VITA

Maryanne B. McMahon

EDUCATION

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<td>Ph.D. in Educational Administration</td>
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PROFESSIONAL EXPERIENCE

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<td>1985</td>
<td>Stephen Decatur Elementary</td>
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<td>Elementary Teacher</td>
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Language Arts Achievement and Reading Instructional Strategies in Indiana Elementary Schools With High Percentages of Increasing and Declining Enrollments

A dissertation

Presented to

The College of Graduate and Professional Studies

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Administration and Foundations

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of the Requirements for the Degree

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by

Maryanne B. McMahon

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Keywords: Achievement Instructional Strategies Declining Enrollment
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ABSTRACT

The focus of this quantitative study was to identify third grade ISTEP+ data from the top 10 increasing and declining enrollment public school districts in the state of Indiana to determine if communities experiencing high percentages of increasing or declining enrollments have significantly different achievement in language arts. This data was disaggregated to examine the subgroups of English Language Learners and Socio-economic Status. Additionally, the study determined if teachers in these schools were informed about scientific, research-based reading instructional strategies and to what degree SRBI was utilized in reading instruction to meet the needs of students.

School corporations experiencing high percentages of student enrollment gains had a higher mean on the language arts portion of the ISTEP+ for third grade students, and the subgroups of free and reduced lunch, and English Language Learners. These findings have practical significance in demonstrating if third grade students attending increasing enrollment schools outperformed students attending declining enrollment schools academically in language arts. This data has implications for both state and federal legislation regarding school improvement categories. The second part of the study focused on teacher survey data to determine utilization and source of knowledge regarding scientific, research-based instruction in reading. As a result, teachers believe they were utilizing scientific, research-based instruction to meet the needs of their changing student populations; however, there is no evidence teachers learned SRBI in pre-service programs.
ACKNOWLEDGMENTS

This project could not have been completed without the gracious support of Avon Community School Corporation Superintendent Dr. Timothy Ogle, the Avon Community School Corporation School Board, and support of the District Administrative Team. Their never ending encouragement and support to complete this degree was invaluable.

I wish to also thank my dissertation committee members beginning with my chairperson, Dr. Terry McDaniel, whose time, guidance and support were priceless during the process. His encouragement made all the difference as this study developed from concept during the Wednesday Residency Program to fruition. I wish to also thank committee member, Dr. Bradley Balch, for his genuine interest of the topic and insightful suggestions for deeper investigation during the study. A sincere thank you is in order to Dr. Candace Milhon-Baer for her impeccable attention to detail and her willingness to contribute to the educational profession by serving on the committee.

There were several people that I met and would like to thank for their various levels of support during my time at Indiana State University. I would be remiss if I did not begin with the 2007 Wednesday Residency Cohort for both encouragement and being an invaluable piece of my educational journey. To Judy Barnes as her editing knowledge and expertise has been instrumental to the completion of this document. The support of Glen Depalma in assuring my statistical analysis was on-track deserves my utmost respect.
Deepest appreciation is given to my husband, Vincent, who patiently encouraged and supported me throughout the process. He has been my constant pillar of support for almost 30 years. This work is also dedicated to our children, Kateland and Keegan, who I hope as young adults see this accomplishment as an example of the importance of life-long learning. My mother, Sharon, and mother-in-law, Kathie, as well as my entire extended family have contributed with words of encouragement along the way. For all of you, I am grateful.

In memory of my brother, David, as his early departure from this world has been a constant motivation to make the most of this life we are given. In memorial of Bernard J. McMahon as his influence was also a driving force in this accomplishment. I know he has been praying for us; as we have for him.
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CHAPTER 1

Introduction

The world is more global now than ever before. People are becoming increasingly transient, not just moving up socially within a community, but moving to a different state, or even around the world. Communities where generation upon generation once rooted themselves are changing into nouveau communities consisting of populations made up of both transient and non-transient backgrounds. This movement is creating greater diversity in areas that were once predominately one ethnic group or social class. Simultaneously, our public schools face the challenge of keeping community traditions sacred to satisfy the non-transient populations while accommodating the needs and sometimes progressive views of the transient populations. It is, after all, the mission of public schools to welcome, appreciate, and educate all whom venture through their doors.

America’s schools before the 1800s were primarily around colonial and agricultural communities where students started and finished their schooling experience within one school system. The decades following the 1800s in American history marked a time of important transitions in America. National systems for transportation and communication began to form as well as the creation of state-supervised public education systems. By the 1900s over 30 states required children between 8 and 14 years old to attend school. By 1910, 72% of American children attended school. Schools were growing and taking on the responsibility of developing
the social threads of America. As a developing economic and social society, Americans began to place more value on an education. So much so that communities expanded schooling to include high schools in 1910. This resulted in 50% of young adults obtaining a diploma within three decades of the inception of high schools (Rury, 2002).

Public schools focused on assimilation for anyone that enrolled. As a result, non-Protestant immigrants organized to develop their own school systems. Catholic communities raised money to build churches and seminaries to develop social environments that were more supportive of their views than the public schools. Private schools met early opposition, but it was not until 1925 that the Supreme Court ruled students could attend private schools to comply with educational law. Until that time, transiency in private schools was more limited (Rury, 2002).

While early American school history did not experience large volumes of transiency, the current reality for schools in the United States of America portrays a vastly different picture. According to the U.S. Census Bureau (USCB) (2001), between March 1999 and March 2000, 43.4 million Americans relocated. Of that number 56% were within the same county locally, 20% were between counties in the same state and 19% were moves to a different state. New families moving to the United States totaled 4% during that time period (USCB, 2001). The study also reported that 20-29 year olds were the most likely to move due to a higher frequency of life-changing events such as relocating for a job or marriage. White, non-Hispanics were less mobile than other ethnic groups with Hispanics, Asians, and Pacific Islanders having the highest mobility rate at approximately 20%. Transient Blacks and Hispanics were found to most likely move within the same county. One third of people renting homes moved, compared to one in 11 people living in home-owner properties. People making under $25,000 were two times more likely to move compared to people with incomes over $100,000. Looking at region-to-region
within the United States, more people moved from North to South continuing the trend of previous decades. The Northeast is the only region in the United States to post a net loss in population of 252,000 people. The South experienced a net gain of 227,000 people making these two areas the only regions with statistically significant population shifts. Nonmetropolitan areas had internal migration close to zero with metropolitan areas outside central cities being the most frequent relocation area among movers between metropolitan areas. The USCB also reported that during this time period, metropolitan areas overall had almost equal numbers of in-migrants and out-migrants while central cities continued the pattern of the 1990s with migration loss. Between 1999 and 2000, central cities experienced a net loss of 3.2 million people in the United States.

As this type of movement is documented in our country, one wonders what impact the resulting enrollment shift has on the academic achievement of the students in public school corporations. Specifically, do districts understand the socioeconomic implications and are they equipped to address student needs and align instruction to support student success on the academic front?

**Statement of the Problem**

The face of America continues to change with immigration and employment opportunities. Communities that were once stable and primarily one race or religion have become more intermixed and socially complex. Recent trends verify an increasing minority presence in suburb areas (Pastor, 2000). To understand the evolution of this issue a brief explanation of immigration in America is provided.

The history of immigration in the United States gives background on diversity trends in terms of race and religion with data to support the continuation of these trends. The historical
influx of immigrants to this country includes four major time periods. The first recorded time of immigration movement was prior to 1820 with 60% being of English origin. The influence from this phase left a lasting influence on both the government and language utilized in America today. Between 1820 and 1860 a second immigration wave brought a large number of people from Germany, Great Britain, and Ireland. Due to the famine in Ireland during this time, 40% of the immigrants were Irish and of Roman Catholic faith. A third identified era of immigration was between 1880 and 1914. Over 20 million immigrants arrived from southern and eastern Europe. Simultaneously, several hundred thousand Japanese and Chinese immigrants settled in the western part of the United States. During this third era, immigrants moved primarily to major cities such as New York, Chicago, and Detroit. They were attracted to employment opportunities in steel mills, the meat packing industry, and mining. Male workers born in foreign countries made up 50% of the work force in these cities at that time (Daniels, 2002).

A research study by Martin and Midgley (2003) found that due to World War I, immigration quotas, and the Great Depression, there was limited immigration between 1915 and 1964. During peak years, regardless of the era, one million immigrants per year were entering the United States. Since the beginning of the 21st century, this trend has continued. The geographic pattern of immigrants continues to be toward major cities in the United States. Immigrants are both in search of employment opportunities and in search of exposure to the English language for their children (Martin & Midgley, 2003). While research verifies changing demographics in America, little research has been conducted to determine if the resulting socioeconomic shift in increasing and conversely declining community populations has an impact on school achievement.
Transiency is therefore not unique or a new phenomenon in the United States. People have been on the move since immigration began to the New World. People within the U.S. and immigrants coming to the U.S. continue moving in search of a better life. Reasons for moving include finding employment, job relocation, joining family and friends, escaping high crime areas, finding better schools, homelessness, leaving substandard or unaffordable housing, poor domestic relationships, and eviction (USCB, 2001). As noted by Staresina (2003), the 2000 USCB reported 17% of school-aged children had moved in the previous year. The Florida Division of Teaching and Learning (2002) estimated six million elementary school age students change schools each year. Schools with high rates of student mobility generally have been found to possess one or more of the following characteristics: a large population of children whose parents are migrant workers, a large population of children who are homeless, and/or a large population of children living in low-income families. These statistics have attributed to a high rate of mobility in urban school districts.

In regards to rural communities Fagan (2002) found:

Mobility also tends to be high in rural communities where the seasons often dictate the flow of families, especially in areas that experience severe winter weather. It is not uncommon for rural schools in high poverty areas to enroll students for only a few months, knowing that this will be the only public education they will experience during the school year. (p. 33)

Martin (2002) reported that approximately 25% of American children have changed schools three or more times during their time as public school students. These changes do not include the number of schools attended within a school corporation as students naturally progress through the system from kindergarten through high school graduation. An additional report by
Hartman, president of the Poverty and Race Research Action Council, stated that one of every six students living in the United States has attended three or more schools (Hartman & Leff, 2002). Many of these same students often change schools more than one time during the course of a given school year (Hartman & Leff, 2002). A study of students in Chicago found that less than half of the students enrolled in first grade attended the same school by grade four (Hall, 2001).

According to Camarota (1999), the United States leads the world in its geographical mobility. Statistics for the United States demonstrate large quantities of student transience among school districts compared to other countries (National Science Board, 2006). Mobility due to historical immigration patterns, economic purposes, and domestic issues continue to impact school enrollment.

**Research Questions**

1. Is there a difference in language arts achievement of third grade students in increasing enrollment school corporations as compared to declining enrollment school corporations?

2. Is there a difference in language arts achievement of third grade students identified as low socioeconomic status in increasing enrollment school corporations as compared to declining enrollment school corporations?

3. Is there a difference in language arts achievement of third grade students identified as English Language Learners in increasing enrollment school corporations as compared to declining enrollment school corporations?
4. Do third grade reading teachers in increasing and declining enrollment school corporations utilize scientific, research-based instruction to meet the needs of their changing student population?

5. Do third grade reading teachers in increasing and declining enrollment school corporations learn scientific, research-based instruction in pre-service programs?

6. Is there a difference between hypotheses four and five for teachers in declining enrollment schools and teachers in increasing enrollment school corporations?

**Null Hypotheses**

**H\textsubscript{0}1.** There is no difference in language arts achievement of third grade students in increasing enrollment school corporations as compared to declining enrollment school corporations.

**H\textsubscript{0}2.** There is no difference in language arts achievement of third grade students identified as low socioeconomic status in increasing enrollment school corporations as compared to declining enrollment school corporations.

**H\textsubscript{0}3.** There is no difference in language arts achievement of third grade students identified as English Language Learners in increasing enrollment school corporations as compared to declining enrollment school corporations.

**H\textsubscript{0}4.** There is no significant difference among third grade reading teachers impacted by increasing and declining student enrollment and the degree of utilization of scientific, research-based reading instruction to meet the needs of their changing student population.

**H\textsubscript{0}5.** There is no significant difference among third grade reading teachers impacted by increasing and declining student enrollment and the degree of knowledge regarding scientific, research-based reading instruction learned in pre-service programs.
There is no significant difference in hypotheses four and five for teachers in declining enrollment school corporations and teachers in increasing enrollment school corporations.

**Purpose of the Study**

The researcher was interested in enrollment trends, specifically school corporations experiencing high percentages of enrollment increases or decreases in the state of Indiana and the impact on third grade achievement in language arts. The focus was to target third grade ISTEP+ data for the top 10 increasing and declining public school districts in the state to determine if mobility has had an impact on language arts achievement. Delving deeper, the purpose was to look at the subgroups of English Language Learners and Socio-economic Status within these school corporations to study language arts achievement levels. Additionally, the study was to determine if teachers in these schools are informed about scientific, research-based reading instructional strategies and are utilizing them to meet the needs of their students.

**Significance of the Study**

A critical look at the effect of student mobility on student language arts achievement is necessary to provide data to determine the extent in which achievement is impacted. The study may serve as rationale for a core reading curriculum and instructional strategies to mitigate the impact of mobility on achievement. While the State of Indiana has specific Academic Standards for each content area, curricula are created and implemented locally based upon state standards. The National Science Board (1999) stated that the mobility of students is a systemic problem that requires a solution that is also systemic. The implications of this statement would require common work among districts across the state to create not only core curricula, but common instructional strategies for students to readily connect to during transition to a new school
district. Additionally, for rapidly increasing districts, teacher mobility may also have an impact as new teachers are hired and existing staff transferred to new buildings during redistricting efforts. On the university level, there may be implications for creating more commonalities for teacher pre-service programs.

Definitions

*Adequate Yearly Progress* (AYP) provides designations for Indiana school corporations and schools determined by student achievement and participation rates on the Indiana Statewide Testing for Educational Progress-Plus (ISTEP+) in English/language arts and mathematics; student attendance rates for elementary and middle schools; and high school graduation rates for high schools.

*Comprehension* is the intentional thinking during which meaning is constructed through interactions between text and reader.

*English Language Learner* (ELL) is the use or study of English by speakers with a different native language.

*Fluency* is the ability to read orally with speed, accuracy, and proper expression in order to comprehend text.

*Increasing/Declining Student Enrollment* is based upon four year trend data between 2003 and 2007 for public school corporations in the state of Indiana.

*Indiana Statewide Testing for Education Progress-Plus* (ISTEP+) is a state designed measure of what students know and are able to do at each grade level in core academic subjects. The assessments are based upon the Indiana Academic Standards.

*Mobility Rate* is the number of students known to have transferred (by transcript) to a public school or a nonpublic school that continues the student’s education on a full-time basis.
Phonemic Awareness is the knowledge of the smallest units composing spoken language.

Phonics is utilizing letter-sound relations to read or spell words.

Scientific, research-based instruction (SRBI) is research that involves application of rigorous, systematic and objective procedures to obtain reliable and valid knowledge relevant to educational activities and programs.

Socioeconomic Status (SES) is the economic measure of a family’s position, relative to others, in a school corporation.

Transience is students moving from one school to another for reasons other than being promoted to the next school level.

Limitations

The data in this study was limited to information provided by the Indiana Department of Education database. The data to indicate mobility for the study was limited by the nature of school enrollment counts. The data does not reflect students moving within a school district, or the intra-district mobility rate. The data is limited to information based upon third grade students’ scores on language arts and not other subject areas as this study was focused on this area over any other. For the survey component, the study is limited by the perception of those completing the survey and the willingness of the administration in each school district to allow their third grade teachers to participate.

Delimitations

The data for this study is age-specific. The study is applicable to third grade students in Indiana public schools. Additionally, only third grade student data from school districts that have been in the highest 10% increasing and highest 10% declining public schools in the state of
Indiana between 2003 and 2007 were utilized for this study. The effects of mobility may range depending on the age of the child and may not apply to other grades.

**Organization of the Study**

Descriptive aspects of the proposed research including research questions and null hypotheses are included in Chapter 1. Chapter 2 contains a comprehensive review of the relevant issues from previous literature related to this topic. A presentation of the methods and procedures used to generate the data used for the final analysis is provided in Chapter 3. Statistical results are presented in Chapter 4. The discussion in Chapter 5 gives the reader an interpretation of the findings, conclusions, and recommendations.
CHAPTER 2

Review of the Literature

This chapter introduces the reader to the relevant factors related to the impact of student mobility on academic achievement in the state of Indiana. It also explores the instructional strategies that are researched-based in addressing the needs of a changing population. The review of the literature focused on five major areas: (a) history of population growth in Indiana, (b) impact of student mobility creating both increasing and declining school corporations within the state, (c) the relationship between student mobility and academic achievement, (d) review of the research on educational implications for schools experiencing changing populations, and (e) review of scientific research-based strategies for reading instruction.

History of Population Growth in Indiana

The U.S. Census Bureau released figures in December of 2003 verifying that Indiana’s population had grown to approximately 6.2 million since the previous census; ranking Indiana the 14th largest state in the United States (Rogers & Thompson, 2004). However, Indiana’s annual rate of growth during the new century has been closer to 1% which is reminiscent of the 1980s. Data between 2002 and 2003 shows Indiana’s growth rate was 0.6 %, only 0.1 percentage point higher than the growth of the Midwest (Rogers & Thompson, 2004). From 1995 to 2000, Indiana had a net increase of 241,000 people. The Indiana Business Research Center (IBRC) is the official representative to the U.S. Census Bureau and is located in
Bloomington, Indiana. According to Kinghorn (2008), the IBRC released a report stating that Indiana currently places 25\textsuperscript{th} largest in net international migration in the United States and District of Columbia. Hamilton County, located north of Indianapolis, has reflected growth and attracted families where adults 25 and older have the 10\textsuperscript{th} highest percentage of adults holding a bachelor’s degree out of 3,141 counties nationwide. The top 10 counties are listed in the Table 1.

Table 1

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<th>No.</th>
<th>County, State</th>
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<td>Douglas County, Colorado</td>
<td>97.0%</td>
</tr>
<tr>
<td>2</td>
<td>Los Alamos County, New Mexico</td>
<td>96.3%</td>
</tr>
<tr>
<td>3</td>
<td>Pitkin County, Colorado</td>
<td>96.3%</td>
</tr>
<tr>
<td>4</td>
<td>Falls Church City County, Virginia</td>
<td>95.9%</td>
</tr>
<tr>
<td>5</td>
<td>Routt County, Colorado</td>
<td>95.3%</td>
</tr>
<tr>
<td>6</td>
<td>Johnson County, Kansas</td>
<td>94.9%</td>
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<tr>
<td>7</td>
<td>Teton County, Wyoming</td>
<td>94.7%</td>
</tr>
<tr>
<td>8</td>
<td>San Juan County, Washington</td>
<td>94.4%</td>
</tr>
<tr>
<td>9</td>
<td>Banner County, Nebraska</td>
<td>94.2%</td>
</tr>
<tr>
<td>10</td>
<td>Hamilton County, Indiana</td>
<td>94.2%</td>
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Data from the IBRC in 2007 revealed the four largest cities in Indiana as Indianapolis (population 795,458), Fort Wayne (population 251,247), Evansville (population 116,253) and South Bend (population 104,069). Since the 2000 census, Indianapolis was the only one of the four cities to have increased its population annually. The other three have decreased with Fort
Wayne and Evansville showing a reversal to the downward trend beginning in 2006 (Kinghorn, 2008).

Between 2000 and 2007, the city of Fishers was the fastest increasing population in the state of Indiana with a total of 65,382 residents. This was an increase of 69.1%. Other fast increasing communities during this same time period were Noblesville with a total population of 41,561 (39.4% increase), Greenwood total population 47,736 (26.3% increase), and Carmel total population 45,808 (21.4% increase). Additionally, the city of Fishers experienced the greatest numeric growth with a net gain of 27,000 residents since the 2000 census. This gain was double to Indianapolis, which increased population by 13,214 during the same time period. Based on actual population, Fishers grew from the 19th largest city in Indiana in 2000 to the eighth largest in 2007. Cities experiencing the greatest decline in population during this seven-year span included Hammond (-6.8 %), Gary (-5.9 %), Evansville (-4.2 %), and Anderson (-4.0 %).

The suburban Indianapolis area of Hamilton County has experienced the most growth containing three of the top four cities gaining numerically between 2000 and 2007. These cities included Fishers, Noblesville, and Carmel. Four counties in the Indianapolis metropolitan area, areas adjacent to Indianapolis, were among the top eight largest city and town population gains in the state which included Hamilton, Hendricks, Johnson and Marion. The top 15 largest town and city population increases existed solely in the Indianapolis area, its surrounding regions, or Lake County.

The historical trends of increasing and declining populations have created an impact on Indiana school enrollment. These numbers have fluctuated since the 1950s. Between 1950 and 1970 the enrollment trends for Indiana were upward, followed by a downward trend in the 1970s with recovery in the 1980s and reaching a plateau during the 1990s. This rollercoaster
enrollment has caused school corporations to open and close facilities depending upon their enrollment status (Lapkoff & Li, 2007). Indianapolis Public Schools (IPS) is a prime example of this information. In its peak during the 1960s, IPS constructed three new high schools in a period of seven years to accommodate growth. Between 1971 and 2005 the district lost nearly 70,000 students and closed some 100 schools, including six high schools. In October 2008, the current Superintendent for Indianapolis Public Schools announced that “due to decreased enrollments, six more schools will close their doors in the fall of the 2009 school year” (Gammill, 2008, A11).

Table 2

*Hamilton Southeastern School Corporation Increase in School Buildings 1999 to 2009*

<table>
<thead>
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<th>School Configuration</th>
<th># of Buildings 1999</th>
<th># of Buildings 2009</th>
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<tbody>
<tr>
<td>K-4</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Intermediate/Jr. High</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>High School</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>10</strong></td>
<td><strong>20</strong></td>
</tr>
</tbody>
</table>

Source: Hamilton Southeastern School Corporation (2009)

In suburban Indianapolis, the opposite is in effect. One example is Avon Community School Corporation. The kindergarten enrollment there in 1997 was 326 kindergarten students compared to 561 kindergarten students in 2007. This increased enrollment impacted school construction to include two new elementary buildings, an intermediate building, and an addition to the high school in the past 10 years. Additional construction is currently in various stages, including another middle school, a seventh elementary and a second addition to the high school.
that originally opened in 1999 (Avon Community School Corporation, 2009). On the north side of Indianapolis, the Hamilton Southeastern School Corporation grew even more significantly in student population and building projects during the same 10 year time period. Hamilton Southeastern School Corporation increased by 10,000 students between 1999 and the year 2009. This growth doubled the number of buildings from 10 to 20. The corporation buildings have changed as captured in Table 2.

**Impact of Mobility on School Corporation Enrollment**

Tracking the student mobility rate in Indiana is a relatively new endeavor for the Indiana Department of Education. Attention to the mobility rate is finding its way into state legislation. Indiana adopted accountability legislation that requires the calculation of a mobility rate in determining school effectiveness. That requirement was a positive step toward understanding the impact of mobility on schooling. Regardless of the stability of a school population, student mobility has an impact on the organization. Mobility is associated with lower student achievement and lower test scores. Mobility mostly affects the students that move, but additionally impacts classmates, teachers, parents and other school personnel at both the sending and receiving school (Fowler-Finn, 2001). The accuracy of individual student information provided via the bar code label on ISTEP+ tests is one way mobility is beginning to be tracked in the state. Two specific reports, Pupil Enrollment and Public and Nonpublic Attendance, allow an accurate report of data on Indiana’s mobility rates and student achievement. The purpose of the Pupil Enrollment count is to gather student enrollment information as of October 1 of the current school year. The Attendance Report is collected for both public and non-public schools at the end of each school year to verify attendance in both of these settings. Mobility data for the
state of Indiana collected over the past five years prior to 2007 reflects families are moving away from Gary, Indiana in the northwestern portion of the state at an alarming rate.

Table 3

*Enrollment Percent of Increase or Decline in Selected Indiana School Corporations Between 2003-2007*

<table>
<thead>
<tr>
<th>Indiana School Corporation</th>
<th>Enrollment % of Decrease or Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gary Community School Corporation</td>
<td>-27%</td>
</tr>
<tr>
<td>Edinburgh Community School Corporation</td>
<td>-13%</td>
</tr>
<tr>
<td>Hamilton Community Schools</td>
<td>-11%</td>
</tr>
<tr>
<td>Marion Community Schools</td>
<td>-11%</td>
</tr>
<tr>
<td>Shoals Community School Corporation</td>
<td>-10%</td>
</tr>
<tr>
<td>New Harmony Township Schools</td>
<td>-10%</td>
</tr>
<tr>
<td>Southwest School Corporation</td>
<td>-10%</td>
</tr>
<tr>
<td>MSD of Mount Vernon</td>
<td>-10%</td>
</tr>
<tr>
<td>Argos Community Schools</td>
<td>-9%</td>
</tr>
<tr>
<td>Vincennes Community School Corporation</td>
<td>-9%</td>
</tr>
<tr>
<td>New Durham Township Schools</td>
<td>+21%</td>
</tr>
<tr>
<td>Noblesville Schools</td>
<td>+22%</td>
</tr>
<tr>
<td>Mt. Vernon Community School Corporation</td>
<td>+22%</td>
</tr>
<tr>
<td>Brownsburg Community School Corporation</td>
<td>+23%</td>
</tr>
<tr>
<td>Zionsville Community Schools</td>
<td>+24%</td>
</tr>
<tr>
<td>Westfield-Washington Schools</td>
<td>+25%</td>
</tr>
</tbody>
</table>
Franklin Township Community School Corporation +28%
Avon Community School Corporation +31%

Table 3 (continued)

<table>
<thead>
<tr>
<th>Indiana School Corporation</th>
<th>Enrollment % of Increase or Decrease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clark-Pleasant Community School Corporation</td>
<td>+37%</td>
</tr>
<tr>
<td>Hamilton Southeastern School Corporation</td>
<td>+43%</td>
</tr>
</tbody>
</table>

Gary Community School District has lost approximately 27% of its enrollment since 2003. The other nine school districts rounding out the top 10 declining districts in the state were generally smaller communities representing counties throughout the state. The range of enrollment loss for these communities was between 12.5% and 9.0% during the same time period. While there were many charter schools increasing in enrollment at a significant pace in Indiana, this study focused only on public school systems. Since 2003, Hamilton Southeastern School District located in Central Indiana grew 42.9%. The range of enrollment gain for the next nine fast increasing districts in the state was 36.89% to 21%. These figures are reflected in Table 3. The majority of these school corporations surround Indianapolis, Indiana (Indiana Department of Education [IDOE], 2007).

Relationship Between Student Mobility and Academic Achievement

Although moving once or twice during the public school years may not be harmful, most research shows that high mobility is associated with students’ achievement, particularly when the students are from less-educated, low-income families. A study by Riehl (1999) found that students experiencing high rates of mobility may experience a negative effect on student
achievement with significant, increased chances of dropping out of school. Furthermore, transient students may be academically behind their peers as much as one full year. Riehl stated that although few studies conclusively support a high rate of transience impacting schools’ test scores, mobility does complicate the monitoring of school performance. She found that schools across the nation were combating this by providing immediate assessment, opportunities for two-way communication with parents regarding issues surrounding high mobility, and establishing programs for the community that address specific local needs in regards to student mobility.

State standardized test scores have been impacted by mobile students that enter a new school academically behind due to curriculum differences between the schools. Once enrolled, extra assistance to close identified achievement gaps are not acknowledged in a timely manner or by the time they do occur the student moves again (Hall, 2001). An additional study concurred with this information as it reported the greatest cost of mobility is aimed at the students themselves, who regress academically while schools and districts struggle with limited resources to support transitions and the high needs that may come with many of these students (Kaplan & Valenti, 2005).

A study by Stover (2000) found schools with high mobility create high demands on teachers to devote time to remedial instruction versus creating new lessons. Schools with 70% mobility or more may spend extensive time on activities that actually hinder instruction such as placing students in leveled, academic classrooms without accurate achievement information. This is due to transient students being more likely to arrive without current academic records creating situations where students are misplaced into inappropriate programs upon registration (Fowler-Finn, 2001). The time spent on these placement tasks in large transient school populations can impact the academic performance scores of the school.
In rural school districts, the impact of student mobility can create negative financial issues. These corporations are typically smaller and operating with limited resources. The decline of student enrollment creates further loss of funding which has potential to produce staffing reductions in addition to program reductions (Florida Division of Teaching and Learning, 2002). As a result of financial issues, many states have considered consolidation as a way to save money and provide better programs. These consolidation efforts have been met with resistance as exemplified in the rural communities of Wadmalaw and John Islands, South Carolina. Both areas opposed consolidation as they valued the school as the center of their respective communities and did not want to fracture the unity provided by each school (Rural Policy Matters, 2009). In the state of Indiana, the interest in this issue has resulted in a number of recent policy actions including exploration of potential school corporation consolidations, appointment of a work group by the Indiana General Assembly to study central office consolidation, and a committee charged with establishing a new finance and reporting system for school corporations. In April of 2007, state budget bill (HEA 1001-2007) appropriated $100,000 to the Indiana Department of Education for school corporations to utilize in efforts to study the feasibility of consolidation or merging services with another corporation (Plucker, Spradlin, Magaro, Chien, & Zapf, 2007).

A study by Temple and Reynolds (1997) based on students in Chicago, Illinois attributed 50% of the differences between transient and non-transient students to conditions that pre-dated changes in transferring to a different school. In this study transient students typically derived from low socio-economic families possessing poor academic performance.

Others have found that student transience can result in achievement gaps of essential skills and lower achievement on standardized test scores. Bolinger and Gilman (1997)
conducted a study on mobility in Terre Haute, Indiana. They found a significant correlation between mobile students and low scores on the language subtest of the ISTEP exam.

A longitudinal study in North Carolina found the effect of school mobility on math score gains to be negative among all students. The study did not find any effect on reading scores. When looking at the specific subgroups of minority, English Language Learner (ELL), low-income students and students who had moved within districts, they found school mobility to be negative for math and no effect on reading. Among the districts non-poor, cross-district movers, school mobility was found to be associated with improved math and reading performance (XU, Hannaway & D’Zousa, 2009).

Biernat and Jax (2000) reported student mobility results in negative student achievement creating a gap between achievement levels of mobile and non-mobile families. Mobile students experience more disruptions in attendance, continuity of the scope and sequence of instruction, and the inability to establish relationships with peers and school personnel. This study also revealed high student mobility students have a greater chance of not learning basic skills at a proficient level creating greater long-term risk of dropping out of school.

The most at-risk groups of children for mobility are the homeless and migrant families. Homeless children are most likely to experience attendance issues by virtue of their situation. Lack of attendance tends to be from transportation issues, untreated health issues, and relocations (National Center for Homeless Education, 2001).

The make-up of the family, specifically a one-parent versus two-parent family, was found to make a difference in both academic and behavioral aspects of school performance (Tucker, Marx, & Long, 1998). The research found when students live with both biological parents; they
are able to help mitigate the negative effects of residential mobility. The 2000 U.S. Census reported 28% of children live in single-parent homes.

Rumberger’s (2002) mobility research reported studies that do not control for characteristics related to a student’s background consistently reported mobile students achieving lower than their stable student counterparts. He stated it is important to control for limitations in mobility students to determine if it is the mobility or other factors that cause low achievement or other issues by changing to a new school.

Paik and Phillips (2002) identified six strategies that help to reduce the negative impact of student mobility. These include professional development for school staff specifically addressing the needs of transient students, identification of families in need of services and providing programs outside of the school day, new family welcome sessions for both students and parents, effective and efficient record transfer, educating families about the harmful effects of mobility and the importance of reviewing student records before a student arrives in the new school, supportive attendance and disciplinary policies are in place to ensure a safe school environment and improve student attendance, and outreach to parents and families to promote understanding of community and school relationships and resources.

**Educational Implications for Changing Populations**

Political aspects of education make it necessary to monitor student progress and specific subgroups of student populations for academic accountability on both the federal and state level. Nationally, the No Child Left Behind Act (NCLB) is intended to close the achievement gap across subgroups of students by enforcing accountability for schools and districts while providing families flexibility and choice for the education of their children (U.S. Department of Education, 2001). The Title I component of this federal law is designed to improve the academic
achievement of disadvantaged students. Title I demonstrates accountability by requiring yearly student performance assessments, State standards for and assessment of Adequate Yearly Progress (AYP), local educational agency identification of schools for improvement and subsequent corrective action, parent reporting of teacher quality and school performance levels, and assuring the quality of teachers and teaching assistants to be of high standards. Additionally, Title I provides alternatives for families attending schools not meeting AYP standards. This may be in the form of transfer options or supplementary services for students that remain enrolled in low-performing schools. The federal law requires states to identify school corporations that have failed to achieve AYP for two consecutive years and requires these schools to create improvement plans. The State Title I office is required to provide technical assistance and if schools continue to fail, either defer program funds or reduce administrative funds, or institute a new curriculum that is based on State achievement standards with appropriate support in staff development based on scientific, research-based instructional strategies. Another Federal program, Reading First, allocates 80% of its funds to States based on poverty rates. Additionally, the Federal Title III requires language instruction to English Language Learner (ELL) students and targets funding for ELL students moving into schools requiring services. Schools are required to test students for reading in the English language once they have been enrolled for at least three years in United States schools.

While NCLB provides Federal accountability and programs to support families of lower socio-economic status and newly enrolled students in the American school system, Indiana has instituted Public Law 221 (PL 221) for State level accountability regulations (Indiana Department of Education, 1999). PL 221 has established school improvement and performance categories based upon the percentage of all students who pass the Indiana Statewide Testing for
Educational Progress-Plus (ISTEP+) in English and mathematics as well as improvement in the passing percentage of non-mobile cohort groups of students. Students must be enrolled for 70% of the school year or 120 days to be in the accountability calculations.

There are notable differences between the Federal and State of Indiana accountability models. The Federal NCLB Act looks at the performance of students in schools from year to year compared to a goal, requires increases for schools below the State target, and compares schools to other schools. For Indiana, PL 221 looks at the performance of all students and improvement of student cohort groups over time, continuous improvements for all schools, and comparison of schools to themselves.

Both the Federal and State laws create accountability within schools and school corporations to monitor the responsiveness of students to the instruction given. This accountability increases the importance of knowing where to begin lessons with new students entering a school corporation. Because many students arrive without academic records, school officials have difficulty determining proper placement.

A study by Howard (2007) states beyond knowing how to place students that are transient, rapidly changing demographics require teachers and administrators to engage in dynamic staff development to address the needs of diverse learners. Since 90% of U.S. teachers are White and primarily attend White colleges, they may have limited background experiences to work with the diverse student population reflected in public schools. Howard believes that in order to truly connect to students, staff development is needed to assist teachers in creating positive learning communities and developing classroom climates that support and encourage open dialogue about differences. In his work, Howard found teachers that display trust and belief in an individual’s intellectual talent increases student motivation. Additionally, the
capacity of adults in the school to form trusting relationships with a supportive learning environment for their students can influence student achievement outcomes. He found the curriculum and instruction in increasingly diverse schools needs to honor each student’s culture and life experiences and believes instructional practices must shift to meet the needs of diverse populations. Howard encourages school professionals to build a collaboration that does not blame students and families for educational gaps. He believes shared energy should be spent on changing staff attitudes, beliefs, expectations and practices in order for true instructional changes to take place.

Studies have shown that parents from diverse economic and cultural backgrounds value education and look to schools as the key to elevating their status in the future. Minority parents do not believe it is necessary to redesign education to fit the changing demographics of a community. They generally advocate for strong academic programming with teachers that are both motivated and qualified. They want their children to attend schools that provide a nurturing environment (Remaley & Wadsworth, 2007).

In the state of Indiana, Fort Wayne Community Schools has adopted several practices to address the needs of families moving into or within the school district. They are creating an inviting climate with highly interactive opportunities to improve home-school relationships in their district. Its Families Helping Families Program matches new families with volunteer families who have had children in the school for at least two years. New students and families have an opportunity to meet and get to know other students and families at a school-sponsored summer picnic. In order to build relationships, many elementary schools offer an option for looping which allows the same teacher to stay with the class for two or three consecutive years. Administrators arrange new parent coffee meetings and small-group lunches for new students in
order to foster a smooth transition into the school culture. Additionally, individual mentor and tutor programs at all grade levels make personal connections with students (Fowler-Finn, 2001).

Another transition program was developed and piloted in eight middle schools near Fort Hood in Killeen, Texas in 2006. The Junior Student to Student (JS2S) transition program was developed through a partnership between U.S. Army Child and Youth Services and the Military Child Education Coalition (MCEC). The school-managed, student-led school transition program is grounded in research on the distinctive needs of teenagers. The JS2S program is designed to ease student transitions, whether the student is transitioning from elementary to middle school, middle school to high school, or in or out of the middle school in the summer or during the school year. The program is based on the principle that transition does not have to be complicated, just different. The JS2S goal is to provide immediate support for the transitioning student by offering, from a peer viewpoint, valued information, friendship, and assistance in the critical areas of academics, relationships and familiarization with surroundings. The program requires a team approach of volunteer students, supervised by school counselors, teachers, or other professional school staff. The JS2S team provides a forum for all incoming students to feel welcomed, comfortable, included, and accepted into their new school community as quickly as possible. The team helps outgoing students prepare for the transition to another school. The program benefits transitioning students, the school and the student trainers. For the transitioning students, benefits include making early, positive contacts and receiving credible information. The student leaders receive practice in collaboration and leadership skills and the school benefits by creating a trusting and welcoming environment (Summers & Moehnke, 2006).
Scientific Researched-Based Strategies for Reading Instruction

The National Institute of Child Health and Human Development (NICHD) believed reading difficulty to be a public health issue. This is due to the correlation of poor reading skills and high school drop-out rates, delinquency, unwanted pregnancy and underemployment. Approximately 38% of fourth grade students in the United States are poor readers as well as 70% of African American, Hispanic, and Native American students (National Center for Education Statistics [NCES], 1999). While these are high percentages, reading research shows all but 2% to 5% of children are capable of learning to read (Fletcher & Lyon, 1998). The focus on early intervention is a change on the timing of intervention strategies to identify students with difficulties sooner, providing appropriate interventions, and preventing students from falling too far behind (Moats, 2005).

Nationally, in 1997, the Director of the National Institute of Child Health and Human Development, in conjunction with the Secretary of Education were charged by Congress to create a national panel to evaluate the effectiveness of scientifically researched-based strategies in teaching students to read (National Reading Panel [NRP], 2000). Based upon regional public hearings, including testimony from teachers, parents, students, university faculty, scientists and policy-makers, themes emerged for extensive study and research. As a result of the hearings, adopted topics emerged in the NRP report. These main topics included phonemic awareness and phonics, fluency, comprehension, teacher education in terms of reading instruction and strategies, and the effectiveness of computer technology in teaching students to read.

The results of the meta-analysis found teaching students’ phonemic awareness increases reading skills more than instruction that does not include a specific phonemic awareness
component. The meta-analysis also concluded that explicit instruction in phonics created students that were more equipped to decode, spell words, and read text orally.

The research of the NRP (2000) report found being a fluent reader, having the ability to read orally with accuracy, speed, and expression, is a critical factor in developing comprehension from text. The research on the two most common approaches to teaching fluency was limited due to the availability of studies that met the criteria for the NRPs research methodology criteria. Nevertheless, two instructional approaches were found to be the primary approaches to teaching fluency; specifically, guided oral reading and independent silent reading. Based upon the limited available research the panel concluded guided oral reading including guidance from teachers, peers or parents had significant implications on increased word recognition, fluency and comprehension. The NRP did not find the strategy of independent silent reading to have a positive impact on improving students’ reading skills.

The research on the topic of comprehension found three areas to be predominant in the development of reading comprehension skills. The first area is the importance of vocabulary instruction and vocabulary development in relationship to a students’ ability to understand what has been read. The NRP found vocabulary instruction needs to be taught with multiple exposures and that incidental learning as well as technology can boost vocabulary development. Direct vocabulary instruction should involve active participation by the students. The vocabulary research found using one method to teach vocabulary will not be as effective as multiple, simultaneous methods. The report found there is little research to support the best combinations of vocabulary instructional methods at this time.

A second notable area in reading comprehension research found it is a process requiring purposeful interaction between the reader and the text. The research generally points to teaching
a combination of reading comprehension techniques to be most effective. When students use comprehension techniques appropriately they are able to recall information, answer questions, generate questions and summarize text at a higher level.

The third identifiable area is the importance of teacher preparation in reading comprehension strategies. The NRP found four studies in this area meeting their research methodology criteria. These studies were reviewed extensively with two major instructional strategies emerging. The first strategy, the direct explanation approach, focuses on the teacher’s ability to use explicit instruction to reason and mentally process; attributing to increases in student comprehension. Two of the four NRP (2000) studies focused on the direct explanation approach. The first was completed by a team of researchers (Duffy et al., 1986) that looked at the capability of teachers to be explicit in their verbal explanations and if the resulting instruction would translate into students’ achievement ability. The results of this first study showed students became more conscious of specific reading strategies but did not find significant achievement gains. The researchers, again led by Duffy et al. (1987), created a second study to look at the effects of teacher professional development with explicit descriptive information, specifically about reasoning and mental processes used strategically by skilled readers, as opposed to simple ways to execute basal text skills. This new training included 12 hours of one-on-one coaching, sharing collaboratively among teachers, an observation and feedback component as well as viewing model lessons provided on videotape. Post-test data found students of these teachers to have a significant increase in performance on the word skills subtest of the Stanford Achievement Test but not a significant result in comprehension gains. However, five months after instruction was complete, students that had instruction from the trained teachers still had significantly higher reading scores than the students who had teachers that had not received the
training. The second strategy, transactional instruction, also involves explicit teaching as well as emphasizing the ability of teachers to facilitate collaborative student discussions where joint interpretations of text promote a deeper understanding of the text.

Two of the NRP (2000) studies focused on this transactional strategy instruction approach. The first study completed by Anderson (1992) built upon the direct explanation approach by adding the ability of teachers to facilitate student discussion on text interpretation and discuss both the mental processes and cognitive strategies needed for comprehension. A critical piece of training included identified changes needed for more active reading instruction to take place. These changes were derived from observed ways students and teachers typically behave during remedial reading instruction. The lists provided ways to achieve desired behaviors that promote active reading. The students of the trained teachers made 80% gains on the comprehension component of the Stanford Diagnostic Reading Test compared to 50% of the students that did not have teachers with the training, suggesting teacher preparation was effective in improving reading comprehension performance. A second study by Brown, Pressley, Van meter, and Scheder (1996) was similar in teacher preparation but assessed for effectiveness by the use of interviews. Students of the trained staff reported more awareness of comprehension and word-level strategies and did better on literal recall of story content. On think-aloud tasks, teachers reported the students used more independent strategies than peers. Students significantly outperformed peers on the comprehension and word skills subtests of the Stanford Achievement Test. In summary, data from the four studies demonstrates the ability of teachers to be instructed in the direct explanation and transactional strategy instruction methods and recommends extensive, formal instruction in reading comprehension begin during pre-service education.
The NRP (2000) recognizes the importance of the quality of teacher education and its impact on student achievement. Two primary areas for acquiring reading instruction knowledge were identified including teacher educator programs for pre-service teachers and continuing education practices for practicing teachers. The NRP acknowledges there are very few experimental studies published in this area. In general, the pre-service research was found to primarily measure teacher outcomes and does not include student outcomes. In regards to in-service outcomes on practicing teachers, only about 50% of the research measured both teacher and student outcomes. The general results found staff development for practicing teachers does produce significantly higher student achievement.

The research by the NRP (2000) on the impact of computer technology and reading instruction reported that because this is a relatively new area, there have been limited numbers of studies conducted. Previously, computer programs were not considered capable of interpreting oral reading and making accurate judgments regarding a student’s fluency. Computerized instruction was also unable to interpret applied responses to comprehension questions. Due to these limitations, the use of computer instruction was limited to low-level comprehension assessments based upon multiple-choice formats. Recently, the software being developed is more advanced, allowing for speech recognition capabilities that will need further evaluation.

The NRP (2000) report was not designed to look specifically at the relationship between reading instruction and socio-economic status (SES) subgroups nor the relationship between reading instruction and English Language Learner students. However, the meta-analysis did provide research on the impact of phonemic awareness instruction on SES and ELL student populations. The research reported that when phonemic awareness training occurs for professionals, all levels of SES students benefit in regards to phonemic awareness skills.
However, the transference of phonemic awareness skills into reading and spelling was significantly greater among average to high SES students than the low SES subgroup. A comparison of effect sizes showed that phonemic awareness training instilled a larger impact on English-speaking students than on ELL students. Transfers to reading skills were also more significant for English-speaking students than other groups.

Some studies in the NRP for phonemic awareness distinguished between students of low SES and students at-risk for future reading difficulties. These studies found being economically disadvantaged did not necessarily equate to students being poor performers. Of the studies in the report, the at-risk readers were found to be 27% low SES, 37% middle to high SES, and the remainder of the studies did not specify this information. Research supports phonemic awareness to be a strong predictor of reading success (Share, Jorm, Maclean, & Matthews, 1984), therefore, the NRP supports selecting at-risk readers to measure growth in phonemic awareness instead of only looking at students that are disadvantaged by SES standards.
CHAPTER 3

Methodology of Research Design

The purpose of this study was to determine if there is a relationship between school corporations in the state of Indiana experiencing high percentages of enrollment increases or decreases and student achievement on the third grade language arts portion of the Indiana Statewide Testing for Education Progress-Plus assessment. The study examined this relationship for all third grade students as well as the subgroups of English Language Learners and Socio-economic Status. A second intention of this study was to determine to what degree certified instructors in these identified school corporations were adapting reading instruction in the midst of highly fluctuating student enrollment.

This chapter presents the procedure that was utilized in the study. It includes the research questions, data sources, research design, instrumentation and overview of the statistical analysis employed.

Research Questions

1. Is there a difference in language arts achievement of third grade students in increasing enrollment school corporations as compared to declining enrollment school corporations?
2. Is there a difference in language arts achievement of third grade students identified as low socioeconomic status in increasing enrollment school corporations as compared to declining enrollment school corporations?

3. Is there a difference in language arts achievement of third grade students identified as English Language Learners in increasing enrollment school corporations as compared to declining enrollment school corporations?

4. Do third grade reading teachers in increasing and declining enrollment school corporations utilize scientific, research-based instruction to meet the needs of their changing student population?

5. Do third grade reading teachers in increasing and declining enrollment school corporations learn scientific, research-based instruction in pre-service programs?

6. Is there a difference between hypotheses four and five for teachers in declining enrollment school corporations and teachers in increasing enrollment school corporations?

**Null Hypotheses**

**H₀ 1.** There is no difference in language arts achievement of third grade students in increasing enrollment school corporations as compared to declining enrollment school corporations.

**H₀ 2.** There is no difference in language arts achievement of third grade students identified as low socioeconomic status in increasing enrollment school corporations as compared to declining enrollment school corporations.
**H₀ 3.** There is no difference in language arts achievement of third grade students identified as English Language Learners in increasing enrollment school corporations as compared to declining enrollment school corporations.

**H₀ 4.** There is no significant difference among third grade reading teachers impacted by increasing and declining student enrollment and the degree of utilization of scientific, research-based reading instruction to meet the needs of their changing student population.

**H₀ 5.** There is no significant difference among third grade reading teachers impacted by increasing and declining student enrollment and the degree of knowledge regarding scientific, research-based reading instruction learned in pre-service programs.

**H₀ 6.** There is no significant difference in hypotheses four and five for teachers in declining enrollment school corporations and teachers in increasing enrollment school corporations.

**Data Sources**

To identify the data needed for this study, it was first necessary to identify districts experiencing significant enrollment changes in Indiana. Data from the Indiana Department of Education database was obtained to rank the top 10 declining and top 10 increasing school corporations based upon the percent of enrollment change between the years of 2003 and 2007. This study examined data only from public school districts; charter schools were not included in this study. The data were narrowed to third grade students in the identified corporations.

The Indiana Department of Education database for ISTEP+ results provided the raw scores for all third students enrolled in each of the 20 school corporations between 2003 and 2008. Therefore, the total population for the first three questions was available for this study. Third grade staff from the identified districts were invited to participate in the survey. The
number of teacher participants completing the on-line survey determined the number of responses for data analysis for questions four and five of the study. The survey responses were utilized in an ANOVA for the final question of this study.

**Research Design**

The study utilized data from the IDOE database and survey methodology to collect data from public school teachers. The data from ISTEP+ language arts raw scores were collected for all third grade students and for the subgroups of Language Minority and Socio-economic Status between 2003 and 2008 in all 20 school corporations. This data was made available through public record access approval from the Indiana Department of Education (Appendix A). The survey was provided to five current curriculum and instruction administrators in Indiana schools not participating in the study. They provided feedback to assure content validity and to provide feedback in the following areas: (a) Are the instructions easy to understand? And (b) Does the definition of scientific, research-based instruction make sense? The use of an on-line survey design allowed data to be collected in a timely manner, mitigating the cost of conducting the research, and provided a way to disaggregate the responses between schools that were experiencing enrollment gains or losses.

**Instrumentation**

The survey (Appendix B) utilized for this study was self designed after reviewing the literature on scientific, research-based instruction. The first two questions were designed to identify the teaching experience levels of the respondents and to determine if they were from either increasing or declining enrollment school corporations. Questions three and four utilize a five-point Likert-scale ranging from 1 = Never to 5 = Always in determining the degree to which participants have implemented scientific, research-based instruction as well as to what degree
they obtained knowledge about scientific, research-based instruction during pre-service reading courses. The final question was designed to determine the degree of professional development they have received since becoming a teacher. A Likert-scale with three possible responses of 1 = *no professional development on SRBI*, 2 = *some SRBI professional development*, and 3 = *extensive SRBI professional development*.

**Data Collection Process**

An e-mail was sent directly to third grade teachers from all the increasing and declining enrollment school corporations identified in the study (Appendix C). Current third grade teachers were found via school corporation websites or contacting the school corporations directly to obtain e-mail contact information. Electronic submission of the survey from the teachers was secured in the researcher’s Survey Monkey account for confidentiality. Deadlines were included in all communications. Individuals completing the online survey were provided with informed consent prior to beginning the electronic survey as well as information on completing the survey with assurance information would remain confidential and not used for evaluation purposes.

**Statistical Analysis**

The study was determined to be a quantitative design utilizing correlation, regression and a two-sample *t*-test. The correlation and regression analysis determined what, if any, relationships exist between the variables of student achievement and extreme enrollment changes. The second design component was to use survey data for the purposes of a two-sample *t*-test for statistical analysis. The data was processed using SPSS (Statistical Package for the Social Sciences statistical software) statistical software.
The statistical design for the data provided from the Indiana Department of Education on student achievement data Third grade ISTEP+ Language Arts scores were selected for this study as the dependent variable. The independent variable of school enrollment, either declining or increasing, was reflected in the total number of student scores for the school years between 2003 and 2008. All student data was available; therefore the entire population that took the assessment was available. The 3rd grade ISTEP+ test was consistently administered in the fall of the school year between the years of 2003 and 2008.

The statistical design for the survey portion allowed for the study of the dependent variables of the degree in which teachers have implemented SRBI and the degree in which teachers learned about SRBI in pre-service programs. The independent variable was teaching in an increasing enrollment school district or teaching in a declining enrollment school district. The survey consisted of closed-ended questions on an ordinal scale. The ordinal data was subjected to one-sample t-tests. Cohen's d was utilized to calculate effect size on the one-sample t-tests when appropriate. An additional ANOVA analysis was conducted to determine if there was a significant mean difference between increasing enrollment school teachers and decreasing enrollment school teachers and their implementation of SRBI in reading and degree to which such strategies were learned in college level courses.

**Summary**

In this chapter, the design components of research questions and null hypotheses, data sources, research design, instrumentation, data collection process and statistical analyses used were presented and described. In Chapter 4 findings to the questions posed in Chapters 1 and 3 are presented. Chapter 5 presents a summary of the findings, results, discussion of implications, and considerations for further study.
CHAPTER 4

Analysis of Data

The primary purpose of the study was to examine enrollment trends, specifically school corporations experiencing high percentages of enrollment increases or declines in the state of Indiana and the impact on third grade achievement in language arts. More specifically, the focus was to target third grade ISTEP data for the top 10 increasing and declining public school districts to determine if there is a relationship between enrollment fluctuation and language arts’ achievement. To determine increasing and declining enrollment for schools, Indiana school corporations experiencing the highest percentage of enrollment change, both increasing and declining, were identified from the IDOE data set. All third grade scores were used from the corresponding school districts as the sample. An additional purpose of the study was to delve deeper into the subgroups of English Language Learners and Socio-economic Status within these school corporations to determine if any significant differences exist between language arts achievement and enrollment trends for these subgroups.

A secondary purpose of this study was to determine if there was a significant difference between teachers in the identified increasing and declining enrollment school corporations in terms of knowledge and utilization of scientific, research-based reading instruction. This chapter contains the findings of the study. Included in this chapter is a brief descriptive summary for each variable measured including descriptive statistics and a statistical analysis for each research
question. The data for this portion of the study was provided by the survey method. The survey data was gathered solely from third grade teachers currently employed in the school corporations identified in the study. This data collection allowed responses from both increasing and declining enrollment school corporations to be compared. Other data including years of experience and information regarding professional development since becoming a teacher was gathered.

The teacher survey was developed by the researcher to quantitatively measure the degree in which teachers have implemented SRBI in reading and the degree in which said instructional strategies were learned in pre-service programs. The survey was developed by the researcher and submitted to a peer review team consisting of five district level administrators to provide input. The review team participants were not employed by school corporations identified in the study. Edit suggestions were incorporated into the survey design. Areas of consideration were (a) clarity of instructions, (b) clarity of questions in relationship to examples provided, and (c) alignment of questions to data desired for study. SPSS was used to provide statistical analysis.

Preliminary analyses examined the relationship between third grade student language arts achievement and enrollment trends in the identified school corporations. Additionally, the same information for the subgroups of SES and ELL was examined. In order to determine if there was a difference in achievement between the increasing and declining enrollment schools, an ANOVA was utilized to compare the means of the respective groups. In order to analyze the level of teacher implementation of scientific, research-based reading instruction in the third grade classrooms, survey data was collected and one-sample t-tests were conducted. Cohen's d was utilized to calculate effect size on the one-sample t-tests when appropriate. An additional ANOVA analysis was conducted to determine if there was a significant mean difference between
increasing enrollment school teachers and decreasing enrollment school teachers in regards to implementation of SRBI in reading and degree to which such strategies were learned in college level courses.

The first part of the study investigated third grade test score differences on the language arts portion of the ISTEP+ between increasing enrollment school corporations and declining enrollment school corporations. Due to the fact there is a very large sample size, the emphasis should be placed on the practical significance of the mean difference.

To test the first hypothesis an ANOVA was utilized to determine if there was a significant difference in mean test scores between the increasing enrollment school corporations and declining enrollment school corporations. The statistics for this study are presented in Table 4.

Table 4

*Descriptives for Third Grade ISTEP Language Arts Raw Scores for All Third Grade Student Population*

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
<th>Difference in Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Declining Enrollment</td>
<td>13,055.00</td>
<td>36.85</td>
<td>8.103</td>
<td>0.071</td>
<td>3.87</td>
</tr>
<tr>
<td>Increasing Enrollment</td>
<td>29,409.00</td>
<td>40.72</td>
<td>6.534</td>
<td>0.038</td>
<td></td>
</tr>
</tbody>
</table>
Table 5

ANOVA for Third Grade ISTEP Language Arts Raw Scores for All Third Grade Student Population

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>135522.501</td>
<td>1.00</td>
<td>135522.500</td>
<td>2723.772</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Within Groups</td>
<td>2112716.275</td>
<td>42462.00</td>
<td>49.755</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2248238.777</td>
<td>42463.00</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From Tables 4 and 5 it can be evidenced that increasing enrollment students had a significant higher mean compared to declining enrollment students by 3.87 ($F_{1,42462} = 2723.772, p<0.0001$). The null hypothesis was rejected; therefore, there was a difference in achievement scores for third grade students in the comparison school corporations. The practical significance of the mean differences suggested students in increasing enrollment schools outperformed their decreasing enrollment school counterparts by almost 4 points on the language arts component of the ISTEP+ exam as reflected in Figure 1. This difference would be significant to school corporations as compared in school improvement and performance categories as outlined in both No Child Left Behind and Indiana Public Law 221.
Figure 1. Mean plot of 3rd grade ISTEP+ language arts raw scores for all third grade student population.

To test the second hypothesis an ANOVA was utilized to determine if there was a significant difference in mean test scores for the subgroup of third grade students identified as the free and reduced student population between increasing enrollment school corporations and declining enrollment school corporations. The statistics for this study are presented in Table 6.
Table 6

*Descriptives for Third Grade ISTEP Language Arts Raw Scores for Third Grade Free & Reduced Student Population*

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
<th>Difference in Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Declining Enrollment</td>
<td>8438.000</td>
<td>35.52</td>
<td>8.371</td>
<td>0.071</td>
<td>1.49</td>
</tr>
<tr>
<td>Increasing Enrollment</td>
<td>5089.000</td>
<td>37.01</td>
<td>6.534</td>
<td>8.044</td>
<td></td>
</tr>
</tbody>
</table>

Table 7

*ANOVA for Third Grade ISTEP Language Arts Raw Scores for Third Grade Free & Reduced Student Population*

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>7004.645</td>
<td>1.00</td>
<td>7004.65</td>
<td>102.932</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Within Groups</td>
<td>920393.792</td>
<td>13525.00</td>
<td>68.051</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>927398.436</td>
<td>13526.00</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From Tables 6 and 7 it can be evidenced that free and reduced identified students from increasing enrollment school corporations had a significantly higher mean compared to their declining enrollment school corporation counterparts by 1.49 ($F_{1,42462} = 102.932$, $p <0.0001$). The null hypothesis was rejected; therefore, there was a difference in achievement scores for the subgroup of third grade students identified as the free and reduced population in the comparison.
school corporations. The practical significance of the mean differences suggested free and reduced identified students from increasing enrollment school corporations outperformed their decreasing enrollment school counterparts by approximately 1.5 points on the language arts component of the ISTEP+ exam as shown in Figure 2. This difference would be significant to school corporations as they are compared in school improvement and performance categories as outlined in both No Child Left Behind and Indiana Public Law 221.

Figure 2. Mean plot of 3rd grade ISTEP+ language arts raw scores for all free and reduced student population.
To test the third null hypotheses an ANOVA was utilized to determine if there was a significant difference in mean test scores for the subgroup of third grade students identified as the English Language Learner population between increasing enrollment school corporations and declining enrollment school corporations. The statistics for this study are presented in Table 8.

Table 8

*Descriptives for Third Grade ISTEP Language Arts Raw Scores for Third Grade ELL Student Population*

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
<th>Difference in Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Declining Enrollment</td>
<td>98.000</td>
<td>33.37</td>
<td>8.346</td>
<td>0.843</td>
<td>2.67</td>
</tr>
<tr>
<td>Increasing Enrollment</td>
<td>967.000</td>
<td>36.04</td>
<td>7.535</td>
<td>0.242</td>
<td></td>
</tr>
</tbody>
</table>

Table 9

*ANOVA for Third Grade ISTEP Language Arts Raw Scores for Third Grade ELL Student Population*

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>633.797</td>
<td>1.00</td>
<td>633.800</td>
<td>10.936</td>
<td>0.001</td>
</tr>
<tr>
<td>Within Groups</td>
<td>61606.509</td>
<td>1063.00</td>
<td>57.955</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>62240.306</td>
<td>1064.00</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
From Table 9 it can be evidenced that English Language Learner populations in increasing enrollment school corporations had a significant higher mean compared to declining enrollment school counterparts by 2.67 ($F_{1,1063} = 10.936, p=0.001$). The null hypothesis is rejected; therefore, there is a difference in achievement scores for the subgroup of third grade students identified as English Language Learners in the comparison school corporations. The practical significance of the mean differences suggests English Language Learner populations from increasing enrollment school corporations outperformed their decreasing enrollment school counterparts by approximately 1.5 points on the language arts component of the ISTEP+ exam as shown in Figure 3. This difference would be significant to school corporations as they are compared in school improvement and performance categories as outlined in both No Child Left Behind and Indiana Public Law 221.
Figure 3. Mean plot of 3rd grade ISTEP+ language arts raw scores for third grade language minority student populations.

The second part of the study investigated utilization and source of knowledge regarding scientific, researched-based instruction in the classroom. The null hypotheses for this part of the study were as follows:

H₀4. There is no significant difference among third grade reading teachers impacted by increasing and declining student enrollment and the utilization of scientific, research-based reading instruction to meet the needs of their changing student population.
**H₀5.** There is no significant difference among third grade reading teachers impacted by increasing and declining student enrollment and the degree of knowledge regarding scientific, research-based reading instruction learned in pre-service programs.

**H₀6.** There is no significant difference in hypotheses four and five for teachers in declining enrollment schools and teachers in increasing enrollment schools.

Electronic surveys were sent to current third grade teachers in the identified school corporations via e-mail and the use of a web-based survey application. Two hundred thirteen teachers in increasing student enrollment schools and 68 teachers in declining student enrollment schools were sent survey information for this study. Sixty-three teachers responded and were included in the sample. Thirty-three participants responded from increasing enrollment school corporations and 30 participants responded from declining enrollment school corporations. Data was analyzed after a minimum of 30 teachers responded in each category. Data from Table 10 indicates the average years of experience for the increasing school corporation enrollment staff was 12.2 years while the declining school corporation enrollment staff had an average of 21.9 years experience. The mean difference for years of experience was a 9.7 more years of experience in the declining enrollment school corporation staff. The decreasing enrollment school teachers have a significantly larger mean by 9.78 years. A two-sample *t*-test found this to be significant (*p*<.0001).
Table 10

Number of Years of Teaching Experience for Study Participants

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
<th>Difference in Means</th>
<th>df</th>
<th>t-value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increasing Enrollment</td>
<td>33</td>
<td>12.15</td>
<td>9.18</td>
<td>1.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decreasing Enrollment</td>
<td>30</td>
<td>21.93</td>
<td>9.32</td>
<td>1.7</td>
<td>9.7818</td>
<td>62</td>
<td>4.19</td>
<td>&lt;.0001</td>
</tr>
</tbody>
</table>

The teachers were given a survey to address hypotheses four and five to determine the amount of time teachers implement SRBI during reading instruction and degree of learning regarding SRBI in pre-service programs. Participants were asked to rank their responses on a Likert scale from 1 to 5 with a 5 being the highest possibility. A response greater than three was considered a high response. For hypotheses four and five a one sample t-test was utilized to determine if the mean was significantly larger than three. For hypothesis six an ANOVA analysis was utilized to determine if there was significant mean difference between increasing enrollment school teachers and declining enrollment school teachers for the two questions from the survey.

To test the fourth hypothesis, a one-sample t-test was administered to determine if teachers were implementing SRBI into their reading instruction. The mean was 4.0476 which was significantly larger than 3 (p <.0001). Table 11 summarizes the results from the survey question to test hypothesis four. The null hypothesis was rejected as the data in the table supports evidence teachers are utilizing scientific, research-based instruction to meet the needs of their changing student populations. In order to estimate the effect size for the independent-measures t-test, Cohen’s d was administered. The result was 1.54, indicating a large effect.
Table 11

*Data Gathered Regarding Use of SRBI Reading Instruction*

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>Mean</td>
<td>SD</td>
<td>SE</td>
<td>df</td>
<td>t-value</td>
</tr>
<tr>
<td>63</td>
<td>4.0476</td>
<td>0.6822</td>
<td>0.086</td>
<td>62</td>
<td>12.19</td>
</tr>
</tbody>
</table>

To test the fifth hypothesis a one-sample *t*-test was administered to determine if teachers learned scientific, research-based instruction in pre-service programs. Table 12 summarizes the results from the survey question to test hypothesis five.

Table 12

*Data Gathered Regarding Knowledge of SRBI in Pre-service Programs*

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>Mean</td>
<td>SD</td>
<td>SE</td>
<td>df</td>
<td>t-value</td>
</tr>
<tr>
<td>63</td>
<td>2.7778</td>
<td>1.3252</td>
<td>0.167</td>
<td>62</td>
<td>-1.33</td>
</tr>
</tbody>
</table>

The mean was 2.7778 which was not significantly larger than 3. There was no evidence that third grade reading teachers in increasing and declining enrollment schools learn scientific, research-based instruction in pre-service programs; therefore, the null hypothesis was not rejected.

To test the sixth hypothesis, an ANOVA was utilized to determine if there was a significant difference in hypotheses four and five for teachers in declining enrollment schools and teachers in increasing enrollment schools. Tables 13 and 14 summarize the descriptives and ANOVA analysis to test the difference between declining enrollment school teachers and increasing enrollment school teachers for hypothesis four.
Table 13

Descriptives for Data Comparing SRBI in Reading Between Increasing and Declining Enrollment Staff

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
<th>Difference in Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increasing Enrollment</td>
<td>33.000</td>
<td>4.0</td>
<td>0.6124</td>
<td>0.1066</td>
<td>.01</td>
</tr>
<tr>
<td>Declining Enrollment</td>
<td>30.000</td>
<td>4.1</td>
<td>7.535</td>
<td>0.1385</td>
<td></td>
</tr>
</tbody>
</table>

Table 14

ANOVA for Data Comparing SRBI in Reading Between Increasing and Declining Enrollment Staff

<table>
<thead>
<tr>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>0.157</td>
<td>1.0</td>
<td>0.16</td>
<td>0.33</td>
</tr>
<tr>
<td>Within Groups</td>
<td>28.700</td>
<td>61.0</td>
<td>0.47</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>28.857</td>
<td>62.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The mean difference between the two groups was 0.01 with a $p=0.5654$. There was no evidence that there was a difference between declining enrollment school teachers and increasing enrollment school teachers for utilizing scientific, research-based instruction to meet the needs of their changing student population. Tables 15 and 16 summarize the descriptives and ANOVA...
analysis to test the difference between declining school enrollment teachers and increasing enrollment teachers for hypothesis five.

Table 15

_Descriptives for Data Comparing SRBI Knowledge From Pre-service Programs Between Increasing and Declining Enrollment Staff_

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
<th>Difference in Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increasing Enrollment</td>
<td>33.000</td>
<td>2.5758</td>
<td>1.3470</td>
<td>0.2345</td>
<td>0.424</td>
</tr>
<tr>
<td>Declining Enrollment</td>
<td>30.000</td>
<td>3.0000</td>
<td>1.2865</td>
<td>0.2349</td>
<td></td>
</tr>
</tbody>
</table>

Table 16

_ANOVA for Data Comparing SRBI Knowledge From Pre-service Programs Between Increasing and Declining Enrollment Staff_

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>2.8282</td>
<td>1.0</td>
<td>2.8300</td>
<td>1.63</td>
<td>0.207</td>
</tr>
<tr>
<td>Within Groups</td>
<td>106.0606</td>
<td>61.0</td>
<td>1.7387</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>108.8889</td>
<td>62.0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The mean difference between the two groups was 0.424 with a $p=0.207$. Thus, there was not enough evidence that there was a difference between declining enrollment school teachers
and increasing enrollment school teachers for learning scientific, research-based instruction in pre-service programs. A post-hoc power analysis indicated that given a standard deviation of 1.318 and means of 2.5758 and 3, the probability for detecting this difference was 0.238.

Summary

The six null hypotheses were tested utilizing SPSS with either ANOVA or independent sample t-test analyses. The first part of the study focused on data from the IDOE database for determining if significant differences exist between academic achievement and school enrollment as defined within the study. School corporations experiencing high percentages of student enrollment gains had a higher mean on the language arts portion of the ISTEP+ for third grade students and the subgroups of free and reduced lunch and English Language Learners. These findings have practical significance in that they demonstrated third grade students in increasing enrollment schools are outperforming declining enrollment schools academically in language arts. This data corresponded to both state and federal legislation regarding school improvement categories. The second part of the study focused on teacher survey data to determine utilization and source of knowledge regarding scientific, researched-based instruction in reading. As a result, teachers believed they were utilizing scientific, research-based instruction to meet the needs of their changing student populations; however, there was no evidence teachers learned SRBI in pre-service programs. Additionally, when comparing declining and increasing enrollment school corporation teacher survey data there was no evidence supporting a difference between the two groups of teachers for utilization of SRBI or learning SRBI for reading in pre-service programs.
CHAPTER 5

Summary and Recommendations for Future Research

Chapter 5 is comprised of four sections. The first section presents a summary of the findings from the research study. The second section shares an analysis of the findings. The third section is a discussion of the findings. The final section contains recommendations for future research based upon this study.

The focus of the study was to look at student mobility and the implications on achievement when school enrollment increases or decreases at a significant pace. This study found the underpinnings driving student mobility within American public schools were varied and complex. However, there were aspects regarding student mobility known to be true. First, the frequency of student mobility varied to a great extent by individual family and school. Additionally, low socio-economic, homeless, and migrant students were known to change schools most frequently (National Center for Homeless Education, 2001). It was also true that students from one-parent versus two parent families change schools more often (Tucker et al., 1998). The research also confirmed the incidence of student mobility was more common in large enrollment schools containing a high percentage of minority students (Rumberger 2002).

Despite the fundamental reason for a school change, student mobility does have an effect on student achievement. Different expectations in curriculum and instruction complicate the ability of students to academically transition to a new school setting. Beyond academics,
transitioning students face challenges both psychologically and socially while adjusting to a new school environment. Students that move only once or twice typically adjust to new schools over time; however, students that move several times must deal with the cumulative effects associated with school change and are at greater risk of negative academic, social and psychological implications (Kerbow, Azcoitia, & Buell, 2003).

Accountability systems at both the state and federal levels require school corporations to monitor student progress of specific subgroups to ensure students in these subgroups receive an equitable education. As a result, curriculum and instructional practices and alignment to standards are under scrutiny. Families in underperforming school systems are allowed school choice options by law. Small school corporations already operating with fewer resources and fewer academic programming options are creating yet another rationale for students to relocate or choose to attend a different school.

According to the National Institute of Child Health and Human Development, reading difficulty is a public health issue. This is due to the correlation of poor reading skills to high school drop-out rates, delinquency, unwanted pregnancy and underemployment. Approximately 38% of fourth grade students in the United States are poor readers while research shows all but 2-5% of children are capable of learning to read. As a result, a deeper look into the research and identification of scientific research-based strategies is the focus for improving academic achievement in American schools. The professional development required for educators to learn these strategies rests on the local school corporations in conjunction with pre-service education programs at the university level (Moats, 2005).
Summary of Findings

There were two purposes for this research study. The first purpose was to examine enrollment trends, specifically school corporations experiencing high percentages of enrollment increases or declines in the state of Indiana, to determine if there was a difference in third grade language arts achievement. More specifically, the focus was to target third grade ISTEP+ data from the top 10 increasing and declining public school districts to determine if there was a relationship between enrollment fluctuation and language arts’ achievement. The second purpose of this study was to determine if there was a significant difference between teachers in the identified increasing and declining enrollment school corporations in terms of knowledge and utilization of scientific research-based reading instruction.

To determine increasing and declining enrollment for schools, Indiana school corporations experiencing the highest percentage of enrollment change, both increasing and declining, were identified from the IDOE data set. All third grade scores were used from the corresponding school districts as the sample. Delving deeper into the IDOE data set, the subgroups of English Language Learners and Socio-economic Status within these school corporations were studied to determine if any significant differences exist between language arts achievement and enrollment trends for these subgroups. A teacher survey was developed by the researcher to quantitatively measure the degree in which teachers implement SRBI in reading and the degree in which said instructional strategies are learned in pre-service programs. The survey (Appendix B) utilized for this study was self designed after reviewing the literature on scientific, research-based instruction. Questions were designed to identify the teaching experience levels of the respondents and to determine if they were from either increasing or declining enrollment school corporations. A five-point Likert-scale ranging from 1 = Never to 5
= Always was administered to determine the degree of SRBI implemented by participants degree of SRBI knowledge obtained during pre-service programs.

**Analysis**

Statistical analysis was employed in the first part of the study to examine third grade test score differences on the language arts portion of the ISTEP+ between increasing enrollment school corporations and declining enrollment school corporations. Additionally, data for the subgroups of SES and ELL were analyzed. For all three of these analyses, the very large sample size encouraged an emphasis be placed on the practical significance of the mean difference. ANOVA results for all three hypotheses found the increasing enrollment school corporations’ third grade students to have a significantly higher mean on the language arts component of the ISTEP+ compared to the declining enrollment students. When comparing all third grade scores from the increasing enrollment school corporations to all third grade students from the declining enrollment school corporations, the increasing enrollment corporations outscored their declining enrollment counterparts by 3.87 points. For the subgroup of third grade students identified as the free and reduced population, the data suggests the increasing enrollment school corporations outperformed their decreasing enrollment school counterparts by approximately 1.5 points on the language arts component of the ISTEP+. The subgroup of English Language Learner populations from increasing enrollment school corporations outperformed their decreasing enrollment school counterparts by approximately 2.5 points on the same academic measure. This mean difference can have significant implications for school corporations as they are compared in school improvement and performance categories as outlined in both No Child Left Behind and Indiana Public Law 221.
Statistical analysis was employed in the second part of the study to investigate both implementation and source of knowledge regarding scientific, research-based instruction in the classroom. In order to obtain this data, electronic surveys were sent to current third grade teachers in the identified school corporations via e-mail and utilizing a web-based survey application. Sixty-three teachers responded and were included in the sample. Thirty-three participants responded from increasing enrollment school corporations and thirty participants responded from declining enrollment school corporations. The average years of experience for the increasing school corporation enrollment staff was 12.2 years while the declining school corporation enrollment staff had an average of 21.9 years experience. The mean difference for years of experience is 9.7 more years of experience in the declining enrollment school corporation staff. A two-sample \( t \)-test found this to be significant \((p<.0001)\).

The teachers were given a survey to address hypotheses four and five to determine the level of SRBI implemented in reading and degree of learning regarding SRBI in pre-service programs. Participants were asked to rank their responses on a Likert-scale from 1 to 5 with a “5” being the highest possibility. A response greater than three was considered a “high” response. For hypotheses four and five, a one sample \( t \)-test was used to determine if the mean was significantly larger than three.

To test the fourth hypothesis investigating if there is a significant difference among third grade reading teachers impacted by increasing and declining enrollments and the utilization of scientific research-based reading instruction to meet the needs of their changing student population, a one-sample \( t \)-test was administered to determine if teachers are implementing SRBI into their reading instruction. The mean was 4.0476 which is significantly larger than 3 \((p<.0001)\). The data supports evidence teachers are utilizing scientific, research-based
instruction to meet the needs of their changing student populations. In order to estimate the effect size for the independent-measures t-test, Cohen’s d was administered. The result was 1.54, indicating a large effect.

To test the fifth hypothesis investigating if there was a significant difference among third grade reading teachers impacted by increasing and declining enrollments and the degree of knowledge regarding scientific research-based reading instruction learned in pre-service programs, a one-sample t-test was administered to determine if teachers learned scientific, research-based instruction in pre-service programs. The mean was 2.7778 which was not significantly larger than 3. There was no evidence that third grade reading teachers in increasing and declining enrollment schools learn scientific, research-based instruction in pre-service programs.

To test the sixth hypothesis investigating if there was a significant difference in hypotheses four and five for teachers in declining enrollment schools and teachers in increasing enrollment schools, an ANOVA was run to determine if there was a significant difference in hypotheses four and five for teachers in declining enrollment schools and teachers in increasing enrollment schools. The mean difference between the two groups was 0.1 with a $p=0.5654$. There was no statistical evidence to support a difference between declining enrollment school teachers and increasing enrollment school teachers for utilizing scientific, research-based instruction with their student populations.

**Discussion**

For each category, all third grade students and the subgroups of SES and ELL, the increasing enrollment schools outperformed their declining school enrollment counterpart school corporations. In an era of accountability, this difference can have significant implications for
school corporations as they are compared in both school improvement and performance categories as outlined in No Child Left Behind and Indiana Public Law 221. This study examined the scores collectively from the 10 districts identified as increasing enrollment school corporations and collectively from the 10 districts identified as declining enrollment school corporations. A deeper understanding of the variables creating these results should now be conducted. This study should serve as a springboard for related questions within this finding. Specifically studying the individual schools within the increasing and declining enrollment districts to determine how resources, local academic expectations, transition planning, curriculum and instruction alignment and unique community aspects give insight into why some school corporations achieve at higher levels than others. Additionally, the school corporations within this study represent various sizes. For example Gary Community School Corporation currently has approximately 12,000 students and Vincennes Community Schools has approximately 2,700 students; however, both are decreasing at a rate that places them by percentage in top 10 declining enrollment school corporations. Conversely, Hamilton Southeastern Schools currently has approximately 18,000 students and Mount Vernon Community Schools has approximately 3,700 students with both districts increasing at an enrollment rate that places them in the top 10 increasing enrollment school corporations. Another study may separate school corporations by similar enrollment size to determine if there are academic differences when correlated in this manner. The findings of this section of the study bring more explicit questions to be explored, such as:

1. What are the resources supporting instruction and, more importantly, how are they utilized in increasing enrollment schools to maintain high levels of achievement?
2. How much do the expectations of the community, parents and school have to do with the level of achievement in high achieving schools?

3. How significant are transition plans in helping students’ segue into a new learning environment?

4. How aligned is the curriculum and instruction between sending and receiving school corporations and does that make a difference?

5. Is there a correlation between parents’ cognitive ability and level of their children’s achievement?

6. What factors make up for school corporations with less resources performing at high levels of achievement?

An interesting statistic in the study found the declining enrollment school corporation teaching staff to have significantly more years of experience than the increasing enrollment school corporations. The average years of experience for the increasing school corporation enrollment staff was 12.2 years while the declining school corporation enrollment staff had an average of 21.9 years experience. The mean difference for years of experience was 9.7 more years of experience in the declining enrollment school corporation staff. A two-sample t-test found this to be significant (p<.0001). The belief that veteran teachers produce higher achievement in students is in question here. The results from the one-sample t-test found significant evidence that teachers are utilizing scientific, research-based instruction as defined in the study. If both are truly utilizing SRBI in reading, why is there a significant achievement gap in scores? Did staff respond because a program they are implementing is touted as SRBI; therefore, the belief they are implementing SRBI with in-depth knowledge? Perhaps there is a deeper understanding of the foundational underpinnings for SRBI in reading in the increasing
school corporations. Could this solid foundational knowledge be allowing teachers to respond to student instruction regardless of the program being implemented and on a much deeper, immediate level? In other words, do teachers really know what they don’t know? This result speaks to the need for veteran staff, not just beginning teachers, to engage in professional development reflecting current scientific, research-based instructional knowledge plus the ability to translate and connect this knowledge into locally adopted curriculum materials.

The study found no evidence to indicate that pre-service teachers are learning scientific, research-based instruction in college programs. If both staff from increasing and declining enrollment schools believe they are using SRBI and neither learned this information significantly in pre-service programs, it begs the question of from where did this knowledge come. Has it been through local school district training, building-level professional development, personal professional inquiry, or textbook adoption and supporting curriculum materials? Further, is there a difference due to when an educator graduated and from what university? All these thoughts support the need for further articulation and curriculum alignment across the state and support the notion of national standards. If educators are clear and consistent with expectations of curriculum and instruction, including a process to utilize data effectively to drive instruction appropriately with groups of students, perhaps more time could be spent on relationship building and keeping students engaged at a high level in our public schools.

**Recommendations for Future Research**

To broaden the results of this study, this researcher offers the following recommendations for future research:
1. This study should be expanded by examining the factors that contribute to increasing enrollment school corporations outperforming their declining school corporation counterparts academically.

2. A study that looks specifically at four quadrants: high achieving schools with increasing enrollment, high achieving schools with declining enrollment, low achieving schools with growing enrollment and low achievement schools with declining enrollment to correlate these categories to the performance of veteran and beginning teacher student achievement.

3. A study that specifically investigates if there a correlation between the number of years of teaching experience and level of student achievement and if there is an optimal level of experience that correlates to high academic achievement.

4. A study that investigates if there is a difference between what teachers believe they understand about SRBI and what is actually implemented in classroom practice.

5. A study that investigates where teachers are receiving professional development regarding SRBI if not in pre-service programs.

6. A study that investigates schools with high and low implementation of SRBI to determine if it makes a difference in student achievement.

7. A study that determines the level of resources available in increasing enrollment schools versus declining enrollment schools, and specifically, how funds are being utilized in both.

8. A study that examines the alignment of pre-service program preparation of SRBI in reading and state literacy standards.
Summary

The six null hypotheses were tested utilizing SPSS for ANOVA and independent sample $t$-test analyses. The first part of the study focused on data from the IDOE database for determining if significant differences exist between academic achievement and school enrollment as defined within the study. School corporations experiencing high percentages of student enrollment gains had a higher mean on the language arts portion of the ISTEP+ for third grade students and the subgroups of free and reduced lunch and English Language Learners. These findings have practical significance in demonstrating third grade students in increasing enrollment schools are outperforming declining enrollment schools academically in language arts. This data has implications to both state and federal legislation regarding school improvement categories. The second part of the study focused on teacher survey data to determine utilization and source of knowledge regarding scientific researched-based instruction in reading. As a result, teachers believe they are utilizing scientific, research-based instruction to meet the needs of their changing student populations; however, there is no evidence teachers learned SRBI in pre-service programs. Additionally, when comparing declining and increasing enrollment school corporation teacher survey data there is no evidence supporting a difference between the two groups of teachers for utilization of SRBI or learning SRBI for reading in pre-service programs.
REFERENCES


APPENDIX A: DATA SHARING AGREEMENT

This Data Sharing Agreement (“Agreement”) is entered into between the Indiana Department of Education (“IDOE”) and Mrs. Maryanne McMahon, Director of Elementary Education for Avon Community School Corporation (“M. McMahon”).

Purpose of Agreement

The purpose of this Agreement is to allow use of raw scores of 3rd grade ISTEP data for the purpose of a statistical data analysis in completion of a dissertation.

Duration of Agreement

This Agreement is effective from August 26, 2009 through June 1, 2010.

Data

IDOE will provide [M. McMahon] with the following data:

3rd Grade Language Arts raw scores for students from the school corporations listed below. The ISTEP Language Arts raw scores are needed for three specific groups from these districts each year between 2002 and 2009: 1. All 3rd grade students, 2. Subgroup of Limited English, 3. Subgroup of Free/Reduced Lunch. The school corporations are:

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<tr>
<th>Indiana School Corporations</th>
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<tbody>
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<td>Gary Community School Corporation</td>
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<td>Edinburgh Community School Corporation</td>
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<td>Marion Community Schools</td>
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<td>Vincennes Community School Corporation</td>
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<tr>
<td>Clark-Pleasant Community School Corporation</td>
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<td>Hamilton Southeastern Schools</td>
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</table>

IDOE agrees to make the data available to [M. McMahon] in the following format:
The raw score data will involve the listing of raw scores by school corporation (20 listed above), by year (2002-2009) for each of the three categories (all 3rd grade students, Limited English, Free/Reduced Lunch) in an Excel spreadsheet. An Excel spreadsheet is provided for this purpose.

M. McMahon understands that the data shared by IDOE may contain confidential or otherwise protected information. M. McMahon assures that all data, material, and information gathered by or disclosed to M. McMahon pursuant to this Agreement will not be disclosed to or discussed with any third party without the prior written consent of the IDOE. M. McMahon shall ensure that it will comply with all confidentiality requirements in the storage and maintenance of the data and that its employees, agents, and consultants comply with all confidentiality obligations.

M. McMahon assures that the data provided pursuant to this Agreement will not be used for any purpose other than that specified in the Agreement without the prior written consent of the IDOE.

M. McMahon assures that, when it no longer requires the data, M. McMahon will appropriately destroy the data.
Amendments to Agreement
This Agreement may be amended in writing at any time with the prior written consent of the parties. Any amendment approved by the parties shall be incorporated as part of this Agreement.

Termination
IDOE may terminate this Agreement with or without cause at any time by providing written notice to M. McMahon ten (10) calendar days prior to the termination date.

The Indiana Department of Education and Mrs. Maryanne McMahon, Director of Elementary Education for Avon Community School Corporation, through their duly authorized representatives, have read, understand, and agree to the foregoing terms of this Agreement.

Content reviewed and approved by IDOE Office of Legal Affairs:\textsuperscript{1}: ____________
Attorney initials

Indiana Department of Education  Mrs. Maryanne McMahon, Director of Elementary Education, Avon Community School Corporation

\textsuperscript{1} Agreement must be reviewed and approved by the Office of Legal Affairs before being submitted for signatures.
APPENDIX B: TEACHER SURVEY

Reading Strategies Survey

Directions: Thank you for taking time to complete this 5 question survey. Click on the response that describes you best for each question. Click on the "done" button at the bottom of the page when you are finished. For purposes of the survey, a definition of scientific, research-based instruction is provided.

Definition: Scientific, research-based instruction (SRBI) includes instructional practices for which original data have been collected to determine their effectiveness. Scientifically based, rigorous research designs have been utilized to evaluate the practices.

Examples of SRBI: phonemic awareness, reading fluently with guided oral reading strategies, increased exposure to vocabulary for comprehension gains, purposeful interaction between reader and text for increased comprehension, explicit instruction to mentally process and reason, teacher facilitation of collaborative student discussions around text to promote deeper meaning.

You may opt-out of this survey at anytime by clicking on the "exit this survey" button in the upper right hand corner of the page.

1. How many years have you completed teaching?

2. Has your school corporation generally been experiencing increasing or declining student enrollment in the past five years?

   - [ ] increasing
   - [ ] declining
3. On a scale of 1 to 5, to what level have you implemented scientific, research-based instruction into your reading program?

☐ 1 Never use scientific, research-based instruction for teaching reading.

☐ 2 I use scientific, research-based instruction about 25% of the time when teaching reading.

☐ 3 I use scientific, research-based instruction in reading about 50% of the time.

☐ 4 I use scientific, research-based instruction in reading about 75% of the time.

☐ 5 Always use scientific, research-based instruction in teaching reading.

4. Select the response that best matches to what degree you learned about scientific, research-based instruction during your college reading courses.

☐ 1 I was not made aware that the reading strategies I learned in college were scientific, research-based instruction. (0%)

☐ 2 Some of the reading strategies I learned in college were scientific, research-based instruction. (1-25%)

☐ 3. Several of the reading strategies I learned in college were scientific, research-based instruction. (26-50%)

☐ 4. More than half of the reading strategies I learned in college were scientific, research-based instruction. (51-75%)

☐ 5. The majority of reading strategies I learned in college were scientific, research-based instruction. (76-100%)
5. On a scale of 1 to 3, since becoming a teacher to what degree have you experienced professional development regarding scientific, research-based instruction in reading?

- [ ] 1 I have not had any professional development in scientific, research-based instruction in reading.
- [ ] 2 I have had some professional development in scientific, research-based instruction in reading.
- [ ] 3 I have had extensive opportunities to learn scientific, research-based instruction in reading.
APPENDIX C: TEACHER NOTIFICATION

Dear Fellow Educator,

My name is Maryanne McMahon and I am a doctoral candidate in the Educational Leadership, Administration, and Foundations department at Indiana State University. My dissertation study involves looking at growing and declining enrollment school districts in the state of Indiana to determine if a relationship exists between fluctuating enrollment and third grade reading achievement. Additionally, I want to analyze the extent of teachers’ knowledge regarding scientific research-based instruction and if teachers are changing reading strategies based upon changing student populations. The intention of the study is to identify what level of professional developmental is needed to improve reading achievement in our schools.

The study is designed to gather input from current practicing teachers in the state of Indiana through the use of an electronic, web-based survey. The survey will be targeting third grade teachers in twenty school corporations across the state. School corporations that have the highest enrollment changes (either increasing or declining) are specifically being asked to participate. While participation in this study is important for my research to be complete, please understand that participation is voluntary and there is no penalty for those who choose not to participate. Staff members that elect to complete the survey are not asked to identify themselves or the specific school they serve.

Teachers may access the survey by clicking on the following Survey Monkey URL:
http://www.surveymonkey.com/s.aspx?sm=2_2bhNz_2fVdJ1h_2fSafChmWKig_3d_3d
The survey is comprised of 5 questions and should take only a few minutes to complete. Participation is strictly voluntary. Teachers will not identify themselves on the survey and the survey responses will be deleted from the Survey Monkey account at the conclusion of the study. Responses to this data collection will be used only for statistical purposes. The data will be reported by findings across the sample and not associate responses with a specific district, school or individual. Teachers should take a moment to read this entire communication regarding the study prior to making a decision about participation. For those choosing to consent, the survey should be completed by the end of the day on Friday, January 15, 2010.

There is no payment, cost or compensation associated with participation; however, educators might benefit from this research as it may inform or validate many of the current reading instructional practices in our classrooms. On a larger scale, it may help to inform pre-service programs for future teachers in our state.

Your time is greatly appreciated,

Maryanne B. McMahon
(Doctoral Candidate)
7203 East US Highway 36
Avon, IN 46123
Phone: (317) 272-2920
Email: mbmcmahon@avon-schools.org

Dr. Terry McDaniel
(Committee Chair)
Phone: (812) 237-3862
APPENDIX D: INDIANA MAP OF DISTRICTS IN STUDY

Indianapolis School District Boundaries

1. Gary Community Schools
2. Edinburgh Community Schools
3. Hamilton Community Schools
4. Marion Community Schools
5. Shoals Community Schools
6. New Harmony Township Schools
7. Southwest Schools
8. Metropolitan School District of Mount Vernon
9. Argos Community Schools
10. Vincennes Community Schools

Growing School Corporations

1. New Durham Township Schools
2. Noblesville Schools
3. Mount Vernon Community Schools
4. Brownsburg Community Schools
5. Zionsville Community Schools
6. Westfield-Washington Schools
7. Franklin Township Community Schools
8. Avon Community School Corporation
9. Clark-Pleasant Community Schools
10. Hamilton Southeastern Community Schools

*Based upon % change between 2003-2007
Source: DOE Database
# APPENDIX E: NUMBER OF YEARS OF TEACHING EXPERIENCE FOR STUDY PARTICIPANTS

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