50% (OECD, 2018). This was compared to 43% of disadvantaged students who attended socio-economically average schools and six percent who attended socio-economically advantaged schools. Gaps in achievement of students based on socio-economic status still exist, despite more than fifty years of federal aid targeted to closing the gap on poverty (Black, 2017).

Purpose of the Study

This study reviewed the progress of Indiana schools that were awarded SIG grants between 2014 and 2017 (also referred to as Cohorts Five, Six, Seven, and Eight). This subset of all Indiana SIG schools were awarded four or five years of funding, per the 2015a federal regulation changes from the U.S Department of Education, and had implemented their grants for at least two school years.

Schools in Cohorts Five to Eight were ranked by student achievement from highest to lowest in both English language arts and mathematics by calculating residual values for all 35 schools. Residual values were calculated by comparing school and state pre-SIG proficiency/passing percentages on ISTEP+ for both English language arts and mathematics to spring 2018 ISTEP+ proficiency/passing percentages for school and state in English language arts and mathematics. The higher the residual value, the greater the improvement in student achievement since the start of SIG, and therefore the higher the ranking of the school. Once schools were ranked for both English language arts and mathematics, each list was divided into thirds. The top third of schools was referred to as the high band (schools that showed the highest residual value between pre-ISTEP+ and spring 2018 ISTEP+), the middle band of schools was

referred to as the average band, and the bottom third of schools was referred to as the low band (Table 3 and Table 4).

Table 3

High, Average, and Low Performance Bands - English Language Arts

School Name	Performance Band (English Language Arts)
Hosford Park New Tech Elementary	*High Band*
Edgewood Elementary School	*High Band*
Maple Crest Middle School	*High Band*
Elwood Intermediate School	*High Band*
Bridgepoint Elementary School	*High Band*
Fairview Elementary School	*High Band*
Cedar Hall Community School	*High Band*
Parkview Middle School	*High Band*
S Ellen Jones School	*High Band*
Green Valley School	*High Band*
Washington Middle School	*High Band*
George H Fisher School 93	*High Band*
Highland Park Elementary School	*Average Band*
Bon Air Middle School	*Average Band*
Lena Dunn Elementary School	*Average Band*
Lincoln School	*Average Band*
Southside Middle School	*Average Band*
Lakeview Middle School	*Average Band*
River Valley Middle School	*Average Band*
Lake Ridge New Tech Middle School	*Average Band*
Roosevelt STEAM School	*Average Band*
Medora Elementary School	*Average Band*
Chamberlain Elementary School	*Average Band*
Sarah Scott Middle School	*Low Band*
Eminence Community School	*Low Band*
Sunny Heights Elementary School	*Low Band*
John L McCulloch Junior High School	*Low Band*
Phalen at Francis Scott Key 103	*Low Band*
Mary Beck Elementary School	*Low Band*
Pierre Moran Middle School	*Low Band*
Highland Middle School	*Low Band*
Stonybrook Middle School	*Low Band*
Madison Primary Center	*Low Band*
Pettit Park School	*Low Band*
Bon Air Elementary School	*Low Band*

Table 4

High, Average, and Low Performance Bands- Mathematics

School Name	Performance Band (Mathematics)
Hosford Park New Tech Elementary	*High Band*
Green Valley School	*High Band*
Edgewood Elementary School	*High Band*
George H Fisher School 93	*High Band*
Maple Crest Middle School	*High Band*
Fairview Elementary School	*High Band*
Elwood Intermediate School	*High Band*
S Ellen Jones School	*High Band*
Washington Middle School	*High Band*
Cedar Hall Community School	*High Band*
Lena Dunn Elementary School	*High Band*
River Valley Middle School	*High Band*
Phalen at Francis Scott Key 103	*Average Band*
Parkview Middle School	*Average Band*
Bridgepoint Elementary School	*Average Band*
Lincoln School	*Average Band*
Southside Middle School	*Average Band*
Highland Park Elementary School	*Average Band*
Mary Beck Elementary School	*Average Band*
John L McCulloch Junior High School	*Average Band*
Roosevelt STEAM School	*Average Band*
Lakeview Middle School	*Average Band*
Pettit Park School	*Low Band*
Sarah Scott Middle School	*Low Band*
Eminence Community School	*Low Band*
Bon Air Middle School	*Low Band*
Chamberlain Elementary School	*Low Band*
Lake Ridge New Tech Middle School	*Low Band*
Pierre Moran Middle School	*Low Band*
Sunny Heights Elementary School	*Low Band*
Highland Middle School	*Low Band*
Stonybrook Middle School	*Low Band*
Madison Primary Center	*Low Band*
Bon Air Elementary School	*Low Band*
Medora Elementary School	*Low Band*

Calculations for performance bands showed changes in performance of each school compared to Indiana state averages. Appendices A and B reflect the spring 2018 ISTEP+ data for each school and the state and spring pre-SIG scores for each school and the state with rank according to the residual calculation for English language arts and mathematics, respectively. While the data reviewed looked at all students (versus student groups such as ethnicity or special education), "the Indiana Department of Education (IDOE) is dedicated to decreasing the student achievement gap across all student groups" (Indiana Department of Education, 2019, p. 13). Specifically, Indiana will calculate an achievement gap reduction for student groups based on the actual performance in English language arts and mathematics for all students. This calculation will allow for a more fair and attainable goal for schools to meet.

Teacher survey data were used to measure implementation of three constructs, or focal areas: research-based instructional strategies, developing data systems that can help teachers identify students' strengths and weaknesses in learning content and skills, and improving the professional culture within a school (i.e., instructional strategies, data use, and culture). Teachers in each performance band completed a survey for rating implementation of strategies related to each focal area since receiving the SIG award. Composite scores for each of these independent variables was calculated using one-way ANOVAS in SPSS, version 23. Scores were compared across the three bands of schools.

The results from this study may influence ways in which states and districts approach school improvement funding by looking at specific practices and the outcome on student achievement. Indiana schools that participate in this study will have statistical data that identify differences among certain practices of improvement (i.e.,

implementation of instructional strategies, data use, and culture). This information could inform future uses of federal funds for school improvement activities and provide guidance to both state and local entities on opportunities for technical assistance or support.

Significance of the Study

School districts across the nation have been examining the effective use and outcomes of federal funding and effective ways to leverage such aid, such as Title I, for years (Edmonds, 1982). More significantly, reviews of funding by schools and districts look at racial and socio-economic disparities through a lens of school improvement for all students (Cohen & Moffitt, 2009). Regardless of how schools initiate the process, school improvement is complex (Levin, 2008). To be successful, there are conditions at the local level that must be in place to identify, place, and support strong teachers and leaders and monitor the progress of change (Redding et al., 2015). There is a lack of sustainable improvement documented in studies around the effectiveness of SIG (Le Floch et al., 2016; McMurrer et al., 2011; Wilson & Strassfeld, 2015). Despite ample funding, stringent policies at the federal, state, and local levels, and good intentions, there is a lack of sustained improvement in many of our highest poverty, most at-risk schools (Yatsko et al., 2015).

Indiana received a significant investment for competitive, multi-year school improvement grants. Between 2009 and 2014, the United States Department of Education awarded more than $5 billion to states through the 1003(g) School Improvement Grant program, as authorized under the Elementary and Secondary Education Act (U.S. Department of Education, 2015b). As of spring 2018, Indiana received more than $123,000,000 in federal SIG funds since 2009 (N. Williamson, personal communication, November 15, 2019) including $51 million from stimulus funding (i.e., American Recovery and Reinvestment Act of 2009) (U.S. Department of

Education, 2016). Fifty-five schools in total benefitted from grant awards since the beginning, including the 35 targeted in this study. Annual allocations for schools in Cohorts Five to Eight ranged from $16,500 to $596,599.15 (Indiana Department of Education, 2018a).

Research Questions

The following research questions will guide this study:

1. What are the current implementation levels for instructional strategies, data use, and culture among schools that received a SIG grant?
2. Is there a statistically significant difference based on English language arts student achievement outcomes on the instructional strategies composite score?
3. Is there a statistically significant difference based on English language arts student achievement outcomes on the data use composite score?
4. Is there a statistically significant difference based on English language arts student achievement outcomes on the culture composite score?
5. Is there a statistically significant difference based on mathematics student achievement outcomes on the instructional strategies composite score?
6. Is there a statistically significant difference based on mathematics student achievement outcomes on the data use composite score?
7. Is there a statistically significant difference based on mathematics student achievement outcomes on the culture composite score?

Definition of Terms

This paper utilizes the following terms throughout the study:

Average Band—For the purpose of this study, any SIG school in Cohorts Five, Six, Seven, or Eight that is in the middle third performance band of schools based on the residual difference between combined English language arts and mathematics ISTEP+ performance in the year prior to SIG and the current spring 2018 scores.

Cohorts—Indiana schools awarded School Improvement Grants (SIG) together in same annual round of competition, corresponding to a unique school year. Four cohorts, identified by cohort number (i.e., Five, Six, Seven, and Eight), are included in this study.

Culture—"Culture can be thought of as the foundation of the social order that we live in and of the rules we abide by" (Schein, 1992, p. 3). In this study, professional culture among teachers will be examined.

Data use—This "is the analysis and use of student data and information concerning educational resources and processes to inform planning, resource allocation, student placement, and curriculum and instruction" (Gallagher et al., 2008, p. 1).

Focus School—"A 'focus school' is defined as a Title I school in the State that, based on the most recent data available, is contributing to the achievement gap in the State" (U.S. Department of Education, 2015a, p. 7242).

High Band—For the purpose of this study, any SIG school in Cohorts Five, Six, Seven, or Eight that is in the top third performance band of schools based on the residual difference between combined English language arts and mathematics ISTEP+ performance in the year prior to SIG and the current spring 2018 scores.

Instructional strategies—"Elements" (Marzano, 2017, p. 7) of instruction that are specifically related to increasing student engagement and responding to students' learning needs through various groupings.

Low Band—For the purpose of this study, any SIG school in Cohorts Five, Six, Seven, or Eight that is in the bottom third performance band of schools based on the residual difference between combined English language arts and mathematics ISTEP+ performance in the year prior to SIG and the current spring 2018 scores.

Priority School—"A 'priority school' is defined as a school that, based on the most recent data available, has been identified among the lowest-performing schools in the state" (U.S. Department of Education, 2015a, p. 7241).

School Improvement Grants (SIG)—A competitive sub-grant authorized by section 1003(g) of the Elementary and Secondary Act of 1965 as reauthorized by No Child Left Behind, for local school districts that "serve the lowest-achieving schools, demonstrate the greatest need for such funds, and demonstrate the strongest commitment to ensuring that such funds are used to enable the lowest-achieving schools to meet the progress goals in school improvement plans under section 1116(b)(3)(A)(v)" (No Child Left Behind Act, Title I, Part A, Section 1003(g)(6)(A)(B), 2002).

Tier I School—"A Tier I school is a Title I school in improvement, corrective action, or restructuring that is identified by the SEA under paragraph (a) (1) of the definition of 'persistently lowest-achieving schools'" (U.S. Department of Education, 2010b, p. 66365).

Tier II School—"A Tier II school is a secondary school that is eligible for, but does not receive, Title I, Part A funds and is identified by the SEA under paragraph (a)

(2) of the definition of 'persistently lowest achieving schools'" (U.S. Department of Education, 2010b, p. 66365).

Tier III School—"A Tier III school is a Title I school in improvement, corrective action, or restructuring that is not a Tier I or Tier II school" (U.S. Department of Education, 2010b, p. 66366).

Summary and Organization of the Study

The intent of this study was to examine differences based on student achievement outcomes on the implementation of instructional strategies, data use, and culture in SIG schools in Indiana. Schools from Cohorts Five, Six, Seven, and Eight were identified in one of three performance bands: high band, average band, or low band based on their pre- and current ISTEP+ residual values for English language arts and mathematics. Teachers from schools in those cohorts were surveyed to identify levels of implementation of school improvement strategies: instructional strategies, data use, and culture. Composite scores in those areas were compared among the three bands in each content area to identify differences.

There are five chapters in this study. This first chapter introduced the study, problem statement, purpose, questions to guide the research, and key terms. The second chapter reviews relevant literature on school improvement and turnaround. The third chapter provides information on how the study was conducted, including information on participants and sample of population, survey instruments, and means of analysis. The final two chapters present findings from the analysis of research data (Chapter 4) as well as summarize such findings, present conclusions from findings, and make recommendations for further research (Chapter 5).

CHAPTER 2

REVIEW OF RELEVANT LITERATURE

President Johnson remarked "Education is an opportunity" when he signed the Elementary and Secondary Education Act (ESEA) into law fifty-four years ago (LBJ Presidential Library, 1965. Since then, subsequent ESEA reauthorizations continued to focus on opportunities presented through Title I assistance, while significantly ramping up the "stiff federal requirements" (Cohen & Moffitt, 2009, p. 8). School improvement has taken on a greater emphasis since the 1990s as the federal government strives to uphold the intent of making high-quality, equitable education services available for all students. For example, when President George W. Bush signed the No Child Left Behind Act (NCLB), he stated, "And today begins a new era, a new time in public education in our country. As of this hour, America's schools will be on a new path of reform, and a new path of results," (The White House, President George W. Bush, 2002). President Barack Obama signed the latest version of ESEA, the Every Student Succeeds Act (ESSA), into law with the following statement,

> First, this law focuses on a national goal of ensuring that all of our students graduate prepared for college and future careers. It builds on the reforms that have helped us make so much progress already, holding everybody to high standards for teaching and learning, empowering states and school districts to develop their own strategies for improvement, dedicating resources to our most vulnerable children. And this law requires states to invest in helping students and schools improve, and focusing on the

lowest-performing schools and closing those big achievement gaps. (The White House, 2015, para. 14)

A History of Policy and Funding for School Improvement

The 1003(g) School Improvement Grant program, or SIG, was authorized under No Child Left Behind (NCLB) and experienced "three major shifts" (Le Floch et al., 2016, p. iii), to both the implementation of programming and the funding framework, that included:

- Increasing funds through the American Recovery and Reinvestment Act of 2009 (ARRA) which made more funding available through Title I, Part A and School Improvement Grants which were awarded competitively rather than via formula.
- Defining eligible schools as being in the bottom five percent of schools in the state (i.e., either a Tier I, Tier II, or Tier III school).
- Selecting an identified improvement model (i.e., Transformation, Turnaround, Restart, and Closure) to implement over a three-year period (Le Floch et al., 2016; U.S. Department of Education, 2010a).

These shifts encouraged states and schools to "catalyze more aggressive efforts to turn around student performance" (Le Floch et al., 2016, p. iii), which was spawned by an additional influx of funding funneled through Title I. Such state efforts included emphasis on improved technical assistance, making available more resources on best practices, and increased emphasis on the collection, review and use of data (McMurrer et al., 2011). Eligible schools received funds based on the quality of a competitive process where schools focused on certain requirements under one of the aforementioned models of school improvement (Hurlburt et al., 2011; Le Floch et al., 2016).

Three performance categories defined eligible schools: Tier I, Tier II, or Tier III (Hurlburt et al., 2011; U.S. Department of Education, 2010b). The tiered system was meant to rank a state's persistently lowest-achieving schools based on academic achievement, progress (i.e., growth), and high school graduation under 60%, for high schools (U.S. Department of Education, 2010b). The federal government revamped requirements again for SIG in 2015, based on the allowance of state waivers for accountability, and renamed the categories of improvement to Priority and Focus schools (U.S. Department of Education, 2015a).

Under NCLB, the U.S. Department of Education provided improvement models from which schools could select and implement over a three-year period: Transformation, Turnaround, Restart, and School Closure (U.S. Department of Education, 2015a). There were specific requirements for schools to follow under each model and funding had to align with those purposes. Funding was renewable for two additional years if the school could demonstrate progress towards increasing student achievement (U.S. Department of Education, 2010a). Of the four models, the Transformation intervention was the most popular (Dragoset et al., 2017). The key elements of this model required schools to implement the following actions:

- Develop and increase teacher and leader effectiveness
- Implement comprehensive instructional reform strategies, such as developing data systems to inform instructional programming and differentiate for the needs of each student through formative, interim, and summative assessments
- Increase learning time and create community-oriented schools

- Provide operational flexibility and sustained support (U.S. Department of Education, 2010b, pp. 66366-66367).

In 2011, the Secretary of Education, Arne Duncan, exercised authority under section 9401 of the ESEA to waive certain statutory or regulatory requirements (NCLB, 2002). States had the opportunity to apply for flexibility from NCLB requirements that were obsolete if they developed plans that "were designed to improve educational outcomes for all students, close achievement gaps, increase equity, and improve the quality of instruction" (U.S. Department of Education, 2011, p. 2). One of the changes brought by state flexibility waivers were differentiated accountability systems that set new achievement benchmarks that replaced Adequate Yearly Progress, or AYP. Schools in improvement were called *Priority* and *Focus* schools. The new monikers replaced the earlier Tier I, Tier II, and Tier III designations and slightly changed the criteria for schools to be identified into one of those categories (U.S. Department of Education, 2010b).

In 2015, the U.S. Department of Education made several more changes to the SIG program based on the Consolidated Appropriations Act of 2014 (U.S. Department of Education, 2015a). Changes included provisions for LEAs to supplement federal statute with their own interventions, rural school flexibility (such as waiving the requirement to replace staff under the Turnaround Model), and an extension of the grant period from three years to five. The extended time allowed schools to apply for an additional two years of funding for planning and/or sustainability of school improvement activities (U.S. Department of Education, 2015a). The U.S. Department of Education provides a substantial amount of rigorous research on school improvement through the Institute of Education Sciences, or IES, which includes a network that

consists of different technical centers (Institute of Education Sciences, 2018). According to the website,

> IES is the statistics, research, and evaluation arm of the U.S. Department of Education. Our mission is to provide scientific evidence on which to ground education practice and policy and to share this information in formats that are useful and accessible to educators, parents, policymakers, researchers, and the public. (Institute of Education Sciences, 2018, para 1)

Promising strategies for school improvement were identified, specifically for turnaround and transformation models of SIG. For example, the U.S. Department of Education's Non-Regulatory Guidance on SIG (2010a) proposed the following comprehensive instructional reform strategies: replacing the principal and staff, evaluating staff using student achievement data, providing professional training to teachers, extending learning time into after school or summer, engaging parents and community, and offering more autonomy to school leadership. Recommendations aligned with the U.S. Department of Education's "permissible activities" (U.S. Department of Education, 2010b, pp. 66366) for the Transformation model which included compensatory pay models, tiered instructional and behavioral supports, and changing either the governance or student funding formulas (U.S. Department of Education, 2010b).

Indiana's School Improvement Grant Program

The Indiana Department of Education (IDOE) awarded SIG funding to schools annually, in groups called cohorts. The first cohort of schools was awarded in 2010 and the last group, Cohort Eight, was awarded in 2017. There were 55 schools in all cohorts (Indiana Department of Education, 2018a). The vision for Indiana's SIG schools included, "accelerating school turnaround, promoting urgency, developing internal

accountability, focus on results, and building leadership capacity," (Indiana Department of Education, 2017, slide 9). To support their vision, the IDOE required *Indiana Conditions,* which are additional, state-based requirements for SIG schools. In addition to the federal requirements dictated by the SIG model selected, Indiana schools had to include the following key activities:

- A required year of pre-implementation or planning, during which time the principal's ability to lead will be reviewed prior to full implementation in year 2 and every year of the SIG grant
- Providing the principal with a mentor
- District support for the principal to have control over the people, time, program, and dollars [of SIG]
- An opportunity for the principal to present updates and progress to the local school board at least twice a year in a pre and post manner
- A defined district role in the SIG planning process
- A designated central office staff member to be part of the SIG process
- Written support and commitment from the local teachers' association regarding flexibility for SIG implementation
- Monthly monitoring of SIG programming and implementation
- An evaluation system for programming and implementation of SIG
- A data review plan
- A special populations review plan
- A fiscal monitoring plan
- Timeline and responsible parties for all above plans

(Indiana Department of Education, 2018b, p. 1).

Additionally, the grant application required schools to provide a Sustainability Year budget to show how activities, initiatives, and key positions would be maintained after the period of the grant expired.

The Impact of Poverty on Student Achievement

In the 1960s, President Johnson's Great Society legislation focused on improving educational opportunities for all students (Caldas & Bankston, 2005) and included the largest federal funding stream for impoverished schools through Title I (Black, 2017; Cohen & Moffitt, 2009). Johnson himself was a teacher of migrant students and experienced firsthand the disadvantages of being a poor, minority student (LBJ Presidential Library, 1965). John Dewey (2012) wrote about the interlocking relationship between education and a democratic government in his book, *Democracy and Education*. He expressed many ideas about the purpose of education as a societal obligation to share knowledge and cultivate communities to improve the human experience and posed an important question for reflection, "Who, then, shall conduct education so that humanity may improve?" (Dewey, 2012, p. 103).

In Susan Lockwood's (2018) book, *Kicked to the Curb*, she stated that 36 million adults in the United States read lower than a third grade level and almost half of such adults, 43%, live in poverty. In 2013, over half of the student population enrolled in public schools were identified as low-income (Hair et al., 2015). High-poverty schools that are struggling or failing face challenges beyond simply the quality of teachers and that federal programs such as SIG push districts and schools to create policies, practices, and investments in teacher effectiveness that do not combat underlying issues of poverty

(Ravitch, 2014). “True discrimination that comes out of poverty” wrote Ruby Payne (1996), “is the lack of cognitive strategies” (p. 107).

Equity gaps persist in the classroom and present in a variety of ways. Students in minority groups are not typically selected for accelerated or enriched classes and experience less personalized instruction that take into account different backgrounds and experiences (Ashurst & Venn, 2014; Gordon & Cui, 2018). Students from low socio-economic situations demonstrate gaps in literacy and language development (Locke et al., 2000). Brain development is hindered by conditions presented by poverty and result in developmental delays that affect student achievement and children experience less parental nurturing and “elevated levels of life stress, increased family instability, and greater exposure to violence” (Hair et al., 2015). With the acknowledgement that poverty creates barriers for learners, education reform may not yet have fully considered the importance of addressing students’ gaps in knowledge impedes their abilities to connect skills and content (Wexler, 2019).

National Efforts to Improve Reading and Mathematics

Key literacy skills were presented by the National Reading Panel in 2000, proven through research to be foundational skills that early learners (i.e., kindergarten through third grade) needed to be successful readers (Ambruster et al., 2006). Findings were summarized in *Put Reading First: The Research Building Blocks for Teaching Children to Read* (Ambruster et al., 2006) and identified five evidence-based literacy instructional areas, i.e., “phonemic awareness, phonics, fluency, vocabulary, and text comprehension” (p. ii). Federal grants were made available to local school districts through the Reading First Program authorized under NCLB (Moss et al., 2006). The National Reading Panel report (2000) showed that teacher training can have a positive effect on student achievement, while another report showed the schools with

Reading First grants demonstrated longer and more effective literacy instruction in some early grades (Gamse et al., 2008). That stated, reading comprehension changed very little for students who participated in Reading First programs versus non-participants (Gamse et al., 2008; Herlihy et al., 2009). Changing instructional practices is challenging, in part due to the inability for staff to buy in to new ideas and strategies that are unproven by research (Levin, 2008) and the lack of autonomy in the classroom (Comer, 1980). For example, a qualitative study of urban elementary teachers in a high-poverty school found that teachers were required to implement a scripted reading program for struggling readers (Powell et al., 2017). For the lowest readers, teachers noted improvement. Other students did not benefit so greatly; teachers believed the program was "damaging" (Powell et al., 2017, p. 102) as it did not provide students with opportunities for higher-level thinking skills. In a study in 2009 by Hayes et al., researchers tracked classroom lessons in high poverty schools through something called "day diaries" (p. 254). The day diary kept a thorough record of instructional strategies and practices throughout several lessons. There were several layers of checks by researchers to ensure accuracy. Reviewing the diaries uncovered similar patterns among classrooms. Instruction was teacher-driven in the classes observed. There was little time for student interaction, collaboration, or engagement. The follow up discussion with teachers revealed that scripted lessons ensured minimal behavioral interruptions from students who were off-task or not carefully following classroom protocol.

Literacy is not the only place where instructional change has been slow. In 1991, then Secretary of Education, Lamar Alexander, hosted a conference on improving mathematics and science education with the intent for state leaders to recommit to mathematics and science education through stronger standards and better resources (Office of Educational Research and Improvement, 1991). At that point, modern educational reform was just developing and that

conference addressed ideas and strategies for state policymakers to improve these key subject areas. Motivation for this gathering was based on student achievement on the 1990 National Assessment of Education Progress, or NAEP, where most eighth graders demonstrated the ability to do mathematics only up to a third grade level and a significant percentage of high school sophomores struggled with fifth grade mathematics. At that time, key actions from "pioneering states" (Office of Educational Research and Improvement, 1991, p. 14) included developing common standards, application of real-life problems, developing assessments that are aligned with curriculum, and ensuring fidelity of implementation through commitment to improvement. More recently, The National Council of Supervisors of Mathematics (2014) published *It's TIME: Themes and imperatives for mathematics education*. The implementation and alignment of a K–12 curriculum, formative assessments, high quality instruction, materials, use of data, growth mindset, and "intensified learning experiences" (The National Council of Supervisors of Mathematics, 2014, p. 2) were identified as key actions for improving mathematics instruction. Despite 23 years between reports, similar themes emerged to improve mathematics education across the nation.

In both instances of mathematics reform, the emphasis was on developing a different pedagogical approach to mathematics that focused on problem-solving and critical thinking. However, actually changing classroom practices to align to such philosophy can be difficult to achieve and is uncommon (Boyd & Ash, 2018). A qualitative study that researched teachers' attitudes and beliefs in relationship to Singapore Math's mastery approach noted that teachers' attitudes and beliefs changed when provided a framework (i.e., curricular resources and time for training and implementation) through which to shift their thinking. Research on development and learning has become a stronger force in education. Understanding the importance of

perseverance and mindset dramatically change how instruction of mathematics is both understood by teachers and delivered to students (Boaler, 2016).

> If knowledge and understanding are subject to rapid change and modification, then developing the ability and disposition to monitor and direct one's own learning becomes at least as important, if not more so, than the acquisition of facts, principles, and theories. (Condie & Livingston, 2007, p. 339)

Teachers have both the opportunity and obligation to create classrooms where students have autonomy, resulting in higher engagement at more significant cognitive levels of thinking (Hofferber et al., 2014). According to John Dewey (2012), "skill obtained apart from thinking is not connected with any sense of the purposes for which it is to be used" (p. 164). Considering such obstacles against changing instructional practices, it is particularly imperative to address our at-risk learners in ways that are engaging, collaborative, and reflective (Budge & Parrett, 2018; Hattie, 2009; Lockwood, 2018; Ritchhart, 2015).

Changing Instructional Strategies through School Improvement Efforts

Schools that have successfully improved or closed achievement gaps for students included strategies that diverged from teacher-centered classrooms to more student/learner approaches (Lezotte & Snyder, 2011). Success and sustainability can be difficult to achieve, requiring the school and/or district teams to make a commitment. The idea of simplicity, or the "Hedgehog Concept" (Collins, 2001) is driven by an organization's understanding of what it can be most successful at doing, then creating a strategic plan that emphasizes actions and goals around capacity, passion, and outcomes. So, how might a learning organization identify its strengths and commit to excellence?

Levin (2008) identified “nine essential practices for improved outcomes” (p. 92), based on reviews of several lists with similar elements. Such practices included “high expectations for all students, greater student engagement and motivation, a rich and engaging formal and informal curriculum, and effective use of data and feedback by students and staff to improve learning” (p. 92). Levin (2008) contended, “All items on the list must be addressed to some degree” (p. 94). These practices have been consistently identified in school reform literature (Dean et al., 2012; Hattie, 2012; Lezotte & Snyder, 2011; Marzano et al., 2014) and are strong practices for working with students in poverty (Budge & Parrett, 2018; Payne, 2008).

Setting High Expectations and Establishing a Core Curriculum

Major content discrepancies have been identified between schools that are high-performing and lower-performing schools (Hirn et al., 2018). Higher performing schools are more likely to offer rich, meaningful content to students that is embedded within a robust curriculum (Liou et al., 2017). A curriculum describes what to teach, at what level of rigor, and what student outcome goals should be, though curriculum alone is not a proven improvement strategy and a particular model or set of standards can be difficult to determine (Hattie, 2012). An effective start to developing curriculum is focusing on a smaller set of standards that will define the instructional framework for the school and district (Lezotte & Snyder, 2011) and developing proficiency scales that deconstruct standards into the specific skills and content students need to learn (Marzano, 2017).

Defining what to teach makes it possible for teachers to establish students’ learning outcomes, and provides opportunities for teachers to utilize data effectively and instructionally in order to assess students’ progress in their learning and respond with appropriate interventions (Hattie, 2009; Marzano, 2017; Mitchell et al., 2000). Marzano (2017) stated, “It would take

about 15,500 hours to teach all the standards identified for K-12 students" (p. 18). A strong curriculum is also effective in improving achievement in schools where low socio-economic status exists (Squires, 2012). In performance improvement theory, "research is conducted throughout the entire performance improvement process to identify and analyze opportunities, problems, causes, and solutions to make decisions while designing and implementing interventions, and to determine if strategies and processes are successful" (Richey et al., 2011, p. 163). Little research has applied performance improvement theory directly to a K–12 school improvement processes, but the theory has been considered in context of higher educational institutions and developing professional learning communities as a means to improvement (Ho & Peng, 2016).

Another challenge to developing strong, coherent curricula in schools is the need to align skills and content knowledge with state assessments (Popham, 2001). This is particularly salient in high-poverty, academically struggling schools when assessments are the basis for accountability and school improvement status. The effect is what Popham (2001) called "curricular reductionism" (p. 19) and results in only teaching skills, contents, and standards that will be assessed. Boaler et al. (2018) acknowledged the idea of a reduced curriculum. Reducing curriculum to a specific set of skills and content knowledge may cause educators to develop assessments for students that measure only one skill or concept individually (e.g., one-step problem solving or memorization of facts) and require lower levels of cognition (e.g., recall or reproduction question types). The result of reducing curriculum in this way "robs our children of important things they should be learning" (Popham, 2001, p. 20). Boaler et al. (2018) looked at mathematics achievement on the international PISA assessment. Three learning strategies were

uncovered: memorization, conceptualization, and self-monitoring. The United States had the highest group of memorizers and the lowest performers. Memorizers were about half an academic year behind their peers. Higher performing students used a combination of conceptualization and self-monitoring. Visualization of mathematical facts can improve student outcomes, as was the case in a 2008 study by Siegler and Ramani. In an experiment with preschool learners, they were able to demonstrate a specific decrease in a numerical knowledge gap between affluent and low-income preschool students through the use of board games, based on different brain activation pathways that utilized during the process. Of understanding the science of learning, Boaler et al wrote, "Two of the five brain pathways – the dorsal and ventral pathways – are visual" (p. 10).

Kohn (1999) made an interesting point in his book, *The Schools Our Children Deserve: Moving Beyond Traditional Classrooms and "Tougher Standards,"* in reviewing a years' old debate of whole language versus phonics. Phonics—and the skills-based, easily measurable instruction that accompanies this foundational reading approach—is fairly traditional and scripted in its approach. Whole language, on the other hand, offers an alternative, learner-centered approach based on learner interest, complex texts, and more sophisticated cognitive tasks. Despite arguments against the use of whole language as an approach to learning to read, assessments conducted demonstrated that students learned to read, sustained knowledge throughout the next grade, and scored similarly to students in a more traditional approach on foundational skills tasks.

A curriculum sets academic performance expectations, but no child will meet his or her goals if the teacher does not believe in a child's ability to meet such expectations (Hattie, 2009; Peterson et al., 2016). The presence of explicitly stated outcomes for all students showed

increased achievement by all students and student groups in both reading and mathematics. The strength of the alignment between taught, tested, and written curriculum negates negative effects of poverty on student achievement (Squires, 2012).

Differentiation and Formative Feedback

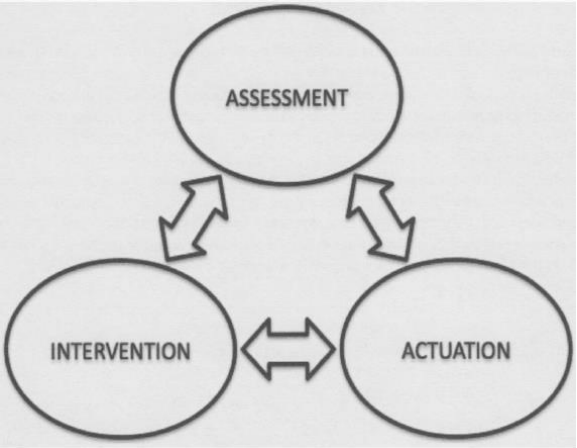
Once decisions are made about what to teach, the focus shifts to how to teach; for example, creating units of studies that provide a broad range and variety of materials and resources through which teachers respond to meet the needs of their students (Beecher & Sweeny, 2008). Differentiated instruction provides opportunities for student engagement through multi-tiered systems of differentiated support to meet students' needs and deploy resources accordingly (Smith et al., 2009). Differentiated, or multi-tiered, support is based on data about student learning and moves away from a traditional, teacher-centered and whole-group approach to employ different student interventions, such as instructional grouping strategies (Beecher & Sweeny, 2008). The way a teacher structures a classroom is important and the extent to which students experience "optimal challenges" matched to their interests and abilities can influence engagement and achievement (Guay et al., 2017, p. 226). Differentiated instruction is successful when there is a clear and strong curriculum in place and student learning expectations are clear (Tomlinson, 2014).

Responding to students' needs and differentiating instructional strategies accordingly has become more commonly referred to as "Response to Instruction" or RtI (Fuchs & Fuchs, 2006; Hughes & Dexter, 2011). The concept arose from special education and was initially intended to help inform and identify specific supports to identified students; it has expanded into a framework that supports all students (Bradley et al., 2005). More recently, the RtI framework has expanded into a Multi-Tiered System of Supports, or MTSS (Hawes et al., 2020; Farkas, 2020).

This framework considered both academic and behavioral needs of students and broadened the spectrum of services to include not only intervention, but also enrichment (Hawes et al., 2020). Federal Title I funding has long provided support for students needing extra time or instructional support, although more inclusive models of push-in support and flexibility with student groups has been favored since the mid 1990s (Janisch & Johnson, 2003). A strong indicator for improvement is the ability of teachers to know where their students are in their learning and respond with the appropriate intervention, enrichment, or continued practice by reviewing data (Deno et al., 2009). Data are used to make informed decisions about students, particularly when teachers work together in teams and develop procedures for working with data (Breiter & Light, 2006; Schildkamp et al., 2016). Data collected through conversations with students, teachers, and administrators can give insight into the culture of the school by understanding how students and teachers feel about their experiences (Parke, 2016). Classroom assignments, or artifacts, are equally important as they can provide insight to teachers on their students' learning progression (Dougherty, 2012).

Setting high expectations for student learning outcomes includes establishing a core curriculum through which the teacher provides constant feedback through a routine of formative assessment data and differentiating support for students based on their needs (Hattie, 2009; Marzano, 2017). A system of formative feedback provides information to teachers on how students are progressing academically and informs interventions and enrichment (Halverson, 2010; Marzano, 2010). Figure 1 shows how Halverson depicted the formative assessment cycle.

Figure 1
Halverson's Formative Assessment Cycle



Marzano (2010) has written extensively about the use of formative assessments to track students' learning progress. In his book, *Formative Assessment and Standards-Based Grading*, he provided research from Brooks, Hattie, Black, and William (Marzano, 2010) on the extent to which formative assessments can positively affect student achievement outcomes. The formative assessments, when aligned with curriculum and focused on academic standards, give teachers specific information about students' progress towards clear learning objectives and help teachers generate feedback to students that is targeted to helping students meet high expectations (Hattie, 2009; Marzano, 2010). The idea that instruction can be more student-centered requires changing roles for both teachers and students to develop ownership of learning through a clearer understanding of the anticipated outcomes, shared behavior expectations, and a willingness to ask questions and experience failure (Dweck, 2006; Zmuda et al., 2015).

The use of formative assessment data can improve student academic performance, if teachers are engaging in the right conversation (Hattie, 2009). "Teachers must be able to openly discuss three key feedback questions that inform what students are supposed to know and be able to do, how students are progressing towards the learning goals, and what happens when mastery

has been met," (Hattie, 2009, p. 37). Working together, examining student data, and making instructional decisions are the basis for a professionally collaborative community (DuFour et al., 2016; Jäppinen et al., 2016).

Developing Data Systems for School Improvement

"How can schools move ahead in meaningful ways to use assessment and accountability to improve education for *all* students?" (Herman & Gribbons, 2001, p. 2). This is a pertinent question and critical element of school improvement efforts, though it is difficult to answer and proves more difficult to implement. The utilization of data as a critical component of school improvement reaches back to the very early days of modern school improvement in the mid 1980s (Murray, 2014). Guidance on School Improvement Grants (SIG) consistently explained the need for a data system to understand, diagnose, and address continuous improvement (Bambrick-Santoyo, 2010; Perlman & Redding, 2011) as it has been identified as an indicator of highly effective schools (Deno et al., 2009; Lezotte & Snyder, 2011; Marzano, 2017; Marzano et al., 2014). Education policies have emerged over the last decade that focus on and highly value the use of data to plan for and address improvement efforts, despite gaps that exist with the faulty analysis of data (Jimerson & Childs, 2017). Jimerson and Childs (2017) suggested "policy bridges" (p. 604) to shore up gaps between the ways federal, state, and local policies are crafted to inform the ways data are used to inform classroom instruction. Doucet et al. (2018) wondered how data can "help us create a fairer education system" (p. 44).

The School Improvement Grant Effectiveness report provided an extensive review on SIG implementation across the nation, with a strong focus on data systems, in particular looking at the extent to which data informed instructional decisions and identified needs for professional development (Dragoset et al., 2017). In an earlier SIG study conducted in 2012, SIG-funded

schools reported a slight increase in the usage data (Dragoset et al., 2015). No Child Left Behind (2002) required federal accountability for subgroups of students including ethnic, special education, socio-economic, and English Learner status. This requirement included showing disaggregated data publicly, and the idea of looking at disaggregated data stretches back to the previous reauthorization, the Improving America's School Act (Tirozzi & Uro, 1997). While disaggregation of data in federal statute focused on schoolwide data and groups of students with similar characteristics, teachers must use data to inform instruction (Lezotte & Snyder, 2011). Schools and districts were often criticized for their ability to disaggregate NCLB subgroup data appropriately and effectively and understand the achievement gaps through questioning and deeper data analysis (Deno et al., 2009; Parke, 2016). Indiana SIG schools had diverse student populations with more than one student subgroup (e.g., White, Black, Multi-Racial, English Learners, Free/Reduced, and Special Education; Indiana Department of Education, 2019).

> New expectations of schools to monitor their efforts enabling all students to achieve assume that school leaders and teachers are ready and able to use data to understand where students are academically and why, and to establish improvement plans that are targeted, responsive, and flexible. (Mitchell et al., 2000, p. 22)

Fewer than half of teachers surveyed for a U.S. Department of Education Report (Gallagher et al., 2008) reported accessibility to a data reporting system. If a data reporting system was in place, it was most often provided by the district and given to teachers, rather than being developed by teachers based on their own knowledge and use of classroom assessments and formative assessment data (Gallagher et al., 2008). As researchers at the National Center for Research on Evaluation, Standards, and Student Testing, or CRESST noted, "Despite both the mandates and the rhetoric, schools are woefully underprepared to engage in such inquiry. The

practice of applying large-scale data to classroom practice is virtually nonexistent" (Herman & Gribbons, 2001, p. 1). Both technical expertise and training of staff present challenges to effective and consistent use of data (Cromey, 2000; Wayman, 2005), which result in a longer-term problem (Schafer & Lissitz, 1987; Wise et al., 1991). In short, two major challenges exist in fully developing and implementing an effective data system in a school. The first challenge is failure to engage teachers and ensure their understanding of how student data influences the quality and effectiveness of instruction; the second is failure of education leaders to be aware of and understand how to support teachers in this capacity (Mandinach et al., 2006).

A strong indicator for improvement is the ability of teachers to gauge student learning and respond with the appropriate intervention, enrichment, or continued practice by reviewing data (Deno et al., 2009). Data can be used by teachers to make informed decisions about their students, particularly when teachers work together in teams and develop procedures for working with data (Breiter & Light, 2006; Schildkamp et al., 2016). Data collected through conversations with students, teachers, and administrators can give insight into the school's culture through understanding how students and teachers feel about their experiences (Parke, 2016). Classroom assignments, or artifacts, provide insight to teachers on student learning (Dougherty, 2012). Herman and Gribbons (2001) suggested three initial questions to "initiate inquiry" (p. 5) that are self-evaluative, meaningful questions that motivate teachers to own the process and become self-evaluative (Karagiorgi et al., 2015). "How are we doing? Are we serving all students well? What are our relative strengths and weaknesses?" (Herman & Gribbons, 2001, p. 5).

Developing Capacity for Data-Driven School Communities

Leadership must facilitate, model, and support teachers' ability to utilize data effectively through review and analysis. Leaders must provide authentic practice and time to create

meaningful change (Dunn et al., 2013; Kaniuka, 2012). Teachers often struggle to learn data processes -- from collecting, to analyzing, to applying instructional decisions – as well as how to participate on a data team. The addition of a facilitator-type role (e.g., such as a data coach or instructional coach) can support the development of effectively functioning data teams (Schildkamp et al., 2016). For example, the *District and School Data Team Toolkit* (Geier & Smith, 2012) instructs districts to create a data team led by a "data use champion" (p. 5). Additionally, key positions can support "capacity-building and change" (Levin, 2008, p. 87). "The critical friend appears as a significant resource," (Karagiorgi et al., 2015, p. 78).

Capacity of leaders in schools is an essential ingredient in the data system. Professional development must be directed not only to teachers, but also to leaders (Knipe, 2019). Leaders must be able to identify key data sources (Knipe, 2019) and focus on ways to utilize data to inform teaching (Bernhardt, 2018). In her book, *Data Analysis for Continued School Improvement*, Bernhardt (2018) identified the differences between using data to meet compliance (i.e., focus only on low-performing students to improve results on annual state assessments) versus committing to improvement by embracing data to realize the strengths and challenges present within a school building, particularly for struggling students, and address the needs of all learners.

Organizational Change and Culture

"How do you know your organization is learning?" (Senge et al., 2000, p. 552). There are several important key actions that would indicate if an organization is actively learning, including having a strong understanding on the current reality, having a strong and consistent understanding among the team, and translating such knowledge into actionable steps. Comaford (2013) made a similar point about effective organizations and their ability to develop

independent and shared understandings of the vision and mission. This can only exist, she wrote, "in a flexible culture where learning and communication are consistent" (Comaford, 2013, p. 157).

Working to improve low-performing and high poverty schools must include focus on teacher quality (Mincu, 2013). Traditional education practices provide a great deal of autonomy and independence to teachers, whereas school improvement requires more collaboration among staff to develop the whole-school vision and action plan (Hayes et al., 2009). This is significant when considering that Wagner proposed in his book, *The Global Achievement Gap*, that the type of person attracted to the teaching profession was one who "preferred working alone" and "valued security and continuity" (Wagner, 2008, p. 154). The Reform Support Network released a report in March 2014 that identified competencies, or behaviors, of teachers for school turnaround situations. Competencies included how to create urgency for stakeholders to improve results, identifying and solving problems that arise, and striving to execute the responsibilities of the position in positive and effective ways. The information included in the report led to development of the *School Turnaround Teachers Selection Toolkit* by Public Impact (2016). The toolkit, designed for both administrators and teachers, includes "the best, currently known, measurable distinguishers between very high performers and more typical or lower-performing teachers in a turnaround setting" (Public Impact, 2016, p. 6). The competencies identified in both publications mirror five habits identified by Bright (2012) that effective teachers practice regularly: "lessons connected to life, interesting instructional delivery, personal accountability, understanding student motivation and striving for continuing instructional improvement," (p. 21–24). These habits, according to Bright, enable great teachers to be highly effective and contribute to high student achievement.

Culture is the social and behavioral framework under which groups of people work together (Gruenert & Whitaker, 2015), and the culture within a school can either help or hinder the efforts of improvement (Barnett & Mahoney, 2006). Organizational change underpins the culture of schools implementing improvement or change processes (Senge et al., 2000). Specifically, schools are addressed as learning organizations that must develop a culture systematically that engages all stakeholders. The culture that develops from systemic change encompasses the beliefs, behaviors, and attitudes of the individuals, teams, and leaders of the organization (Kotter, 2012). Culture is a necessary part of developing teachers' capacity for change and improvement, which includes the needed motivation and reflection to engage in work such as data (Karagiorgi et al., 2015).

Adult Learning and Change Theory

Professional learning for teachers is critical although many schools fail to reach a level where activities are meaningful, connected, and support the improvement process (Sappington et al., 2012). Transforming schools into collaborative, learning cultures requires a new set of skills and abilities from learners, i.e., teachers (Hodkinson et al., 2008). Recent trends in professional development show variances in how, what, and why teachers are interested in different opportunities (Louws et al., 2017), and the types of professional development for teachers make a difference in the extent to which teaching practices are changed (Boyle et al., 2004). Two important factors to consider in adult learning are to foster the individual teacher through autonomy (Deci & Ryan, 1985) and facilitate social learning through professional networks of collaboration (Cox, 2015).

Great leaders begin with the *who* rather than the *what* (Senge et al., 2000), understanding that people must first be invested within the group before being able to take action. When

teachers feel invested within a supportive and collaborative culture, they hone their own skills as well as support other teachers' growth (Lieberman & Pointer Mace, 2008). This is important to understanding strong organizational culture, as "having a sense of efficacy or mastery over helplessness will influence the opportunity to grow and learn" (Martin, 2012, p. 672). An adverse effect of the scrutiny from state and federal accountability may result in feelings of shame and powerlessness by teachers, who are often blamed for low scores and the inability for schools to transform (Walker, 2017). Conditions that create feelings of inadequacy or lack of power, sparked by educational reforms, contribute to a larger problem of teacher attrition (Shen, 1997). High-poverty and racially or ethically diverse schools experience higher rates of attrition than higher socio-economic, less diverse schools, as was the case in a study of Kentucky public school teachers (Lochmiller et al., 2016). As Ince (2016) explained, "Teachers commencing professional learning programs are putting themselves in a learner situation and potentially a risk-taking position. The risk is both professional and personal," (p. 194).

Social psychologist Kurt Lewin contributed to the field of organizational management and development (Gold, 1999; Rainio, 2009; Shirey, 2013). Change is a social and cultural construct and individuals wanting to belong to a group will participate in three phases of cognitive processing: unfreezing (i.e., desiring to change), moving (i.e., changing), and refreezing (i.e., sustaining the change; Lewin, 1997; Schriner et al., 2010). Those steps are similar to the "habit loop" in the book, *The Power of Habit* (Duhigg, 2014, p. 19). According to Duhigg (2014), behavioral habit-forming steps begin with a cue (i.e., the trigger for behavior), move to the routine (i.e. the behavior), and complete the cycle with a reward (i.e., satisfaction). Both Lewin (1997) and Duhigg's models lean towards an individual's response to change. However, much of a school's improvement process is highly reliant on the technical aspects of

improvement, for example, time, experts, and stipends for teachers to participate in additional professional training, and follow up to changes in instructional methods and behaviors of teachers typically do not occur (Noonan, 2014). Marzano et al. (2014) presented a hierarchy for developing an effective improvement process: “safe and collaborative culture, effective teaching in every classroom, guaranteed and viable curriculum, standards-referenced reporting, and competency-based education” (Marzano et al., 2014, p. 4)

A teacher’s perception about change is important because teacher efficacy can affect school reform (Barnyak & McNelly, 2009). “Self-efficacy refers to individual’s beliefs about their capabilities to carry out a particular course of action successfully” (Bandura, 1997 as cited in Klassen & Chiu, 2010, p. 741). The negative impact of low self-efficacy impedes competency, raises teachers’ stress, and decreases overall job satisfaction (Betoret, 2006; Klassen & Chiu, 2010). The extent to which teachers feel as though they have control over the situation influences their response to improvement efforts and influencing successful student outcomes (Charalambous et al., 2008; Goddard et al., 2000; Rotter, 1966).

Improving Adult Culture Through Social Learning

Peer groups can provide positive support and influence on learners as experiences and frustrations are shared (Austin, 1997). Development of supportive peer groups, such as professional learning communities, builds a positive culture that is integral to the implementation of a school improvement initiative (Dufour et al., 2016). When groups of professionals have opportunities to work together through a collaborative situation, both intensity and trust develop (Austin, 1997). “The current thinking is that social interaction is rewarding and reward contingency increases brain plasticity through making stimuli more salient and engaging”

(Knowland & Thomas, 2014, p. 105). A study showed birds' abilities to mimic songs increase when they are in close proximity with other birds and engage in social learning, activated by their cognitive abilities to learn and retain (Cozolino & Sprokay, 2006). Scientists who study neuroscience have deepened their understanding of the brain and how learning occurs. The implications for adult learners in terms of understanding social interaction and engagement is critical (Knowland & Thomas, 2014).

Social interactions influence culture within a community through stories and memories of shared experiences (Carriere, 2014). Professional learning communities provide the framework for school staff to build shared knowledge through social experiences that are carefully constructed by school leaders (DuFour et al., 2016). This type of professional development requires a teacher to shift into a learner mode, rather than a teacher or facilitator mode and "there is growing consensus among scholars that the success of any instructional intervention, improvement initiative, or policy is better understood as a challenge of teacher learning and organizational capacity building rather than a challenge of faithful implementation" (Sappington et al., 2012, p. 10). This iterates the value of a teacher as a key to successful school improvement (Hattie, 2009; Wrigley, 2013).

Communication is a key to building culture (Stewart, 2012). In a changing environment such as school improvement, the leader's communication style and actions are critical to the process (Kotter, 2012). Leaders must keep in mind their communication style with two important factors for adult learners: fostering the individual teacher through autonomy (Deci & Ryan, 1985) and facilitating social learning through professional networks of collaboration (Cox, 2015). Peer groups can provide positive support and influence on learners as experiences and frustrations are shared (Austin, 1997).

An effective leader must simultaneously communicate the vision and monitor implementation of the improvement plan (Comaford, 2013; Grenny et al., 2013; Kotter, 2012). Grenny et al. (2013) referred to this type of leader as "the influencer." Influencers support their staff by engaging six sources (i.e., actions) that can be divided into two buckets—one of motivation and another of ability—and include "helping them love what they hate (motivation), helping them do what they can't (ability), providing encouragement (motivation), providing assistance (ability), changing their economy (motivation), and changing their space (ability)" (Grenny et al., 2013, p. 70). The relationships between effective leaders, i.e., influencers, and teachers are critical to a school's improvement success and invoke a sense of trust and leverage strong communication skills to make authentic, personal connections (Parlar et al., 2017). Conversely, when support from administrators is lacking, teachers are less likely to feel safe and positive within their work environment, creating an equal and opposite effect on school culture (Demir, 2015; Parlar et al., 2017). An organization's efforts for high performance and continued improvement must understand the interaction and expectations workers have (Waite, 2010), a concept called "co-participation" (Billett, 2004, p. 197). Another way to define this framework for interaction is internal coherence (Elmore et al., 2014; Fullan & Quinn, 2016), or "the collective capability of the adults in a school building or an educational system to connect and align resources to carry out an improvement strategy" (Forman et al., 2017, p. 3).

Both teaching and leadership matter. The conditions and culture influencing teacher efficacy are important to the process. Change must be led by strong, growth minded-leaders who are capable of co-creating with people and circumstances, rather than commanding and controlling to gain power over people and circumstances (Andersen & Andersen, 2017). Districts must be proactive in their approach to hiring and supporting princpals and sensitive to how the

cultivation of the school's professional culture affects student achievement outcomes (Jacobson, 2005). It is imperative that teachers be part of the change process and that they be trusted by leadership and be actively involved in the decisions being made towards improvement efforts (Gimbel, 2003; Tyack & Cuban, 1995).

Failure to acknowledge the important contributions of teachers and generate support for new initiatives will lead to an inability to support and participate in the school's improvement efforts (Salina et al., 2017). Staff attrition diminishes opportunities for staff to develop stronger relationships among teachers and between teachers and students (Lochmiller et al., 2016). It takes a community to transform a school (Comer, 1980). This community must develop relationships and spark learners' creativity and sense of discovery rather than oppress learning through a one-way, "banking" method of education where the student is a passive recipient of knowledge (Freire, 1970, p. 72). Freire (1970) provided examples of banking that include common instructional beliefs such as "the teacher thinks and the students are thought about" and "the teacher confuses the authority of knowledge with his or her own professional authority, which she or he sets in opposition to the freedom of the students" (p. 73). How leaders develop the solidarity of staff can greatly influence the outcome of school improvement efforts (Gajda & Militello, 2008).

Summary

Years of research on federal funding targeted to school improvement efforts have shown mixed results. Certain practices have shown positive effects on improving student achievement. For example instructional strategies that include implementation of core curriculum, setting high academic expectations, and providing feedback to students have turned around high-poverty, low-performing schools. Developing and utilizing data systems around key student performance

data should be used to drive instruction, respond to student needs, and differentiate learning. All organizational changes must be rooted in both teachers' and leaders' ability to grow and enrich the learning environments. Chapter Three will describe how data from teachers at Indiana SIG schools were measured to determine impact of the SIG funding.

CHAPTER 3

RESEARCH METHODOLOGY

The literature review for this study focused on three focal areas of school improvement: instructional strategies, data use, and culture. As stated earlier in Chapter 1, since 2009 Indiana has received over $123,000,000 for schools in improvement through 1003(g) School Improvement Grant (SIG) funding, authorized by No Child Left Behind (2002), (N. Williamson, personal communication, November 15, 2019; U.S. Department of Education, 2016). This study was designed to identify differences in implementation of selected key strategies and the impact on student achievement outcomes. This chapter reiterates the purpose and null hypotheses that were tested. It will also introduce the rationale for the research design, methods used to design a survey instrument (with consideration of trustworthiness, survey design, sources and collection of data), and procedures to arrange data for use. Limitations and delimitations are addressed. Data analysis methods and statistical techniques used to generate both descriptive and inferential findings are explained.

Purpose of the Study

The utilized surveys to understand the extent of implementation of the 1003(g) School Improvement Grant in focal areas of instructional strategies, use of data, and culture for Indiana schools that were awarded the grant in Cohorts Five, Six, Seven, and Eight. The literature review focused on three issues commonly addressed in school improvement programs: research-based

instructional strategies, developing data systems (i.e., instructional strategies, data use, and culture) that can help teachers identify students' strengths and weaknesses in learning content and skills, and improving the professional culture within a school. These areas are commonly addressed in research around continuous school improvement and are often foundational elements in federally funded grant programs (U.S. Department of Education, 2010a).

The study will examine differences of teachers' perceptions of implementation of aforementioned constructs between different performance bands of Indiana schools that received SIG funding between 2014 and 2019. A quantitative study allowed the use of a survey instrument to gather information, in this case, attitudes and perceptions from teachers about a school's improvement process, and made sense of such data (Ary et al., 2006). Groups of schools were determined based on archival ISTEP+ data used to sort schools into similar categories, or performance bands, based on the extent to which schools were able to close the achievement gap in both English language arts and mathematics (i.e., high band, average band, and low band).

Research Questions

The literature review consistently addressed the importance of implementing high-leverage instructional strategies, data use, and culture to improve student achievement. The following research questions guided this study, the first of which was answered through descriptive statistical analysis.

1. What are the current implementation levels for instructional strategies, data use, and culture among schools that received a SIG grant?

2. Is there a statistically significant difference based on English language arts student achievement outcomes on the instructional strategies composite score?
3. Is there a statistically significant difference based on English language arts student achievement outcomes on the data use composite score?
4. Is there a statistically significant difference based on English language arts student achievement outcomes on the culture composite score?
5. Is there a statistically significant difference based on mathematics student achievement outcomes on the instructional strategies composite score?
6. Is there a statistically significant difference based on mathematics student achievement outcomes on the data use composite score?
7. Is there a statistically significant difference based on mathematics student achievement outcomes on the culture composite score?

Null Hypotheses

H_O1: There is no statistically significant difference in English language arts student achievement outcomes based on the composite score for instructional strategies.

H_O2: There is no statistically significant difference in English language arts student achievement outcomes based on the composite score for data use.

H_O3: There is no statistically significant difference in English language arts student achievement outcomes based on the composite score for culture.

H_O4: There is no statistically significant difference in mathematics student achievement outcomes based on the composite score for instructional strategies.

H_O 5: There is no statistically significant difference in mathematics student achievement outcomes based on the composite score for data use.

H_O6: There is no statistically significant difference in mathematics student achievement outcomes based on the composite score for culture.

Rationale for Research Design

Survey data were used to identify differences of implementation of instructional strategies, data use, and culture among bands of student achievement outcomes in English language arts and mathematics for 35 Indiana SIG schools in Cohorts Five through Eight. One-way ANOVA statistical tests were used to identify differences within performance bands of schools, i.e., high band, average band, and low band. One-way ANOVAs are a technique to compare the means of two or more samples, in this case performance bands of schools (Creswell, 2009), and are less prone to Type I errors than paired *t*-tests (Lomax & Hahs-Vaughn, 2012). Teachers from the 35 Indiana SIG schools in Cohorts Five to Eight were recruited. Estimating 30 teachers per building, the projected maximum number of subjects to be included was 1,050.

Before the survey was released, there was a review of pre- and post- student academic progress from all 35 schools in both English language arts and mathematics using annual ISTEP+ data. Each school fit into one of the three groups for each content area based on the residual statistical ISTEP+ performance data. To determine a baseline, each SIG school's scores for English language arts and mathematics were compared to the state's average scores for the same grade span for that year in both English language arts and mathematics. Then each school's most current ISTEP+ data scores (spring 2018) were compared to the state's averages for spring 2018 for the same grade span in both English language arts and mathematics. A combined score was determined and used to identify a residual value or the difference between the state and school averages. Using

this information, schools were sorted into “bands” of performance: high band, average band, and low band. The bands are defined in Chapter 1.

Table 5

Cohort Awards and ISTEP+ Data Years

	Year SIG Awarded	Prior Year ISTEP Scores+	Current ISTEP+ Scores
Cohort Eight	SY 2017-2018	Spring 2016	Spring 2018
Cohort Seven	SY 2016-2017	Spring 2015	Spring 2018
Cohort Six	SY 2015-2016	Spring 2014	Spring 2018
Cohort Five	SY 2014-2015	Spring 2013	Spring 2018

Survey participants were teachers from Indiana SIG schools in Cohorts Five, Six, Seven, and Eight who had been employed for at least two years, since the 2017-2018 school year. Participants in Cohorts Six, Seven, and Eight were currently receiving SIG funding for the 2019-2020 school year, but Cohort Five graduated from SIG in September 2018, i.e., the grant period for Cohort Five schools ended on September 30, 2018. Thus, at the time of this study, Cohort Five schools have not received funding for an entire academic year. The 2017-2018 school year was a common, active SIG year for all schools in the study. Teachers who did not meet these criteria had the option to exit from the survey.

Teacher emails from the 35 SIG schools were collected using each school’s website. An email with the survey link was sent to each participant. The survey focused on perceptions of practices related to instructional strategies, data use, and culture based on research from the literature review in Chapter Two, to identify whether or not there are statistically significant differences within English language arts and mathematics proficiency scores based on the annual state ISTEP+ assessment.

Survey Design

A six-point Likert survey was created using Qualtrics. Likert scale surveys are commonly used to measure attitudes on a scale that can be quantified (Ary et al., 2006). A Likert scale will present several statements on a specific topic and ask participants to respond within a range from "strongly agree" to "strongly disagree" (Ary et al., 2006, p. 227) that are assigned a numerical value that can be evaluated for positive or negative attitudes towards specific elements of a topic.

The survey was organized into four sections. The first three sections had nine questions per section (27 questions total). The three section topics were instructional strategies, data use, and culture. Each question asked teachers to rate their own perceptions of school improvement strategies on a six-point Likert scale that used the following range of responses: strongly agree, agree, somewhat agree, somewhat disagree, disagree, and strongly disagree. Participants were asked to identify their building so that each response could be coded to the appropriate English language arts or mathematics performance band. The final section of the survey asked demographic questions regarding the grade level configuration of the school, subjects taught (i.e., English language arts, mathematics, both, or other), length of time teaching, and a multiple choice question with options of ways in which SIG helped the school. Survey questions are included in Appendix C. A copy of the survey with related research citations is included in Appendix D.

Issues of Trustworthiness

Several steps were taken to make certain the survey questions met the highest validity and reliability. First, a team of educational consultants with school improvement expertise vetted the survey. Consultants were a variety of former school and district

administrators, state educational agency employees, and teachers. A team of participants in a current Indiana State University Educational Leadership PhD cohort were also enlisteded to review the survey. PhD cohort members were school and district administrators with years of experience and background on school improvement topics. All reviewers were asked to respond to survey statements and provide written feedback on questions that were ambiguous or unrelated to the topic (Ary et al., 2006; Creswell, 2009). Feedback gleaned from the review was used to improve the content and quality of the survey.

It was important to ensure a high level of reliability, or internal consistency, of the survey (Sijtsma, 2009) within each of the three focal areas (i.e., instructional strategies, data use, and culture) to produce composite scores. Composite scores evaluated levels of implementation of instructional strategies, data use, and culture as reported by teachers. Statements used to generate each composite score must have reliably represented each area of implementation it was evaluating. When the survey window closed and data were collected, a Cronbach's alpha test assessed the strength of internal reliability among the statements for each composite score (Ary et al., 2006). A Cronbach's alpha of at least .7 ensured that survey statements were reliable and could be included in composite scores. If a .7 or higher had not been met, individual questions would have been examined and problematic or questionable statements struck from the survey. The Cronbach's alpha test was run via SPSS, so original composite scores for all survey questions could be completed easily as well as any subsequent statistical tests. An exploratory factor analysis might have been used if a question had been removed without generating a reliable composite score. Factor analysis techniques could have been used to "reduce the set of measured variables to a smaller set of underlying factors that account for the pattern of relationships" and "make the data more manageable and interpretable" (Ary et al., 2006, p. 391).

Data Sources

The study included 35 Indiana schools that were awarded a 1003(g) School Improvement Grant (SIG) between 2013 and 2017 in Cohorts Five, Six, Seven, and Eight. Length of time of implementation ranges from one year (Cohort Eight schools) to five years, including the planning/pre-implementation year (Cohort Five schools). To ensure a large enough sample size, the sample population invited to participate in the survey were teachers in those buildings that had been employed for two or more years, including at least one year of SIG implementation.

Email addresses for teachers in all thirty-five schools were collected from each school's website. A letter to participants inviting them to participate in the survey was included with the email (Appendix C). Individual names were not collected, although participants identified their SIG school to enable the researcher to match responses to the appropriate performance band of schools in both English language arts and mathematics. The email provided a purpose of the study, instructions for completion, and a survey link. The email included email addresses for Dr. Terry McDaniel, dissertation chair, and myself. Recipients of the survey were asked to complete the survey within 14 days. Two reminders/thank you emails were sent at day 4 and day 13 to all addresses. The performance bands of schools were determined based on residual overall scores of pre-SIG and spring 2018 ISTEP+ scores in English language arts and mathematics.

Data Procedures

The survey window closed after 14 days. Survey data were compiled for each content area and performance band. All data were completed from surveys completed by teachers in SIG schools through Qualtrics. Data from the surveys were exported directly

to SPSS Version 23 for analysis. Performance groups were added after exporting data into SPSS. Statements from the first three sections/focal areas were statistically analyzed using one-way ANOVAs. A Cronbach's alpha test was run to ensure reliability, as explained in an earlier section. Any statement that did not meet the threshold would have been removed from the composite scores for each area.

Method of Analysis

The first research question provided descriptive data for the study, such as percentages and standard deviations of sample population demographics. A deeper analysis of the survey results was achieved by breaking down descriptive data into different content areas (i.e., English language arts and mathematics) and performance bands (i.e., high, average, and low). Results are presented in the next chapter.

Six null hypotheses were tested using a one-way ANOVA to determine if there were statistically significant differences based on student achievement outcomes on the implementation of instructional strategies, data use, and culture for both English language arts and mathematics. Assumptions were tested via one-way ANOVA for both normality and homogeneity of variance. Tukey's HSD post hoc test was run because the assumption of homogeneity of variance was met. In the event that the assumption had not been met, then a Games-Howell post hoc test would have been run (as this test does not assume equal variances among the different groups on the dependent variable).

Limitations

Student achievement data for English language arts and mathematics are available to the public through the Indiana Department of Education's website. A limitation to utilizing ISTEP+ includes the reliability and validity of the assessment and its ability to measure accurately

students' mastery of Indiana's English language arts and mathematics standards. Other limitations of the study are related to participant participation. Participants must understand the purpose of this study, be willing to participate, understand each statement, and provide honest responses to the survey questions. Principal and teacher retention rates may present a challenge as turnover may affect the number of staff who have knowledge of SIG, particularly in schools from Cohort Five that exited the program in the fall of 2019. The scope of this study included only SIG-funded schools in Indiana.

Delimitations

This study did not look at all cohorts of SIG funding in Indiana. Cohorts One and Two had substantial closures and state takeover scenarios, leaving the SIG funding, programs, and oversight outside of the purview of the school. Cohort Three and Four had not participated in SIG for more than one academic year and may have experienced changes in leadership or teaching staff who were without any knowledge of or experience with SIG. While their input may provide insight as to the sustainability of SIG initiatives, the focus of this study was to review current SIG implementation. The study looked only at schools that received funding within the state of Indiana.

Summary

The intent of this study was to identify differences between performance bands of schools in implementation of three school improvement focal areas. Participants completed online surveys that provided perceptions of implementation of specific school improvement actions in instructional strategies, data use, and culture. Survey participants were teachers at current Indiana SIG recipient schools or recently exited schools (i.e.,

within the academic year in which the survey was deployed), in one of four cohorts. One-way ANOVAs were used to test the statistical differences for each null hypothesis.

CHAPTER 4

RESULTS

The purpose of this quantitative study was to find differences based on student achievement outcomes on the implementation of instructional strategies, data use, and culture of schools in Indiana that received 1003(g) School Improvement Grants. Teachers at 35 SIG-recipient schools in Indiana were sent emails explaining the study and invited to participate in this study. The emails contained a link to the survey, which was developed for this study based on research conducted through the literature review. Potential participants were asked not to take the survey if they had fewer than two years' experience teaching at the SIG school. Data were collected from those that met the two-year threshold and completed the survey. Data were analyzed at the conclusion of the open survey period. Findings are reported in this chapter.

The teacher survey included 27 questions, split evenly between the implementation focal areas. Scores from each focal area formulated composite scores used with inferential testing. Survey responses were rated on a Likert scale that included strongly agree, agree, somewhat agree, somewhat disagree, disagree, and strongly disagree. The additional six demographic questions identified the school, subjects taught, grade level configuration of the school, number of years taught at the school, number of total years' experience, and familiarity with the SIG program.

Research Questions

The literature review consistently addressed the importance of implementing high-leverage instructional strategies, data use, and culture to improve student achievement. The following research questions guided this study:

1. What are the current implementation levels for instructional strategies, data use, and culture among schools that received a SIG grant?
2. Is there a statistically significant difference based on English language arts student achievement outcomes on the instructional strategies composite score?
3. Is there a statistically significant difference based on English language arts student achievement outcomes on the data use composite score?
4. Is there a statistically significant difference based on English language arts student achievement outcomes on the culture composite score?
5. Is there a statistically significant difference based on mathematics student achievement outcomes on the instructional strategies composite score?
6. Is there a statistically significant difference based on mathematics student achievement outcomes on the data use composite score?
7. Is there a statistically significant difference based on mathematics student achievement outcomes on the culture composite score?

Null Hypotheses

H_O1: There is no statistically significant difference in English language arts student achievement outcomes based on the composite score for instructional strategies.

H_O2: There is no statistically significant difference in English language arts student achievement outcomes based on the composite score for data use.

H_O3: There is no statistically significant difference in English language arts student achievement outcomes based on the composite score for culture.

H_O4: There is no statistically significant difference in mathematics student achievement outcomes based on the composite score for instructional strategies.

H_O 5: There is no statistically significant difference in mathematics student achievement outcomes based on the composite score for data use.

H_O6: There is no statistically significant difference in mathematics student achievement outcomes based on the composite score for culture.

Descriptive Data

Ninety-nine teachers responded to this survey. Those 99 teachers represented 29 of the SIG schools. Teachers from three schools did not respond at all and there were two cases where teacher emails were not easily accessible through the school's website so no email addresses were collected. A sixth school permanently closed prior to the dissemination of the survey. The numbers of teachers within each of the three academic performance tiers that responded were similar to one another.

Of the 99 teachers who responded, 19.2% (19) of teachers reported teaching primarily English Language Arts, 17.2% (17) taught primarily math, and 40% (40) taught both subjects. An additional 23.2% (23) of teachers reported teaching another subject. Schools in this study represented six different grade level configurations: PK–5 (20.6% of respondents); 6–8 (30.9% of respondents); PK–6 (17.5% of respondents); 7–8 (23.7% of respondents); 3–4 (3.1% of respondents); and PK–8 (4.1% of respondents). The number of years teaching at the current SIG school varied from 0–5 years' experience (36.4%); 6–10 years' experience (36.4%); 11–15 years' experience (9.1%); 16–20 years' experience (5.1%); and 20 or more years' experience

(13.1%). To compare to total years' experience, teachers were asked how many years total they had been teaching. The most frequent response was twenty or more years (31.3%), followed by 11–15 years (23.2%), then 6–10 years (21.2%). Teachers were asked to rate their familiarity of SIG on a six-point Likert scale. More than 90% (91%, n = 90) strongly agreed, agreed, or somewhat agreed to having some familiarity with SIG. Bands of high, average, and low for English language were fairly evenly split, with 35 responses in the high band (35.4%), 32 responses in the average band (32.3%), and 32 in the low band (32.3%). Bands of achievement for mathematics were similar: 37 responses in the high band (37.4%), 30 responses in the average band (30.3%), and 32 responses in the low band (32.3%).

Staff were asked nine questions related to the instructional strategies implemented as part of the school's improvement plan. Staff were asked if their school had a defined English language arts and mathematics curriculum at each grade level. Overall, 95 respondents (96%) demonstrated at least some level of agreement. Of those who agreed, 7 (7.1%) somewhat agreed, 36 (36.4%) agreed, and 52 (52.5%) strongly agreed.

Staff were asked if the English language arts and mathematics curriculum had clear student learning outcomes. Overall, 94 respondents (95%) demonstrated at least some level of agreement. Of those who agreed, 13 (13.1%) somewhat agreed, 38 (38.4%) agreed, and 43 (43.4%) strongly agreed.

Staff were asked if learning outcomes identified in the curriculum matched the skills and rigor of Indiana Academic Standards. Overall, 89 respondents (90%) demonstrated at least some level of agreement. Of those who agreed, 11 (11.1%) somewhat agreed, 34 (34.3%) agreed, and 44 (44.4%) strongly agreed.

Staff were asked if formative assessments align with the school's curriculum. Overall, 93 respondents (94%) demonstrated at least some level of agreement. Of those who agreed, 11 (11.1%) somewhat agreed, 40 (40.4%) agreed, and 42 (42.4%) strongly agreed.

Staff were asked if feedback provided to students is based on formative assessments. Overall, 95 (96%) demonstrated at least some level of agreement. Of those who agreed, 13 (13.1%) somewhat agreed, 46 (46.5%) agreed, and 36 (36.4%) strongly agreed.

Staff were asked if they had opportunities to collaborate with other teachers regularly about student data. Overall, 87 (88%) demonstrated at least some level of agreement. Of those who agreed, 13 (13.1%) somewhat agreed, 34 (34.1%) agreed, and 40 (40.4%) strongly agreed.

Staff were asked if they believed that every child could meet rigorous academic standards. Overall, 83 (84%) demonstrated at least some level of agreement. Of those who agreed, 19 (19.2%) somewhat agreed, 36 (36.4%) agreed, and 28 (28.3%) strongly agreed.

Staff were asked if they differentiate instruction for students. Overall, 94 (95%) demonstrated at least some level of agreement. Of those who agreed, 6 (6.1%) somewhat agreed, 38 (38.4%) agreed, and 50 (50.5%) strongly agreed.

Staff were asked if lessons were designed to meet student-learning objectives from the curriculum. Overall, 95 (96%) demonstrated at least some level of agreement. Of those who agreed, 3 (3%) somewhat agreed, 37 (37.4%) agreed, and 55 (55.6%) strongly agreed.

Staff were asked nine questions related to the use of data in the classroom. The following descriptive statistics indicate the range of responses. Staff were asked if data about their students help them to plan instruction. Overall, 97 (98%) demonstrated at least some level of agreement. Of those who agreed, 9 (9.1%) somewhat agreed, 44 (44.4%) agreed, and 44 (44.1%) strongly agreed.

Staff were asked if they found data useful in planning lessons. Overall, 96 (97%) demonstrated at least some level of agreement. Of those who agreed, 19 (19.2%) somewhat agreed, 39 (39.4%) agreed, and 38 (38.4%) strongly agreed.

Staff were asked if they understand how to use data to improve student learning outcomes for their students. Overall, 96 (97%) demonstrated at least some level of agreement. Of those who agreed, 9 (9.1%) somewhat agreed, 51 (51.5%) agreed, and 36 (36.4%) strongly agreed.

Staff were asked if there was a school-wide system in place for collecting and analyzing data. Overall, 85 (86%) demonstrated at least some level of agreement. Of those who agreed, 19 (19.2%) somewhat agreed, 42 (42.4%) agreed, and 24 (24.2%) strongly agreed.

Staff were asked if the school had an RtI/MTSS process in place to respond to student needs. Overall, 80 (81%) demonstrated at least some level of agreement. Of those who agreed, 21 (21.2%) somewhat agreed, 33 (33.3%) agreed, and 26 (26.3%) strongly agreed.

Staff were asked if there was another staff member with whom they could talk about data, such as a coach, partner teacher, or mentor teacher. Overall, 94 (95%) demonstrated at least some level of agreement. Of those that agreed, 13 (13.1%) somewhat agreed, 36 (36.4%) agreed, and 45 (45.5%) strongly agreed.

Staff were asked if they were good at adjusting instruction based on data. Overall, 95 (96%) demonstrated at least some level of agreement. Of those that agreed, 10 (10.1%) somewhat agreed, 54 (54.5%) agreed, and 31 (31.3%) strongly agreed.

Staff were asked if they were good at using data to set learning goals for students. Overall, 94 (95%) demonstrated at least some level of agreement. Of those who agreed, 13 (13.1%) somewhat agreed, 52 (52.5%) agreed, and 29 (29.3%) strongly agreed.

Staff were asked if their students set goals for their learning objectives. Overall, 77 (78%) demonstrated at least some level of agreement. Of those that agreed, 39 (39.4%) somewhat agreed, 28 (28.3%) agreed, and 10 (10.1%) strongly agreed.

Staff were presented with nine questions related to the culture of the building. Staff were asked if they understood the school's vision and mission. Overall, 95 (96%) demonstrated at least some level of agreement. Of those that agreed, 14 (14.1%) somewhat agreed, 40 (40.4%) agreed, and 41 (41.4%) strongly agreed.

Staff were asked if their input as a teacher was valued at the school. Overall, 73 (74%) demonstrated at least some level of agreement. Of those that agreed, 24 (24.2%) somewhat agreed, 28 (28.3%) agreed, and 21 (21.2%) strongly agreed.

Staff were asked if teachers are involved in making decisions at the school. Overall, 71 (72%) demonstrated at least some level of agreement. Of those that agreed, 31 (31.3%) somewhat agreed, 25 (25.3%) agreed, and 15 (15.2%) strongly agreed.

Staff were asked if there was a professional learning community at the school. Overall, 88 (89%) demonstrated at least some level of agreement. Of those that agreed, 15 (15.2%) somewhat agreed, 40 (40.4%) agreed, and 33 (33.3%) strongly agreed.

Staff were asked if leaders were trusted at the school. Overall 77 (78%) demonstrated at least some level of agreement. Of those that agreed, 27 (27.3%) somewhat agreed, 33 (33.3%) agreed, and 17 (17.2%) strongly agreed.

Staff were asked if teachers trust each other at the school. Overall, 90 (91%) demonstrated at least some level of agreement. Of those that agreed, 25 (25.3%) somewhat agreed, 47 (47.5%) agreed, and 18 (18.2%) strongly agreed.

Staff were asked if leaders exhibit a growth mindset. Overall 88 (89%) demonstrated at least some level of agreement. Of those that agreed, 21 (21.2%) somewhat agreed, 41 (41.4%) agreed, and 26 (26.3%) strongly agreed.

Staff were asked if the school had a safe and collaborative culture. Overall, 82 (83%) demonstrated at least some level of agreement. Of those that agreed, 25 (26.3%) somewhat agreed, 36 (36.4%) agreed, and 20 (20.2%) strongly agreed.

Staff were asked if there were benefits for students when teachers worked together within the building. Overall, 97 (98%) demonstrated at least some level of agreement. Of those that agreed, 2 (2.0%) somewhat agreed, 34 (34.3%) agreed, and 61 (61.6%) strongly agreed.

English Language Arts Results

The following tables show how each band of schools for English language arts responded to perceived implementation of instructional strategies, data use, and culture. Table 6 shows responses from schools identified as the high band English language arts. There were 35 respondents in this group. The descriptive data for this group shows responses related to the perceived use of instructional strategies.

Table 6
High Band English Language Arts Respondents' Agreement on Levels on Instructional Strategies

Statement	Strongly Agree %	Agree %	Somewhat Agree %	Somewhat Disagree %	Disagree %	Strongly Disagree %
My school has a defined curriculum for English Language Arts and Mathematics at every grade level.	45.7%	54.3%	0%	0%	0%	0%
The English Language Arts and Mathematics curriculum include clear student learning outcomes.	42.9%	40.0%	14.3%	2.9%	0%	0%
Student learning outcomes identified in our curriculum match the skills and rigor of Indiana Academic Standards.	40.0%	37.1%	11.4%	5.7%	2.9%	2.9%
I utilize formative assessments that are aligned with the school's curriculum.	34.3%	45.7%	14.3%	2.9%	2.9%	0%
I provide feedback to my students based on formative assessments.	22.9%	54.3%	20.0%	0%	0%	2.9%
I have opportunities to collaborate with other teachers regularly about student data.	42.9%	37.1%	5.7%	5.7%	2.9%	5.7%
I believe that every child can meet rigorous academic standards.	22.9%	31.4%	25.7%	8.5%	8.6%	2.9%

Statement	Strongly Agree %	Agree %	Somewhat Agree %	Somewhat Disagree %	Disagree %	Strongly Disagree %
I differentiate instruction for my students.	61.8%	32.4%	2.9%	0%	0%	2.9%
I design lessons to meet student-learning objectives from the curriculum.	57.1%	34.3%	2.9%	0%	0%	5.7%

Table 6 shows how the high band of schools in English language arts answered questions related to instructional strategies. There were similarities between this group and the whole sample in a few areas. The high band showed that 40.0% of respondents agreed with the English language arts and mathematics curriculum including clear student learning outcomes, compared with 38.40% of the whole sample. Responses were close between the two groups when somewhat agreeing with learning outcomes matching the skills and rigor of the Indiana academic standards; the high band responded with 11.40% compared to the whole sample with 11.10%. Another strong similarity showed that the high band somewhat agreed to designing lessons to meet student objectives from the curriculum, 57.10% compared to 55.60% of the whole sample.

Differences were noted, as well. About fifty-four percent (54.3%) of the high band agreed to having defined English language arts and mathematics curricula versus 36.40% of the sample population. The two groups were not close in responding to providing feedback to students based on formative assessments, with the high band strongly agreeing at 22.9% and the whole sample strongly agreeing at 36.7%. A third striking difference was that 61.8% of the high band strongly agreed that instruction is differentiated compared to 51.5% of the whole sample. In the next

table, Table 7, data shows how these 35 schools in the high band of English language arts responded to questions related to data use.

Table 7

High Band English Language Arts Respondents' Agreement on Levels on Data Use

Statement	Strongly Agree %	Agree %	Somewhat Agree %	Somewhat Disagree %	Disagree %	Strongly Disagree %
Data about my students help me plan instruction.	42.9%	45.7%	8.6%	2.9%	0%	0%
I find data useful in planning lessons.	31.4%	42.9%	22.9%	2.9%	0%	0%
I understand how to use data to improve student learning outcomes for my students.	34.4%	51.4%	14.3%	0%	0%	0%
There is a school-wide system in place for collecting and analyzing data.	30.0%	42.9%	17.1%	8.6%	5.7%	5.7%
My school has an RtI/MTSS process in place to respond to student needs.	27.3%	36.4%	12.1%	15.2%	3.0%	6.1%
There is another staff member with whom I can talk about data (such as a coach, partner teacher, or mentor teacher).	45.7%	34.2%	11.4%	2.9%	2.9%	2.9%
I am good at adjusting instruction based on data.	22.9%	65.7%	8.6%	0%	2.9%	0%

Statement	Strongly Agree %	Agree %	Somewhat Agree %	Somewhat Disagree %	Disagree %	Strongly Disagree %
I am good at using data to set learning goals for students.	20.0%	60.0%	17.1%	0%	2.9%	0%
My students set goals for their learning objectives.	5.7%	17.1%	48.6%	8.6%	17.1%	2.9%

In close alignment with the whole sample, schools in this group agreed that student data help plan instruction (8.6%) compared to the whole sample (9.10%). Staff in the high band agreed closely with the whole sample that they understood how to use data (51.4% high band and 51.5% whole sample). Just less than half of the high band (42.9%) agreed that there is a school-wide system for collecting data and 27.3% strongly agreed that the school had an RtI/MTSS process. This compares to the whole sample that agreed to a school-wide system (42.4%) and strongly agreed with the RtI/MTSS statement (26.8%). Table 8 show responses from the high band of English language arts. Similarity was high as 45.7% of the high band strongly agreed to having a staff member to talk with compared to 45.5% of the whole sample.

There were a couple of interesting differences noted. Teachers in the high band agreed that they are good at adjusting instruction based on data (65.7%) compared to 54.5% of the whole sample. Only 17.1% of the high band agreed that students set goals for their learning objectives compared to a slightly higher 28.6% of the whole sample. Table 8 will show how the high band of English language arts schools responded to implementation statements of culture.

Table 8

High Band English Language Arts Respondents' Agreement on Levels on Culture

Statement	Strongly Agree %	Agree %	Somewhat Agree %	Somewhat Disagree %	Disagree %	Strongly Disagree %
I understand the school's vision and mission.	37.1%	45.7%	11.4%	2.9%	2.9%	0%
My input as a teacher is valued at our school.	22.9%	25.7%	17.1%	8.6%	11.4%	14.3%
Teachers are involved in making decisions at our school.	17.6%	26.5%	23.5%	8.8%	14.7%	8.8%
We have a professional learning community at our school.	31.4%	45.7%	5.7%	2.9%	8.6%	5.7%
Leaders are trusted at this school.	20.0%	22.9%	25.7%	8.6%	17.1%	5.7%
Teachers trust each other at my school.	34.3%	42.9%	14.3%	2.9%	5.7%	0%
Our school leaders exhibit a growth mindset.	25.7%	31.4%	22.9%	11.4%	8.6%	0%
Our school has a safe and collaborative culture.	20.0%	31.4%	22.9%	11.4%	14.3%	0%
There are benefits for students when teachers work together within our building.	60.0%	37.1%	0%	2.9%	0%	0%

For the last variable, culture, there were similarities noted between this high band group of schools for English language arts and the whole sample. Just over twenty-six percent (26.5%) of the high band agreed that teachers are involved in decision-making compared with 25.5% of the whole sample. Another close alignment occurred with the statement, “Our leaders exhibit a growth mindset.” The high band strongly agreed with 25.7% compared with 26.3% of the whole sample.

The high band differed from the whole sample on a couple of implementation statements. The high band only strongly agreed with 22.9% to leaders being trusted at the school versus a slightly higher whole sample, 33.3%. The high band strongly agreed with 34.3% that there is a professional learning community compared with only 18.2% of the whole sample.

The next several tables, beginning with Table 9, present data for the average band of English language arts. There were thirty-two respondents in this band. Each respondent was asked to rate their perceived implementation of instructional strategies, data use, and culture.

Table 9

Average Band English Language Arts Respondents' Agreement on Levels on Instructional Strategies

Statement	Strongly Agree %	Agree %	Somewhat Agree %	Somewhat Disagree %	Disagree %	Strongly Disagree %
My school has a defined curriculum for English Language Arts and Mathematics at every grade level.	53.1%	21.9%	12.5%	0%	3.1%	9.4%
The English Language Arts and Mathematics curriculum include clear student learning outcomes.	50.0%	28.1%	12.5%	3.1%	0%	6.3%
Student learning outcomes identified in our curriculum match the skills and rigor of Indiana Academic Standards.	46.9%	34.4%	6.3%	0%	6.3%	6.3%
I utilize formative assessments that are aligned with the school's curriculum.	38.7%	41.9%	12.9%	0%	0%	6.5%
I provide feedback to my students based on formative assessments.	41.9%	38.7%	12.9%	0%	0%	6.5%
I have opportunities to collaborate with other teachers regularly about student data.	31.3%	34.4%	21.9%	0%	3.1%	9.4%
I believe that every child can meet rigorous academic standards.	25.0%	43.8%	9.4%	15.6%	0%	6.3%

Statement	Strongly Agree %	Agree %	Somewhat Agree %	Somewhat Disagree %	Disagree %	Strongly Disagree %
I differentiate instruction for my students.	50.0%	43.8%	0%	0%	0%	6.3%
I design lessons to meet student-learning objectives from the curriculum.	43.8%	46.9%	3.1%	0%	0%	6.3%

Similar to the findings from the whole sample, teachers from the average band strongly agreed that curriculum for both English language arts and mathematics were in place at their school (53.1%, compared to the whole sample, 52.5%). The average band agreed with 34.4% that student learning outcomes align with the Indiana Academic Standards compared with the whole sample (34.3%). The average band strongly agreed (50%) that they differentiate for students compared with 51.5% of the whole sample.

Differences were apparent in a couple of areas. The average band showed 28.1% agreements with having clear student learning outcomes in the curriculum compared with 38.4% of the whole sample. The average band showed slightly less strong agreement for designing lessons to meet student learning objects with only 43.8% compared to the whole sample, 55.6%.

Table 10

Average Band English Language Arts Respondents' Agreement on Levels on Data Use

Statement	Strongly Agree %	Agree %	Somewhat Agree %	Somewhat Disagree %	Disagree %	Strongly Disagree %
Data about my students help me plan instruction.	46.9%	43.8%	6.3%	0%	0%	3.1%
I find data useful in planning lessons.	37.5%	40.6%	18.8%	0%	0%	3.1%
I understand how to use data to improve student learning outcomes for my students.	37.5%	53.1%	3.1%	3.1%	0%	3.1%
There is a school-wide system in place for collecting and analyzing data.	21.9%	40.6%	21.9%	9.4%	3.1%	3.1%
My school has an RtI/MTSS process in place to respond to student needs.	25.0%	37.5%	28.1%	6.3%	0%	3.1%
There is another staff member with whom I can talk about data (such as a coach, partner teacher, or mentor teacher).	34.4%	40.6%	18.8%	3.1%	0%	3.1%
I am good at adjusting instruction based on data.	40.6%	43.8%	9.4%	3.1%	0%	3.1%
I am good at using data to set learning goals for students.	37.5%	43.8%	12.5%	3.1%	0%	3.1%

Statement	Strongly Agree %	Agree %	Somewhat Agree %	Somewhat Disagree %	Disagree %	Strongly Disagree %
My students set goals for their learning objectives.	9.7%	38.7%	32.3%	3.2%	12.9%	3.2%

Responses to the data use statements resulted in the following similarities between the average band of English language arts and the whole sample. The average band agreed that data about students help to plan instruction, with 42.8% agreeing compared with 44.4% of the whole sample. Another close area was 18.8% of teachers who responded with “Somewhat Agree” compared with 19.2% of the whole sample to finding data useful in planning lessons.

The average band for English language arts strongly agreed that they had another staff member to talk with about data, compared with a higher percentage of strong agreement from the whole sample (45.5%). Another difference was that 43.8% of respondents in the average band strongly agreed that they are good at adjusting instruction based on data compared with 54.5% of the whole sample. There was a substantial difference in responses to students setting their learning objectives, with 38.7% of the average band agreeing compared with 28.6% of the whole sample. Looking at Table 11, the descriptive statistics for the average band’s agreement on culture will be presented.

Table 11

Average Band English Language Arts Respondents' Agreement on Levels on Culture

Statement	Strongly Agree %	Agree %	Somewhat Agree %	Somewhat Disagree %	Disagree %	Strongly Disagree %
I understand the school's vision and mission.	46.9%	34.4%	12.5%	0%	0%	6.3%
My input as a teacher is valued at our school.	12.5%	34.4%	28.1%	15.6%	6.3%	3.1%
Teachers are involved in making decisions at our school.	0%	31.3%	40.6%	21.9%	6.3%	0%
We have a professional learning community at our school.	28.1%	37.5%	25.0%	3.1%	3.1%	3.1%
Leaders are trusted at this school.	9.4%	31.3%	34.4%	12.5%	9.4%	3.1%
Teachers trust each other at my school.	3.1%	56.3%	28.1%	3.1%	6.3%	3.1%
Our school leaders exhibit a growth mindset.	21.9%	40.6%	28.1%	3.1%	0%	6.3%
Our school has a safe and collaborative culture.	12.5%	40.6%	28.1%	6.3%	6.3%	6.3%
There are benefits for students when teachers work together within our building.	65.6%	28.1%	3.1%	0%	0%	3.1%

The average band responded similarly with the whole sample on a couple of culture implementation statements. The average band agreed that school leaders exhibit a growth mindset with 40.6%. This was similar to the way the whole sample responded, with 41.4% in agreement. The average band somewhat agreed that the school has a safe and collaborative culture (28.0%) compared to the whole sample (26.3%).

There were several notable differences between the groups, too. No respondents in the average band strongly agreed that teachers were involved in decision-making (0%) compared to 15.3% of the whole sample. Teacher trust had only 3.10% strong agreement from the average band compared with 18.2% of the whole sample.

The next set of tables will provide descriptive statistical data on the low band for English language arts in instructional strategies, data use, and culture. There were 32 respondents in this band. The low band represents the bottom third of SIG schools for English language arts when all schools are ranked from highest residual difference from the start of SIG to spring 2018.

Table 12

Low Band English Language Arts Respondents' Agreement on Levels on Instructional Strategies

Statement	Strongly Agree %	Agree %	Somewhat Agree %	Somewhat Disagree %	Disagree %	Strongly Disagree %
My school has a defined curriculum for English Language Arts and Mathematics at every grade level.	59.4%	31.3%	9.4%	0%	0%	0%
The English Language Arts and Mathematics curriculum include clear student learning outcomes.	37.5%	46.9%	12.5%	0%	0%	3.1%
Student learning outcomes identified in our curriculum match the skills and rigor of Indiana Academic Standards.	46.9%	31.3%	15.6%	3.1%	0%	3.1%
I utilize formative assessments that are aligned with the school's curriculum.	56.3%	34.4%	6.3%	0%	0%	3.1%
I provide feedback to my students based on formative assessments.	46.9%	46.9%	6.3%	0%	0%	0%
I have opportunities to collaborate with other teachers regularly about student data.	46.9%	31.3%	12.5%	9.4%	0%	0%
I believe that every child can meet rigorous academic standards.	37.5%	34.4%	12.9%	6.3%	0%	0%

Statement	Strongly Agree %	Agree %	Somewhat Agree %	Somewhat Disagree %	Disagree %	Strongly Disagree %
I differentiate instruction for my students.	41.9%	41.9%	16.1%	0%	0%	0%
I design lessons to meet student-learning objectives from the curriculum.	65.6%	31.3%	3.1%	0%	0%	0%

For the data related to instructional strategies, there were similar responses between the low band and the whole sample. The low band somewhat agreed (12.5%) that curriculum had clear student learning outcomes which was similar to the whole sample's somewhat agreement of 13.1%. There was similar, somewhat agreement from both groups related to opportunities to collaborate with staff, where the low band somewhat agreed with 12.5% and the whole sample somewhat agreed with 13.1%. The two groups matched exactly for the statement regarding providing feedback based on formative assessments, with both the low band and the whole sample agreeing at 46.9%.

A few differences in the groups' responses are noted, too. The low band strongly agreed with 56.3% that formative assessments are aligned with the curriculum compared to only 42.9% of the whole sample. The groups differed in their strongly agree responses, with the low band strongly agreeing with 46.9% and the whole sample strongly agreeing with 36.7%. The low band differed from the whole sample in their strong agreement of differentiating for students, with only 41.9% strongly agreeing with the statement compared with 51.5% of the whole sample. The next table shows descriptive data for the low band of English language arts and data use.

Table 13

Low Band English Language Arts Respondents' Agreement on Levels on Data Use

Statement	Strongly Agree %	Agree %	Somewhat Agree %	Somewhat Disagree %	Disagree %	Strongly Disagree %
Data about my students help me plan instruction.	43.8%	43.8%	12.5%	0%	0%	0%
I find data useful in planning lessons.	46.9%	34.4%	15.6%	0%	3.1%	0%
I understand how to use data to improve student learning outcomes for my students.	37.5%	50.0%	9.4%	3.1%	0%	0%
There is a school-wide system in place for collecting and analyzing data.	31.3%	43.8%	18.8%	6.3%	0%	0%
My school has an RtI/MTSS process in place to respond to student needs.	28.1%	28.1%	25.0%	9.4%	3.1%	6.3%
There is another staff member with whom I can talk about data (such as a coach, partner teacher, or mentor teacher).	56.3%	34.3%	9.4%	0%	0%	0%
I am good at adjusting instruction based on data.	31.3%	53.1%	12.5%	3.1%	0%	0%
I am good at using data to set learning goals for students.	31.3%	53.1%	9.4%	6.3%	0%	0%

Statement	Strongly Agree %	Agree %	Somewhat Agree %	Somewhat Disagree %	Disagree %	Strongly Disagree %
My students set goals for their learning objectives.	15.6%	31.3%	37.5%	12.5%	0%	3.1%

There were similarities between the low band of English language arts and the whole sample. The percentages of respondents from the low band agreed at 18.8% that there is a school-wide system for collecting and analyzing data, in close comparison to the whole sample (19.2%). Strong agreement of adjusting instruction based on data was the same between groups; both the low band and the whole sample showed 31.3% strong agreement with that statement. The low band showed 53.1% agreement to the statement of using data to set students' learning goals in comparison to 52.5% of the whole sample.

The low band showed 56.3% strong agreement to the statement that there is another staff member with whom they can talk about data compared with only 45.5% of the whole sample. Another difference noted was in regard to the statement to students setting their goals. The low band showed no disagreement (0%) compared with the whole sample that disagreed with 10.2%.

Table 14

Low Band English Language Arts Respondents' Agreement on Levels on Culture

Statement	Strongly Agree %	Agree %	Somewhat Agree %	Somewhat Disagree %	Disagree %	Strongly Disagree %
I understand the school's vision and mission.	40.6%	40.6%	18.8%	0%	0%	0%
My input as a teacher is valued at our school.	28.1%	25.0%	28.1%	9.4%	6.3%	3.1%
Teachers are involved in making decisions at our school.	28.1%	18.8%	31.3%	9.4%	9.4%	3.1%
We have a professional learning community at our school.	40.6%	37.5%	15.6%	6.3%	0%	0%
Leaders are trusted at this school.	21.9%	46.9%	21.9%	3.1%	6.3%	0%
Teachers trust each other at my school.	15.6%	43.8%	34.4%	6.3%	0%	0%
Our school leaders exhibit a growth mindset.	31.3%	53.1%	12.5%	3.1%	0%	0%
Our school has a safe and collaborative culture.	28.1%	37.5%	28.1%	3.1%	3.1%	0%
There are benefits for students when teachers work together within our building.	59.4%	37.5%	3.1%	0%	0%	0%

Similarities between the low band of English language arts and the whole sample were noted. There was similar agreement to understanding the school's vision and mission. The low ban agreed with 40.6% and the whole sample agreed with 40.4%. The low band somewhat agreed to having a professional learning organization at their school compared with 15.2% of the whole sample.

The low band more strongly agreed that teachers are involved in making decisions at the school with 28.1% compared with the whole sample that strongly agreed with 15.3%. The low band showed more agreement of trusted leaders at the school (46.9%) than did the whole sample, with agreement of 33.3%. The low band agreed that leaders exhibited a growth mindset with 53.1% compared with 41.4% of the whole sample that agreed with that statement.

Mathematics Results

As with English language arts, the following several tables show how each band of schools for mathematics responded to perceived implementation of instructional strategies, data use, and culture. Table 15 shows responses from schools identified in the high mathematics band. There were 37 respondents in this group. The descriptive data for this group show responses related to the perceived implementation of instructional strategies.

Table 15

High Band Math Respondents' Agreement on Levels on Instructional Strategies

Statement	Strongly Agree %	Agree %	Somewhat Agree %	Somewhat Disagree %	Disagree %	Strongly Disagree %
My school has a defined curriculum for English Language Arts and Mathematics at every grade level.	43.2%	48.6%	5.4%	0%	0%	2.7%
The English Language Arts and Mathematics curriculum include clear student learning outcomes.	37.8%	37.8%	18.9%	2.7%	0%	2.7%
Student learning outcomes identified in our curriculum match the skills and rigor of Indiana Academic Standards.	37.8%	37.8%	10.8%	5.4%	2.7%	5.4%
I utilize formative assessments that are aligned with the school's curriculum.	32.4%	45.9%	13.5%	2.7%	2.7%	2.7%
I provide feedback to my students based on formative assessments.	29.7%	48.6%	16.2%	0%	0%	5.4%
I have opportunities to collaborate with other teachers regularly about student data.	43.2%	35.1%	8.1%	2.7%	2.7%	8.1%
I believe that every child can meet rigorous academic standards.	21.6%	35.1%	24.3%	5.4%	8.1%	5.4%

Statement	Strongly Agree %	Agree %	Somewhat Agree %	Somewhat Disagree %	Disagree %	Strongly Disagree %
I differentiate instruction for my students.	61.1%	30.6%	2.8%	0%	0%	5.6%
I design lessons to meet student-learning objectives from the curriculum.	57.4%	35.1%	5.4%	0%	0%	2.7%

There were several similarities between this group and the whole sample. Respondents in the high band of mathematics agreed that curriculum for both English language arts and mathematics included clear learning outcomes (37.8%), compared with the whole sample (38.4%). This group also agreed that students can meet rigorous academic standards (35.1%) compared with the whole sample (36.4%). This group strongly agreed that they have opportunities to collaborate regularly with other teachers (43.2%), similarly to the whole sample (40.4%).

Some differences were noted. There was a bit of a difference between respondents in this group's strong agreement of a defined curriculum for both English language arts and mathematics (52.5%) compared to the whole sample (43.2%). Only 32.4% of respondents in this high band strongly agreed that they utilize formative assessments versus the whole sample (42.4%) and 29.7% strongly agreed that they provided feedback to students based on formative assessments, compared with the whole sample (36.7%).

Table 16

High Band Mathematics Respondents' Agreement on Levels on Data Use

Statement	Strongly Agree %	Agree %	Somewhat Agree %	Somewhat Disagree %	Disagree %	Strongly Disagree %
Data about my students help me plan instruction.	40.5%	43.2%	10.8%	2.7%	0%	2.7%
I find data useful in planning lessons.	29.7%	40.5%	24.3%	2.7%	0%	2.7%
I understand how to use data to improve student learning outcomes for my students.	35.1%	48.6%	13.5%	0%	0%	2.7%
There is a school-wide system in place for collecting and analyzing data.	21.6%	40.5%	16.2%	8.1%	5.4%	8.1%
My school has an RtI/MTSS process in place to respond to student needs.	31.4%	28.6%	14.3%	14.3%	2.9%	8.6%
There is another staff member with whom I can talk about data (such as a coach, partner teacher, or mentor teacher).	45.9%	29.7%	10.8%	5.4%	2.7%	5.4%
I am good at adjusting instruction based on data.	21.6%	64.9%	8.1%	0%	2.7%	2.7%
I am good at using data to set learning goals for students.	16.2%	62.2%	16.2%	0%	2.7%	2.7%
My students set goals for their learning objectives.	8.1%	16.2%	48.6%	8.1%	13.5%	5.4%

Respondents in the high band of mathematics closely mirrored the whole sample in a few areas. The high band agreed that data about students help to inform instruction (43.2%), which was close to the whole sample of 44.4%. This band strongly agreed that they understand how to use data to improve learning outcomes (35.1%) compared to the whole sample (36.5%). The high band strongly agreed that there is another staff member with whom to talk about data (45.9%), in alignment with the whole sample (45.5%).

The high band of mathematics differed from the whole sample in terms of using data to adjust instruction and set learning goals. About sixty percent (60.4%) of the high band agreed to adjusting instruction based on data, compared with 54.5% of the whole sample. However, 16.2% of the high band used data to set learning goals for students versus 29.3% of the whole sample.

Table 17

High Band Mathematics Respondents' Agreement on Levels on Culture

Statement	Strongly Agree %	Agree %	Somewhat Agree %	Somewhat Disagree %	Disagree %	Strongly Disagree %
I understand the school's vision and mission.	32.4%	45.9%	13.5%	2.7%	2.7%	2.7%
My input as a teacher is valued at our school.	24.3%	24.3%	16.2%	8.1%	10.8%	16.2%
Teachers are involved in making decisions at our school.	16.7%	25.0%	27.8%	8.3%	13.9%	8.3%
We have a professional learning community at our school.	29.7%	43.2%	10.8%	2.7%	8.1%	5.4%
Leaders are trusted at this school.	21.6%	21.6%	21.6%	10.8%	16.2%	8.1%
Teachers trust each other at my school.	27.0%	40.5%	21.6%	2.7%	5.4%	2.7%
Our school leaders exhibit a growth mindset.	27.0%	27.0%	24.3%	10.8%	8.1%	2.7%
Our school has a safe and collaborative culture.	21.6%	29.7%	27.0%	10.8%	8.1%	2.7%
There are benefits for students when teachers work together within our building.	59.5%	35.1%	0%	2.7%	0%	2.7%

Respondents in the high band for mathematics closely matched the whole sample in agreement of teachers' involvement in decision-making (25.0% high band; 25.5% whole sample) and agreement of a safe and collaborative culture (27.0% high band; 26.3% whole sample). There were similar responses from the high band and whole sample regarding the benefits of teachers working together. The high band demonstrated 35.1% of respondents in agreement of working together compared with 34.3% of the whole sample.

There were several points that were not as closely aligned for the area of culture. Only 32.4% of respondents in the high band strongly agreed in understanding the school's vision and mission, versus 41.4% of the whole sample. Just over twenty percent (21.6%) of respondents in the high band agreed that leaders are trusted at this school versus 33.3% of the whole sample. There was strong disagreement from the high band regarding valued teacher input (16.2%) compared to only 7.1% of the whole sample.

Table 18

Average Band Math Respondents' Agreement on Levels on Instructional Strategies

Statement	Strongly Agree %	Agree %	Somewhat Agree %	Somewhat Disagree %	Disagree %	Strongly Disagree %
My school has a defined curriculum for English Language Arts and Mathematics at every grade level.	63.3%	23.3%	3.3%	0%	3.3%	6.7%
The English Language Arts and Mathematics curriculum include clear student learning outcomes.	53.3%	33.3%	6.7%	3.3%	0%	3.3%
Student learning outcomes identified in our curriculum match the skills and rigor of Indiana Academic Standards.	46.7%	30.0%	13.3%	0%	6.7%	3.3%
I utilize formative assessments that are aligned with the school's curriculum.	51.7%	31.0%	13.8%	0%	0%	3.4%
I provide feedback to my students based on formative assessments.	37.9%	44.8%	13.8%	0%	0%	3.4%
I have opportunities to collaborate with other teachers regularly about student data.	46.7%	26.7%	10.0%	6.7%	3.3%	6.7%
I believe that every child can meet rigorous academic standards.	40.0%	40.0%	10.0%	6.7%	0%	3.3%

Statement	Strongly Agree %	Agree %	Somewhat Agree %	Somewhat Disagree %	Disagree %	Strongly Disagree %
I differentiate instruction for my students.	60.0%	33.3%	3.3%	0%	0%	3.3%
I design lessons to meet student-learning objectives from the curriculum.	56.7%	40.0%	0%	0%	0%	3.3%

Table 18 reflects data for the average band of mathematics on implementation of instructional strategies. The average band was on par with the whole sample in terms of providing feedback to students. The percentage of agreement between the average band of mathematics (43.3%) and the whole sample (46.9%) was fairly close. The percentage of strong agreement was equal, with both groups at 36.7%.

A few noticeable differences were noted. The average band strongly agreed with using formative assessments (42.9%) compared to the whole sample %. More respondents strongly agreed that every child can meet rigorous standards in the average band (40.0%) compared to 28.3% of the whole sample.

Table 19

Average Band Mathematics Respondents' Agreement on Levels on Data Use

Statement	Strongly Agree %	Agree %	Somewhat Agree %	Somewhat Disagree %	Disagree %	Strongly Disagree %
Data about my students help me plan instruction.	63.3%	33.3%	3.3%	0%	0%	0%
I find data useful in planning lessons.	53.3%	40.0%	6.7%	0%	0%	0%
I understand how to use data to improve student learning outcomes for my students.	43.3%	50.0%	3.3%	3.3%	0%	0%
There is a school-wide system in place for collecting and analyzing data.	16.7%	46.7%	23.3%	10.0%	3.3%	0%
My school has an RtI/MTSS process in place to respond to student needs.	23.3%	40.0%	26.7%	6.7%	0%	3.3%
There is another staff member with whom I can talk about data (such as a coach, partner teacher, or mentor teacher).	43.3%	40.0%	16.7%	0%	0%	0%
I am good at adjusting instruction based on data.	46.7%	43.3%	6.7%	3.3%	0%	0%
I am good at using data to set learning goals for students.	40.0%	50.0%	3.3%	6.7%	0%	0%

Statement	Strongly Agree %	Agree %	Somewhat Agree %	Somewhat Disagree %	Disagree %	Strongly Disagree %
My students set goals for their learning objectives.	6.9%	37.9%	41.4%	3.4%	6.9%	3.4%

The average band of mathematics responded to questions related to their use of data, the results of which are provided in Table 19. The average band strongly agreed that their school had an RTI/MTSS process (23.3%), which aligned with the whole sample (26.8%). The average band showed strong agreement with having a staff person to talk with about data (43.3%) which is similar to the whole sample (45.5%).

Differences in responses between the average band and whole sample were noted. A fewer percentage of the whole sample strongly agreed with the statement that data helps to plan instruction (44.4%) versus the average band (63.3%). The whole sample also had a fewer percentage of strong agreement with adjusting instruction based on data (31.3%) versus the average band (46.7%).

Table 20

Average Band Mathematics Respondents' Agreement on Levels on Culture

Statement	Strongly Agree %	Agree %	Somewhat Agree %	Somewhat Disagree %	Disagree %	Strongly Disagree %
I understand the school's vision and mission.	56.7%	30.0%	10.0%	0%	0%	3.3%
My input as a teacher is valued at our school.	20.0%	33.3%	30.0%	10.0%	6.7%	0%
Teachers are involved in making decisions at our school.	10.0%	30.0%	36.7%	20.0%	3.3%	0%
We have a professional learning community at our school.	36.7%	50.0%	6.7%	0%	3.3%	3.3%
Leaders are trusted at this school.	16.7%	36.7%	30.0%	6.7%	10.0%	0%
Teachers trust each other at my school.	16.7%	56.7%	16.7%	3.3%	6.7%	0%
Our school leaders exhibit a growth mindset.	26.7%	40.0%	26.7%	3.3%	0%	3.3%
Our school has a safe and collaborative culture.	23.3%	33.3%	16.7%	10.0%	13.3%	3.3%
There are benefits for students when teachers work together within our building.	76.7%	20.0%	3.3%	0%	0%	0%

The third area of questions related to the culture of the building. In Table 20, the average band of mathematics aligned with the whole sample regarding trust and collaboration. The average band agreed to some extent that leaders are trusted (83.4%) which was similar to the whole sample (77.8%).

Differences were noted in teacher input and a safe and collaborative culture. The average band showed a higher percentage of agreement (33.3%) and somewhat agreement (30.0%) compared to the whole sample's agreement (28.3%) and somewhat agreement (24.2%). The average band agreed that the school has a safe and collaborative culture (33.3%) at a slightly lower percentage than the whole sample (36.4%) and somewhat agreed at 16.7% compared to the whole sample (26.3%).

Table 21

Low Band Math Respondents' Agreement on Levels on Instructional Strategies

Statement	Strongly Agree %	Agree %	Somewhat Agree %	Somewhat Disagree %	Disagree %	Strongly Disagree %
My school has a defined curriculum for English Language Arts and Mathematics at every grade level.	53.1%	34.4%	12.5%	0%	0%	0%
The English Language Arts and Mathematics curriculum include clear student learning outcomes.	40.6%	43.8%	12.5%	0%	0%	3.1%
Student learning outcomes identified in our curriculum match the skills and rigor of Indiana Academic Standards.	50.0%	34.4%	9.4%	3.1%	0%	3.1%
I utilize formative assessments that are aligned with the school's curriculum.	46.9%	43.8%	6.3%	3.1%	0%	0%
I provide feedback to my students based on formative assessments.	43.8%	46.9%	9.4%	0%	0%	0%
I have opportunities to collaborate with other teachers regularly about student data.	31.3%	40.6%	21.9%	6.3%	0%	0%
I believe that every child can meet rigorous academic standards.	25.0%	34.4%	21.9%	12.5%	6.3%	0%

Statement	Strongly Agree %	Agree %	Somewhat Agree %	Somewhat Disagree %	Disagree %	Strongly Disagree %
I differentiate instruction for my students.	32.3%	54.8%	12.9%	0%	0%	0%
I design lessons to meet student-learning objectives from the curriculum.	59.4%	37.5%	3.1%	0%	0%	0%

Table 21 showed how the low band of mathematics responded to questions related to implementation of instructional strategies. This group was similar with the whole sample when demonstrating somewhat agreement of having clear student learning objectives in English language arts and mathematics curriculum (12.5% low band and 13.1% whole sample). The low band agreed (34.4%) that the learning outcomes in both curricula match the skills and rigor of Indiana Academic Standards, in alignment with 34.3% of the whole sample. Both the low band of mathematics and the whole sample agreed that feedback to students is provided based on formative assessments (46.9% low band and whole sample).

The low band differed from the whole sample in a few notable ways. Fewer of the low band strongly agreed to opportunities to collaborate with other teachers regularly about student data compared with 40.4% of the whole sample. Only 32.3% of the low band strongly agreed that they differentiate instruction for students compared with 51.5% of the whole sample. Zero percent (0%) of the low band demonstrated somewhat disagreement with the belief that all students can learn compared with 8.1% of the whole sample.

Table 22

Low Band Mathematics Respondents' Agreement on Levels on Data Use

Statement	Strongly Agree %	Agree %	Somewhat Agree %	Somewhat Disagree %	Disagree %	Strongly Disagree %
Data about my students help me plan instruction.	31.3%	56.3%	12.5%	0%	0%	0%
I find data useful in planning lessons.	34.4%	37.5%	25.0%	0%	3.1%	0%
I understand how to use data to improve student learning outcomes for my students.	31.3%	56.3%	9.4%	3.1%	0%	0%
There is a school-wide system in place for collecting and analyzing data.	34.4%	40.6%	18.8%	0%	0%	0%
My school has an RtI/MTSS process in place to respond to student needs.	25.0%	34.4%	25.0%	9.4%	3.1%	3.1%
There is another staff member with whom I can talk about data (such as a coach, partner teacher, or mentor teacher).	46.9%	40.6%	12.5%	0%	0%	0%
I am good at adjusting instruction based on data.	28.1%	53.1%	15.6%	3.1%	0%	0%
I am good at using data to set learning goals for students.	34.4%	43.8%	18.8%	3.1%	0%	0%

Statement	Strongly Agree %	Agree %	Somewhat Agree %	Somewhat Disagree %	Disagree %	Strongly Disagree %
My students set goals for their learning objectives.	15.6%	34.4%	28.1%	12.5%	9.4%	0%

Both the low band of mathematics and the whole sample were similar in their somewhat agreement of understanding how to use data to improve student learning outcomes (9.4% low band and 9.1% whole sample). Both groups were similar in their agreement of having a school wide data system in place, with the low band somewhat agreeing at 18.9% and the whole sample agreeing at 19.2%. A third notable similarity was the agreement of having an RtI or MTSS system in place. The low band demonstrated agreement with 34.4% compared with the whole sample of 34.0%.

Two differences in the data emerged. The low band demonstrated 31.3% strong agreement with the statement of using data to plan instruction compared with a slightly higher percentage of the whole sample, 44.4%. The low band demonstrated 28.1% somewhat agreement to having students set learning goals compared with a slightly higher 39.8% of the whole sample.

Table 23

Low Band Mathematics Respondents' Agreement on Levels on Culture

Statement	Strongly Agree %	Agree %	Somewhat Agree %	Somewhat Disagree %	Disagree %	Strongly Disagree %
I understand the school's vision and mission.	37.5%	43.8%	18.8%	0%	0%	0%
My input as a teacher is valued at our school.	18.8%	28.1%	28.1%	15.6%	6.3%	3.1%

Statement	Strongly Agree %	Agree %	Somewhat Agree %	Somewhat Disagree %	Disagree %	Strongly Disagree %
Teachers are involved in making decisions at our school.	18.8%	12.9%	31.3%	12.5%	12.5%	3.1%
We have a professional learning community at our school.	34.4%	28.1%	28.1%	9.4%	0%	0%
Leaders are trusted at this school.	12.5%	43.8%	31.3%	6.3%	6.3%	0%
Teachers trust each other at my school.	9.4%	46.9%	37.5%	6.3%	0%	0%
Our school leaders exhibit a growth mindset.	25.0%	59.4%	12.5%	3.1%	0%	0%
Our school has a safe and collaborative culture.	15.6%	46.9%	34.4%	0%	3.1%	0%
There are benefits for students when teachers work together within our building.	50.0%	46.9%	3.1%	0%	0%	0%

Lastly, the low band of mathematics responded to questions of culture within their building. Less than half of the low band (28.1%) agreed that teacher input is valued in the building, which is similar to the whole sample (28.3%). Less than half the low band (31.3%) somewhat agreed that teachers are involved in decision-making at the school compared with 31.6% of the whole sample.

Differences in responses to culture statements were noted, also. Over half of the low band demonstrated agreement that leaders demonstrate a growth mindset (59.4%), which was higher

than the whole sample (41.4%). The low band also demonstrated a higher agreement with benefits for staff working together (46.9%) compared with the whole sample, 34.3%.

Inferential Statistical Data

The first null hypothesis focused on whether there was significant difference among the three levels of English language arts performance on the instructional strategies composite score. This null was tested using a one-way ANOVA since we were exploring whether there was significant difference on a dependent variable (instructional strategies composite score) with at least three levels on the independent variable (high, average, and low performance). The assumptions for a one-way ANOVA were tested to ensure the reliability of the inferential findings. The assumption of normality was met with a non-significant Shapiro-Wilks' test. The assumption of homogeneity of variance was also met with a non-significant Levine's Test for Homogeneity of Variance, $F(2, 96) = 1.30$, $p = .28$. With no violation of either assumption, the inferential testing was interpreted.

The inferential findings of the one-way ANOVA were non-significant. There was not significant difference between the high ($M = 5.09$, $SD = .64$), the average ($M = 4.96$, $SD = 1.08$), and the low ($M = 5.11$, $SD = .78$) on the instruction composite score with $F(2, 96) = 1.49$, $p = .23$. With a non-significant finding, there was no need to interpret the post hoc test findings. Any difference between the means can be contributed to chance. The first null hypothesis was retained.

The second null hypothesis focused on whether there was significant difference among the three levels of English language arts performance on the data usage composite score. This null was tested using a one-way ANOVA since we were exploring whether there was significant difference on a dependent variable (data usage composite score) with at least three levels on the

independent variable (high, average, and low performance). The assumptions for a one-way ANOVA were tested to ensure the reliability of the inferential findings. The assumption of normality was met with a non-significant Shapiro-Wilks' test. The assumption of homogeneity of variance was also met with a non-significant Levine's Test for Homogeneity of Variance, $F(2, 96) = 1.7$, $p = .85$. With no violation of either assumption, the inferential testing was interpreted.

The inferential findings of the one-way ANOVA were non-significant. There was not significant difference between the high ($M = 4.82$, $SD = .72$), the average ($M = 4.91$, $SD = .91$), and the low ($M = 5.03$, $SD = .61$) on the data usage composite score with $F(2, 96) = .65$, $p = .52$. With a non-significant finding, there was no need to interpret the post hoc test findings. Any difference between the means can be contributed to chance. The second null hypothesis was retained.

The third null hypothesis focused on whether there was significant difference among the three levels of English language arts performance on the culture composite score. This null was tested using a one-way ANOVA since we were exploring whether there was significant difference on a dependent variable (culture composite score) with at least three levels on the independent variable (high, average, and low performance). The assumptions for a one-way ANOVA were tested to ensure the reliability of the inferential findings. The assumption of normality was met with a non-significant Shapiro-Wilks' test. The assumption of homogeneity of variance was also met with a non-significant Levine's Test for Homogeneity of Variance, $F(2, 96) = 1.55$, $p = .22$. With no violation of either assumption, the inferential testing was interpreted.

The inferential findings of the one-way ANOVA were non-significant. There was not significant difference between the high ($M = 4.6$, $SD = 1.01$), the average ($M = 4.55$, $SD = .91$),

and the low (M = 4.9, SD = .72) on the culture composite score with $F(2, 96) = 1.65$, $p = .20$. With a non-significant finding, there was no need to interpret the post hoc test findings. Any difference between the means can be contributed to chance. The third null hypothesis was retained.

The fourth null hypothesis focused on whether there was significant difference among the three levels of mathematics performance on the instructional strategies composite score. This null was tested using a one-way ANOVA since we were exploring whether there was significant difference on a dependent variable (instructional strategies composite score) with at least three levels on the independent variable (high, average, and low performance). The assumptions for a one-way ANOVA were tested to ensure the reliability of the inferential findings. The assumption of normality was met with a non-significant Shapiro-Wilks' test. The assumption of homogeneity of variance was also met with a non-significant Levine's Test for Homogeneity of Variance, $F(2, 96) = .53$, $p = .60$. With no violation of either assumption, the inferential testing was interpreted.

The inferential findings of the one-way ANOVA were non-significant. There was not significant difference between the high (M = 5.0, SD = .92), the average (M =5.2, SD = .85), and the low (M = 5.2, SD = .50) on the instructional strategies composite score with $F(2, 96) = .83$, $p = .44$. With a non-significant finding, there was no need to interpret the post hoc test findings. Any difference between the means can be contributed to chance. The fourth null hypothesis was retained.

The fifth null hypothesis focused on whether there was significant difference among the three levels of mathematics performance on the data usage composite score. This null was tested using a one-way ANOVA since we were exploring whether there was significant difference on a

dependent variable (data usage composite score) with at least three levels on the independent variable (high, average, and low performance). The assumptions for a one-way ANOVA were tested to ensure the reliability of the inferential findings. The assumption of normality was met with a non-significant Shapiro-Wilks' test. The assumption of homogeneity of variance was also met with a non-significant Levine's Test for Homogeneity of Variance, $F(2, 96) = 2.4$, $p = .09$. With no violation of either assumption, the inferential testing was interpreted.

The inferential findings of the one-way ANOVA were non-significant. There was not significant difference between the high ($M = 4.7$, $SD = .96$), the average ($M = 5.1$, $SD = .54$), and the low ($M = 5.0$, $SD = .61$) on the data usage composite score with $F(2, 96) = .2.2$, $p = .12$. With a non-significant finding, there was no need to interpret the post hoc test findings. Any difference between the means can be contributed to chance. The fifth null hypothesis was retained.

The sixth null hypothesis focused on whether there was significant difference among the three levels of mathematics performance on the culture composite score. This null was tested using a one-way ANOVA since we were exploring whether there was significant difference on a dependent variable (culture composite score) with at least three levels on the independent variable (high, average, and low performance). The assumptions for a one-way ANOVA were tested to ensure the reliability of the inferential findings. The assumption of normality was met with a non-significant Shapiro-Wilks' test. The assumption of homogeneity of variance was violated with a significant Levine's Test for Homogeneity of Variance, $F(2, 96) = 4.52$, $p = .01$. The results of the inferential findings were still interpreted since a one-way ANOVA with similar group sizes is robust to a violation of the assumption of homogeneity of variance. If a significant difference would have been found within the model, it would have required an interpretation of a

Games-Howell post hoc test since this test does not assume equal variances on the dependent variable among the different levels of the independent variable.

The inferential findings of the one-way ANOVA were non-significant. There was not significant difference between the high (M = 4.5, SD = .1.1), the average (M = 4.80, SD = .80), and the low (M = 4.75, SD = .65) on the culture composite score with $F(2, 96) = 1.12$, $p = .33$. Any difference between the means can be contributed to chance. With a non-significant finding, there was no need to interpret the post hoc test findings. The sixth null hypothesis was retained.

Summary

Teachers from 35 Indiana SIG schools were invited to participate in a survey regarding the implementation of school improvement-related practices. The survey was deployed in June 2020. Ninety-nine teachers, with at least two years' experience in the current building, from twenty-nine schools responded. Each statement of the survey related to one of three focal areas of practice – instructional strategies, data use, and culture. Descriptive statistics were analyzed to identify similarities and differences among performance bands of schools in both English language arts and mathematics. Band responses were compared to the whole sample.

Survey results utilized inferential statistics to test the null hypotheses. Assumptions of the one-way ANOVA were tested to ensure the reliability of inferential findings. Each null hypothesis was retained within this study, as no one-way ANOVA findings demonstrated significance with the p-value being greater than the .05 alpha level. In the next chapter, Chapter 5, a summary of findings from this study as well as implications and future research recommendations are explored.

CHAPTER 5

DISCUSSION

The final chapter of this study presents a summary of the findings, implications and recommendations based on findings, and recommendations for future research. Both descriptive and inferential findings will be addressed in the summary section. Implications and recommendations of findings of this research study will address an interpretation of the results as well as possible underlying reasons for such results. The final section includes possible areas for further study related to the topic of school improvement.

The purpose of the study was to determine what implementation differences existed among 35 schools in Indiana that received 1003(g) School Improvement Funds, authorized by No Child Left Behind (2002). Federal funds have supported school improvement efforts in different ways, since the date of enactment of the Elementary and Secondary Act (1965). Results of studies on the use of federal funds have been inconclusive, as an emphasis on compliance has perhaps minimized innovation to address the systemic concerns of high-poverty, low-performing schools (Borman & D'Agostino, 1996; Calkins et al., 2007; Dragoset et al., 2017).

Summary of Findings

More than 1,500 teachers in 35 Indiana schools that received 1003(g) school improvement grant funding between 2014 and 2017 were asked to participate in a survey to identify differences in implementation of certain school improvement grant activities for

differing levels of achievement. The focal areas of the survey included instructional strategies, data use, and culture. Ninety-nine teachers responded to the survey, which was emailed to their school email addresses. Survey results were separated into two content areas – English language arts and mathematics. Within each content area, schools were divided into high, average, and low performance bands based on residual scores comparing pre-SIG ISTEP+ scores in English language arts and mathematics to spring 2018 ISTEP+ scores. Responses were evenly split between each performance band for English language arts; of the total 99 responses to the survey, 35 responses were identified in the high performance band, 32 responses in the average performance band, and 32 responses in the low band. In the following pages, the results for English language arts are revealed through descriptive statistical analysis.

English Language Arts

Survey participants responded to 27 statements in the focal areas of instructional strategies, data use, and culture. The nine statements for each area were rated on a six-point Likert scale to measure the extent to which participants agreed or disagreed. The responses for instructional strategies, statements regarding curriculum varied among the three performance bands. For all performance bands in English language arts, the majority of respondents demonstrated some level of agreement with statements presented for instructional strategies. A closer look reveals that the high band demonstrated 45.7% of strong agreement of having defined curriculum for English language arts and mathematics, as compared with 50.0% of the average band and 39% of the low band. These data suggest that curriculum development in both English language arts and mathematics were commonly addressed school improvement efforts (Levin, 2008). Curriculum is a critical component of a high performing school (Hirn et al., 2018; Liou et al., 2017).

Participants were asked to demonstrate agreement that curricula included clear learning outcomes. The high band demonstrated 42.9% strong agreement with the statement compared with 28.1% of the average band and 46.9% of the low band. Additionally, respondents similarly strongly agreed that such outcomes matched the rigor of the Indiana Academic Standards; high band – 40.0%, average band - 46.9%, and low band – 46.9%.

In statements about the use of formative assessments, most respondents demonstrated agreement to some extent that formative assessments are utilized. In looking at band responses, some differences were noted in the levels of response. For the statement regarding the use of formative assessments that are aligned with the school's curriculum, the high band demonstrated 34.3% strong agreement, the average band demonstrated 38.7% strong agreement, and the low band demonstrated 56.3% strong agreement. In reviewing Halverson's Formative Assessment Cycle (Figure 1), the relationships between assessment, intervention, and actuation are equally relevant in a formative assessment feedback cycle, as such information informs ways in which teachers respond to students' needs (Halverson, 2010; Hattie, 2009; Marzano, 2010). Respondents in the high band demonstrated 22.9% strong agreement that feedback is provided to students based on such formative assessments compared with 41.9% in the average band and 46.9% in the low band. The percentage of strong agreement with statements regarding use of formative assessments increased for the average and low bands over the high band.

The strength of strong agreement seemed inversely proportionate to the level of performance bands. One possibility as to why the data looked this way include the actual implementation and use of curriculum, as all performance bands demonstrated less than 50% strong agreement to having both English language arts and mathematics curriculum. A second possibility is that this study did not consider the number of years of implementation; it is possible

that the number of years of implementation – or post-implementation – influenced participants' responses. As some schools in the study were in the middle of the grant period and some schools were post SIG by one academic year at the time the survey was deployed, changes in staff, leadership, or SIG-related support (e.g., coaches, external technical assistance providers, stipends for staff to participate in extended training) impacted the current knowledge or emphasis on utilizing formative assessments. A third possibility is that teacher perceptions of improvement activities were influenced by school leadership. Leaders of school improvement must possess qualities that promote continuous change, including curriculum development/design, instructional practice, and formative and summative assessments (Peterson et al, 2017; Yavuz & Gulmez, 2018). The inability to maintain such conditions may have been a factor.

Performance bands presented differences in strength of agreement to the statement, "I believe that every student can meet rigorous academic standards." While most respondents in all bands agreed to some extent with that statement, the high band demonstrated 22.9% strong agreement, the average band demonstrated 25.0%, and the low band demonstrated 37.5%. These data seemed contrary to research on teacher's expectations for students, as the low performance band demonstrated the strongest agreement in students' ability to learn and achieve. A potential reason for teachers to respond in this way may be attributed to chronic absences of students who are attending SIG schools. Students who live in poverty are more likely to miss several days or weeks of school or move schools based on familial factors such as housing availability, food insecurity, or homelessness (Budge & Parrett, 2018; London et al., 2016). Teachers may have felt less confident in their students' abilities to meet high standards based on consistent attendance and enrollment. Improving schools includes not only providing challenging and

engaging academic content, but also meeting the social and emotional needs presented by poverty.

The second focal area, data use, presented statements to participants to assess their perceptions of implementation of student data and school wide systems of data. Performance bands demonstrated at least some level of agreement to understanding how to use data to improve student outcomes. Bands demonstrated very similar level of agreement with that statement; the high band demonstrated 34.3% of strong agreement, the average band demonstrated 37.5% strong agreement, and the low band demonstrated 37.5% of strong agreement.

In looking at the infrastructure for utilizing data, participants were asked to rate their perceptions of a school wide system to collect and analyze data. The most notable differences between performance bands occurred with the extent to which they disagreed about the school wide system. The high band demonstrated 20.0% disagreement to some extent. The average band demonstrated 15.6% disagreement to some extent and the low band demonstrated 6.3% disagreement to some extent. In response to that statement regarding a school wide RtI/MTSS process, 24.3% of the high band demonstrated disagreement to some extent, the average band demonstrated 9.4% disagreement to some extent, and the low band demonstrated 18.8% disagreement to some extent. In the 2008 study on teachers' use of data systems, teachers indicated having limited access to their students' data, including both academic and non-academic data (Gallagher et al., 2008). In the same study, elementary teachers were most likely using data systems to report student progress to parents or track student progress rather than inform instruction. Teacher efficacy seemed to play a role in the extent to which a teacher utilized data; the more confidence resulted in more utilization of data. In using data to make

instructional decisions, Response to Intervention (RtI) or multi-tiered system of support (MTSS) are common frameworks through which schools utilize data to identify specific areas of support (both academically and behaviorally) for targeted students (Fuchs & Fuchs, 2006; Hawes et al, 2020). The last focal area, culture, revealed perceptions from participants regarding the professional culture of the school. Participants in the high band demonstrated the greatest percentage of levels of disagreement regarding valued teacher input. The high band demonstrated 34.3% of disagreement to some extent on teacher input being valued at their school. The average band demonstrated 25.0% of disagreement to some extent, and the low band demonstrated 26.3% of disagreement to some extent. Similarly, participants were asked if teachers are involved in decision-making at the school. The high band demonstrated 32.3% of disagreement to some extent on decision-making compared with the average band (28.2%) and the low band (21.5%). Despite being in the top third of schools (i.e., high band), this group demonstrated the highest percentages of disagreement to teacher input and involvement in decision-making.

Culture affects teachers' capacity to accept change and facilitate professional growth (Cox, 2015; Karagiorgi et al., 2015). Trust is critical to the social and collaborative culture of an organization (Austin, 1997; Knowland & Thomas, 2014) and continuous improvement (Gimbel, 2003; Tyack & Cuban, 1995). Descriptive data also indicated that the high band demonstrated 25.7% some level of disagreement to having a safe and collaborative culture compared with 18.9% of the average band and only 6.2% of the low band.

In looking at the leadership of a building, participants were asked to respond to statements regarding trust in leaders at the school and leaders' mindsets. The high band demonstrated 31.4% some level of disagreement with the statement that leaders are trusted,

compared with 25.0% of the average band and only 9.4% of the low band. For the statement regarding leaders exhibiting a growth mindset, the high band demonstrated 20.0% some level of disagreement compared with 9.4% of the average band and 3.1% of the low band. The noticeable differences between performance bands are not supported by research. Strong, visionary leadership in a high performing school is a key to success. School leaders must create and maintain a safe and collaborative culture with teachers (Cox, 2015; Deci & Ryan, 1985; DuFour et al., 2016). Strong leaders must themselves exhibit growth mindsets and be adept at leading change (Andersen & Andersen, 2017). A leader's ability to clearly articulate the school's vision, monitoring of steps toward meeting the vision, and course correction when needed is paramount to successful change (Spiro, 2016).

Mathematics

The structure of this study looked at differences in achievement performance bands for both English language arts and mathematics content areas. Schools were sorted into three performance bands, high, average, and low. Responses were evenly split between each performance band for mathematics; of the total 99 responses to the survey, 37 responses from schools were identified in the high performance band, 30 responses in the average performance band, and 32 responses in the low band. A summary of what was revealed for mathematics through descriptive statistical analysis is including in the following pages.

The survey given to participants included 27 statements in three focal areas: nine questions each for instructional strategies, data use, and culture. Each focal area included nine statements that were rated by participants on a six-point Likert scale that measured the extent to which they agreed or disagreed to a particular statement. The first focal area, instructional strategies, presented statements regarding curriculum, assessment and feedback, and collaboration.

As with the descriptive data for English language arts, there was strong agreement among all performance bands regarding curriculum. Forty-three percent (43%) of participants in the high band demonstrated strong agreement to having a defined curriculum for English language arts and mathematics, with 63.3% demonstrating strong agreement in the average band and 53.1% of the low band. There was strong agreement demonstrated from all bands regarding the alignment of rigor between the Indiana Academic Standards and the curricula (37.8% demonstrated strong agreement in the high band, 46.7% in the average band, and 50.0% in the low band).

Schools in all performance bands demonstrated strong agreement with utilizing formative assessments. The high band demonstrated 32.4% strong agreement compared with 51.7% of the average band and 46.9% of the low band. Of using formative assessments to provide feedback, the high band demonstrated 29.7% strong agreement compared with 37.9% of the average band and 43.8% of the low band. For mathematics, the average low band demonstrated the strongest agreement for statements regarding formative assessments and feedback. As with English language arts, the expected outcomes of achievement based on research-based practice seems to be out of alignment.

When participants responded to the statement regarding their belief in students' ability to meet rigorous academic standards, there was a somewhat unexpected pattern. The high band demonstrated 21.6% strong agreement that students could meet standards compared with 40.0% of the average band and 25.0% of the low band. As with English language arts, the strength of agreement and academic performance band seemed out of alignment. It seems more logical for stronger agreement and higher achievement to be more closely aligned.

The second focal area presented statements related to both classroom and school-wide use of data. The high band was the only group that showed any level of disagreement (5.4%) to the statement of data helping to plan instruction, compared with 0% from the average and low bands. In responding to the statement about understanding how to use data to improve learning outcomes, however, all bands demonstrated some level of disagreement – the high band demonstrated 2.7% disagreement to some level, the average band demonstrated 3.3% and the low band demonstrated 3.1%. In a third statement, "I am good at adjusting instruction based on data," all bands demonstrated some level of disagreement. The high band demonstrated 27% disagreement to some extent, the average band was slightly lower with 13.7% disagreement to some extent, and the low band demonstrated 21.9% disagreement to some extent. Responses from these three particular statements indicate that there is understanding about how (and possibly why) to use data for instructional purposes, but lack of application to the planning process.

The third focal area presented statements regarding culture. Two statements addressed the value of teacher input and involvement with decision-making. The high band demonstrated the highest level of disagreement, with 35.1% disagreement to some extent on the value of teacher input, compared with a lower 16.7% from the average band and 25.0% from the low band. Research suggests that teacher efficacy and value are important to the success and academic achievement of a school, though the high band of this study had more than one third of respondents who disagreed to some extent. Furthermore, a safe and collaborative culture is necessary for a productive school (Cox, 2015; Deci & Ryan, 1985). However, the high band demonstrated 12.6% disagreement to some extent to having a safe and collaborative culture.

Over thirty percent (36.6%) of the average band demonstrated disagreement to some extent while, surprisingly, the low band only demonstrated 3.1% disagreement to some extent.

Participation and collaboration from staff help solidify a school team and focus efforts towards student achievement (DuFour et al., 2016). The extent to which teachers are involved in decision-making is critical, (Powell et al, 2017), though bands all demonstrated disagreement to some extent. The high band demonstrated 30.5% disagreement to some extent, the average band demonstrated 23.3% disagreement to some extent, and the low band demonstrated 28.1% disagreement to some extent.

Responses to school leadership in mathematics were similar to those demonstrated for English language arts. The high band demonstrated disagreement to some extent about having trusted leaders, compared with 16.7% of the average band and 12.6% of the low band. Responses to the statement about a leader's growth mindset were more closely aligned, with the high band demonstrating some level of disagreement (10.8%) compared with 6.6% of the average band and 6.3% of the low band.

Inferential Statistical Data

Inferential statistical data were used to determine if the null hypotheses would be retained. Null hypotheses were tested for a one-way ANOVA to explore significant differences of the dependent variables (i.e., instructional strategies, data use, and culture) with three levels of the independent variables (high, average, and low bands of performance). There were no statistically significant findings; all null hypotheses were retained.

Implications and Recommendations Based on Findings

Federal funding has been authorized since Lyndon B. Johnson signed the original Elementary and Secondary Education Act (1965). Despite millions of dollars committed by the

U.S. government through formula funding programs and supplemental school improvement grants (for example, Indiana received over $100,000,000 for 1003(g) SIG between 2010 and 2017), academic achievement has improved very little (Cohen & Moffitt, 2009; Edmonds, 1982; Le Floch et al., 2016; McMurrer et al., 2011; Wilson & Strassfeld, 2015). The Every Student Succeeds Act (ESSA) is the most recent of federal funding sources that provides support to failing schools. Current school improvement funding, specifically 1003(g), guides eligible schools to utilize a prescribed menu of intervention models and activities that have been demonstrated to show improvement in high-poverty, high performing schools (Levin, 2008). Despite basing grant activities on research-based methods and strategies, schools struggle to demonstrate or maintain academic achievement in English language arts or mathematics.

A multitude of studies have been conducted about the use and impact of federal funding. Such studies have been inconclusive about the positive outcomes. This particular study focused a sample of Indiana schools that received 1003(g) School Improvement Funding (SIG) between 2014 and 2017. Survey responses were mostly in agreement with the statements presented for each focal area: instructional strategies, data use, and culture. While there were ranges in the strengths of responses, a few statements did not align with what research indicated. For example, the high performance band did not demonstrate strong agreement with statements related to the application of instructional strategies and data use for both English language arts and mathematics. The high band demonstrated the highest levels of disagreement with statements related to the culture of school.

Several implications as a result of this study may provide context for interpreting the results. For example, it must be noted that at the time of the survey release (May 2020), some of the schools included in the sample had already graduated, or exited, the program, while other

schools were still receiving funds and actively implementing the grant. For example, schools in Cohort Five graduated from the SIG program at the start of the 2019-2020 school year, prior to the time of this survey, while Cohort Eight was in its third year of implementation. Despite most respondents indicating some familiarity with the SIG program (i.e., 91%), it is possible that the current state of school improvement were more direct effects of other, non-SIG influences, such as new school or district leadership.

Another possible implication of the results are that the scope of this study narrowly focused on implementation activities, though the particular cohorts studied included both planning and sustainability years, in addition to the three years of implementation. The implementation strategies and activities addressed in the study were specific, per the required elements of the federal improvement models being implemented, and assumed that any/all teachers were participants in the efforts. Thus, no investigation into specific planning or foundational work may have occurred which may have yielded different and perhaps more insightful data. For Indiana SIG schools, conditions were placed for the planning (or pre-implementation) year and focused on building leadership and building staff capacity. Likewise, sustainability was not addressed. For SIG schools that may have hired coaches, worked with principal mentors, or participated in professional development while funding was available, there was no consideration of how schools were weaned off funding and support in order to maintain grant initiatives. This study focused more on what was implemented rather than the process of implementation and scaling up sustainable change. Preparing, implementing, and sustaining change occurs when systems are put into place. Often, schools purchase quick fixes such as updated technology, packaged programs, or add a position to the team that lacks the vision or ability to develop capacity in others. When funding ends, technology breaks or becomes

obsolete, curricular resources become outdated, and positions are cut. Systems rely on changed behaviors that are predictable. For example, if a data coach supports the development and use of common formative assessments on a regular schedule, that process can continue in the absence of a person to do the work. Thus, capacity has been transferred among all staff.

An unexpected discrepancy in the study findings involved the performance of schools and survey results regarding culture. For culture-related statements in the survey, the high band of performance demonstrated the highest levels of disagreement. Anthony Muhammad wrote, "it is very possible that a group of professionals could *feel* very good about themselves and their students but still fail to modify their behaviors and practices and see no substantial change (2018, p. 19). Gruenert and Whitaker (2015) categorized feeling as part of the climate – a temporary, quickly manipulated state. Culture, however, speaks to a greater sense of an organization's beliefs as consistently demonstrated through actions.

"Rewiring" a culture (Gruenert & Whitaker, 2015, p. 120), which is an implicit expectation of the school improvement process, takes time, commitment from both leaders and teachers, and individual changes in both behaviors and beliefs. It is imperative to reiterate the importance of leaders for turnaround and transformational models of improvement and recognize the challenges of recruiting and retaining strong leaders (Gajda & Militello, 2008). Training and professional support for leaders focuses on the competencies and skills needed for leaders to be successful (Brown, 2015; Hewitt & Reitzug, 2015). An investment in a well-trained school leader will greatly influence the quality of staff, too (Baker & Cooper, 2005).

Emotional intelligence can improve practice through developing both leader and teacher competencies such as self-awareness (Dolev & Leshem, 2016). When addressing issues of equity in high-poverty, low-achieving schools, "good intentions and awareness are not enough to bring

about the changes needed in educational programs and procedures to prevent academic inequities among diverse students" (Gay, 2018, p. 13). What teachers know and understand about their own beliefs of what learners are capable of doing and the way they communicate those beliefs – either explicitly or not – make a difference.

In recent years, development of such competencies related to interpersonal relationships has been coined as social-emotional learning. The Collaborative for Academic, Social, and Emotional Learning, or CASEL, is a leading organization for research and resources related to SEL. The following is their definition of SEL:

> SEL is the process through which all young people and adults acquire and apply the knowledge, skills, and attitudes to develop healthy identities, manage emotions, feel and show empathy for others, establish and maintain supportive relationships, and make responsible and caring decisions (Collaborative for Academic, Social, and Emotional Learning (Collaborative for Academic, Social, and Emotional Learning, n.d.).

Social-emotional learning and the impact on student achievement is an emerging body of research and practice in education. Research is uncovering how students' physical and emotional safety, sense of belonging, and positive mindset impact academic achievement (Messano et al., 2020).

Recommendations for Future Research

At the conclusion of this study, recommendations are offered for ways to extend or expand the research on the effectiveness of school improvement programs. A few quick extensions include looking at schools beyond Indiana for differences in implementation for performance bands of schools. Another extension would be to survey both teachers and administrators in SIG schools, as each group has unique characteristics that may influence

perceptions of implementation. A last extension would be to focus on individual cohorts of schools that are working on the same implementation timeline. This would eliminate any possible differences due to graduation of the program, staffing and leadership changes, or other events that could influence a school's quality of implementation.

A new opportunity, or expansion, of study would be to review the impact of planning and sustainability for school improvement grants. Indiana extended the requirements of the 1003(g) SIG grants to include *Indiana Conditions* for the cohorts studied. Such conditions included a required year of planning, leadership review (and possible replacement of the principal at the end of the planning year), principal mentorship, leader autonomy, and specific oversight and support from the district. These conditions were not considered in the scope of the study, but may yield insight into the types of preparatory activities conducted by schools and the ultimate outcomes on student achievement. Considering the pre-planning, and subsequently, the sustainability year, as unique events within the school improvement grant process may yield information as to the preparation and maintenance activities that are likely to ensure effective implementation of school improvement grant activities.

A deeper investigation into the necessary conditions for improvement may review how the professional culture shifts to implement change with fidelity and longevity. An inference made through the findings of this study indicated that once funding and direct support were removed from the schools, no sustainable change remained. The connection between a culture of learning and academic achievement are strong, though there was little evidence of such a shift occurring among these 35 Indiana schools.

A final consideration for future research would be to investigate the impact of social-emotional learning (SEL) within the context of school improvement. In the most current

reauthorization of the ESEA, SEL is a key factor. Title IV, Part A funds are allocated to states and local school districts with an option to embed SEL-related interventions and training (Grant et al., 2017). SEL skills are addressed within other federal and school improvement strategies such as project-based and early learning programs. Federal accountability requires states to develop accountability models that are strongly influenced by school culture, such as reporting information for both behavior and attendance. Throughout spring and fall of 2020, schools have had to deal with online and virtual learning due to Covid-19. SEL has come to the forefront as maintaining a culture of learning and ensuring equity for all students (Germeroth, 2020).

Exploring SEL knowledge and skills lends itself to understanding more about educational neuroscience. Indiana's PK-12 Social-Emotional Learning Competencies, such as mindset and sensory-motor integration, are rooted in brain research and its application to learning (Desautels & Oliver, n.d.). Key strategies and practices for teachers address the whole child, or the social, emotional, and academic development of learners. Such practice supports students who have experienced poverty or trauma and lends itself to a more positive learning environment (Darling-Hammond & Cook-Harvey, 2018).

Summary

The intent of this quantitative study sought to identify differences in implementation of 1003(g) SIG in 35 schools in Indiana that received the grant between 2014 and 2017. Overall, there were no statistically significant findings in this study. Further, most responses to statements within the instructional strategies, data use, and culture focal areas demonstrated some level of agreement. The study uncovered some interesting differences in the strength of both agreement and disagreement from different performance bands, in both English language arts and mathematics, particularly between the understanding of key strategies and adopting into practice.

For example, the high performance band was the group with the weakest level of agreement to believing that students could meet rigorous academic standards. The high band also lagged behind the average and low bands in agreement with some extent of a school-wide data, RtI/MTSS system. Larger discrepancies between performance bands in both content areas emerged as the high performance band demonstrated the highest levels of disagreement with statements related to the third focal area of culture. Differences were particularly pronounced in responses to statements regarding trust of teachers, teacher involvement in decision-making for the school, and being in a school with a safe and collaborative culture.

Opportunities for further study on the quality and effectiveness of federal school improvement grant programs exist in a few key areas. First, more research is needed to better understand the conditions for application and maintenance of school improvement practices. Secondly, more emphasis should be directed towards developing a professional school culture that promotes equity and continuous improvement. Finally, new research is needed on the impact of social-emotional learning skills (for both staff and students) on student achievement, particularly in high-risk and failing schools.

As Benjamin Franklin stated, “an investment in knowledge pays the best interest.” It is our best interest as educators to understand to the best of our abilities the best investments we can make for our students. Investments of dollars should be tied to the spirit and intent of education, rather than ticking boxes on an implementation-compliant checklist (Gordon, 2004). At the present time, the Every Student Succeeds Act (ESSA, 2015) reserves 7% of each state’s Title I, Part A allocation for school improvement efforts. Federal funding priorities continue to focus on most at-riskschools, which generally include high-poverty and low-performing

buildings. As such, educators must continue to ask what can be learned from past programs to inform our future.

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APPENDIX A: ENGLISH LANGUAGE ARTS PERFORMANCE BAND METHODOLOGY

English Language Arts Residual Scores and Performance Band Identification for SIG Schools

	2018 ISTEP+ Scores		Prior Year SIG ISTEP+ Scores			
School Name	School ELA Percent Pass	State ELA Percent Pass	School ELA Percent Pass	State ELA Percent Pass	ELA Residual	ELA Performance Band
Hosford Park New Tech Elementary	70.5%	63.9%	27.6%	69.60%	48.617390%	High Band
Edgewood Elementary School	48.4%	64.2%	28.1%	66.70%	22.816921%	High Band
Maple Crest Middle School	34.9%	64.4%	25.7%	65.20%	10.032924%	High Band
Elwood Intermediate School	49.1%	62.8%	43.4%	66.70%	9.665797%	High Band
Bridgepoint Elementary School	62.6%	63.9%	58.7%	69.60%	9.654728%	High Band
Fairview Elementary School	46.2%	64.2%	55.4%	82.60%	9.139833%	High Band
Cedar Hall Community School	31.8%	64.1%	25.4%	66.10%	8.403347%	High Band
Parkview Middle School	62.5%	64.4%	55.0%	65.00%	8.022218%	High Band
S Ellen Jones School	58.1%	65.6%	52.1%	67.7%	8.008486%	High Band
Green Valley School	52.4%	65.6%	46.5%	67.7%	7.896299%	High Band

School Name	2018 ISTEP+ Scores: School ELA Percent Pass	2018 ISTEP+ Scores: State ELA Percent Pass	Prior Year SIG ISTEP+ Scores: School ELA Percent Pass	Prior Year SIG ISTEP+ Scores: State ELA Percent Pass	ELA Residual	ELA Performance Band
Washington Middle School	41.2%	64.4%	34.8%	65.20%	7.228083%	High Band
George H Fisher School 93	51.1%	61.2%	49.5%	66.70%	7.095745%	High Band
Highland Park Elementary School	60.1%	64.2%	75.1%	82.60%	3.356501%	Average Band
Bon Air Middle School	29.7%	63.5%	28.3%	65.20%	3.075756%	Average Band
Lena Dunn Elementary School	41.4%	64.2%	43.6%	68.70%	2.285855%	Average Band
Lincoln School	36.2%	64.1%	34.7%	64.70%	2.135728%	Average Band
Southside Middle School	38.7%	64.4%	37.0%	64.4%	1.669216%	Average Band
Lakeview Middle School	56.6%	64.0%	58.5%	67.30%	1.450059%	Average Band
River Valley Middle School	58.0%	64.4%	58.2%	65.20%	0.629813%	Average Band
Lake Ridge New Tech Middle School	50.5%	64.4%	65.4%	77.60%	-1.695492%	Average Band
Roosevelt STEAM School	20.8%	64.2%	24.4%	66.1%	-1.716667%	Average Band
Medora Elementary School	30.9%	65.2%	35.5%	66.1%	-3.724780%	Average Band

School Name	2018 ISTEP+ Scores: School ELA Percent Pass	2018 ISTEP+ Scores: State ELA Percent Pass	Prior Year SIG ISTEP+ Scores: School ELA Percent Pass	Prior Year SIG ISTEP+ Scores: State ELA Percent Pass	ELA Residual	ELA Performance Band
Chamberlain Elementary School	43.1%	63.8%	67.8%	83.90%	-4.602688%	Average Band
Sarah Scott Middle School	48.2%	64.4%	66.9%	77.60%	-5.505532%	Low Band
Eminence Community School	48.8%	63.9%	57.5%	65.9%	-6.784247%	Low Band
Sunny Heights Elementary School	42.2%	65.5%	53.3%	68.60%	-8.038489%	Low Band
John L McCulloch Junior High School	39.4%	64.0%	62.4%	77.60%	-9.307312%	Low Band
Phalen at Francis Scott Key 103	27.3%	64.4%	41.2%	68.70%	-9.639394%	Low Band
Mary Beck Elementary School	25.1%	64.2%	38.4%	66.70%	-10.831909%	Low Band
Pierre Moran Middle School	35.7%	63.9%	47.6%	64.70%	-11.108303%	Low Band
Highland Middle School	41.5%	64.3%	56.0%	65.20%	-13.580838%	Low Band
Stonybrook Middle School	36.7%	63.9%	63.7%	77.10%	-13.853029%	Low Band
Madison Primary Center	26.7%	63.9%	44.7%	66.90%	-15.033794%	Low Band
Pettit Park School	20.2%	63.9%	45.3%	66.90%	-22.158907%	Low Band
Bon Air Elementary School	29.3%	63.9%	64.6%	69.60%	-29.599567%	Low Band

APPENDIX B: MATHEMATICS PERFORMANCE BAND METHODOLOGY

Mathematics Residual Scores and Performance Band Identification for SIG Schools

	2018 ISTEP+ Scores		Prior Year SIG ISTEP+ Scores			
School Name	School Math Percent Pass	State Math Percent Pass	School Math Percent Pass	State Math Percent Pass	Math Residual	Math Performance Band
Hosford Park New Tech Elementary	76.3%	61.9%	13.6%	65.4%	66.199671%	High Band
Green Valley School	61.0%	60.1%	38.5%	59.9%	22.240842%	High Band
Edgewood Elementary School	45.2%	60.9%	24.8%	62.0%	21.482529%	High Band
George H Fisher School 93	56.1%	60.9%	40.1%	62.0%	17.111192%	High Band
Maple Crest Middle School	24.9%	54.6%	12.1%	55.2%	13.427653%	High Band
Fairview Elementary School	46.8%	60.9%	57.2%	84.4%	13.102739%	High Band
Elwood Intermediate School	43.0%	60.9%	31.8%	62.0%	12.331874%	High Band
S Ellen Jones School	45.8%	60.1%	33.6%	59.9%	11.980947%	High Band
Washington Middle School	36.1%	54.6%	26.1%	55.2%	10.638698%	High Band
Cedar Hall Community School	27.4%	58.3%	22.4%	58.9%	5.605549%	High Band

School Name	2018 ISTEP+ Scores: School Math Percent Pass	2018 ISTEP+ Scores: State Math Percent Pass	Prior Year SIG ISTEP+ Scores: School Math Percent Pass	Prior Year SIG ISTEP+ Scores: State Math Percent Pass	Math Residual	Math Performance Band
Lena Dunn Elementary School	34.2%	60.9%	32.5%	64.5%	5.230781%	High Band
River Valley Middle School	48.1%	54.6%	43.8%	55.2%	4.854104%	High Band
Phalen at Francis Scott Key 103	19.0%	60.9%	17.9%	64.5%	4.790476%	Average Band
Parkview Middle School	51.5%	54.6%	52.0%	56.7%	1.635630%	Average Band
Bridgepoint Elementary School	54.1%	61.9%	56.5%	65.4%	1.127772%	Average Band
Lincoln School	30.0%	58.3%	33.1%	61.0%	-0.439535%	Average Band
Southside Middle School	31.3%	54.6%	35.3%	55.1%	-3.543329%	Average Band
Highland Park Elementary School	52.0%	60.9%	79.3%	84.4%	-3.789941%	Average Band
Mary Beck Elementary School	24.5%	60.9%	30.2%	62.0%	-4.559218%	Average Band
John L McCulloch Junior High School	31.3%	53.0%	65.8%	82.7%	-4.790485%	Average Band
Roosevelt STEAM School	14.2%	60.9%	20.5%	61.3%	-5.853186%	Average Band
Lakeview Middle School	45.6%	53.0%	52.8%	54.2%	-6.070343%	Average Band
Pettit Park School	22.0%	61.9%	29.3%	62.7%	-6.463101%	Average Band

School Name	2018 ISTEP+ Scores		Prior Year SIG ISTEP+ Scores			
	School Math Percent Pass	State Math Percent Pass	School Math Percent Pass	State Math Percent Pass	Math Residual	Math Performance Band
Sarah Scott Middle School	31.5%	54.6%	67.8%	82.7%	-8.233526%	Low Band
Eminence Community School	45.0%	61.9%	54.8%	61.8%	-9.894521%	Low Band
Bon Air Middle School	16.0%	54.6%	27.5%	55.2%	-10.919380%	Low Band
Chamberlain Elementary School	41.0%	61.9%	74.7%	84.4%	-11.267828%	Low Band
Lake Ridge New Tech Middle School	38.0%	54.6%	77.8%	82.7%	-11.669942%	Low Band
Pierre Moran Middle School	25.1%	53.0%	36.8%	52.9%	-11.799058%	Low Band
Sunny Heights Elementary School	33.2%	60.1%	50.3%	61.3%	-15.957239%	Low Band
Highland Middle School	32.5%	54.6%	53.0%	55.2%	-19.921627%	Low Band
Stonybrook Middle School	21.0%	53.0%	70.9%	81.2%	-21.735268%	Low Band
Madison Primary Center	18.2%	61.9%	46.3%	62.7%	-27.348457%	Low Band
Bon Air Elementary School	25.0%	61.9%	56.9%	65.4%	-28.351852%	Low Band
Medora Elementary School	25.5%	60.9%	56.5%	61.3%	-30.597067%	Low Band

APPENDIX C: INSTRUCTION, DATA, AND CULTURE SURVEY

Instructional Strategies

Question 1	My school has a defined curriculum for English Language Arts and Mathematics at every grade level.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*
Question 2	The English Language Arts and Mathematics curriculum include clear student learning outcomes.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*
Question 3	Student learning outcomes identified in our curriculum match the skills and rigor of Indiana Academic Standards.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*
Question 4	I utilize formative assessments that are aligned with the school's curriculum.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*
Question 5	I provide feedback to my students based on formative assessments.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*
Question 6	I have opportunities to collaborate with other teachers regularly about student data.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*
Question 7	I believe that every child can meet	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*

	rigorous academic standards.						
Question 8	I differentiate instruction for my students.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*
Question 9	I design lessons to meet student-learning objectives from the curriculum.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*
Data Use							
Question 10	Data about my students helps me plan instruction.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*
Question 11	I find data useful in planning lessons.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*
Question 12	I understand how to use data to improve student learning outcomes form my students.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*
Question 13	There is a school-wide system in place for collecting and analyzing data.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*
Question 14	My school has an RTI/MTSS process in place to respond to student needs.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*
Question 15	There is another staff member with whom I can talk about data (such as a coach, partner teacher, or mentor teacher).	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*

Question 16	I am good at adjusting instruction based on data.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*
Question 17	I am good at using data to set learning goals for students.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*
Question 18	My students set goals for their learning objectives.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*
Culture							
Question 19	I understand the school's vision and mission.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*
Question 20	My input as a teacher is valued at our school.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*
Question 21	Teachers are involved in making decisions at our school.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*
Question 22	We have a professional learning community at our school.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*
Question 23	Leaders are trusted at this school.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*
Question 24	Teachers trust each other at my school.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*
Question 25	Our school leaders exhibit a growth mindset.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*
Question 26	Our school has a safe and collaborative culture.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*

Question 27	There are benefits for students when teachers work together within our building.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*

Demographics

School Name:

Subjects Taught	*English Language Arts*	*Mathematics*	*Both*	*Other*	
Grade level configuration of your school	*PK – 5*	*6-8*	*PK-8*	*7-8*	*PK - 5*
How long have you taught at your current school, including the current year?	*0-5 Years*	*6-10 Years*	*11 – 15 Years*	*16 – 20 Years*	*20 + Years*
How many years total have you taught, including the current year?	*0-5 Years*	*6-10 Years*	*11 – 15 Years*	*16 – 20 Years*	*20 + Years*

How familiar are you with the School Improvement Grant, or SIG, program?	*Strongly Unfamiliar*	*Somewhat unfamiliar*	*Unfamiliar*	*Familiar*	*Somewhat familiar*	*Very familiar*

How has SIG been beneficial to your school?	*Purchased technology*	*Improved ELA scores*	*Improved Math scores*	*Promoted collaboration among teachers*	*Developed or revised curriculum*	*Implemented PBIS*

(*Please check all that apply*.)	*Increased parent engagement*	*Purchased instructional materials*	*Implemented a STEM curriculum*	*Hired an instructional coach*	*Extended learning time for students*	*Paid stipends to staff (e.g., for additional time or incentives)*
	Attended conferences or workshops	*Brought in outside partners or experts for training*	*Hired a behavior interventionist*	*OTHER (please explain)*		

APPENDIX D: INSTRUCTION, DATA, AND CULTURE

SURVEY WITH RESEARCH CITATIONS

Instructional Strategies

Question 1	My school has a defined curriculum for English Language Arts and Mathematics at every grade level.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*

Hattie (2009); Marzano (2010); Popham (2001)

Question 2	The English Language Arts and Mathematics curriculum include clear student learning outcomes.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*

Hattie (2009); Marzano (2010); Popham (2001)

Question 3	Student learning outcomes match the skills and rigor or Indiana Academic Standards.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*

Mitchell et al., 2000

Question 4	I utilize formative assessments that	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*

	are aligned with the school's curriculum.						

Marzano (2010)

Question 5	I provide feedback to my students based on formative assessments.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*

Halverson (2010); Marzano (2010)

Question 6	I have opportunities to collaborate with other teachers regularly about student data.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*

Breiter & Light (2006); Schildkamp et al. (2016)

Question 7	I believe that every child can meet rigorous academic standards.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*

Peterson et al. (2016); Hattie (2009)

Question 8	I differentiate instruction for my students.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*

Beecher and Sweeny (2008); Tomlinson (2014)

Question 9	I design lessons to meet student-learning objectives from the curriculum.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*

Liou et al. (2017); Squires (2012)

Data Use

Question 10	Data about my students helps me plan instruction.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*

Bambrick-Santoyo (2010)

Question 11	I find data useful in planning lessons.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*

Bambrick-Santoyo (2010)

Question 12	I understand how to use data to improve student learning outcomes form my students.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*

Wise, Lukin, and Roos (1991)

Question 13	There is a school-wide system in place for collecting and analyzing data.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*

Deno et al. (2009); Herman and Gribbons (2001); Lezotte & Snyder (2011); Marzano (2017); Marzano et al. (2014)

Question 14	My school has an RTI/MTSS process in place to respond to student needs.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*

Deno et al. (2009); Herman and Gribbons (2001); Lezotte & Snyder (2011); Marzano (2017); Marzano et al. (2014)

Question 15	There is another staff member with whom I can	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*

	talk about data (such as a coach, partner teacher, or mentor teacher).						

Karagiorgi et al. (2015); Schildkamp et al. (2016)

Question 16	I am good at adjusting instruction based on data.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*

Deno et al. (2009)

Question 17	I am good at using data to set learning goals for students.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*

Lezotte & Snyder (2011)

Question 18	My students set goals for their learning objectives.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*

Marzano (2010); Beecher & Sweeny (2008); Tomlinson (2014); Liou et al. (2017); Squires (2012)

Culture

Question 19	I understand the school's vision and mission.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*

Breiter & Light (2006); Schildkamp et al. (2016)

Question 20	My input as a teacher is valued at our school.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*

Mincu (2013); Tyack & Cuban (1995)

Question 21	Teachers are involved in making	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*

	decisions at our school.						

Powell et al. (2017)

Question 22	We have a professional learning community at our school.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*

Breiter & Light (2006); Schildkamp et al. (2016)

Question 23	Leaders are trusted at this school.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*

Demir (2015); Parlar et al. (2017)

Question 24	Teachers trust each other at my school.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*

Austin (1997); Gimbel (2003)

Question 25	Our school leaders exhibit a growth mindset.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*

Dweck (2006); National Council of Supervisors of Mathematics (2014)

Question 26	Our school has a safe and collaborative culture.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*

Austin (1997); DuFour et al. (2016); Gimbe, (2003)

Question 27	There are benefits for students when teachers work together within our building.	*Strongly Disagree*	*Disagree*	*Somewhat Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*

Karagiorgi et al. (2015); Kotter (2012)

APPENDIX E: RECRUITMENT LETTER

April 1, 2020

Dear Indiana Teacher:

You are being invited to participate in a research study. This study aims to find out what impact 1003(g) School Improvement Grants (SIG) had on instructional strategies, data use, and culture in the schools that were awarded in Cohorts Five to Eight. The way you can help me answer the question is by answering the questions in the anonymous survey, which should take you about ten minutes to complete.

Some reasons you might want to participate in this research are to help inform local, state, and federal leaders of the effectiveness of federal funding for school improvement efforts. Some reasons you might not want to participate in this research are limited knowledge of the 1003(g) SIG or the impact on your school.

The choice to participate or not is yours; participation is entirely voluntary. You also can choose to answer or not answer any question you like, and to exit the survey if you wish to stop participating. No one will know whether you participated or not.

This survey asks questions about implementation practices of instructional strategies, data use, and culture as a result of your school's 1003(g) SIG. You have been asked to participate in this research because you are a teacher in a recent or current SIG school.

Although every effort will be made to protect your answers, complete anonymity cannot be guaranteed over the Internet. Other potential risks of the study include loss of confidentiality, and minimal risk encountered during routine exam or tests.

It is unlikely that you will benefit directly by participating in this study, but the research results may benefit educators, school and district administrators, and federal program staff with information about future federal funding.

If you have any questions, please contact Cynthia Hurst, 5532 Golden Gate Way, Kokomo IN 46902, (317) 376-2201, churst6@sycamores.indstate.edu or, Terry.McDaniel@indstate.edu.

If you have any questions about your rights as a research subject or if you feel you have been placed at risk, you may contact the Indiana State University Institutional Review Board (IRB) by mail at Indiana State University, Office of Sponsored Programs, Terre Haute, IN 47809, by phone at (812) 237-3088 or by email at irb@indstate.edu.

The following link will take you to the survey, https://indstate.qualtrics.com/jfe/form/SV_ePy6tuSHf2kSgsZ.

Sincerely,

Cynthia L. Hurst

APPENDIX F: INFORMED CONSENT

April 1, 2020

A REVIEW OF INDIANA'S 1003(g) SCHOOL IMPROVEMENT GRANTS, COHORTS FIVE TO EIGHT: MEASURING INSTRUCTIONAL STRATEGIES, DATA USE, AND CULTURE

You are being invited to participate in a research study. This study aims to find out what impact 1003(g) School Improvement Grants (SIG) had on instructional strategies, data use, and culture in the schools that were awarded in Cohorts Five to Eight. The way you can help me answer the question is by answering the questions in the anonymous survey, which should take you about ten minutes to complete.

Some reasons you might want to participate in this research are to help inform local, state, and federal leaders of the effectiveness of federal funding for school improvement efforts. Some reasons you might not want to participate in this research are limited knowledge of the 1003(g) SIG or the impact on your school.

The choice to participate or not is yours; participation is entirely voluntary. You also can choose to answer or not answer any question you like, and to exit the survey if you wish to stop participating. No one will know whether you participated or not.

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If you have any questions, please contact Cynthia Hurst, 5532 Golden Gate Way, Kokomo IN 46902, (317) 376-2201, churst6@sycamores.indstate.edu or, Terry.McDaniel@indstate.edu.

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APPENDIX G: FOLLOW UP EMAIL TO TEACHERS

Indiana State University

Dear Indiana Teacher:

Thank you to the teachers who already participated in *The Impact of 1003(g) School Improvement Grants* survey. Your quick responses are greatly appreciated!

If you have not completed the survey, there is still plenty of time. Join your fellow teachers in sharing your perceptions on implementation of school improvement practices under the 1003(g) School Improvement Grant (SIG) program. The link below will be active for the remainder of this week. Use the link below to access the survey.

Survey Link: https://indstate.qualtrics.com/jfe/form/SV_ePy6tuSHf2kSgsZ

Sincerely,

Cynthia L. Hurst

5532 Golden Gate Way

Kokomo, IN 46902

(317) 376-2201