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AN EXAMINATION OF THE RELATIONSHIP BETWEEN ACADEMIC ACHIEVEMENT AND SUPPLEMENTAL FEDERAL REVENUE AS IT RELATES TO AMERICAN INDIAN STUDENTS IN A PUBLIC SCHOOL DISTRICT

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AN EXAMINATION OF THE RELATIONSHIP BETWEEN ACADEMIC ACHIEVEMENT AND SUPPLEMENTAL FEDERAL REVENUE AS IT RELATES TO AMERICAN INDIAN STUDENTS IN A PUBLIC SCHOOL DISTRICT

A DISSERTATION APPROVED FOR THE
DEPARTMENT OF EDUCATIONAL LEADERSHIP AND POLICY STUDIES

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DEDICATION

This dissertation is dedicated to the Cheyenne and indigenous people throughout our world. It is also dedicated to future American Indian scholars and doctoral candidates who have endured the good race for our indigenous people.

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I started this degree program to ensure our Cheyenne and indigenous people have a voice at the local, state, tribal, national, and global levels. I want to thank my wife Alicia and our three children Ethan, Ella, and Esme (Cheyenne names: Little Rock, Magpie Woman, and Medicine Women) for their love and support during the past seven years.

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Whatever is true, whatever is noble, right, pure, lovely, admirable, excellent or praiseworthy – think of such things.
Philippians 4:8

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ABSTRACT

Using a vertical equity lens this study investigates the effect of federal funding on the academic achievement of American Indian students in a high Indian enrollment (HIE) public school district in Oklahoma. This single district exploratory case analysis incorporated cross-sectional data for 1,679 American Indian students enrolled in grades three through eight over a seven-year period. The researcher explored three research questions via quantitative methodology in order to analyze a vertical equity argument regarding fiscal support for American Indian students. First, over the past seven years, what were the funding trends for a HIE public school district? Second, over the past seven years, what were the academic achievement trends of American Indian students attending a HIE public school district? Third, within a HIE public school district, is there a relationship between funding trends and academic achievement trends of American Indian students? The Oklahoma Core Curriculum Test (OCCT) reading scores were selected as constant formal assessment among grade levels. The Reading Sufficiency Act was passed by Oklahoma legislatorsion to encourage on-grade level reading for elementary students. Therefore, this study is critical to depict historically where American Indians have scored beyond third grade. Descriptive analyses reveal federal revenues were inconsistent during the period of analysis and Oklahoma Performance Test Indicators (OPTI) show American Indian students' reading scores declined from grades three to eight and declined sharply following the transition from elementary to middle school. Multiple regression analyses for grades three through eight did not reveal a statistically significant relationship between federal revenue and reading scores.

CHAPTER 1

Introduction

Statement of the Problem

American Indian students are part of an *underserved student population,* meaning American Indian students are not equipped for academic, formal schooling compared to non-Indian students in public schools (Powers, 2012; Pewewardy & Fitzpatrick, 2009; Powers, Potthoff, Bearinger, & Resnick, 2003). American Indian students have traditionally lagged behind other ethnic minorities in student achievement in public education (Grigg, Moran, & Kuang, 2010; Mead et al., 2010; Pewewardy & Fitzpatrick, 2009; St. Germaine, 1995). They often attend public schools (Tippeconnic & Tippeconnic Fox, 2012; Pewewardy & Fitzpatrick, 2009), but do not receive an appropriate education based on their needs (Glenn, 2011; Mead, Grigg, Moran, & Kuang, 2010; Pewewardy & Fitzpatrick, 2009; Powers, Potthoff, Bearinger, & Resnick, 2003). The problem of whether funding of public schools – particularly Oklahoma public schools with large American Indian populations – is adequate to address the challenges faced by this underserved population remains unclear and unsupported by empirical evidence.

Public school funding is derived from federal, state, and local revenues (Thompson, Wood, & Crampton, 2008) with a majority of fiscal revenue coming from local property taxes, resulting in disparities between wealthy and poorer school districts (Biddle & Berliner, 2009; Glenn, Picus, Odden, & Aportela, 2009; Kent & Sowards, 2008; Ramirez, Siegrist, Krumholz, & Rainey, 2011; Rodriguez, 2004; Toutkoushian & Michael, 2007). Scholars have warned that the American school

system is based on inequitable funding mechanisms (Berne & Stiefel, 1984) and have suggested equitable funding alternatives (Ramirez et al., 2013). Scholars have also suggested that, in order to address inequities between affluent and impoverished school districts, states should enact more equitable funding policies to support all students (Kent & Sowards, 2008; Odden, Picus, & Goetz, 2010; Picus & Odden, 2011; Ramirez et al., 2011; Rodriguez, 2004; Toutkoushian & Michael, 2007).

Both policymakers and district leaders are concerned about the potential consequences of funding disparities on students, particularly students in underserved populations. Historically, the federal government has stepped in to support public school districts with large American Indian populations when local governments have failed to provide adequate funding. However, supplemental federal funds may not reduce funding disparities depending on how these funds are distributed. In order to address this question, this study analyzes relationships among supplementary federal funding types and the Oklahoma Core Curriculum Test (OCCT) reading scores. In particular, this case analysis attempts to draw on empirical evidence to examine if funding relates to academic achievement for American Indian students.

Historical and Current Contexts

Public schools were established across Oklahoma during early the 1900s. Initially, American Indian families sent their children to boarding schools, often located far from home. Following the boarding school era, American Indian families decided to send their children to schools closer to home. American Indian

families are in an unusual position, however, because they reside on Bureau of Indian Affairs (BIA) trust lands within public school attendance zones. Yet, American Indian families residing on BIA trust lands do not pay ad valorem taxes that support their local school districts (Escue & Wood, 2010; Glenn, 2011). Ad valorem revenues are local monies collected via property taxes in support of public education (Thompson et al., 2008). As a result, public schools supporting large populations of American Indian students often lacked the funding to provide educational opportunities comparable to low-Indian-enrollment schools. In light of these concerns, and the special relationship American Indians enjoy with the federal government, the federal government shaped legislation to provide HIE schools with critical sources of funding such as Johnson O'Malley(JOM) revenues and, later, Impact Aid federal funds (Glenn, 2011; Reyhner & Eder, 1992). The federal government also enacted policies such as JOM, Federal Impact Aid Act, Indian Education Act of 1972, Title VII of the No Child Left Behind (NCLB) of 2001, and more recently Title VI of the Every Student Succeeds Act (ESSA) of 2015 to support Indian education.

In what follows in this chapter, the researcher highlights the JOM Act of 1934, Federal Impact Aid of 1950, Title I of Elementary and Secondary Education Act (ESEA) of 1965, which has been reauthorized into NCLB of 2001, Indian Education Act of 1972, Title VII of NCLB Act of 2001 and Title VI of the ESSA of 2015. Chapter 1 outlines the historical context~~s~~ to provide readers a better understanding of each federal funding type. Later in the literature review section, a

deeper historical and current contexts of each federal funding type is delivered for readers.

Indian Education Policies

Johnson O'Malley Act.

The JOM Act of 1934 provided an avenue for the federal government to allocate monies to states for educating American Indian students (Glenn, 2011; Mueller & Mueller, 1992; Reyhner & Eder, 1992). According to Mueller and Mueller (1992), "JOM funds initially compensated public school districts for the absence of property tax revenues from tax-exempt reservation lands that lay within a school district's boundaries" (p. 78). While JOM solved the problem of low revenues for public schools serving tax-exempt American Indian students, JOM allowed schools to direct funding into their general operating fund. The general funds were used to support both non-Indian and Indian students in public school districts (Reyhner & Eder, 1992) rather than Indian education programs.

The court case *Natonabah v. Board of Education* addressed the issue of JOM funds being abused by school districts (*Natonabah v. Board of Education of Gallup-McKinley City School District, 1973*). In this case, a New Mexico school district received JOM federal dollars for their schools, but those monies were being entered into a general operating fund. Therefore, special programs or resources did not support eligible American Indian students. Carter (1974) states, "The plaintiffs claimed that supplemental JOM funds were improperly used to support certain services they classified as 'basic support programs' which the district should have funded from operational money" (p. 92). In addition, there was some confusion

with an interpretation of how JOM monies should be allocated. The plaintiffs argued JOM monies should be spent on supplemental programs as opposed to general operating funds. The U.S. district court would not rule on a minimum state standard to set a benchmark between supplemental and general operating funds (Carter, 1974). In short, the court ruled that because American Indian students need and use building amenities, Federal Impact Aid monies could support general operating funds. They also ruled, however, that JOM monies should be used only for American Indian support programs (Carter, 1974).

The Indian Self-Determination and Assistance Act of 1975 (P.L. 93-638) authorized JOM federal funds to be allocated to tribal organizations, Indian corporations, public school districts, or states having eligible native students attending their schools (Mueller & Mueller, 1992). Public Law 93-638 requires JOM monies to be appropriated as supplementary funds for local organizations. In their article "Federal Legislation Affecting American Indian Students," Mueller and Mueller (1992) state, "When federal impact aid began to fulfill this purpose in the 1950s, JOM funds were used to develop supplemental program for eligible Indian children attending public schools" (p. 78).

Federal Impact Aid of 1950.

Federal property is nontaxable by state, county, or local governments so Federal Impact Aid is a federal grant to assist schools with students who have military and/or American Indian students enrolled in their district (Escue & Wood, 2010). Escue and Wood (2010) report, "Federal Impact Aid was designed to financially assist school districts with children who resided on Indian lands, military

bases, and other federal properties" (p. 187). The Federal Impact Aid Act of 1950 was a crucial step for lawmakers to generate additional revenues for school districts wherein families reside on nontaxable property, such as American Indian owned lands (Mueller & Mueller, 1992; Reyhner & Eder, 1992; Rosenfelt, 1976).

Brown, Ginsburg, and Jacobs (1979) discuss the two parts of the Federal Impact Aid, Parts A and B. First, Part A was intended for children whose parents live and work on federal property. Second, Part B was intended for children whose parents live or work on federal property, but not both. Brown et al. (1979) state, "All children living on Indian lands are 'A' category and most of the public housing children are 'B' category students" (p. 274). Parents complete Impact Aid forms to assure school districts that their students are eligible for those funds and schools report their student counts to the federal government in return for Impact Aid dollars. Mueller and Mueller (1992) explain that the Impact Aid funds can be used for general purposes (P.L. 81-874) or facility construction and repair funds (P.L. 81-874).

Title I of the Elementary and Secondary Act of 1965.

In 1965, Congress acted to support economically and educationally disadvantaged public school students (Jennings, 2000; Riddle, 1992; Thompson et al., 2008) by passing Title I of the Elementary and Secondary Act (ESEA). Jennings (2000) testifies, "The ESEA of 1965 became the centerpiece of President Johnson's efforts to improve the lot of poor and minority youngsters, and the Title I program was the crown jewel of the ESEA" (p. 517). The Title I program

emphasized 40 entitlements, each addressing specific interests of Congress such as literacy (Thompson et al., 2008).

Congress designed Title I to assist school districts in the form of categorical aid. This meant public school districts must meet Title I eligibility and implement those funds, in addition to already existing funds, to support economically disadvantaged students. Title I was an historic landmark in public education for disadvantaged families and students. Congress appropriated federal dollars for public school districts to ensure a quality of education for all students. Over the years, Title I was amended such that school districts had to apply by meeting certain criteria including: utilizing a school improvement plan, involving a parent committee, and meeting student eligibility requirements.

Today, American Indian students ~~have~~ predominately attended public schools in the United States. Title I of ESEA of 1965 has evolved into the present-day ESSA of 2015. Federal funding has also transitioned in order to support economically disadvantaged students. American Indian families have traditionally experienced hardships such as unemployment, poverty, and/or low income. Therefore, American Indian students do qualify for Title I federal funding.

Indian Education Act of 1972.

The Indian Education Act of 1972 granted federal funds in support of tribal operation of school programs (Havighurst, 1978). According to the Office of Elementary and Secondary Education, in 1969 there was a report called *Indian Education*: *A National Tragedy –National Challenge* that focused attention on the education of American Indians and Alaskan Natives. Public Law 92-318

established the Office of Indian Education and the National Advisory Council on Indian Education. It also authorized special funding for reservation and urban Indian populations (Reyhner & Eder, 1992). State, local, and tribal education departments were funded by Congress to improve educational opportunities for Indian children, college students, and adults. The following were supplemental programs funded by the Indian Education Act of 1972:

> schools of local education agencies and BIA-operated or BIA-contracted schools; enrichment programs in Indian-controlled schools; special education services to Indian children, including gifted and talented; training for Indian education personnel; fellowships for postsecondary Indian students; adult education; and regional technical assistance centers. (Mueller & Mueller, 1992, p. 74-75)

The Indian Education Act of 1972 contained four subparts: (a) grants for local education agencies and Indian-controlled schools, (b) special programs for Indian students, (c) special programs for Indian adults, and (d) program administration and the National Advisory Council (Mueller & Mueller, 1992). The Indian Education Act was created to develop teacher training and fellowship programs for American Indians and Alaskan Natives.

The Indian Education Act of 1972 aimed to provide better quality programs for American Indian and Alaskan Native families (Mueller & Mueller, 1992). The *Indian Education*: *A National Tragedy – National Challenge* report served as a catalyst for positive and effective change for American Indian populations in the United State. It funded organizations to provide supplementary programs for American Indian and Alaskan Natives. The Indian Education Act became public law (P.L 100-297), which enabled BIA-funded schools to apply for formula grants. In 1994, P.L. 103-382 reauthorized the Indian Education Act into Title IX, Part A,

of the Elementary and Secondary Education Act (ESEA). Title IX, Part A, established a comprehensive plan to meet the academic and culturally related academic needs of American Indian and Alaskan Natives in the United States. Finally, P.L. 107-110, the Indian Education Act, was reauthorized as Title VI, Part A, of the No Child Left Behind Act. Title VI, Part A, is a formula grant based on state academic content and student academic achievement standards. This grant was designed to assist American Indians and Alaskan Native in meeting academic content and achievement standards set for all students.

Title VII of the No Child Left Behind Act of 2001.

The Elementary and Secondary Education Act was amended throughout several presidential administrations and eventually evolved into the No Child Left Behind Act, also known as Public Law 107-110, which was signed into law by President George W. Bush in 2001. This policy held state and local agencies more accountable for student achievement and focused heavily on standardized testing. Title VII of No Child Left Behind (NCLB) applied to American Indians, Native Hawaiian, and Alaska Native Education. Title VII introduced policies to support local school districts and agencies, Indian tribes/nations, organizations, postsecondary institutions, and other entities toward the education of American Indian children.

As reported by the U.S. Department of Education's website, Title VII, Section 7102: Purpose, (b) lists four program objectives of Title VII: (1) meeting the unique education and culturally related academic needs of American Indians and Alaskan Natives; (2) the education of Indian children and adults; (3) the training of

Indian persons as educators and counselors, and in other professions serving Indian people; and (4) research, evaluation, data collection, and technical assistance.

The Title VII program is a partnership between the federal government and local school districts to supply additional revenue for American Indian children. Title VII is a federal resource that financially supports school districts. Title VII funding is based on the number of students identified as American Indian. The Title VII enrollment form requires parents or guardians to submit a copy of their Certified Indian Blood certificate or demonstrate ancestral proof of Indian heritage. Title VII funding has stipulations attached, so school districts must comply with those requirements including reconciliation of administrative paperwork during yearly audits and additional support for America Indian students.

This Title VII of No Child Left Behind has been updated and revised into Title VI of the Every Student Succeeds Act of 2015. Signed by President Obama, the latest federal policy regarding Indian education is Title VI of ESSA, which supplies eligible school districts, tribal/nation organizations, and other entities with federal funding.

The Fiscal Adequacy Framework and Vertical Equity Lens

As policy of ESEA merged and changed since 1965, schools remodeled their governance. This revamping of school governance came after and during Berne and Stiefel's argument for a fiscal adequacy framework in order to provide more effective funding practices in public schools (1984). Scholars began to argue a decentralization of authority was more effective than central control over daily operation of individual sites. This decentralization process empowered building

sites. Principals and building leaders were granted more autonomy during the era of site-based management. Building leaders were able to provide fiscal support that specifically supported their students.

In the early 1990s, the adequacy framework gained momentum as researchers adopted horizontal and vertical equity theories from the earlier work of Berne and Stiefel (1984). The adequacy framework, based on the notion that students require an appropriate, yet adequate, education (Picus & Odden, 2011; Ramirez et al., 2011), enables better understanding of organizational constraints within public education. This conceptual framework explains that students enter schools with various needs and that schools should provide adequate and appropriate resources to serve them (Picus & Odden, 2011; Ramirez et al., 2011).

In order to provide an adequate education, reformers and scholars have studied court cases to ensure students are being effectively educated. Historic adequacy court cases such as *McDuffy v. Secretary of Education of Education* and *Rose v. Council for Better Education* were critical in setting precedents concerning adequacy issues (Burbridge, 2008; Minorini & Sugarman, 1999; Verstegen, 2007). The question still remains whether federal funding is adequate for supporting academic achievement for American Indian students in high Indian enrollment (HIE) public school districts in Oklahoma.

Purpose of the Study

The purpose of this quantitative single district case analysis is to examine the extent to which adequate supplemental funding has been provided to promote academic achievement as it relates to American Indian students attending a HIE

public school district (Pavel, 1999). As a minority population, American Indian students are supported with federal dollars, but little is known about the relationship between this funding and student academic achievement. Therefore, this study ~~will~~ explores fiscal trends and their impact on American Indian students in an Oklahoma public school district. This is a single district exploratory study, which emphasizes a contextualization of new practical knowledge as it applies to quantitative research methodologies. This study does not infer to a global population when a high Indian enrollment is present.

American Indian students who reside near public school districts excel academically compared to American Indian students on reservations (Grigg et al., 2010). Most American Indian students attend public schools, rather than tribal, Bureau of Indian Education (BIE), or reservation schools (Grigg et al., 2010; Pavel, 1999). Despite the fact that American Indian students in public school districts are academically more successful than those on reservations, American Indian students remain part of a minority group within public school districts (Grigg et al., 2010; Pewewardy & Fitzpatrick, 2009; Powers et al., 2003; Reyhner, 1992) and have traditionally lagged behind other ethnic minority groups in school achievement (Powers, 2012; Grigg et al., 2010; Pewewardy & Fitzpatrick, 2009; Powers et al., 2003 Pavel, 1999).

Public school districts within the state of Oklahoma can apply for federal funds such as Title I, Title VI, and Impact Aid if they have eligible American Indian students and families. This study explores direct instructional revenue received by a particular school district and analyzes how those funds are related to academic

achievement among American Indian students. The study does not include Johnson O'Malley federal revenue. In this particular setting, JOM federal revenue is received by several school sites through the support of a local American Indian nation/tribe. However, detailed data pertaining to JOM funding levels at different locations was not available. Federal funding sources considered in this study include Title I, Title VI, and Impact Aid.

Research Questions

Research questions guide this study of how the fiscal adequacy framework, using a vertical equity lens, as it pertains to academic achievement among American Indian students in a HIE school setting. Funding sources include general operating funds without federal revenue, Title I funding, and Title VI funding with direct instructional costs connected to each. This study questions whether or not general operating funds without federal dollars, Title I funding, and Title VI funding affect Oklahoma Common Core Curriculum Test (OCCT) reading scores for American Indian students and is guided by the following research questions.

- Research Question 1: Over the past seven years, what were the funding trends for a HIE public school district?
- Research Question 2: Over the past seven years, what were the academic achievement trends of American Indian students attending a HIE public school district?
- Research Question 3: Within a HIE public school district, is there a relationship between funding trends and academic achievement trends of American Indian students?

Significance of the Study

This study seeks to explain how school finances relate to academic achievement among American Indian students. This research has crucial implications for district leaders, policymakers, and tribal leaders seeking to understand how school funding - or lack thereof - is related to academic achievement.

Moreover, this study provides a framework of fiscal adequacy, in particular the vertical equity lens, to effectively generate district revenue based on fiscal trends. The study analyzes how district leaders should support eligible American Indian students with more funding in order to improve academic achievement via the vertical equity lens. The goal of this study is to use findings to critique and revise district and building policy in order to promote adequate funding for American Indian students' education.

This research addresses a critical gap in current understanding, as there is an insufficient quantity of research on this issue (Pewewardy & Fitzpatrick, 2009). Notably, few university professors and graduate students have authored research on American Indians (Huffman, 2010). Among existing American Indian scholarly research, quantitative methodology is rare (Demmert, 2005). The difficulty with quantitative research of American Indians relates to population; quantitative research methodologies call for significant sample sizes in order to produce generalizability and statistical strength (Salkind, 2011).

It is critical researchers do not steer their empirical investigation into focusing solely on *negative* outcomes for American Indian students. Some negative

findings have revealed low graduation rates, high dropout rates, and low-test scores. The process of producing generalizations and assumptions based upon negative findings is called the deficit model (Deyhle & Swisher, 1997). Researchers who are not cognizant of the deficit model develop flawed arguments not suitable for use in decision-making pertaining to American Indian education. This process has focused on negative outcomes and findings regarding American Indian students.

Limitations of the Study

The findings of this study are derived from a rural, suburban school district and may be applicable only to this certain setting with its unique demographics and characteristics. Findings may not be applicable to other school districts with similar demographics and characteristics. The study sampled a selected population, and it does not account for other public schools in Oklahoma.

In this study, the sampled population is identified by state accountability reports. As a result, students have not been selected based on their cultural affiliation. The researcher cannot speak to whether the students in the population are cognizant of their cultural or tribal identities. Students have been identified by eligibility criteria alone.

The study omits JOM funding. Johnson O'Malley funding cannot be connected to direct instructional costs, nor is it administratively linked to this particular school district.

The researcher is a school administrator and stakeholder in this particular sampled population. He has personal biases and prejudices toward fiscal spending within the district. As a researcher studying his school district, these biases pose

some issues, but the investigator minimizes biases and prejudices with cross sectional data collection and quantitative methodology.

Context

The context of this study is a rural, suburban public school district in Oklahoma. There are approximately 4,065 students within the school district. The American Indian population hovers around an estimated 30% of the total district student count. This particular school district is considered to have high Indian enrollment (Pavel, 1999). The *National Indian Education Study* categorizes this school district as "high density" (Grigg et al., 2010). The school district consists of one early-childhood center, four elementary schools, one middle school, one high school, and one alternative school. The 2010 U.S. Census reported that a total of 29,857 people resided in this area in 2010.

Definitions

In this study, key terms are used to describe the sampled population accurately and appropriately. First, *American Indian* is a term used to describe indigenous people of North America (American Psychological Association, 2010; Deyhle & Swisher, 1997). American Indian scholars also use this term. Second, *Native American* refers to American Indian students identified by state accountability reports in reference to formal assessments. The Oklahoma State Department of Education (OSDE) uses *Native American* as the preferred term. American Indian students, according to Title VI, have a Certified Degree of Indian Blood (CDIB) or native ancestry traced to their grandparents and/or parents. Third, Pavel (1999) and Grigg et al. (2010) argue that *high Indian enrollment* (HIE) or

high density describes those public schools for which Indian students make up 25% or more of the population.

Overview of Fiscal Adequacy Framework and Vertical Equity Lens

The conceptual framework of this exploratory study is fiscal adequacy, which focuses on public schools' financial responsibility to educate special populations adequately (Ramirez et al., 2011). This case analysis~~zes~~ specifically dissects federal supplementary revenue using~~by~~ the lens of vertical equity. Berne and Stiefel (1984) argue~~d~~ vertical equity is how resources are allocated and/or funded. Vertical equity is also known as *unequals among unequals*, meaning resources are distributed for special populations with unique needs. In this case study, the researcher incorporated vertical equity which lies underneath the blanket of fiscal adequacy.

Building on the adequacy argument, the fiscal adequacy framework provides an understanding of minority groups and their needs within schools. Adequacy policy also attempts to supply special populations and minority groups with an adequate education (Picus & Odden, 2011; Ramirez et al., 2011). School principals tend to serve a majority group among their population, but the adequacy framework supports an alternative. In reference to adequacy, Ladd, Chalk, and Hansen (1999) state, "Such a system should attempt to provide local school districts, local schools, and even classroom teachers with resources and inducements to tailor instruction for the characteristics of students" (p. 216). This fiscal adequacy framework will guide the study by determining whether fiscal adequacy is achievable.

Methodological Assumptions

There are three methodological assumptions for this study. First, it is assumed the researcher has an appropriate conceptual framework to analyze American Indian student test scores and district funding trends. Fiscal adequacy is a conceptual framework used to accurately describe the relationship between funding and academic achievement among American Indian students in a HIE district. Second, the fiscal data collection is accurate and detailed for this study. The researcher corresponded with the appropriate district leader(s) to gather accurate information about funding and academic achievement. Third, the cross-sectional design of this study over a seven-year window of investigation promotes accuracy by reducing the influence of outliers. Finally, there is a sufficient sample of American Indian students in this HIE to utilize quantitative methodologies.

Organization of the Study

This study is organized into five chapters. Chapter I introduces the study and provides information on the background of the study, problem statement, purpose of the study, three research questions, significance of the study, limitations of the study, fiscal adequacy framework, methodological assumptions, and summary.

Chapter II includes a review of related and theoretical literature. It is portioned into four main sections. Section I talks about American Indians, their communities, and the historical context of their formal education. Section II discusses school finance and how it relates to American Indians. Section III talks about the Adequacy framework. In this section, adequacy is narrowed into fiscal

adequacy as it pertains to school finance. The third section also focuses on the fiscal adequacy framework and, more specifically, the vertical equity lens. Finally, the last section discusses Indian education and the policies that are related to American Indians. This section includes those federal supplementary revenues that support public school districts.

Chapter III includes a written narrative of the procedures, sample population, and research methodology used in the exploratory study. Chapter III also states the research questions and research hypotheses that guided the study. It also explains the procedure for data collection, data analysis, and internal and external validity. Chapter IV will provide the results of the research of the study. Descriptive analysis and multiple regressions are~~will be~~ utilized to explore federal revenues and academic achievement among American Indian students. Last, Chapter V ~~will~~ links the literature to the findings and provides a synopsis of the study, arguments for future research, and contributions to the literature on American Indian Education.

Summary

Though American Indian students attending public schools excel academically compared to those attending BIA schools, they have traditionally lagged behind their non-Indian peers (Grigg, Moran, & Kuang, 2010; Mead et al., 2010; Pewewardy & Fitzpatrick, 2009; St. Germaine, 1995). Eligible American Indian students are provided with additional support in the form of Title I, Title VI, and Impact Aid funding through their school districts.

Research explaining the effects of funding inequities between wealthy and poorer districts (Biddle & Berliner, 2009; Glenn, Picus, Odden, & Aportela, 2009;

Kent & Sowards, 2008; Ramirez et al., 2011; Rodriguez, 2004; Toutkoushian & Michael, 2007) raises the question of whether funding ~~does~~ truly improves academic achievement for American Indian students who attend public schools in Oklahoma. In addressing this question, this exploratory study provides critical implications for policymakers and district leaders, including the need to recognize inequities at the state and local levels and develop mechanisms to ensure fiscal adequacy is achievable.

CHAPTER 2

Literature Review and Historical Background

Introduction

Chapter two focuses on the literature that forms adequacy into the more specific framework of this study. Chapter two is divided into four major sections. The first section establishes the importance of studying American Indian students. In this section, the literature review discusses issues pertinent to American Indian students, such as their communities, schools, and learning needs. This discussion provides cultural context surrounding issues of American Indian education and establishes the importance of studying American Indian students attending public schools, including the need for supplemental funding to support American Indian students. Then after this discussion, the second section reviews relevant literature on school finance. Section two also discusses how school finance is related to American Indian education. The third section discusses the adequacy framework and the vertical equity lens. In this context, it describes the vertical equity issue as it specifically relates to the American Indian population. This portion of the chapter enhances a reader's ability to understand how American Indian education and school finance has a historical and current relationship that exists in public schools. The third section bridges the first two sections by providing a rationale for using fiscal adequacy framework with a vertical equity lens to assess the extent to which supplemental funding promotes the academic achievement of American Indian students. Finally, the last section discusses Indian education and federal

supplementary revenue for school districts. The last section also includes is a description of some of the supplemental funding programs.

Contemporary American Indian Dilemma

As indicated in chapter one, there are critical issues regarding American Indian students who attend public schools. First, American Indian students are an underserved population within the public schools. As an underserved population, American Indian students are not equipped for academic, formal schooling compared to non-Indian students in public schools (Powers, 2012; Pewewardy & Fitzpatrick, 2009; Powers, Potthoff, Bearinger, & Resnick, 2003). American Indian students have traditionally lagged behind other ethnic minorities in student achievement in public schools (Grigg, Moran, & Kuang, 2010; Mead, Grigg, Moran, & Kuang, 2010; Pewewardy & Fitzpatrick, 2009; St. Germaine, 1995). American Indian students often attend public schools (Tippeconnic & Tippeconnic Fox, 2012; Pewewardy & Fitzpatrick, 2009), but do not receive an appropriate education based on their needs (Glenn, 2011; Mead, et al., 2010; Pewewardy & Fitzpatrick, 2009; Powers, Potthoff, Bearinger, & Resnick, 2003).

Lack of funding in public schools serving American Indian students exacerbates the challenges American Indian students face. Public school funding is derived from federal, state, and local revenues (Thompson, Wood, & Crampton, 2008), with a majority of fiscal revenue coming from local ad valorem taxes. The result of funding based on local ad valorem tax revenues is that schools located in areas where residents have less money to spend on taxable goods (e.g., property), receive less money to support students leading to disparities across affluent and

poorer school districts (Biddle & Berliner, 2009; Glenn, Picus, Odden, & Aportela, 2009; Kent & Sowards, 2008; Ramirez, Siegrist, Krumholz, & Rainey, 2011; Rodriguez, 2004; Toutkoushian & Michael, 2007). Though scholars have warned that the American school system is based on inequitable funding mechanisms (Berne & Stiefel, 1984), these mechanisms remain in place.

To address issues of inequitable school funding, the federal government has stepped in to support public school districts with large American Indian populations when local governments have failed to provide adequate funding. This federal supplemental revenue is a small piece of the funding pie for local school districts. Federal revenue directed as supplemental funding is not significant enough to reduce economic disparities between poorer and wealthy public school districts.

Adequacy Framework and The Need for Vertical Equity Lens

In the late 1980's and early 1990's, scholars Berne and Stiefel introduced key concepts as they related to school finance. In this exploratory study, adequacy serves as larger umbrellas that encompasses the fiscal adequacy framework. The fiscal adequacy framework incorporates horizontal and vertical equity lenses to examine school finance on a smaller scale such as district and building levels.

The concepts known as horizontal and vertical equity granted researchers and school finance leaders to analyze current fiscal trends within school districts. Horizontal equity dissects how funding is distributed in a fair and equal process. On the other hand, vertical equity analyzes how funding is distributed in an equitable fashion to meet the needs of those most in need. Berne and Stiefel (1984) argued

horizontal and vertical equity served as a basis for scholars to analyze any adequacy issues within a state and/or local level educational agency.

Therefore, chapter two introduces horizontal and vertical equity. In this study, the literature review revealed that vertical equity is an ideal lens though which to analyze the fiscal adequacy framework of the education of American Indian students. Because American Indians are a smaller population compared to other populations, with specialized needs, this study also argues that the vertical equity lens specifically addresses funding priorities for American Indian students attending local educational agencies.

As mentioned previously, horizontal and verity equity are a catalyst for scholars and practitioners to further investigate adequacy issues regarding school finance. Fiscal adequacy answers the question, "Are American Indian students adequately supported in public schools?" The section on fiscal adequacy grants readers an opportunity to better comprehend the framework as it relates to an American Indian student population attending a public school district. As a result, the entire literature review narrates, moving from a general to specific comprehensive discussion covering the following topics American Indians communities; American Indian students; effective schooling for American Indian students; funding of American Indian students including Johnson O'Malley, Federal Impact Aid and Title VI of the ESEA; and Individuals with Disabilities Education Act and Indian Education. The study also discusses a fiscal adequacy framework that includes a critical analysis of vertical equity lens in particular.

American Indian Education

American Indian Communities

American Indian communities have faced marginalization since the arrival of European settlers in the United States, making issues of American Indian education pertinent not only to education scholars, but also to anyone concerned with social justice. In order to understand the oppression American Indians face in general, and the challenges American Indian students face in particular, one must understand the historical and cultural context in which American Indians live.

For decades, American Indians have endured governmental interference in education. According to the U.S. Census Bureau, the American Indian population makes up nearly one percent of the national population (Humes, Jones, & Ramirez, 2011). There are over six hundred American Indian tribes or nations residing in the United States (Tippeconnic & Tippeconnic Fox, 2012).

In Oklahoma, American Indians are one of the largest minority groups, comprising over 8% of the state's population (U.S. Census Bureau, 2010; Wood & Clay, 1996). Citizens in Oklahoma have generally considered themselves to have American Indian ancestry, with over 33% of the total Oklahoma population considering themselves to be American Indian, Alaskan Native, or a combination of both (Norris, Vines, & Hoeffel, 2012). Although Oklahoma has three of the four largest populations of American Indians and Alaskan Natives (Norris et al.,2012), it has only one major reservation listed in the Top 20 Reservations and Alaska Native Villages in the U.S. (2012). The U.S. Census portrays Oklahoma as a home to American Indians and Alaskan Natives who are located near metropolitan Tulsa and

Oklahoma City. It concludes that American Indian populations are not located on reservations; instead, they are residents of local cities and townships.

American Indian students are residents of rural and urban communities across the United States. Historically, American Indian families tend to reside near their traditional homelands and/or federally recognized reservations (Mead et al., 2010; Pavel, 1999). These American Indian communities are absorbed into rural, suburban, and urban locations. In terms of school demographics, American Indian students make up one of the smallest minority groups in public schools across the United States (Pewewardy & Fitzpatrick, 2009).

American Indian people have a unique culture that is specific only to North America (Reyhner, 1992). This culture prioritizes interconnectedness, spirituality, and cooperation. American Indian worldviews, perspectives, and conceptual systems are unique as compared to European thought (Glenn, 2011; Klug & Whitfield, 2003; Pewewardy & Fitzpatrick, 2009; Tippeconnic & Tippeconnic Fox, 2012). American Indian thinking focuses on connectedness with Mother Earth. American Indian families learn to respect all aspects of life, such as health, psychology, weather prediction, earth science, shamanism, animal behavior, stars and constellations, reincarnation, natural permutations, and rituals and ceremonies (Jacob, 2003). Western spirituality has a deity as its center of religious life as opposed to American-Indian people, who focus on a Great Spirit for fulfillment and abundance. Deloria and Wildcat (2001) describe this worldview:

> One need only to view the several generations of Indian families with some precision to understand that very specific animals will appear in vision quests, sweat lodges, trances, and psychic experiences over and over again. For some reason these animals are connected to the families over a

> prolonged period of time and offer their assistance and guidance during times of crisis during each generation of humans. (p. 45)

Scholars describe American Indian communities as cooperative and communal (Reyhner, 1992). American Indian families are responsible for fulfilling their individual roles within the extended community. This cooperation process assigns American Indian members a particular duty, and they, in return, specialize in their daily tasks. Lovelace and Wheeler (2006) stated, "Children are socialized to develop skills necessary to become competent members within their cultural and linguistic communities" (p. 303). For example, a young man learns songs and, in return, sings those songs for his community. His duty is to help carry songs into the next generation of singers. In describing the cooperative culture of American Indians, Garcia and Ahler (1992) explained, "Indian children who are reared in extended families in traditional tribes may be socialized toward cooperation rather than the competition as a modality for action, but this is not to say that Indian children are not competitive" (p. 31).

American Indians also maintain a unique perspective on the interconnectedness of all things. Klug and Whitfield (2003) discussed how this interconnectedness is apparent for American Indians:

> These areas are represented in the form of a circle, the Sacred Hoop, symbolizing the wholeness of one's being. We find intellect, memory, judgment, self-concept, and experience in the **Mental** segment. The **Physical** area includes the elements related to health and stamina, support from family and kinship structures, and the physical conditions in which people find themselves living. The **Spiritual** area holds one's relationship with the Creator, spiritual rituals and teachings, special dreams and gifts one has received from protecting forces, values, and the community's code of ethics. The **Emotional** area contains feelings, emotions, acceptable expressions of emotions, interests, motivations, impressions of acceptance

> and security, judgments, positive and negative impressions affecting interactions, and self-esteem. (p. 116)

American Indian communities are spiritual and they believe the Earth should be in balance with everything (Klug & Whitfield, 2003; Reyhner, 1992). The earth and all its inhabitants have a purpose and should be in balance with each other. American Indians maintain a spiritual relationship with Earth and all of its inhabitants.

American Indian students traditionally attend public schools (Faircloth & Tippeconnic, 2000). The uniqueness of American Indian culture, the historical marginalization of American Indians, and the minority status of American Indian students should be considered when public school officials decide how to effectively educate their student population. This chapter will further synthesize the research to describe historical and contemporary issues regarding American Indian students and public schools.

American Indians and Public Schools

American Indians have a long and well-documented history of resisting compulsory, Western education. The relationship among American Indian tribes/nations and the federal government stemmed from policy built on trust. The indigenous people enacted partnerships with bureaucrats that was reliant on promissory services toward tribes. Many American Indian families enrolled their children in public schools, which are generally located near their native homelands or tribal enclaves (Mead et al., 2010; Pavel, 1999).

Faircloth and Tippeconnic (2000) indicate that 90% of American Indian students attend public schools and 10% attend Bureau of Indian Affair (BIA)

schools. Similarly, Lee (2011) found that about 93 % of American Indian students attend public schools. American Indian students attend three types of schools: BIE/tribal schools; high Indian enrollment (HIE) schools, meaning 25% or more of the students enrolled are American Indian students; and low Indian enrollment (LIE) schools, meaning less than 25% of the students enrolled are American Indian (Pavel, 1999). Whether HIE or LIE, scholars concur that most American Indian students attend public schools (Grigg et al., 2010) and such is the case in Oklahoma.

Minority students, such as American Indians, confront institutional barriers throughout their primary school experience. St. Germaine (1995) identified the following issues: large schools, uncaring and untrained teachers and counselors, passive teaching methods, inappropriate curriculum, inappropriate testing and student retention, tracked classes, and lack of parental involvement. Paslay (2011) offered six common arguments to explain the racial achievement gap in the United States:

- Minority students fail academically because their teachers have low expectations.
- Minority students are frequently mislabeled as learning disabled and emotionally disturbed because of misdiagnoses by teachers and counselors.
- Minority students are passed over for gifted and advanced placement program because of an unconscious racial bias.
- Minority students are often disciplined inappropriately and expelled from schools because of prejudice or a misunderstanding of their culture.
- Minority students drop out because they are "pushed out" by their district and uncaring teachers.
- Minority students do not graduate because the education system fails to provide them with special supports. (The Village Proposal: Education as a Shared Responsibility, p.87)

These experiences are common for American Indian students, as well as for students from other minority groups.

American Indian students are first introduced to other ethnic groups at school. Thus, schools provide a socialization process for American Indians to learn the customs, beliefs, and values of other ethnic groups. Tyler et al. (2008) described this process as "cultural discontinuity", which occurs when inputs, such as cultural value-based behaviors, clash between home and school environments. Lovelace and Wheeler (2006) stated, "Cultural discontinuity occurs when teachers invalidate, penalize, or directly punish students who use cultural-specific language characteristics of their home environment to communicate in the school setting" (p. 304). While in school, for example, students are expected to talk only during their turn. Students should not respond to another student's comments. Lovelace and Wheeler (2006) stated, "This language pattern generally aligns with the cultural traditions associated with the white, American, middle class" (p. 305) but may not align with American Indian cultural traditions. Such social and learning barriers cause cultural discontinuity for American Indian students of a pre-college status (Huffman, 2010).

Teachers and American Indian Students

American Indian students need American Indian teachers. The literature discusses how American Indian youth seek American Indian mentors. Sanders (1987) stated, "The recruitment and hiring of American Indian personnel would provide role models for American Indian students as well as staff to whom they can relate" (p. 88). Pavel (1999) also stated, "The need for Native educators who can serve as positive role models and catalysts for improvement in administration and teaching is ongoing" (p. 4). American Indian teachers have an enormous influence

on American Indian students, especially if their interactions are positive (Cummins, 1992). Teachers are role models and caregivers. American Indian teachers are familiar with cultural norms and values practiced within American Indian communities. Critically, American Indian teachers understand formal structures of families and social networks, allowing them to provide a more nuanced caregiving experience.

Non-Indian teachers who work with American Indian students need to be trained in order to adequately and appropriately serve them. Sanders (1987) noted, "If schools are to be successful in retaining, motivating, and teaching American Indian students, new efforts must be made to recognize values as they operate within the school system" (p. 87). Lee (2011) argued, "For those teaching Native students, there are three compelling and critical areas that we need to know more about through educational research" (p. 283).

Lee goes on to describe these areas:

> One is the necessity and impact of professional development on socioculturally responsive schooling. Second, how we can convince educators that cultural assimilation at the expense of Native students' heritage and life ways is not the answer for educational achievement? Third, we need to learn how we can balance unity and diversity for Native students when Native people still live in a colonized state and attend schools that represent Western worldviews and whitestream [sic] ideologies. (p. 283)

The literature on public school teachers revealed that American Indian teachers are critical for the educational development of American Indian students in the classroom and therefore, provide practical implications. First, teachers should recognize the importance of families and extended families. Klug and Whitfield (2003) argued that teachers should recognize that American Indian parents and

grandparents know what is in the best interests of their students. Second, it is critical for teachers to utilize effective pedagogies to engage all learners, including American Indian students. Third, teachers should be careful about how they use competitive or cooperative learning environments (Cummins, 1992). Teachers must recognize the uniqueness of American Indians and build support within their classroom to nurture them as learners.

American Indian Students

Researchers have identified American Indian students as being active participants in communal approaches to learning (Klug & Whitfield, 2003; Sanders, 1987; Swisher & Deyhle, 1992). American Indian students are taught sharing and cooperation, noninterference, harmony and nature, present-time orientation, and deep respect for elders (Tyler et al., 2008). Tyler et al. (2008) stated, "Under cooperation, whatever is possessed by the individual also belongs to the group" (p. 288). Cooperation is a primary value of American Indian communities, which may clash with Non-Indian society values of competition and capitalism.

Tippeconnic and Tippeconnic Fox (2012) and Sanders (1987) described conflicting cultural values espoused by American Indian versus Anglo-American groups. American Indian values include: interjecting less, nonverbal communication, cooperation, trying to control selves, not others, encouragement of sharing and keeping only enough to satisfy present needs, and privacy and noninterference. Anglo-American values include: addressing listeners directly, often by name, using verbal encouragement, using immediate response, competition, importance of personal goals, and the need to control and affect others.

The values institutionalized in public school systems often clash with American Indian values, especially in later grades. Powers (2005) stated, "Elementary curricula and instructional methods may be more aligned to Native cultural values (e.g., cooperation, thematic or holistic learning, oral recital) than those in the later grades" (p. 338).

As American Indian students proceed through primary and secondary grades, their academic performance diminishes (Powers, 2012; Wood & Clay, 1996). Eventually, academic performance declines to the point that American Indian students are too far behind in school to catch up to their peers. Studies have indicated that, as a result, student achievement and graduation rates for American Indian students lag behind their counterparts in secondary education. There is a decisive achievement gap, and it exists between American Indian students and other student groups, especially Anglo-Americans. Powers (2005) cited a previous study titled *The Research Project* that described how 240 urban American Indian youth were surveyed to supply critical data regarding educational variables that were correlated with the students' ages. Powers (2005) found there was a negative relationship between age and student achievement, stating, "Thus, older American Indian students were less likely than younger American Indian students to report passing grades, consistent attendance, and high levels of engagement with school activities – all important indicators of education and attainment and success" (p. 339). During middle school years, American Indian students tend to become disengaged, fall behind, and contemplate dropping out of school.

Davis (1992) stated that a "1991 Indian Nations at Risk Task Force reports 35%, and in some places 50 to 60%, of American Indian and Alaska Native students leave school early" (p. 1). Consequently, some researchers have focused on addressing dismal graduation and dropout rates using the Deficit Model framework (Deyhle & Swisher, 1997) recognized as the deficit model among scholars. According to the Deficit Model literature, American Indian students enter school at a deficit and, hence, their student achievement is far behind other students. Deyhle and Swisher (1997) cited Berry's (1968) work, noting, "Berry was critical of deficit thought when he argued against the prevailing views in research of Native languages as an education barrier, Indian parents as apathetic and non-supportive of schooling, and Indian intelligence as inferior" (p. 118). In the past, scholars have focused on academic and learning deficits of American Indians instead of publishing more proactive literature that portrays effective arguments. American Indian scholars have coined the term *negative research* to describe the deficit model, which produces ineffective proscriptions for American Indian scholars and educators who work with American Indian students.

Effective Schooling for American Indian Students

American Indian students are taught to honor their traditions and heritage as dual citizens in the Indian and non-Indian worlds. American Indian students are taught non-Western thought at home, and Western thought at school (Malott, 2008). Reyhner (1992) argued, "American Indian students, often taught at home to be independent and cooperative, are often expected at school to be dependent on the teacher and to compete with other students (p. 161)."

In his question to native youth, Martinez (2010) asked, "What does being Native American mean to [you]?" Martinez summarizes their responses:

- Carrying on the traditions of my ancestors. It's having an identity like no other and being proud of it. Using the strength I get from the Native world and using it to help me in the non-Native world (Edwin, Laguna/Tewa)
- Having dignity about my Dine heritage and tongue, and being able to practice and experience new Native American culture. Feeling good about the legacy of great Native American that got us where we are now (Raylene, Dine)
- Being unique and knowing that I have my culture and traditions. Going to feasts and eating (Orlando, Laguna)
- Being true to the land (Samuel/Dine) (p. 162).

In order to understand American Indian students, educators must realize Indian people are taught a different worldview, as opposed to Western thought. Klug and Whitfield (2003) mentioned the possible influence of Western thought on American Indian students:

> This holistic view has meaning for teachers. We need to understand the context of our student's lives. Euro-Americans have learned to block off or compartmentalize areas of their lives from school and work. We have been taught to expect our students to do the same. (p. 116)

In contrast, the literature discussed how American Indian cultures are nonlinear and communal. For example, Klug and Whitfield (2003) stated, "Cultural property belongs to the cultural group, rather than to an individual" (p. 117). In their description of Indian metaphysics, Deloria and Wildcat (2001) stated, "The best description of Indian metaphysics was the realization that the world, and all its possible experiences, constituted a social reality, fabric of life in which everything had the possibility of intimate knowing relationships because, ultimately, everything was related" (p. 2).

Lovelace and Wheeler (2006) contended, "Culturally responsive pedagogy requires teachers to recognize this discontinuity and employ practices that permit and encourage different cultural voices to contribute to classroom interaction" (p. 307). Effective instruction requires teachers to implement various implicit and explicit techniques and strategies to show they know and understand students from both mainstream and diverse backgrounds. Klug and Whitfield (2003) stated, "Culturally responsive pedagogy describes teaching in a way that makes sense to students who are not assimilated into the dominant culture" (p. 151). Culturally responsive literature is prevalent among critical theorists and multiculturalists alike, who promote- learning accommodations for minority students in response to institutionalized oppressive forces. Cummins (1992) suggested there are four factors that contribute to minority student school success:

- Minority students' language and culture are incorporated into the school program;
- Minority community participation is encouraged as an integral component of children's education;
- Instruction (pedagogy) is used to motivate students to use language actively in order to generate their own knowledge; and
- Professionals involved in student testing (assessment) become advocates for minority students by focusing primarily on the ways in which student's academic difficulties are a function of interactions with and within the school context instead of locating the problem with the students (pp. 4 & 5).

Successful American Indian students learn to balance and sometimes blend the two cultures, American Indian and non-Indian. In a study on perceived structural barriers, Wood and Clay (1996) stated, "Our findings suggest that perceived structural barriers to mobility as well as Indian/Anglo cultural discontinuities combine to reduce the academic performance of Native American

students" (p. 56). American Indian students experienced hardships and incongruence at school, yet their traditional culture can enable them to overcome problems (Whitbeck, Hoyt, Stubben, & LaFromboise, 2001). Again, successful American Indian students value their traditions at home and, at the same time, they learn how to adapt to non-Indian values and social norms at school.

Effective schools value American Indians and their culture (Klug & Whitfield, 2003; Pewewardy & Fitzpatrick, 2009; Powers, 2012; Reyhner, 1992; Tippeconnic & Tippeconnic Fox, 2012). Pewewardy and Fitzpatrick (2009) discussed culturally responsive practices as a framework that teaches and embeds American Indian cultures into school curricula. School administrators and teachers recognize that American Indian students value families and extended families. School officials also recognize that ownership and competition are not highly valued. Effective practices require school officials to redesign their approach by adopting proactive and preventative strategies and techniques to engage American Indian students and their families. Only through research on American Indian students can researchers determine how and whether schools are effectively educating this unique minority group.

Prompted by recent legislation, federal and state agencies are focusing attention on school performance. Standardized test scores, curriculum alignment, benchmark assessments, and subgroups within a school population are being put under a microscope. School administrators are under scrutiny to increase and improve test scores and student performance. Subgroups such as ethnic minorities, including American Indian students, have led school administrators and teachers to

seek solutions in order to improve academic achievement. Section 2 discusses some of the legislation the United States government has passed in order to address these issues. The literature reveals the exceptional circumstances and challenges facing American Indian students even though federal, supplemental funding has designed programs to support the public education of them. These programs are described at length later in the chapter. Prior to these descriptions, there is a critical discussion of finance education of the fiscal adequacy framework in general to a more specific, vertical equity. This discussion provides a more meaningful background to better understand Indian education in public schools.

Federal Policies for American Indian Education

Title VII of the No Child Left Behind Act

The No Child Left Behind (NCLB) Act, Title VII, was configured to assist American Indians, Native Hawaiians, and Alaska Natives with their education. The federal government has historically introduced policies to work with local school districts and agencies, American Indian nations/tribes, organizations, postsecondary institutions, and other entities toward the education of American Indian attending public schools. Title VII revenues are supplementary monies to aid American Indian education at state and local education agencies.

As reported by the U.S. Department of Education website, Section 7102 Purpose b highlights the following: (1) meeting the unique education and culturally related academic needs of American Indians and Alaskan Natives; (2) the education of American Indian children and adults; (3) the training of American Indian persons as educators and counselors, and in other professions serving American Indian

people; and (4) research, evaluation, data collection, and technical assistance. Title VII, Part A, subpart 1 describes that it is a formula grant for local educational agencies to reform elementary school and secondary school programs that serve American Indian students.

The ESEA legislation has transformed into the more current NCLB policy. Policymakers configured Title VII as policy for American Indian education that supplies eligible school districts, tribal/nation organizations, and other entities with federal funding.

The ESEA of 1965 evolves as presidential administrations changed over the years. Title VI is the latest funding policy in support of American Indian education. In 2015, President Obama signed in Public Law the Every Student Succeeds Act. The Title VII of NCLB has become Title VI of ESSA.

Parent Advisory Committee.

Federal policies have directed school districts and tribal/nation organizations to encourage more parent participation. Title I, Title VI, Impact Aid, and JOM were enacted to create a forum for parental participation in supplemental programs for their children (Jennings, 2000; Mueller & Mueller, 1992; Reyhner & Eder, 1992; Rosenfelt, 1976). The Indian Education Act of 1972 advocated for more parent support; "To ensure Indians a voice in all of these programs, parental and community participation is required" (Mueller & Mueller, 1992, p. 75).

In reference to JOM supplemental programs, Reyhner and Eder (1992) stated, "They must also be approved by an Indian parent advisory committee (PAC)" (p. 51). A contemporary perspective of the parent advisory committee

involves an Indian Education Committee. According to the contractual obligations of JOM, when a school district has a local school board not comprised of a majority of American Indians, the governing body under contract shall specify the following entities: (a) an Indian Education Committee comprised of American Indian parents, (b) a local Indian committee established pursuant this Act or existing prior to January 4th, 1975; (c) an Indian advisory school board or Indian Education Committee established pursuant the JOM Act and existing prior to January 4, 1975 (Education Contracts Under Johnson O'Malley Act, 2013).

The Indian Education Act granted local entities an option to have one parent advisory committee for multiple supplementary programs. Congress aimed to minimize administrative costs. "These parent committees can be combined, as was apparent to Congress when in Section 202 of the Indian Education Assistance Act, it provided, 'in the discretion of the affected tribal governing body or bodies,' for the utilization of one board for both purposes"(Rosenfelt, 1976, p. 219). Parent committees are critical for implementation of supplementary programs.

The parent advisory committee is an instrumental entity to assist school officials in decision making for supplementary programs. The federal government understood parent participation was critical to ensure supplementary programs were appropriate and adequate for their students. Parent committees are mandated within policy to direct federal revenues in the appropriate manner.

Individuals with Disability Education Act and Indian Education.

Federal policy was created to support student with disabilities. Here, federal legislation systemically prompted states and, more importantly, school districts to provide 'special education' opportunities to address their needs.

The federal government authored Public Law 94-142 to safeguard the educational rights of children with disabilities (Anthony, 1992). The Education for All Handicapped Children Act protected countless students who had never received services before the enactment of PL 94-142. In 1990, PL 94-142 was changed to its current title, Individuals with Disabilities Education Act (IDEA) (1992). Anthony argued that two categories were added, i.e., disabilities-autism and traumatic brain injury, which was significant at the time considering the early inception of the IDEA.

In terms of the IDEA and American Indian students, Pewewardy and Fitzpatrick (2009) argued that American Indians have a high percentage of special education referral: "Although the overall proportion of American Indian students attending public schools is relatively small, the National Center for Education Statistics (2005) reports that 12% of these students received special education services compared with nine percent of students from other ethnic groups" (p. 92). In 1997, reauthorization of the IDEA stressed the importance of mislabeling and high dropout rates among minority children with disabilities (Skiba et al., 2008).

American Indians and IDEA students are both protected under the Equal Protection Clause of the Constitution (Carter, 1974; Skiba et al., 2008). Similar to federal programs such as Title I, Title VI, and JOM, the IDEA is a supplementary

program to support students with disabilities. Special education funding is similar funding for other special needs programs because it is a combination of federal, state, and local revenues (Thompson et al., 2008).

The IDEA legislation was critical for students with disabilities. It has been amended over the years to include more effective policies. This amended legislation also includes proactive approaches to meet the needs of minority students including American Indians. The funding of IDEA is supplementary, which ultimately aids students with disabilities.

School Finance in Public Schools

School Finances, Fiscal Adequacy, and Vertical Equity

School finance consists of federal, state, and local revenues for public school districts. Out of those types of revenues, state and local revenues consist of over 90 percent of the total funding pie for these school districts. This section provides a discussion of some these dynamics of school finance from a local control perspective. In addition, this section provides horizontal and vertical equity lenses to dissect how school districts tend to allocate and spend their funding.

Local school boards govern school finances for school districts. School superintendents are appointed by school boards to oversee all transactions and fiscal affairs of the district. The U. S. Constitution grants individual states authority to oversee the education of their citizens (Leyden, 2005; Thompson et al., 2008; Wong, 2008). The individual states grant local school districts, in the form of school boards, authority to provide decision-making in the form of local control. School board members are everyday citizens who are voted in by their fellow

citizens in order to form a quorum of local school governance. The school boards hire school superintendents to assist them in governing the schools within their districts. School superintendents are also granted fiscal authority to propose, carry out, and evaluate how federal, state, and local monies are distributed for school districts. School finance systems are those regulations and formulas that govern local and state revenues to pay for K-12 education (Berne & Stiefel, 1999).

Local property taxes in the form of ad valorem supply local school district revenues, which support children who reside nearby (Glenn et al., 2009; Kent & Sowards, 2008; Thompson et al., 2008). Ad valorem taxes are based on the value of residential housing located within a school district. Consequently, wealthy residential housing produces greater revenue for school districts (Glenn et al., 2009; Thompson et al., 2008; Rolle, Houck, & McColl, 2008). The literature suggests heavy reliance on local property taxes produces fiscal inequalities between wealthy and poorer school districts (Kent & Sowards, 2008; Odden, Picus, & Goetz, 2010; Picus & Odden, 2011; Ramirez et al., 2013; Rodriguez, 2004; Toutkoushian & Michael, 2007). Poorer neighborhoods generally do not produce lucrative ad valorem taxes for their local school districts (Kent & Sowards, 2008). Some researchers contended that local property taxes have led to great disparities among school districts (Kent & Sowards, 2008). These disparities disproportionately affect minority students. Wilson, Lambright, and Smeeding (2006) found, "Whites receive more local revenue than nonwhite children across the income spectrum" (p.419). Greene, Huerta, and Richards (2007) described this process by stating, "Financial resources are the dollar amounts acquired by schools to fund the

educational programs they put forth. "These dollars are used to purchase real resources, the personnel and material actually used to produce student learning" (p. 51). The literature illustrated fiscal inequities among rural, suburban, and urban school districts (Lee, 2012; Odden, 1998; Wilson et al., 2006). In fact, the income disparity between White and non-White students is significant, and has widened the achievement gap among students (Wilson et al., 2006). The literature establishes that fiscal support is advantageous for local school districts. The socioeconomic characteristics of families serve as a foundation for children's educational achievement and attainment (Greene et al., 2007; Wilson et al., 2006). Fiscal expenditures weigh heavily in favor of affluent suburban school districts (Greene et al., 2007; Verstegen, 2007; Wilson et al., 2006).

In addition, local monies are a great contributor to school funding for local districts (Thompson et al., 2008). Reportedly, local revenue accounted for 72% of the total local tax bill in 2000. According to the National Center for Education Statistics (NCES), state and local governments accounted for 92% of all revenues for public elementary and secondary education. The literature speaks of local revenue as a heavily influential source of monies for school districts (Kent & Sowards, 2008).

School finance is a local concern for school districts and policymakers. The 92% of state and local revenues generated is a sizable contribution for public education. Local property taxes vary among U.S. towns and cities. Therefore, ad valorem taxes fluctuate among public school districts based on property values. The

process of public education funding has created economic disparities among school districts and led scholars in search for a solution.

Horizontal equity. Berne and Stiefel (1984) analyzed school finance from two perspectives: horizontal and vertical equity. Berne and Stiefel (1984) explained horizontal equity as the following: "This principal states that students who are alike should receive equal shares" (p. 13). Often scholars discussed horizontal equity as *equals among equals* (Berne & Stiefel, 1984; Ramirez et al., 2011; Toutkoushian & Michael, 2007). Horizontal equity is blind to student characteristics and demographics. The horizontal equity perspective argues for expenditure per pupil formulas based on student populations such that students receive an education on par with other students living in a similar circumstance (Fahy, 2011; Kent & Sowards, 2008; Lee, 2012; Ramirez et al., 2011; Rolle, Houck, & McColl, 2008; Wilson et al., 2006). Scholars reject horizontal equity as an answer to school finance. Instead, researchers argue horizontal equity has led to inequities, especially regarding poorer school districts and minority populations (Fahy, 2011; Kent & Sowards, 2008; Lee, 2012; Ramirez et al., 2011; Rolle, Houck, & McColl, 2008; Wilson et al., 2006). According to Springer, Liu, and Guthrie (2009), "School finance equity is akin to horizontal equity, which proposes that similarly situated students be treated similarly in terms of resource distribution" (p. 439). In an analysis of school finance litigation on resource distribution, Springer et al. (2009) found court-mandated equity reform minimizes horizontal inequities.

The literature supports a platform of horizontal equity as a blindfold funding mechanism that distributes state and local monies among public school districts.

Berne and Stiefel (1984) describe horizontal equity as a distribution of school resources and funding on an equal plane among districts. Stakeholders who questioned and sought litigation against states and local districts concerning their funding formulas advocated a shift to minimizing horizontal equity.

Vertical equity. Berne and Stiefel (1984) proposed vertical equity as an alternative to horizontal equity. In contrast to horizontal equity, vertical equity recognizes students are different and their differences should be considered in funding decisions. The literature discusses how vertical equity is the *unequals among unequals* (Berne & Stiefel, 1984; Ramirez et al., 2011; Toutkoushian & Michael, 2007). Title I, Title VI, Impact Aid, and special education are types of vertical equity funding policies. Policymakers and school leaders enact policies that recognize student demographics of their populations. Glenn et al. (2009) stated, "A finance system offers greater vertical equity when it provides additional funds for those students who need them than it would by providing strictly equal per pupil funding without exception" (p. 4). School finance adequacy is related to vertical equity (Springer et. al., 2009). The literature portrays the vertical equity argument as a way for policymakers and schools to recognize student needs and, as a result, meet those needs. Proponents of vertical equity policies call for more equitable resources to support minority populations.

School finance adequacy policies, similar to vertical equity, are based on the premise that all students bring their basic needs to school and the school must fulfill those needs based on adequate funding and resources. Berne and Stiefel (1984) addressed vertical equity in their analysis of school finances. Policymakers and

school leaders are critical stakeholders who are in positions to establish more vertical equity ideologies for their districts to address inequity issues.

The Adequacy Framework

This section is an overview of legal cases to provide a comprehensive understanding of the adequacy framework. Berne and Stiefel (1984) were proponents of initial arguments for equitable school financial systems for public schools. Their initial arguments later served as hallmarks for fiscal adequacy. In order to understand fiscal adequacy as a concept, it is imperative to examine the production-function model, decentralization and site-based management, and related court cases such as adequacy litigation.

First, the production-function models explain that organizational inputs produce outputs. Burbridge (2008) says, "A production function simply shows the relationship between inputs and outputs" (p. 35). Fiscal inputs are not just revenues received by school districts, but also policy reform, curriculum mandates, litigation, and court mandates (Burbridge, 2008; Glenn, 2009; Greene et al., 2007; Verstegen, 2007). Wilson et al. (2006) believed, "within the context of an education production function, a district's education production function is a function of student characteristics and teaching inputs" (p. 402). Production function is a process to create and achieve efficiency and effectiveness for school districts.

Second, decentralization of district governance has granted building sites even more authority to transact their daily affairs. This management theory gained popularity in the 1990s. Bennett (1993) stated, "In a true site-based system, their roles shift to functions of resource, support, and evaluation" (p. 86). He also

suggested district leaders must learn to let go and grant authority and management to site principals (Bennett, 1993). Thompson et al. argue, "At the root of the site-based concept is a belief that individual schools should be given real responsibility for curriculum, staffing, and budget decisions" (p. 357). Those who support site-based management argue that building-level leadership is critical for the successful operation of the school. Site-based management grants building principals autonomy to oversee their fiscal affairs.

Ogawa and White (1994) provide three types of site-based management (SBM) to consider. These types are as follows: (a) community control, which implies community governance, (b) administrative decentralization, which implies more authority for both teachers and principals, and (c) principal control, where the authority lies with the principal. Thompson et al. (2008) stated, "School principals are positioned for leadership by virtue of legal and organizational authority" (p. 362). Odden and Clune (1995) also statde, "Effective school-based management strategies have operated by decentralizing power, knowledge, information, and rewards; creating an instructional guidance focus for change; and providing facilitative principal leadership" (p. 7).

Third, court cases have been strategic in developing a call for better management of schools. Similar to SBM, litigation has pressed states and local school districts into managing their fiscal affairs effectively for all students. Equity and adequacy have been underlying themes, especially concerning fiscal affairs. In the *San Antonio Independent School District v. Rodriquez* case, "plaintiffs argued that the Texas funding system violated federal equal protection by discriminating

against a suspect class of poor, and that students making up that class were denied the right to education" (Thompson et al., 2008, p. 57). Odden and Picus (2000) stated, "The Equal Protection Clause of the Fourteenth Amendment provides that no state shall 'deny to any person within its jurisdiction the equal protection of the laws'" (p. 28). The *Rodriquez* case eliminated a constitutional route to inequities regarding school finance reform (Odden & Picus, 2000; *San Antonio v. Rodriguez*, 1973). It cut off any attempts to reform unequal state school finance systems through federal litigation based on the U.S. Constitution (Minorini & Sugarman, 1999; *San Antonio v. Rodriguez*, 1973). The *Rodriquez* case went before the U.S. Supreme Court, which ruled, "property wealth per pupil was not a suspect class, in large part because it related to governmental entities and not individuals, and because property wealth was so different from individual income" (Odden & Picus, p. 34).

In a later case, *Rose v. Council for Better Education* was contested in 1989 in the state of Kentucky (Minorini & Sugarman, 1999; *Rose v. Council for Better Education*, 1989). This court case centered on adequacy litigation and stemmed from the argument that Kentucky's public schools were underfunded and inadequate in education programs (*Rose v. Council for Better Education*, 1989; Thompson et al., 2008). "In a dramatic decision that shook the nation and spurred reform at the highest levels in many states, the Kentucky court held that the system of common schools was not efficient" (Thompson et al., p. 64). By ruling that schools were unstable and in poor condition for learning, the Kentucky court provided broad guidelines to the legislature that included a list of seven items that characterized an

adequate education (Minorini & Sugarman, 1999; *Rose v. Council for Better Education,* 1989).

1. Sufficient oral and written communication skills to enable students to function in a complex and rapidly changing civilization;
2. Sufficient knowledge of economic, social, and political systems to enable the student to make informed choices;
3. Sufficient understanding of governmental processes to enable the student to understand the issues that affect his or her community, state, and nation;
4. Sufficient self-knowledge and knowledge of his or her mental and physical wellness;
5. Sufficient grounding in the arts to enable each student to appreciate his or her cultural and historical heritage;
6. Sufficient training or preparation for advanced training in either academic or vocational fields so as to enable each child to choose and pursue life work intelligently; and
7. Sufficient levels of academic or vocational skills to enable public school students to compete favorably with their counterparts in surrounding states, in academics, or in the job market. (p. 195)

The *Abbott v. Burke* case was another example of critical adequacy court litigation. The plaintiff argued that:

> the state had not fully funded New Jersey's School Funding Reform Act of 2008 (SFRA), which affected the equity and adequacy of funding for *Abbott* school districts as well a [sic] number of non-*Abbott* districts with low wealth and significant percentages of high-needs students. (Crampton & Thompson, 2011, p. 197)

The courts found the state of Kentucky was in violation of its agreement and ordered the legislature to restore state funds (*Abbott v. Burke*, 1984; Crampton & Thompson, 2011). The *Abbott* case illustrates how a state's finance system can be declared invalid because the state aid formula does not meet the needs of poor, urban school districts (Thompson et al., 2008).

In each of the three court cases described above, the plaintiffs believed equal protection was being violated based upon school funding. As a result, students who

resided and attended schools from lower socioeconomic neighborhoods often fell behind their counterparts in academic achievement. First, the *Rodriquez* case attempted to address injustice through federal legislation. The courts ruled in favor of Texas and allowed states to continue with the affairs of its citizens in regards to education. *Rose* and *Abbott* were critical legal cases in favor of adequacy, which opened the door to litigation involving states and their responsibilities to educate their citizens. Kentucky and New Jersey had to refocus their fiscal responsibilities and resources to provide an adequate education for all students regardless of their socioeconomic status.

Finally, fiscal adequacy is a conceptual framework for finance scholars to incorporate into their analyses of funding. Berne and Stiefel (1984) were scholars who transformed how researchers analyze the school financial systems. Horizontal and vertical equity assist fiscal adequacy proponents by portraying the American education system as inequitable for all students, especially students who are in greater need of services.

The production-function model highlights how researchers dissect organizations. The production-function focuses primarily on organizational inputs. Researchers have an arduous task in measuring organization performance with inputs instead of outputs. In this particular study, the research investigated the relationship between organizational inputs and outputs in regards to Indian education. Springer et al. (2009) stated, "School finance adequacy places considerable emphasis on school outcomes, whereas equity has a singular focus on resource inputs" (p. 439). Site-based management and decentralization place greater

emphasis on building-level management. Again, site-based management was trendy in the early 1990s, but it gave way to building-level management strategies in more recent years. As mentioned earlier, horizontal and vertical equity provide perspectives on how resources are distributed within a school. In regards to funding distribution, vertical equity reinforces a site-based management approach. Site-based management advocated for the decentralization of authority to building administrators because this theory argued principals knew what was best for their teachers and students. As a result, building principals distribute funding and/or resources in order to meet the needs of teachers and students.

Court cases and litigation were instrumental for critical research analyzing the impact of legal decisions on school financial inequities. *Rose* directed Kentucky's education system to be remodeled, as there were considerable inequities among buildings across school districts. *Abbott* was an additional state court case in which New Jersey was found guilty of inequities between wealthy and poor school districts. In their study, Springer et al. (2012) found "that court-mandated adequacy reform decreased horizontal inequities when compared with no court-mandated reform" (p. 440). State courts played a pivotal role in bringing fiscal adequacy and adequacy issues to the forefront.

Fiscal Adequacy Framework with A Vertical Equity Lens

The first and second sections of this chapter provides some insights into American Indians and their education. American Indians are dual citizens who often attend schools near their native lands. American Indian communities function as larger groups outside their immediate families and as they have defined roles that

are carried out and passed down from generation to generation. American Indian students are taught to respect their elders, think before they act or answer, and they remain silent during interaction. They are also taught to be communal and to work together for the good of their people. In Oklahoma, American Indian students attend public schools. American Indian students who attend public schools tend to experience greater academic achievement than American Indian students who attend BIA-controlled schools.

The funding of public education through property taxes has created disparities among school districts due to local property taxes. The literature revealed several components such as horizontal and vertical equity, the production-function model, site based management, and the adequacy framework is pertinent to better understand the education of American Indian students. Therefore, horizontal and vertical equity are critical perspectives that contribute to a better understanding of school finances. Production-function models focus on organizational input and outputs. Several court decisions have forced a shift of attention to organizational output. State court decisions, such as *Rose* and *Abbott*, were pivotal for encouraging school districts to equip students with adequate resources. Proponents of the fiscal adequacy or adequacy framework argue schools are more effective and efficient in reallocating resources and revenue in support of students who truly require additional services.

Indian Education Federal Revenue for Public Schools

Johnson O'Malley Act. The Johnson O'Malley (JOM) Act- provides supplemental revenue for school districts, tribal/nation organizations, and other

entities. JOM revenue initially supported public school districts with federal dollars because American Indians were exempt from property taxes. After the 1974 amendment to JOM, its revenues were no longer tied to residence on tax-exempt federal lands (Rosenfelt, 1976). As federal legislation supporting Indian education evolved, JOM revenue transformed into a supplemental program for school districts and tribes/nations. As stated on the Bureau of Indian Education webpage, "Funds may be used for supplemental programs to meet the special educationally related needs of eligible Indian students. Funds under this program may not be used for capital expenditures." Eligible students must be affiliated with a federally recognized tribe or at least have one-fourth or more degree of Indian blood descendent. Eligible students must also be between the ages of three and 18 years old.

A current stipulation of JOM revenue involves proposals eligible for contracts. In order for public school districts to qualify for a proposal of JOM contracts, there must be at least 70% eligible Indian enrollment within the Local Educational Agency (LEA). The Indian Self-Determination and Educational Assistance Act of 1975 granted tribes the right to assume control of federal programs administered for the benefit of American Indians (McClellan, 1990). Title I of Public Law 93-638 establishes tribal/nation control over federal programs.

> The Indian Self-Determination Act reflects the intent of Congress 'to respond to the strong expressions of the Indian people for self-determination by assuring maximum Indian participation' in the direction of federal services to Indian communities, so as to render such services more responsive to the needs and desires of those communities. (McClellan, 1990, p. 46)

If public school districts located near tribal/nation political boundaries are ineligible for a JOM proposal, tribal/nation organizations must contract with the federal government to support their eligible students. The 638 contracts provide autonomy for tribes to regulate how JOM funds are distributed among their eligible population.

Johnson O'Malley was enacted to support American Indians who reside on federal lands. As Federal Impact Aid revenue was generated, JOM funding was revamped as a supplementary program. JOM revenues are tied to federal dollars that require school districts and tribal/nation entities to abide by tangible guidelines.

Federal Impact Aid Act. The Federal Impact Aid Act of 1950 was created for American Indian families residing on nontaxable property (Mueller & Mueller, 1992; Reyhner & Eder, 1992; Rosenfelt, 1976). While JOM's original intent was to support American Indian families residing on trust lands that attended public schools, Federal Impact Aid revised this federal policy to include other families who lived on federal lands too. Federal Impact Aide Act was created to also supports military families residing on U.S. military bases. Mueller and Mueller (1992) stated, "The federal program was enacted in 1950 and consists of general funds (P.L. 81-874) and facility construction and repair funds (P.L. 81-874)" (p. 76). Federal Impact Aid monies were appropriated as a source of supplemental revenue for school districts that enroll eligible students.

There are two parts of Federal Impact Aid, Parts A and B (Brown et. al., 1979). Part A was intended for children whose parents live and work on federal property. Part B was intended for children whose parents live or work on federal

property, but not both. Brown et al. (1979) stated, "All children living on Indian lands are 'A' children and most of the public housing children are 'B' category students" (p. 274).

School districts argued American Indian families did not pay ad valorem taxes to support them so the Federal Impact Aid revenue is a source of revenue for public school districts. However, in *Natonabah v. Board of Education*, the courts ruled JOM monies were supplementary and should support American Indian students with appropriate programs. However, Impact Aid monies are distributed at the discretion of the school district and therefore, it can be directed for general operating revenue (Carter, 1974).

The special relationship between American Indian families and the United States government allows federal monies to intervene in the form of Impact Aid (Escue & Wood, 2010; Glenn, 2011). According to Escue and Wood (2010), "This fiscal responsibility reflected federal properties that were within school districts that were statutorily ineligible to pay local property taxes for the support of local education" (Zuni Public School District Versus The Department of Education: The Impact of Fiscal Equity, p. 187). The Federal Impact Aid has been amended since its induction to include students living in public housing. Proponents argue that public housing decreases local revenue due to a loss of potential ad valorem taxes (Brown et al., 1979). Public housing is nontaxable, yet districts must provide educational opportunities for students who reside there.

The Federal Impact Aid supplemental revenue was generated to supply school districts with funding for American Indian and military families who reside

on federal lands. The *Natonabah v. Board of Education* decision granted school districts permission to incorporate Impact Aid revenue into general operating funds (*Natonabah v. Board of Education of Gallup-McKinley City School District,* 1973). In addition to American Indians and military families, public housing residents are supported by Impact Aid revenue.

Title VI of the No Child Left Behind Act. In addition to federal policy regarding American Indian students, Title VII of the NCLB also granted additional supplemental federal funding to public schools for assisting in the education of American Indians. Similar to Federal Impact Aid, Title VII relies on student counts within a public school districts. Parent advisory committees must meet throughout the school year in order to determine how funding should be allocated and spent for their American Indian student population. Parents and/or guardians must complete a Title VII application, called the ED 506 form, during the enrollment process. This process requires families to prove American Indian heritage via Certified Degree of Indian Blood (CDIB) verification and/or descendancy of tribal affiliation.

In 2015, President Obama signed into Public Law the Every Student Succeeds Act. This process indicated some minor changes to federal policy. For example, Title VII of NCLB is not Title VI of ESSA.

Summary

In conclusion, this chapter provided a historical and contemporary context of federal policies that are related to American Indians. The literature review also included arguments for the fiscal adequacy framework but more important, vertical equity as a lens for district leaders to review their revenue/resource spending for

their special populations such as American Indians. The federal revenues of Title I, Federal Impact Aid, and Title Title VI are supplemental monies for local districts in support of their American Indian population. The IDEA legislation is similar to federal policies, such as JOM and Federal Impact Aid, it includes supplementary aid for special populations within a public school district. As American Indians are in a special relationship with the federal government and also reside on nontaxable property, school districts argued American Indian families did not contribute to local revenue. Students with an Individualized Education Plan (IEP) required additional and appropriate resources as public school attendees. American Indian students and IEP students have a right to attend public schools because the Equal Protection Clause of the Constitution protects them from being ostracized.

American Indian students are in need of additional resources as public school attendees. For the most part, American Indian students have to overcome greater obstacles in order to be successful in formal schooling. Berne and Stiefel argue vertical equity is a framework by which school leaders should devote greater resources and/or funding for those initiatives or subgroups who require more assistance. The vertical equity lens captures school finances in order to specifically address the needs of American Indian students in order to adequately support them.

American Indians are a unique population within the United States. Their cultural and community characteristics affect the formal, institutional education of American Indians. Due to local control, public school districts and states are the primary, formal agents of education in Oklahoma. Yet, there is minimal funding support to address the 'special needs' of American Indians as students who attend

public schools. This literature review briefly provided historical and contemporary depiction of the educational context that American Indian families and students face as citizens that reside in Oklahoma. The federal government has interceded historically to supplement and support American Indians students, yet the literature clearly reveals their needs are not being addressed. Empirical research is required to explore this phenomenon and its relationship to public school finance.

CHAPTER 3

Exploratory Research Design

Introduction

American Indians are a minority group within a larger sector of American citizens that utilizes the public school system. American Indian families often reside in local communities where public school districts are prevalent (Griggs et al., 2009; Pavel, 1999; Tippeconnic & Tippeconnic Fox, 2012). As public school attendees, American Indians have fallen behind students from other ethnic minority groups in terms of student achievement indicators, such as graduation rates, standardized test scores, school attendance, and grade performance (Grigg et al., 2009; Pewewardy & Fitzpatrick, 2009)

This exploratory single district case analysis examined the relationship between federal supplementary revenues and academic achievement among American Indian students who attended a high Indian enrollment (HIE) public school district in Oklahoma. For this case analysis, federal supplementary revenue is defined as federal monies issued to school districts to enhance the education of American Indian students. Public school districts qualify for federal supplementary funding based on upon their American Indian student enrollment counts. The study examined whether or not there were any relationships between federal supplementary revenue and academic achievement, using a vertical equity lens. Furthermore, this chapter framed the research methodology after that same inquiry. This chapter also includes the following sections: the purpose of the study,

description of data, setting, population and sample, instrumentality, methodology, and internal and external validity.

Purpose of the Study

The purpose of this study was to examine the extent to which federal supplementary revenue related to academic achievement among American Indian students who attended five schools in a HIE public school district in Oklahoma. The study was designed to also explored fiscal trends and how they impacted American Indian student achievement in a HIE public school district. This study emphasized a contextualization of new knowledge as it applied to quantitative research methodology to advance scholarly, empirical case analyses concerning American Indian students attending public schools.

American Indian students who reside near public school districts excel in academics as compared to American Indian populations on reservations (Grigg et al., 2009). A majority of American Indian students attend public schools as compared to tribal, Bureau of Indian Education, or reservation schools (Griggs et al., 2009; Pavel, 1999; Tippeconnic & Tippeconnic Fox, 2012). However, American Indian students have traditionally lagged behind other ethnic minority groups in public schools and are a minority group within public school districts (Grigg et al., 2009; Pewewardy & Fitzpatrick, 2009).

In addition to academic achievement among American Indian students, this exploratory single district case analysis provided some insight into the federal supplementary funding types as they flowed into a HIE public school district. Public school districts in Oklahoma can elect to apply for federal funds, such as

Title I, Title VI, and Federal Impact Aid monies based upon their eligible student enrollment. Historically, the federal government supported public school districts in the form of supplementary funding, such as Johnson O' Malley and Federal Impact Aid. At an earlier time in public school relations, a majority of American Indian families resided on federal trust lands and as a result, they did not contribute to the ad valorem tax revenue for districts. The US government recognized this dilemma and provided federal dollars to public school districts with American Indian students in lieu of ad valorem taxes. As governmental officials realized American Indian students required additional funding, Title VII of the No Child Left Behind Act (NCLB) of 2001 granted public school districts federal supplementary funding to encourage culturally related instruction for them (Reyhner, 1992). Title VII of NCLB has been transformed into Title VI of ESSA.

Currently, federal revenues are available options for districts that have eligible American Indian students. Although Title I is based on family income, it was included in this case analysis because the researcher identified that there were 100% of American Indian families eligible in the sample district. This study explored incoming federal dollars for a particular HIE public school district and analyzed how those federal revenues were related to academic achievement. Title I is a federal program that provides supplementary revenues for school districts based upon their free and/or reduced lunch student enrollment count. Additionally, this case analysis explored a HIE public school district in order to provide some insight into how schools are fiscally operated in support of their American Indian populations. The sample district was selected because of its high HIE population

and concomitant stream of federal supplementary revenues. Because this case analysis is an exploratory study, the researcher elected to uncover seven years of student test scores and set those next to records of fiscal revenue in order to identify trends with this particular single district analysis.

The fiscal adequacy framework was the culmination to analyzing federal supplementary funding and its relationship with academic achievement for American Indian students. More specifically, vertical equity argues funding should be allocated and spent to improve the quality of education of American Indian students. Berne and Stiefel called this argument *unequals among unequals*. In this exploratory single case analysis, sought to identify if there was any relationships among federal supplementary funding and academic achievement for American Indian students in a HIE population.

Research Questions

The convergence of vertical equity and adequacy framed this study ~~of~~on potential relationships between fiscal revenue and academic achievement among American Indian students. This exploratory single district case analysis used a fiscal adequacy framework and ex post design to describe a phenomenon among American Indian students who attended schools in a HIE public school district. The research questions were devised to explore and identify phenomena systemically from a Local Educational Agency (LEA), practical perspective. The following research questions guided the study:

- Research Question 1: What were the trends in fiscal revenue for American Indian students who attended a HIE public school district over the past seven years?
- Research Question 2: What were the trends in the academic achievement for American Indian students who attended a HIE public school district over the past seven years?
- Research Question 3: Within a HIE public school district, is there a relationship between funding trends and academic achievement trends of American Indian students?

Population and Sample

The population of this study was comprised of four elementary schools and one middle school. According to the National Center for Education Statistics, in total, there are approximately 2,210 students who attend school at all five sites (http://nces.ed.gov). Full-time employees (FTE) accounted for over 153 teachers. The study included full academic year (FAY) students who were enrolled across the sites from 2007 through 2013.

The sampled population was comprised of American Indian students from school years 2007 through 2013. On average, American Indian students comprise over 25% of the total district population. The sample size included 1,679 American Indian students selected from the Aurora Learning Community Association (ALCA) computer software, which is a data warehouse that makes it possible for school districts to generate reports from Oklahoma Common Core Curriculum Testing (OCCT). The OCCT test data was compiled from district reports that the ALCA

computer software categorized OCCT test data by student demographics are submitted to the state educational agency (SEA).

This exploratory single case analysis is focused on American Indian students as a minority group in a HIE public school in order to illustrate the fiscal practices within an organization. As a result, the researcher did not analyze other student, ethnic populations because they do not have the special relationship with the federal government, especially in the form of supplementary revenue, which American Indians historically have had.

Most important, American Indians were identified as an appropriate population due to their special relationship with the federal government. This special relationship was an ideal case analysis for researchers to examine federal supplementary revenue and its relationship with academic achievement. As mentioned in the literature review, there is immediate need for empirical research via quantitative methodology for American Indians attending public school districts.

Setting

Prior to statehood of Oklahoma, American Indians were situated on tribal lands that were held in federal trust by the US government. This relationship between American Indian tribes and the federal government was a special relationship. As Indian Territory became Oklahoma, a plethora of white settlers populated these establishing settlements that were planted near traditional homelands of American Indian tribes.

The researcher identified a HIE population of American Indian students that attended a single public school district in order to effectively provide a sampling

frame within an appropriate setting and population. Here, the researcher identified an appropriate setting to identify any association between fiscal revenues and academic achievement for a significant American Indian population. This case analysis explored incoming federal dollars for this particular school district. The setting was paramount for a researcher to explore statistical data that has a total American Indian population that exceeds 25%.

The public school district that served as the setting of this study is located in a suburban city, which is surrounded by rural populations located in close proximity to a metropolitan city in Oklahoma. Rural towns feed into this particular setting. According to the 2010 US Census Bureau, there were 29,857 residents in the land area of 44.13 square miles.

The population demographic consists of 73.1% White alone, 4.2% African American alone, 14.2% American Indian and Alaskan Native alone, 0.8% Asian alone, 5.1% Hispanic alone, and 6.4% Two or More Races (US Census Bureau, 2010). In terms of educational attainment, 20.2% of the citizens who are 25 and older have a bachelor's degree or higher. The median household income from 2008 to 2012 was $36,655 (U. S. Census Bureau, 2010).

In addition, this particular school district has one early childhood center, four elementary sites, one middle school, one alternative school, and one high school. There are approximately 4,065 students and 273 certified staff members in the district. The public school district receives Title I funding; 74% of its student population receives free and/or reduced school lunches. The District Report Card overall score for this particular district is a 69, which translates to a D plus

(Oklahoma State Department of Education, A-F Report Card 2012-2013 Grades PK – 12, n.d.). The District Report Card also reveals average to dismal scores for the reading, English II, and English III. In overall student achievement, the district's Performance Index for all students assessed is a 72, or a C average for reading, English II, and English III. Along the same lines, overall student growth or progress towards proficiency scored a 76, or a C average. Finally, in terms of the bottom quartile of student growth, the district scored a 49, or an F average.

The American Indian population was situated among area nations/tribes such as the Citizen Potawatomi Nation, Absentee Shawnee Tribe of Oklahoma, Kickapoo Tribe of Oklahoma, Sac and Fox Nation, and Seminole Nation of Oklahoma. The school district was surrounded by nations/tribes boundaries such as those of the Citizen Potawatomi Nation, Absentee Shawnee Tribe of Oklahoma, Kickapoo Tribe of Oklahoma, and the Sac and Fox Nation. According to the Oklahoma State Department of Education, during the 2012-13 academic year, 732 or 18% of the total students in the district were identified as being American Indian. Among school sites, the percentage of American Indian students fluctuates from as much as 14.2 to 29.9%.

Data

Sampling Procedures

The school district generated annual reports that are submitted to the SEA for accountability purposes. Student demographics are sent to the Oklahoma State Department of Education (OSDE) and the ALCA retrieves the demographics and uploads them to its computer software. The researcher provided a sampling frame

of the population that consists of the following: third through eighth grades, FAY students, Native American students, and the OCCT reading test. The OSDE and OCCT identify American Indians students as Native American on state and district accountability reports. Student demographics and Oklahoma Performance Test Indicators (OPTI) reading score were retrieved by a district representative and then transferred to a Microsoft Excel spreadsheet with multiple tabs that categorized by year, building site, gender, and state score.

In order to establish a representative population, several grade levels at five school sites were selected within the district. The selected sample population enabled the researcher to maximize the total number of American Indian students who maintained FAY status.

The researcher recruited a district representative to extract cross sectional data from the ALCA website. The student data remained anonymous and was sent to the researcher. The district representative was also privy to confidential test scores and categorized student data by the following criteria: FAY, Native American, school site, grade, and school year. The OPTI score data was transferred to a Microsoft Excel spreadsheet and forwarded to the researcher.

The business manager of the school district accessed fiscal data, such as general operating funds without federal revenue, Title I, Title VI, and Impact Aid fiscal records, and forwarded them it to the researcher. Fiscal data were categorized by school year, school site, grade level, and direct instructional costs. Fiscal data were categorized and calculated to reflect 2013 US dollar amounts using Robert Sahr's inflation conversion table.

Data were collected from the ALCA computer software for four elementary schools and one middle school. Cross sectional data was retrieved as the ALCA software generated data sets of demographics that were categorized by Native American, FAY, gender, economic disadvantaged, grade level, school year, school site, and OPTI scores. In addition to OPTI scores, school fiscal records were collected. Only district funds directly related to instructional revenues were gathered.

The data sets were organized, categorized, and coded for Statistical Package for the Social Sciences (SPSS). Full academic year students were identified. During this process, student information was nonidentifiable for International Review Board (IRB) purposes. The OPTI scores and fiscal revenues served as continuous variables in order to generate descriptive analysis, and multiple regressions per grade level.

Sources of Data

The OPTI scores, which serve as academic achievement indicators, are mandated by Title I formal assessments under the Elementary and Secondary Education (ESEA) Act of 1965 and the NCLB of 2001. Under NCLB, state and district reporting must meet Adequate Yearly Progress (AYP) standards. According to the Oklahoma State Department of Education (OSDE) and its website on State Assessments and Accountability, Oklahoma adopted the Academic Performance Index (API) reporting scores to measure district and school performance. During the 2011-12 academic year, the OSDE applied for an ESEA waiver in order to

transition to District Report Cards and the A-F system of Oklahoma school district grading.

The Oklahoma Academic Standards (OAS) consists of three types of standard assessments for Oklahoma students: Oklahoma Core Curriculum Tests (OCCT), the Oklahoma Alternate Assessment Program (OAAP), and the Oklahoma Modified Alternative Assessment Program (OMAAP). For this exploratory single case analysis, the OCCT reading scores were primarily utilized as achievement indicators.

The Priority Academic Student Skills (PASS) were created and adopted in the 1993-94 school year (Oklahoma School Testing Program Test Interpretation Manuel 2011-2012). The PASS standards serve as a roadmap for OCCT formal assessments. Since its induction, PASS has undergone several revisions. In 2010, the OSDE adopted Common Core State Standards (CCSS) for English/Language Arts and Mathematics for the kindergarten through twelfth grade. The OSDE revised the current state standards for the remaining content areas as of 2012.

The sources of data section provided an overview into the state accountability reports for school districts. Students are scored based on four performance level indicators. District leaders and teachers utilize state accountability reports to dissect individual and subgroup scores.

Instrumentation.

The OCCT standardized assessments are Criterion Referenced Tests (CRT) for elementary and middle school students. Criterion Referenced Tests are administered to formally assess individual performance based upon absolute levels

of proficiency (Oklahoma State Testing Program, Oklahoma Core Curriculum Tests Grades 3-8 Test Interpretation Manuel 2009-2010). The CRT formal assessments ensure test scores are valid based on individual student performance. In addition, the Test Interpretation Manual 2010 describes CRT tests in the following manner:

> For example, the specific learning tasks a student is able to perform can be described, the percentage of tasks a student is able to perform can be indicated, or a student's task performance can be compared to a set of performance standards. (p. 7)

Criterion Referenced Tests enable school administrators and teachers to identify OPTI scores for each student. The CRT format guarantees instrument validity across the spectrum of formal assessments and among test takers. There are four performance levels within the OCCT: advanced, proficient/satisfactory, limited knowledge, and unsatisfactory.

The OPTI scores were sorted ~~out~~ and coded to provide a sampling frame within the overall population. During the past seven years, Oklahoma State Department of Education (OSDE) has taken steps to process their standardized tests from Priority Academic Student Skills to the Oklahoma Core Curriculum Tests. This transfer of testing standards had impact on test reliability and consistency during this single exploratory study.

The Item Response Theory (IRT), as stated by the Oklahoma School Testing Program Test Interpretation Manual 2011-2012, "is a modern approach to test scoring that is based on the idea that a correct answer to a test item is a function of both the item and the ability of the student" (Oklahoma State Department of Education, 2012, p. 2). The IRT provides information about guess, difficulty of test item, and how the item discriminates among students with different abilities (Test

Interpretation Manual 2011-2012, 2012). Test scores are consistent to maximize reliability within formal state assessments. The Oklahoma Performance Index (OPI) scale score is derived from IRT in order to provide a measure of ability. Oklahoma Performance Test Indicator scores are a reflection of student performance rather than changes in test difficulty. The IRT instrumentation ensures reliability from year to year.

Data Sets

The data utilized in this study were primarily cross sectional data and data storage, which were retrieved from the school district's ALCA computer software. According to the ALCA's website, the focus is data driven as it acts as a data warehouse for the PASS/Common Core OPTI performance scores. The ALCA computer program uploads CRT test scores to assist school districts in the standardized test performance of their students. The researcher prepared and collected reading scores from the past seven years of Native American students who were enrolled in the district and maintained FAY status. Fiscal data such as general operating funds without federal revenue, Title I, and Title VI records were collected from central office. The fiscal records for the past seven years were collected for four elementary schools and one middle school. The fiscal records were calculated by per-pupil revenue per site for a total sum of that particular site. Impact Aid is proportioned with 75% directed to general operating funds and 25% directed to administration costs of Indian education for the district. The study incorporated Impact Aid administrative revenue to identify if there is any statistical significance.

Impact Aid federal funding was not categorized as direct instructional revenue for this analysis.

Johnson O'Malley Act (JOM) federal monies were not incorporated into this study. Johnson O'Malley funds are controlled by local nations and tribes as they maintain fiscal accountability. This particular tribal nation monitors and supports several public school districts that reside on its traditional reservation. Johnson O'Malley fiscal data were not examined due to insufficient accountability records to develop reliable statistical conclusions. More importantly, JOM funding is not categorized as direct instructional revenue for a school district. Today, JOM serves as supplementary funding for individual families in the form of school supplies, athletic shoes, and extracurricular activities. Therefore, JOM funding is an external supplementary support mechanism that is not controlled by the school district.

Fiscal records were retrieved from the past seven years. Historical data were accessed because inflation of the US economy increased over the course of time. During the past seven years, there have been governmental shutdowns, economic recessions, and minimum wage increases. Therefore, the value of the US dollar has decreased, which has placed pressure on school districts to pay out more for their services and products. Inflation is pivotal for economists as it determines the value of a dollar. This study calculated all fiscal revenue records using the 2013 US dollar in order to remain consistent and reliable.

Methods

Introduction

This study was conducted in a suburban, rural area east of the metropolitan area of Oklahoma City, Oklahoma. There are four nations and/or tribes that reside within the community. The researcher identified 1,679 students that were considered as being Native American by state accountability reports. Test scores were gathered for the past seven years to analyze any relationship between academic achievement and federal supplementary funding revenue.

This exploratory single district case analysis employed an ex post design, utilizing historical data. Ex post also means the phenomenon has already occurred and the researcher aims to capture the data (Walliman, 2011). The researcher sought to capture academic achievement among American Indians who attended a HIE public school district for the past seven years. The dependent or *y* variable was the Oklahoma Performance Test Indicator (OPTI) score. The OPTI scores served as academic achievement indicators. The independent variables included general operating funds without federal revenue, Title I, Title VI funds, and Impact Aid. General operating funds without federal revenue. A multiple regression analyses was conducted to identify if there was any relationship between federal supplementary revenues and academic achievement among FAY American Indian students within the sampled population. The independent variables were converted to 2013 US dollar amounts. Continuous variables such as OPTI scores and fiscal revenues per year were incorporated to compute any descriptive statistics. Categorical data was included in the descriptive statistics portion of the analysis.

Research questions

In research question one, What were the trends in fiscal revenue for American Indian students who attended a HIE public school district over the past seven years? The researcher utilized descriptive statistics to respond and answer this question. The relevant variables included Site Instructional Expenditures Per Pupil (SIEPP) represented general operating funds without federal revenue per site, TITLE1PP represented Title I revenue per pupil, STVIIPP represented Title VI revenue per pupil, and SIAPP represented Site Impact Aid Per Pupil. Categorical data were collected and analyzed in SPSS to produce fiscal trends for each individual variable for the past seven years. The fiscal trends were graphed to depict an overall picture of incoming federal supplementary revenues for the district.

Along the same lines of trend data, research questions two posed, What were the trends in the academic achievement for American Indian students who attended a HIE public school district over the past seven years? The researcher gathered and collected OCCT reading scores for the past seven years. During data analysis, reading scores served as a continuous variable. Descriptive statistics was performed in SPSS to illustrate academic achievement trends for the sampled population. The academic achievement trends were graphed to analyze an overall picture among grades third through eighth of the sampled population.

Finally, research question three, Within a HIE public school district, is there a relationship between funding trends and academic achievement trends of American Indian students? In order to appropriately and adequately respond to this

inquiry, the researcher performed a series of multiple regression to analyze any relationship between federal supplementary revenues and academic achievement.

First, the SPSS computer software was utilized for this quantitative research design. Site Instructional Expenditures Per Population (SIEPP) served as a control variable ~~to~~ because it consists of local and state revenues. Local and state revenues tend to be more consistent than federal funding. Continuous variables were OPTI scores, SIEPP2013dollars, TITLE1PP2013dollars, STVIIPP2013dollars, SIAPP2013dollars, and Year. The Year variable was coded and incorporated as the control variable. Categorical data such as gender, school site, grade level, and year were dummy coded

The researcher framed this analysis to examine if there was any relationship between federal supplementary funding and academic achievement for American Indian students. The framework of fiscal adequacy further analyzed via vertical equity if this particular school district adequately supports American Indian students.

In order to examine this relationship, the researcher developed SIEPP revenue as the control variable. The SIEPP revenue is substantial local and state revenue for this particular school district. By controlling the SIEPP variable, the researcher examined if there would be any relationship with academic achievement with a substantial amount of incoming ~~g~~ revenue. Federal supplementary revenues were a subset of the overall incoming revenue for this study.

Methodological Assumptions

This section provides an overview of methodological assumptions as they relate to the researcher intentions and methods selected to develop a valid and replicable study. Some assumptions that are foundational to this work are listed below:

1. The researcher is American Indian and designed a study to be appropriate to American Indian students and their communities.
2. A multiple regression per grade level was designed to accurately depict any statistical relationships between fiscal revenue and academic achievement.
3. The sampled population was sufficient for statistical significance to determine generalizability and assumptions for American Indian learners.
4. The ex post facto design was effective compared to surveys or interviews.
5. The study is valid and replicable for researchers.

Validity

Multiple regressions were conducted to analyze the relationship between fiscal revenue and academic achievement while controlling for other funding types. This regression methodology was constructed to explore historical data based upon extant data that was accessible and quantifiable to draw conclusions regarding an American Indian population attending a HIE public school in Oklahoma.

Internal Validity

In this study, there were internal validity threats identified by the researcher. First, historical evidence was a significant threat to internal validity due to the time frame of the sampled population. The ex post facto design used seven years of

OCCT performance scores and fiscal accountability records. As a result, the investigator understood a significant time had elapsed, and there were issues with accuracy of records. Furthermore, OSDE has changed as PASS standards are being replaced with Common Core. This transfer of state standards has shifted formal assessments to reflect Common Core. There have been significant curriculum and formal assessment changes at the federal, state, and local levels. Second, the maturation of the sampled population was significant as students progressed through different grade levels: their maturity generally made them more aware of the importance of standardized tests. The internal threat was due to student performance on OCCT reading tests from the past seven years. Data was collected to analyze the sampled American Indian population. Third, selection was also an internal threat. The district prepares reports to OSDE concerning student demographics. These accountability reports do not indicate whether students are culturally identifiable. Thus, the internal validity threat did pose a serious issue because of selection of the sampled population. There is no generalizability to other school districts that have American Indian students in their populations. Fourth, the diffusion of treatment was an internal threat. This study retrieved historical data from the past seven years: the data sets were made available for research purposes. There were student lists generated for each school year and they remained anonymous for IRB purposes. Finally, the instrumentation was an internal threat, as the researcher utilized OPTI scores from the past seven years. During this process, it was assumed OSDE has accurate student data from school districts. The ALCA computer software retrieves this student data in order to allow school districts to

analyze test results. Therefore, transferability of student records was an internal threat because student test scores may not be reported accurately from school district to OSDE and onto the ALCA computer software.

External Validity

The researcher selected a HIE population of American Indians students who attended an Oklahoma public school district. Regarding external validity threats, the interaction of selection and treatment is an element a research design that is unique to the sampled population. It is critical to keep any generalizations and assumptions from being applied to other American Indian populations. Although the framework and methodology are replicable, it is critical to only generalize this sampled population to this particular school district and during the past seven years. The interaction between history and treatment requires researchers to refrain from applying the further conclusions to future contexts. No generalizations or assumptions should be applied to any future HIE populations of American Indian students.

Limitations of Study

This section provides descriptions of the limitations of the study confronted by the researcher. The limitation of study section minimizes any assumptions and generalizations that may be applied to future studies.

1. The study was designed for a specific population in Oklahoma and cannot be generalized to other school districts.

2. There are over 600 tribes and nations who reside in the United States. Although future research can replicate the research design, there are vast cultural differences and values among the nations and tribes.
3. The state accountability reports do not indicate whether students identify themselves as being American Indian. This lack of identity makes it difficult to determine whether or not students relate culturally to their particular nation, tribe, band, or extended family.
4. The research does not incorporate Johnson O'Malley or Impact Aid federal revenues in the research design and methodology. Johnson O'Malley funding is an external supplementary support mechanism that is not controlled by the school district.
5. The fiscal revenues reports might not be accurate due to time and changes in district personnel.
6. The research design is quantitative and excludes qualitative data from study participants.

Summary

American Indians are a minority group in the United States, comprising only one percent of the total US population (Humes, et. al., 2011). Scholars have sought empirical evidence of phenomena concerning American Indian populations in the forms of quantitative analysis. Traditionally, scholars have conducted research and published scholarly articles on American Indian communities residing on or nearby federal reservations. This exploratory single district case analysis focuses on the academic achievement of American Indian students that attended a HIE public

district. The American Indian population that was explored was conducive for generating a quantitative study to develop initial arguments from an empirical perspective. This exploratory single district case analysis was unique as the researcher framed an appropriate study to suggest more quantitative research within HIE populations attending public schools.

This exploratory study provided sampling frame with statistical significance for this particular sample size of American Indian students that attended a HIE public school district. This research design was appropriate and supports scholarly work arguing for more empirical evidence from quantitative methodology. This ex post design draws upon historical data to generate a significant sample size to produce effective arguments. Using fiscal records and student performance indicators, it was critical to draw some conclusions that best describe relationships between fiscal revenue and the academic achievement of American Indian students. As mentioned earlier, fiscal records were retrieved in order to analyze potential relationships with OCCT reading scores. This exploratory single district case analysis is critical in assisting researchers and practitioners because it uses a research design that provides more insight into the federal funding and supplemental support of American Indian students in public schools. The design could offer a practical model for district and building leaders to create empirical evidence by conducting similar case analyses to explore federal supplementary funding and academic achievement indicators in their local school districts.

CHAPTER 4

Results of the Study

Introduction

The purpose of this study was to explore the relationship between fiscal revenue and academic achievement among American Indian students who attended a high Indian enrollment (HIE) public school district. This exploratory study investigated historic Oklahoma Performance Test Indicators (OPTI) reading scores in grades three through eight utilizing an ex post facto design using fiscal revenues and test scores from school years 2006-07 through 2012-13. The fiscal records focused on general operating revenue without federal funds, Title I revenue, Title VI revenue, and Impact Aid revenues. In order to investigate appropriately, the researcher incorporated the fiscal adequacy framework to examine whether fiscal revenue was related to academic achievement. The results are presented and described in relation to each of the three research questions that guided this study:

- Research Question 1 – What were the trends in fiscal revenue for American Indian students who attended a HIE public school district over the past seven years?
- Research Question 2 – What were the trends in the academic achievement for American Indian students who attended a HIE public school district over the past seven years?
- Research Question 3 – Within a HIE public school district, is there a relationship between funding trends and academic achievement trends of American Indian students?~~Is there a relationship between changes in federal fiscal revenue and~~

~~American Indian student academic achievement, controlling for other funding sources?~~

Description of the Data

The data sets were mined and generated from the Aurora Learning Community Assessment (ALCA) computer software. District and building administrators utilize the ALCA software to retrieve and analyze formal assessments from the Oklahoma Core Curriculum Tests (OCCT) standardized assessments in the form of Criterion Referenced Tests (CRT) for elementary and middle school students. The CRT tests are administered to formally assess individual performance based upon absolute levels of proficiency (Oklahoma State Testing Program, Oklahoma Core Curriculum Tests Grades 3-8 Test Interpretation Manuel 2009-2010). The categories Native American, Full Academic Year (FAY), school year, and grade level categories were sorted to provide a sampling frame for the sampled population.

Fiscal records were retrieved from the sample district office. The business manager maintains fiscal records and generates reports upon the request of key stakeholders. General operating revenue without federal funds, Title I, Title VI, and Impact Aid records were collected. The fiscal records specifically investigated funding revenues and did not account for expenditures.

Historical OPTI and fiscal records were generated from school years 2006-07 through 2012-13. Prior to 2010, OSDE accountability reports allowed one individual ethnicity group per student. After 2010, OSDE accountability reports

allowed school districts to account for two or more ethnicities if the parent or guardian indicated it during enrollment.

In February 2009, the president signed the American Recovery and Reinvestment Act (ARRA) due to the economic recession in the United States. According to the ARRA website, the federal government granted public entities federal funds for contracts, grants, and loans. As reported by the ARRA website, in 2012, quarter two, the federal government supplied the school districts with additional dollars for a total amount of $1,234,467. The additional revenue was distributed for direct instructional revenue of general operating funds. The ARRA website states that, "funds were expended and utilized by districts for the purpose of improving teacher instructional delivery and increasing student learning for students most at risk of failing to meet State Academic Achievement standards." The researcher analyzed general operating revenues without federal funds and the trend data indicated a slight increase in school years 2012 and 2013.

Results

The researcher was granted permission by the Institutional Review Board (IRB) of the University of Oklahoma to conduct this study. Once IRB approval was granted, the researcher began data collection from the district office. The researcher recruited a district administrator to access OPTI scores from the ALCA computer software. Fiscal records were retrieved from the business manager.

Data were collected from the ALCA computer software for four elementary schools and one middle school. The ALCA software generated data sets of demographic data that were categorized by Native American, FAY, gender,

economically disadvantaged, grade level, school year, school site, and OPTI scores. In addition to OPTI scores, school financial records such as direct instructional revenues of general operating funds without federal revenue, Title I revenue, and Title VI revenues, were collected.

The 1,679 selected American Indian students and their OCCT reading scores were transferred to Microsoft Excel spreadsheets. The data sets were organized, categorized, and coded for SPSS. Full Academic Year (FAY) students were identified. During this process, student information was nonidentifiable for International Review Board (IRB) purposes. The OPTI scores and fiscal revenues served as continuous variables in order to generate descriptive statistics and multiple regressions.

This exploratory descriptive study used historic data sets. The dependent variable was the Oklahoma Performance Test Indicator (OPTI) score. The OPTI scores served as academic achievement indicators. The study used fiscal revenue such as the following: general operating funds without federal revenue, Title I revenues, and Title VI revenues as independent variables. The independent variables were specifically identified as revenues in the 2013 U.S. dollar amounts. Continuous variables such as OPTI scores and fiscal revenues were incorporated to compute descriptive statistics. Categorical data were included in the descriptive statistics portion of the analysis. Descriptive statistics provided analysis of fiscal and academic achievement trends for the past seven years.

There was one multiple regression conducted per grade level to identify any relationship between fiscal revenue and academic achievement. The ex post facto

design utilized *x* variables of general operating funds without federal revenue, Title I, and Title VI. The *y* variable was OPTI scores. The descriptive statistics, and multiple regressions were conducted using the SPSS computer software.

Table 1 includes OPTI performance levels of the students included in the sample. The OPTI scores are divided in grades three through eight. The OPTI score table below provides a general perspective of performance levels.

Table 1

Oklahoma Performance Index Test Indicators Performance Levels and Score Ranges

	Advanced	Proficient	Limited Knowledge	Unsatisfactory
Grade				
3	891-990	700-890	649-699	400-648
4	845-990	700-844	658-699	400-657
5	830-990	700-829	641-699	400-640
6	828-990	700-827	647-699	400-646
7	802-990	700-801	668-699	400-667
8	833-990	700-832	655-699	400-654

Descriptive Statistics

Descriptive statistics were prepared and aligned to the research questions of the study. In an exploratory study, descriptive statistics describe a general perspective of how fiscal revenues and academic achievement trended over the seven-year period. First, gender was analyzed to explore OPTI scores for male and female students. Second, fiscal revenues by year were described to highlight overall funding trends.

Table 2

Descriptive Statistics for Male and Female Students and OPTI Reading Scores

	Mean	Standard Deviation	Minimum	Maximum
Male				
Reading	672.23	150.38	223	990
Female				
Reading	701.15	118.73	230	990

The descriptive analysis indicated a general depiction of OPTI reading scores. Based on a district perspective, the OPTI scores reveal that male students scored a mean of 672.23 and female students scored a mean of 701.15. Female students had a higher OPTI score mean than male students. The descriptive analysis reveal that female students generally scored towards the mean as compared to male students. The range of scores is similar between genders.

Results by Research Question

Research questions guided this study of order to investigate fiscal adequacy as it pertains to academic achievement among American Indian students. The following research questions served as guides in examining whether fiscal revenues affect OPTI scores for American Indian students in this particular HIE public school district.

Research Question One (RQ1) Results

What were the trends in fiscal revenue for American Indian students who attended a HIE public school district over the past seven years? To better analyze how fiscal revenue related to academic achievement, it was critical to examine fiscal

trends from the past seven years. The researcher utilized the Statistical Package for the Social Sciences (SPSS) software to illustrate fiscal trends by way of descriptive analysis.

Fiscal Trends of SIEPP Revenues

Fiscal trends are critical for district leaders to examine in order to analyze patterns with other variables. In this study, fiscal trends were crucial to identifying whether revenues were related to academic achievement. Figures 1 and 2 illustrate fiscal trends for the past seven years.

SIEPP 2013 dollar

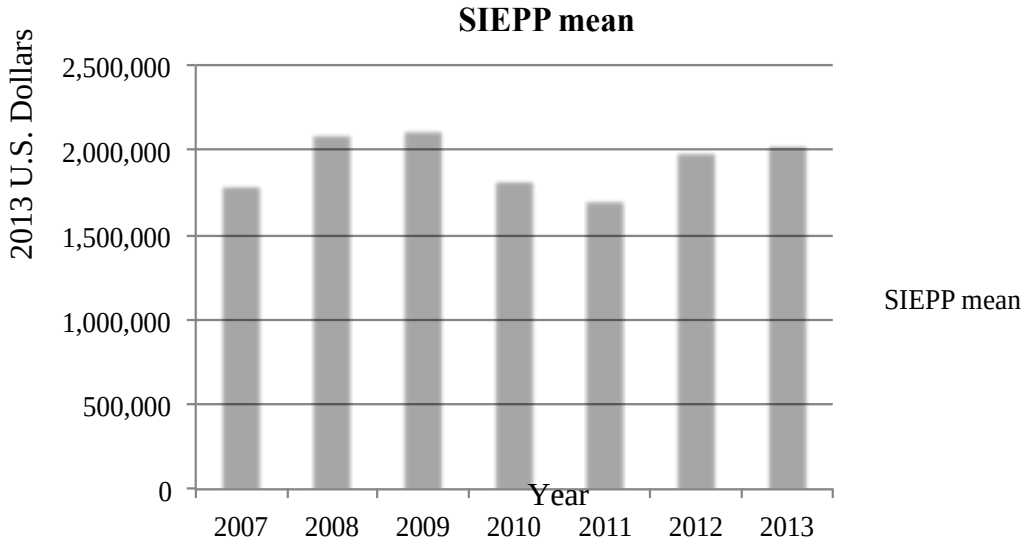

Figure 1. SIEPP revenue trends over the past seven years

The trend for fiscal revenue for general operating funds over the past seven years indicates an increase in monies for school years 2008 and 2009. As mentioned earlier, the ARRA was signed into law to assist federal and state agencies with additional revenue during the economic recession. Federal revenue inundated this particular school district and created surplus revenue for school years 2012-2013. Figure 1 depicts the statistical mean for SIEPP revenues for four elementary schools and one middle school site.

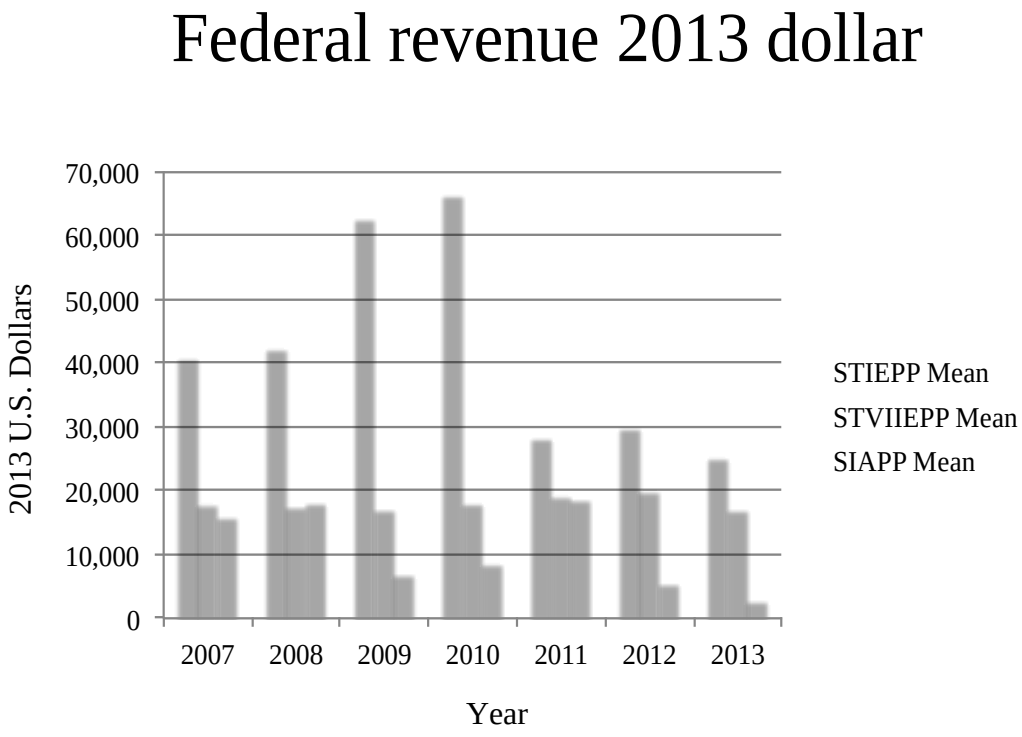

Figure 2. Federal revenue trend over the past seven years

Supplementary federal revenue is depicted in Figure 2. Here, supplementary federal revenue includes Title I (STIEPP), Title VI (STVIEPP), and Impact Aid (SIAPP). Title I revenues increased from school years 2007 through 2010. Title I revenues were maximized during school years 2009 and 2010. Title VI revenues remained consistent from school years 2007 through 2013. The Federal Impact Aid revenue had been inconsistent and it has drastically declined in recent years.

Research Question Two (RQ2) Results

What were the trends in the academic achievement of American Indian students who attended a HIE public school district over the past seven years? The researcher calculates descriptive analysis to illustrate academic achievement among

American Indian students from the past seven years. Although this study does not account for variation of OPTI scores between grade levels, it reveals a general overview of OPTI scores from a district level.

Table 3

Oklahoma Performance Test Indicator Score by Grade

	Mean	Standard Deviation	n	Minimum	Maximum
Grade					
3	710.93	139.43	313	235	990
4	691.03	140.62	303	234	951
5	677.16	148.97	277	225	990
6	664.40	132.05	273	223	860
7	681.12	124.40	258	223	934
8	693.82	120.92	255	233	982

Note. Source, Field Notes.

The data on academic achievement among American Indian students from grades three through eight indicate that OPTI scores means declined from third through sixth grade and then began to increase from seventh through eighth grade.

OPTI Scores

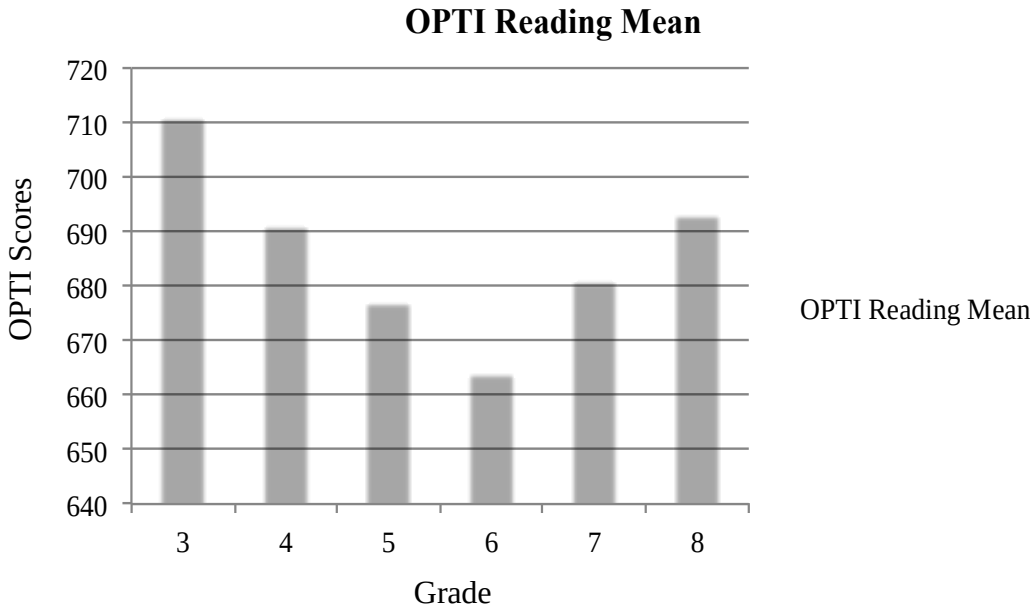

Figure 3. OPTI reading scores over the past seven years

The performance levels consist of the following: third grade, "proficient"; fourth grade, "limited knowledge"; fifth grade, "limited knowledge"; sixth grade, "limited knowledge"; seventh grade, "limited knowledge"; and eighth grade, "limited knowledge". American Indian students tended to score "limited knowledge" on the OCCT reading test. The OPTI scores mean tend to decrease from grade three to six. Although remaining in the *limited knowledge* range, there is a steady increase of OPTI score means from grades six to eight.

Research Question Three (RQ3) Results

Within a HIE public school district, is there a relationship between funding trends and academic achievement trends of American Indian students? The research utilized a multiple regression analysis per grade to analyze the research question. The multivariate analysis focused on OPTI scores as they related to general revenue without federal funds, Title I, Title VI, Impact Aid, and Year.

Third Grade Fiscal Revenue and Academic Achievement

Table 4

Multiple Regression Analysis Grade 3 Reading Achievement

Variable	**B**	**T**	**Sig**	**R**
R^2				
Model			.001*	.261
.068				
SIEPP	-.10	-1.59	.113	
STIEPP	-.08	-1.40	.162	
STVIPP	.09	1.46	.146	
SIAPP	.06	.87	.384	
Year	-.16	-2.33	.021*	

Note. n=313, Source. Field Data
*p < .05

The data in Table 4 indicates the relationship between fiscal revenues and academic achievement among American Indian students in third grade. The model is a good fit for the data, $F(5, 307) = 4.50$, $p = .001$). The model accounts for 6.8% of the variation in the third-grade OPTI scores. The overall model is statistically significant, $p < .001$.

General revenue without federal funds, Title I, Title VI, and Impact Aid revenues did not contribute significantly to OPTI scores. The independent variable

Year is statistically significant, $p < .05$. There is statistical significance between OPTI scores and school year for third grade.

Fourth Grade Fiscal Revenue and Academic Achievement

Table 5

Multiple Regression Analysis Grade 4 Reading Achievement

Variable	**B**	**T**	**Sig**	**R** R^2
Model			.000*	.386 .149
SIEPP	.17	2.79	.006	
STIEPP	-.09	-1.61	.109	
STVIPP	.03	.52	.606	
SIAPP	.00	.02	.985	
Year	-.39	-5.56	.000*	

Note. n=303, Source. Field Data
*p<.05

The data in Table 5 indicates the relationship between fiscal revenues and academic achievement among American Indian students in fourth grade. The model is a good fit for the data, $F(5, 297) = 10.38$, $p = .000$). The model accounts for 14.9% of the variation in the third-grade OPTI scores. The overall model is statistically significant, $p < .001$.

General revenue without federal funds, Title I, Title VI, and Impact Aid revenues did not contribute significantly to OPTI scores. The independent variable Year is statistically significant, $p < .05$. There is statistical significance between OPTI scores and school year for fourth grade.

Fifth Grade Fiscal Revenue and Academic Achievement

Table 6

Multiple Regression Analysis Grade 5 Reading Achievement

Variable	**B**	**T**	**Sig**	**R** R^2
Model			.028*	.212 .045
SIEPP	.11	1.55	.122	
STIEPP	-.05	-.78	.434	
STVIPP	.00	.00	.998	
SIAPP	-.08	-1.02	.306	
Year	-.25	-3.02	.003*	

Note. n=277, Source. Field Data
*p<.05

The data in Table 6 indicates the relationship between fiscal revenues and academic achievement among American Indian students in fifth grade. The model is a good fit for the data, $F(5, 271) = 2.56$, $p = .028$). The model accounts for 4.5% of the variation in the third-grade OPTI scores. The overall model is statistically significant, $p < .001$.

General revenue without federal funds, Title I, Title VI, and Impact Aid revenues did not contribute significantly to OPTI scores. The independent variable Year is statistically significant, $p < .05$. There is statistical significance between OPTI scores and school year for fifth grade

Sixth Grade Fiscal Revenue and Academic Achievement

Table 7

Multiple Regression Analysis Grade 6 Reading Achievement

Variable	**B**	**T**	**Sig**	**R**
R^2				
Model			.000*	.312
.097				
SIEPP	.09	.85	.397	
STIEPP	.19	1.44	.151	
STVIPP	-.11	-1.20	.233	
SIAPP	.23	1.55	.121	
Year	.02	.09	.927	

Note. n=273, Source. Field Data
*p<.05

The data in Table 7 indicates the relationship between fiscal revenues and academic achievement among American Indian students in the sixth grade. The model is a good fit for the data, $F(5, 267) = 5.74$, $p = .000$). The model accounted for 9.7% of the variation in the sixth grade OPTI scores. The overall model is statistically significant, $p < .001$. The general revenue without federal funds, Title I, Title VI, and Impact Aid revenues do not contribute significantly to OPTI scores. The Year variable does not contribute significantly to OPTI scores.

Seventh Grade Fiscal Revenue and Academic Achievement

Table 8

Multiple Regression Analysis Grade 7 Reading Achievement

Variable	**B**	**T**	**Sig**	**R**
R^2				
Model			.187	.171
.029				
SIEPP	-.02	-.20	.841	
STIEPP	.06	.41	.679	
STVIPP	.02	.18	.861	
SIAPP	.05	.30	.764	
Year	-.12	-.64	.523	

Note. n=258, Source. Field Data

The data in Table 8 indicates the relationship between fiscal revenues and academic achievement among American Indian students in the seventh grade. The model is not a fit for the data $F(5, 252) = 1.51$, $p = .187$). The model accounted for 2.9% of the variation in the seventh Grade OPTI scores. The control variables do not contribute significantly to the OPTI scores.

Eighth Grade Fiscal Revenue and Academic Achievement

Table 9

Multiple Regression Analysis Grade 8 Reading Achievement

Variable	**B**	**T**	**Sig**	**R**
R^2				
Model			.086	.194
.038				
SIEPP	-.03	-.31	.754	
STIEPP	.04	.31	.755	
STVIIPP	-.05	-.47	.637	
SIAPP	.21	.1.37	.172	
Year	.07	.34	.733	

Note. n=255, Source. Field Data

The data in Table 9 indicates the relationship between fiscal revenues and academic achievement among American Indian students in the eighth grade. The model is not a fit for the data, $F(5, 249) = 1.96$, $p = .086$). The model accounted for 3.8% of the variation in the eighth grade OPTI scores. The control variables do not contribute significantly to the OPTI scores.

Summary of Results

The summary in Table 10 illustrates a summary of results as they pertain to each individual research question. The brief summary indicates statistical analyses between fiscal revenues and academic achievement among American Indian students. The findings are listed to draw conclusions to the research questions.

Table 10

Summary of Research Questions

Questions	**Description**	**Control Variables**	**Results**
RQ 1	Fiscal trends over the past seven years	SIEPP, TITLE1PP, STVIEPP, and SIAP and School Year	(a) SIEPP revenue remained steady with an increase due to ARRA funding. (b) Title I revenue increased during school years 2009 and 2010. The Title I revenues decreased. (c) Title VI remained steady. (d) Impact Aid remained unpredictable with a considerable decrease in funding.
RQ 2	Academic achievement over the past seven years	OPTI score and Grade	Third grade had a SD that indicated "proficient". Fourth through eighth grades had a SD of "limited knowledge"
RQ 3	Fiscal revenues related to academic achievement among American Indian students	SIEPP, TITLE1PP, STVI PP, SIAPP, and Year	Regression model is significant for third through sixth grades. Year variable is significant for third through fifth but has a negative relationship with OPTI scores

Summary

This chapter presents statistical results of an ex post facto study that incorporated quantitative methodology. The exploratory study sought to answer three critical research questions as they pertained to American Indian students who attended a HIE public school district. The research analyzed two research questions via descriptive statistics. Tables and charts were configured to illustrate fiscal trends and academic achievement among American Indian students. The data for the last research question were analyzed with a series of multiple regressions for every grade.

The descriptive analysis indicated female students had a higher OPTI score mean as compared to males. There was a 30-point difference between OPTI score means. In addition, female students tended to score closer to the statistical mean as compared to males.

Based on the information obtained, federal revenue was not constant and predictable but the general revenue without federal funds remained consistent. As ARRA monies were collected, general revenue increased during school years 2012 and 2013. Title I revenue increased from school years 2007 to 2010. Title VI revenue remained consistent during the seven years. Impact Aid revenue was inconsistent, and it decreased in school years 2012 and 2013.

The findings suggested that fiscal revenues do not contribute significantly to OPTI scores. The multiple regression models were a good fit for grades three through six. In the multiple regression models, Year was reported to contribute significantly for the third through sixth grades. Yet, the *b* and *t* values of the Year

variable were negative. The findings suggest that as OPTI scores are reported there is a natural decline from grades three to six. Similarly, the descriptive statistics indicated that American Indian students are proficient in third grade, yet their OPTI score means decrease as they enter middle school. In middle school, OPTI scores tend to increase for American Indian students. Unfortunately, the OPTI scores remained on the "limited knowledge" performance level.

This exploratory study investigated how fiscal revenues related to academic achievement among American Indian students in a HIE public school district. As public school students, American Indians are a majority subgroup among minorities in Oklahoma. The findings suggest federal revenues are unpredictable and inconsistent from year to year. American Indians tend to achieve academically in primary grades, and their performance levels decrease as they transition into middle school.

CHAPTER 5

Summary, Implications, and Recommendations

Introduction

Federal education revenues are supplementary in nature and often yield additional monies for public school districts. Local and state revenues provide a majority of funding for school districts (Thompson, et al., 2008). American Indians are dual citizens who reside in local townships and communities, and American Indian students have traditionally been members of tribes/nations and U.S. citizens at the same time. In Oklahoma, American Indians are public school attendees and account for a majority population among minority groups (U.S. Census Bureau, 2010; Wood & Clay, 1996). For the most part, American Indians attend public schools rather than BIA schools (Faircloth & Tippeconnic, 2000). American Indians who attend public schools excel on standardized tests as compared to American Indian students who attend schools on reservations (Grigg et al., 2010).

American Indian scholars have studied various phenomena of American Indian students in their natural settings. Traditionally, academic research is focused on qualitative methodology to investigate phenomena among American Indians due to their minimal population within the larger ethnic groups. American Indians are a minority group, which ultimately leads to sample sizes that are statistically insignificant. In contrast, quantitative methodology focuses on larger sample sizes that can provide statistical significance in order to analyze phenomena via statistical evidence. In scholarly research, there is a lack of quantitative methodology exploring phenomena among American Indians because historically, their

populations do not support a significant sampling frame. The researcher identified an appropriate sampling frame to conduct a quantitative analysis.

This chapter presents findings of an exploratory single district case analysis that analyzed relationships between fiscal revenue and academic achievement among American Indian students who attended a HIE public school district. This chapter also includes an introduction, summary of the study, problem statement, methodology, and discussion and summary of the results from the previous chapter in relation to the current literature. The final section also includes implications for practice, contributions to the literature, limitations of the study, and recommendations for future research.

Problem

American Indian families send their children to school only to see them become part of an underserved student population. Students in an underserved population are not equipped to succeed as compared to non-Indian students who attend public schools (Pewewardy & Fitzpatrick, 2009). American Indian students are an underserved population who often reside near rural populations. Public schools do not provide American Indian students with an appropriate education in the form of curricula, resources/materials, and/or support systems (Glenn, 2011; Mead et al., 2010; Pewewardy & Fitzpatrick, 2009). There is a need to ascertain whether funding across the United States, in particular for public schools in Oklahoma, has adequately funded American Indian students and their learning.

American Indian students have traditionally lagged behind their counterparts in student achievement in public education (Grigg et al., 2010; Mead et al., 2010;

Pewewardy & Fitzpatrick, 2009; St. Germaine, 1995). The achievement gap between American Indian students and other student groups could be attributed to how school districts fiscally support them.

Public school funding is derived from federal, state, and local revenue with a majority of fiscal allocations coming in part from local property taxes, which in return produces disparities between wealthy and poor school districts (Biddle & Berliner, 2009; Glenn et al., 2009; Kent & Sowards, 2008; Ramirez et al., 2013; Rodriguez, 2004; Toutkoushian & Michael, 2007). Federal, state, and local revenues fiscally support public schools (Thompson et al., 2008). As a result, local property taxes have created fiscal disparities in public schools.

Berne and Stiefel (1984) argued that the American school system is inequitable based on funding mechanisms. Ramirez et al. (2013) argue fiscal equity should be grounded in equity for each school district instead of fairness. Scholars have also argued that in order to address inequities between affluent and poorer school districts, states must enact federal and state policies to support all students (Kent & Sowards, 2008; Odden et al., 2010; Picus & Odden, 2011; Ramirez et al., 2013; Rodriguez, 2004; Toutkoushian & Michael, 2007). These incoming fiscal revenue disparities can be traced to ad valorem taxes. Ad valorem or local property taxes are heavily embedded in public school education as a main revenue source.

As mentioned in Chapter 2, American Indians have historically resided on traditional trust lands located nearby communities. Federal trust lands are not regulated by county or local officials, and therefore, American Indian families do

not contribute to local ad valorem taxes. The results caused a dilemma between American Indian families and local school districts.

The special relationship between American Indian families and the U.S. government allows federal revenue to intervene in~~with~~ this dilemma in the form of Federal Impact Aid (Escue & Wood, 2010; Glenn, 2011). Escue and Wood (2010) state, "This fiscal responsibility reflected federal properties that were within school districts that were statutorily ineligible to pay local property taxes for the support of local education" (p. 187). Because local officials cannot tax federal lands the federal government sends additional revenue to local school districts (Escue & Wood, 2010; Glenn, 2011).

Research Questions

Research questions drove this study of the fiscal adequacy framework and more importantly the vertical equity lens as it pertains to academic achievement among American Indian students. The following research questions guided the analysis of fiscal revenues as they affected OCCT test scores for American Indian students in this particular HIE public school district.

- Research Question 1: What were the trends in fiscal support for American Indian students who attended a HIE public school district over the past seven years?
- Research Question 2: What were the trends in the academic achievement for American Indian students who attended a HIE public school district over the past seven years?

- Research Questions 3: Within a HIE public school district, is there a relationship between funding trends and academic achievement trends of American Indian students?

The data sets were mined and generated from the Aurora Learning Community Assessment (ALCA) computer software. The categories Native American, full academic year (FAY), school year, and grade level categories were sorted to provide a sampling frame for OPTI reading scores.

Fiscal records were retrieved from the central office. The business manager maintains fiscal records and generates reports upon request of key stakeholders. General operating revenue without federal funds, Title I, Title VI, and Impact Aid records were collected. The fiscal records specifically investigated funding revenues and did not account for district expenditures.

Descriptive analysis was also used in order to respond to research questions one and two. Categorical variables such as grade, school year, and site were dummy coded. First, the researcher examined fiscal trends over the past seven years. Second, descriptive statistics were generated based on American Indian students' OPTI scores for third through eighth grade. Third,~~,~~ the researcher incorporated a series of multiple regression analyses to explore the relationship between several fiscal variables and American Indian student OPTI scores. The goal was to assess the degree of vertical equity and adequacy of fiscal support of Indian students.

Summary of Results

This study included a sample of 1,679 American Indian students for a seven-year timeframe. The goal was to perform an exploratory single district case analysis to identify fiscal and academic trends in the form of an ex post design. More importantly, the researcher sought to perform regression analysis via multiple regressions for grades third to eighth. The general findings revealed federal revenue for this particular school district is inconsistent and unpredictable. In addition to the fiscal revenues, American Indian student academic achievement digressed in the form of OPTI reading scores. In the current context, OPTI reading scores gradually decreased overall from *proficient* to *limited knowledge* as the student transitioned from third grade to sixth grade. The investigator performed a regression analysis of multiple independent variables with the dependent variable, OPTI reading scores. Each multiple regression was conducted per grade level with year variable computed. The study found OPTI reading scores were not related to funding.

This study analyzed a seven-year period of incoming federal supplementary revenue in order to identify fiscal trends for this particular HIE public school district in Oklahoma. The fiscal revenue trends illustrate that federal monies are unpredictable for this particular case analysis. Title I and Impact Aid revenues were not constant throughout the seven years. However, Title VI revenue was relatively stable and served as a minimal amount of federal incoming supplementary revenue during the study. General revenue without federal funds was consistent throughout the study as ARRA monies provided a slight increase for school districts.

The study also explored OPTI reading scores for American Indian students attending a HIE public school district. The OPTI reading scores served as a measure of academic achievement. The findings suggested OPTI reading scores gradually digressed from *proficient* to *limited knowledge* as the student transitioned from third grade to sixth grade. In middle school, OPTI reading scores gradually increased from sixth to eighth grade but findings suggested this population still remained in the *limited knowledge* category.

The case analysis sought to explore federal supplementary revenues and its relationship with OPTI reading scores for FAY American Indian students. Consequently, the researcher found fiscal revenues do not contribute statistically to OPTI reading scores. In addition, the study included multiple regressions per grade level with general funds without federal dollars, Title I, Title VI, Impact Aid, and Year as independent variables. OPTI reading scores served as the dependent variable. The multiple regression models were a good fit for grades three through six. In the multiple regression models, the Year controlled variable was statistically significance for the third through sixth grades. Yet, the *b* and *t* values of the Year variable were negative.

Based on the summary of results, federal revenue was not constant and predictable. However, general revenue without federal funds remained consistent. As ARRA monies were collected, general revenue increased during school years 2012 and 2013. Title I revenue increased from school years 2007 to 2010. Title VI revenues remained consistent during the seven years. Federal Impact Aid revenue was inconsistent and it decreased in the latter years of the study. The OPTI reading

scores decreased from third to sixth grade yet gradually increased from sixth to eighth grade. Third graders scored *proficient* yet the remaining grades scored *limited knowledge*. The study found incoming federal supplementary revenue does not affect the academic achievement for American Indians students in this particular sample of 1,679 American Indian students.

Limitations of the Study

The OCCT accountability reports only indicate whether students are identified as being Native American. This study does not determine whether or not a student is culturally affiliated with a particular tribe, nation, or band. This study cannot argue whether the sampled population is culturally American Indian or not.

The researcher did not incorporate Johnson O'Malley (JOM) revenues in the research design and methodology because this funding is an external support mechanism that is not controlled by the school district. This study does not include JOM revenues and, therefore, it cannot provide any arguments about its funding.

Fiscal revenue reports might not be accurate due to time and changes in district personnel. Similar to fiscal reports, OPTI scores were collected from a third party. Data collection is not immune to errors.

The research design is quantitative and excludes qualitative methodology. Qualitative methodology provides narratives and stories of a particular population. Because of this, this study does not account for the perspectives of the sampled population.

Implications of the Study

This section discusses research and policy regarding American Indian education as it relates to public schools. As pointed out in Chapter 2, a majority of American Indians attend public schools. The implications of the study focus on the local, state, and national perspectives as they relate to research and policy regarding American Indians.

This study is critical for the field of Educational Leadership and Policy Studies. It discusses American Indian education from an Oklahoma perspective in a HIE public school setting. More importantly, this study incorporates quantitative methodology to investigate a phenomenon of federal supplementary revenues as relates to academic success in a HIE public school district.

The implications of the study extend beyond doctoral research. The case analysis is critical as an exploratory study in order to influence national, state, and local policy in regards to equitable opportunity and access for American Indians in public schools. A considerable number of American Indian students attend public schools. This section provides snapshots of the national, state, and local implications for the study.

Local implications.

The regression analysis supports multiple findings as fiscal revenues did not contribute statistically to OPTI scores. The results of the multiple regression analyses indicated an inverse relationship between the year variable and OPTI scores. The findings reveal third grade reading scores continued to decrease from school year 2007 to 2013. The Year variable had a natural decline. Thus, the

literature also argues that academic achievement among American Indian students decline as they transition from elementary to secondary grades (Powers, 2005). This study found that American Indians scored "proficient" on their OCCT reading tests in third grade, but as they transitioned to middle school, their OPTI scores declined. American Indian students consistently scored "limited knowledge" on the OCCT reading tests, but their scores improved from sixth to eighth grades. It is critical for district and building administrators to identify this phenomenon and build support mechanisms to prevent and/or combat a phenomenon that reveals OPTI reading scores decline from third to sixth grade.

The study reveals that organizational inputs (fiscal revenues) do not contribute significantly to organizational outputs (OPTI scores). The literature review reported the A-F District Report Cards and *The Reading Sufficiency Act* are legislative mechanisms that seek organizational outputs. Recently, Oklahoma has passed legislation, the *Reading Sufficiency Act* (RSA), to target third-grade students who score unsatisfactory on the Oklahoma Performance Test Indicators (OPTI) and the Oklahoma Common Core Curriculum Test (OCCT). State legislators created accountability policy in the form of the *Reading Sufficiency Act* to hold public school districts accountable for their organizational outputs with the third grade reading scores. District and building administrators must recognize empirical evidence and state policy in order to strengthen organizational mechanisms to facilitate a learning environment that identifies these learning gaps as American Indian students transition from elementary to middle school and high school. The researcher suggests district and building leaders provide support systems for

American Indian students to keep them at or above *proficiency* for their reading performance levels.

This exploratory study sought to analyze whether fiscal revenues relate to academic achievement. Currently, it is difficult for scholars and practitioners to provide a quantitative methodology to directly connect organizational inputs and outputs. It is critical for doctoral students and candidates to fulfill this 'need for scholarly research' in the field of Educational Leadership and Policy Studies. This process requires research professors to identify graduate assistants and doctoral candidates and recommend they research topics on American Indian education employing quantitative methodologies.

Federal supplementary revenue is unpredictable and therefore prevents any arguments that revenue is linked to academic achievement. It is difficult for scholarly research to connect inputs to outputs within an organization because federal funding is unpredictable. Contemporary literature on inputs and outputs draws similar arguments. This study attempts to link fiscal revenue and academic achievement. Yet, organizational inputs and outputs in an educational system remain unresolved.

District administrators and building administrators understand their students' needs. Berne and Stiefel argued fiscal adequacy is best implemented when leaders fully understanding horizontal and vertical equity. This study argues American Indians are an unique minority group with special needs. District and building leaders should recognize their specific needs and apply vertical equity in order to address these needs. The fiscal philosophy of vertical equity enables leaders to

devise budgets that support American Indians and their specific needs. The current study indicates that superficially there may have been some degree of vertical equity in inputs, this did not translate into vertical equity (and adequacy) of *outcomes*.

Scholarly research can identify systemic disconnects among nations/tribes, parent advisory committees, and public school districts and encourage partnerships among stakeholders to improve the education of American Indian students. For example, this case analysis identified critical empirical research in a HIE population. Local stakeholders must encourage more empirical research in order to established sound decision making for their American Indian students.

State implications.

American Indians do not reside on communal reservations in Oklahoma. The American Indian population in Oklahoma is unique as families are situated near their traditional homelands, yet at the same time, they live in close proximity to local townships and communities. As reported by Norris et al. (2012), Oklahoma has a number of cities where American Indians reside but it only has one reservation listed in Top Reservations of the 2010 U.S. Census Bureau. Federal policymakers must recognize Oklahoma and its uniqueness. Again, federal and state leaders can shape Indian policy effectively if they understand contemporary issues regarding American Indian students in Oklahoma.

This exploratory single district case analysis depicted findings that illustrated federal revenues are unpredictable. As a result, the findings were inconsistent throughout the seven-year period. General operating dollars without federal funds remained consistent, with an increase due to ARRA incentive monies.

The research findings demonstrate that federal dollars are inexact and fluctuate from year to year. In addition, general operating revenues without federal funds supported ranged from 1.5 to 2 million dollars in total revenues. It was difficult to estimate federal dollars as they fluctuated from $85,000 to $100,000. Local revenues are a major source of funds for local school districts. Direct instructional costs heavily rely on local revenues. The contemporary literature argues local revenues consist of 92% of the total monies for school districts (Kent & Sowards, 2008). In this case analysis, local revenues consisted of 95% of the total revenue. Federal dollars were relatively inconsistent. The federal revenues ranged from five to six percent of the total revenues of direct instructional costs. Indian Parent Committees must recognize the breakdown of district revenues and develop a plan to utilize federal supplementary funding for their Indian education programs.

Federal Impact Aid revenues funded the Indian education program, in particular administrative costs. In *Natonabah v. Board of Education*, the district courts agreed local school districts have discretion in incorporating Impact Aid funds into their general operating revenues (*Natonabah v. Board of Education,* 1973). The courts ruled American Indian students are regular students and a portion of their federal revenues should support operational costs. In the study, 25% of Impact Aid revenues were linked to administrative costs for the Indian education department within the school district. As reported, Impact Aid thus distributed does not contribute significantly to OPTI scores. Again, Indian Parent Committees must recognize federal revenue such as Impact Aid and strengthen their voice as a

collective group and advocate for additional monies in support of Indian education program.

There is a need for scholarly research to develop arguments for more vertical equity (and fiscal adequacy) for American Indian students. Vertical equity would require administrators to direct federal supplementary funding such as Title I, Title VI, and Impact Aid to increase academic achievement for American Indians. Empirical research must lead the way in order to establish sound arguments and encourage effective support mechanisms for American Indian students.

National implications.

The literature mentions American Indians are a majority population among minority students in Oklahoma. In the study, the research identified the American Indian student population to hover near 30% of the total district. In this particular district, American Indian students are a majority among minority groups. The American Indian student population revealed a significant sample size was conducive for the researcher to perform a quantitative methodology. Scholars argue empirical evidence is lacking in regards to American Indian populations. This exploratory single district case analysis was framed to fill a void in empirical evidence of American Indians, especially in particular to academic research of public schools. The federal government, in particular, the initiatives on Indian education can recognize this critical need for scholarly research and create programs to encourage doctoral research and more empirical evidence. These doctoral programs should be located in Indian country with an emphasis on practitioners from public school districts. Here quantitative, qualitative, and mixed methodology

research is produced to add to the contemporary literature regarding American Indian students and their education. It is also critical to ensure basic and applied research are produced to support and reinforce effective programs for American Indians students who attend the K-12 grade system.

The fiscal adequacy framework argues that revenues should be directed to organizational outputs that need improvements, in order to facilitate vertical equity. This case analysis reveals fiscal trends are so inconsistent that is difficult to report concrete findings. As prior research argues, fiscal adequacy is difficult to measure. In order to measure fiscal adequacy, scholars must continue to attempt to connect organizational inputs to outputs. This organizational relationship is also apparent in production-function models. Aspiring doctoral students who are also practitioners are critical for linking organizational input to outputs because they are able to identify incoming revenue and outcome products. It is crucial for practitioners who are doctoral students to author applied research because they are building administrators and leaders who can develop practical inquiry at the state and local levels.

Significance of the Study

Scholarly research has explored American Indian education but peer reviewed articles tend to investigate reservation and/or BIE settings. There is minimal empirical research from doctoral graduates that focuses on American Indian education as it pertains to Oklahoma. American Indians tend to be a minority group when identifying a sampling frame among naturally distributed

populations. These published and unpublished doctoral dissertations also tend to gravitate toward qualitative methodology.

Contribution to the Literature

First, this case analysis provides empirical evidence from a quantitative study of American Indian students in Oklahoma. Traditionally, academic research has focused on qualitative methodology to investigate education among American Indian populations. The literature has supplied evidence to support this methodology. However, Demmert (2005) argues there is a lack of quantitative methodology regarding American Indian populations. The researcher is situated in a HIE public school district and, therefore, has designed an appropriate case analysis to investigate academic achievement among an American Indian student population. The researcher argues that the research setting is reflective of public schools in Oklahoma.

American Indians are one of the largest minority groups in Oklahoma with a total population of over 8% of the state's population (U.S. Census Bureau, 2010; Wood & Clay, 1996). Over 33% of the total Oklahoma population consider themselves to be American Indians, or Alaskan Native, or a combination of both (Norris, Vines, & Hoeffel, 2012). Norris et al. (2012) illustrates how Oklahoma has three of the four largest populations of American Indians and Alaskan Natives. However, Oklahoma has only one major reservation illustrated in the Top 20 Reservations and Alaska Native Villages in the U.S. (2012). The U.S. Census portrays the state as a home to American Indians and Alaskan Natives who are

located near metropolitan areas. It concludes that American Indian populations are not located on reservations; instead, they are residents of local cities and townships.

Historically, American Indian families tend to reside near their traditional homelands and/or federally recognized reservations (Mead et al., 2010; Pavel, 1999). American Indian communities are embedded and absorbed into rural, suburban, and urban locations. In terms of school demographics, American Indian students make up one of the smallest minority groups in public schools across the United States (Pewewardy & Fitzpatrick, 2009). As noted previously, Lee (2011) states, "Twelve states have more than 100,000 American Indian students, and across the United States, approximately 624,000 Native Students are enrolled in K-12 schools" (p. 278). American Indian children attend schools where they represent a minority group. Lee (2011) also argues that 93% of American Indian students attend public schools. The research setting enabled the investigator to utilize quantitative methodology due to its high Indian enrollment. The district is situated among local tribes/nations that have a considerable population attending their schools. The research contends a vast majority of American Indian students attend public school districts in Oklahoma and it is critical to study phenomena to draw parallels between American Indian communities and schools.

Second, the contemporary literature focuses on American Indian students and their achievement levels. Powers (2005) argues that American Indian students' achievement levels decline as they get older. Powers (2005) states, "Thus, older American Indian students were less likely than younger American Indian students to report passing grades, consistent attendance, and high levels of engagement with

school activities-all important indicators of education and attainment and success" (p. 339). During middle school years, American Indian students tend to become disengaged, fall behind, and contemplate dropping out of school. The findings of this study support the argument that American Indian students' academic achievement declines from grades three to six, but also slightly increases from grades six to eight. American Indian students are at risk, especially as they proceed through their formal schooling. Earlier in the literature review, Davis (1992) was quoted as stating that the "1991 Indian Nations at Risk Task Force reports 35.5%, and in some places 50 to 60% of American Indian and Alaska Native students leave school early" (p. 1). The literature reveals graduation rates and academic achievement indicators are relatively lower than they are for non-Indian student groups.

This case analysis confirms Powers' argument but also extends it. The study argues that OPTI scores decline from third to sixth grade, but that they steadily improve as students move into higher grades. The study contributes to contemporary literature as it confirms Powers' argument but also contends that OPTI scores slightly increase as American Indian students get older. In middle school, American Indian students score *limited knowledge* but descriptive analysis depicts OCCT achievement indicators gradually improving. This study does not account for empirical research concerning American Indian students as they enter high school so it cannot draw conclusions of dropout rates and academic achievement for American Indian students.

Third, the literature argues that American Indian programs should be supplementary to support American Indian students in public schools. The literature review established that American Indian and special education students are to be served by public school districts. American Indians and IDEA students are both protected under the Equal Protection Clause of the U.S. Constitution (Carter, 1974; Skiba et al., 2008). Similar to federal programs such as Title I, Title VI, and JOM, the IDEA revenues are supplementary monies used in support of students with disabilities. Thompson et al. (2008) argue that special education funding is similar to funding for other special needs programs because it is a combination of federal, state, and local revenues (2008). As supplementary revenues, Indian education and special education monies cannot supplant general operating fund dollars. This study contributes to the literature with arguments that federal revenues are supplementary monies intended to support American Indian students. Descriptive analysis also reveals that federal revenues are inconsistent and unpredictable. Federal revenues are directed to aid American Indian students but federal revenues are so inconsistent that it is difficult to relate academic achievement to current federal, state, and local fiscal practices. School leaders must tailor Indian programs to support American Indian students, even though federal revenues are minimal and unpredictable.

Fourth, the literature review discussed the production-function model as it pertains to organizations and their outputs. In this case analysis, the research investigated the relationship between federal reviews and OPTI scores of American Indian students. As indicated earlier, the production-function models explain that organizational inputs produce outputs. Burbridge (2008) says, “A production

function simply shows the relationship between inputs and outputs" (p. 35). Fiscal inputs are those revenues for school districts. However, the literature also reveals inputs consist of policy reform, curriculum mandates, litigation, and court mandates (Burbridge, 2008; Glenn, 2009; Greene et al., 2007; Verstegen, 2007). Wilson et al. (2006) state, "Within the context of an education production function, a district's education production function is a function of student characteristics and teaching inputs" (p. 402). The production-function model is used to create and achieve efficiency and effectiveness for school districts. The literature also indicates organizational outputs are statistically and empirically difficult to analyze (Costrell, Hanushek, & Loeb, 2008; Hanushek & Lindseth, 2009; Hanushek & Raymond, 2005). Similar to production function, fiscal adequacy seeks to analyze organizational inputs and outputs in order to identify if schools are adequately funding students who are in greater need of services. The researcher investigated the relationship between organizational inputs and outputs in regards to Indian education. The study contributes to the literature as it executed descriptive analyses to identify fiscal and academic achievement trends for American Indian students. This study also included multiple regression analyses to examine the relationship between federal revenues and academic achievement. The findings suggested federal revenues did not affect academic achievement from grades three to eight.

Fifth, researchers have focused on literature that addresses dismal graduation rates and dropout indicators−a framework recognized as the deficit model among scholars. As mentioned earlier in the literature review, past scholars theorized that American Indian students enter school at a deficit and, hence, their student

achievement is far behind other students. Deyhle and Swisher (1997) cite Berry's (1968) work by noting that "Berry was critical of deficit thought when he argued against the prevailing views in research of Native languages as an education barrier, Indian parents as apathetic and non supportive of schooling, and Indian intelligence as inferior" (p. 118). In the past, scholars have focused on academic and learning deficits of American Indians instead of publishing more proactive literature that portrays effective arguments.

The study contributes to the literature by showing that American Indian students score *proficient* in the third grade, but overall, OPTI scores tend to decline as American Indian students transition into middle school. The cross-sectional data showed OPTI scores declining from *proficient* to *limited knowledge*. This academic decline does not support the argument that American Indian students are at a deficit from the primary to middle school ages and does not focus on *negative research* such as dropout rates or low test scores. This exploratory single district case analysis contributes to the literature by focusing on academic achievement that is appropriate and considerate of American Indian students who attend a HIE public school district in Oklahoma.

The study is practical for American Indian scholars and practitioners and it is replicable. More important, this exploratory study utilizes quantitative methodology to investigate academic achievement among American Indian students in public schools. The findings are critical to reaffirm arguments that American Indian students' academic achievement declines as they get older. The study does not focus on deficit thought; it spotlights American Indian students who attend a HIE

public school district in Oklahoma. The study supplies practitioners and policymakers with contemporary research by providing a glimpse of Indian education in this case analysis. Furthermore, the study constructs new knowledge for future scholarly research and extends empirical evidence concerning American Indian students that attend public schools.

Finally, the single district case analysis sought to examine the relationship between federal supplementary revenues and academic achievement of American Indian students in a HIE population. The researcher identified an appropriate sampling frame to further investigate a phenomenon in this Oklahoma public school district.

Furthermore, the researcher also identified an appropriate framework to encapsulate three research questions. The fiscal adequacy framework suggested supplementary federal funding has no relationship with academic achievement of American Indian students. This case analysis contributes to the literature of the adequacy framework. More specifically, the researcher utilized vertical equity as a guideline to investigate the trend data of this particular district. Berne and Stiefel called vertical equity as *unequals among unequals*. Vertical equity is a critical lens for scholars and district leaders to utilize to truly support subgroups who are in need the most.

The contribution of this case analysis suggests there is a need for more quantitative methodology that focuses on American Indians. Scholars must be careful to not gravitate to BIE and reservation concentrations yet identify HIE populations and seek those phenomena among these special populations. In

addition, scholars must be careful about~~on~~ the type of research questions they explore. This process suggests scholars explore positive topics instead of deficit thinking. If future scholars consider positive topics, they can produce more effective arguments for American Indians.

Recommendations for Practice

American Indian students are an underserved population (Pewewardy & Fitzpatrick, 2009). The study uncovers statistical evidence that American Indian students tend to score *limited knowledge* on their OCCT reading tests. The findings also highlight how OPTI reading scores decline as American Indian students enter middle school. The following section provides recommendations for district leaders to adopt in order to improve academic achievement for American Indian students.

It is recommended that district leaders analyze their current fiscal revenue trends. Fiscal revenue analysis grants district administrators opportunities to effectively direct monies to improve academic achievement among educationally disadvantaged students. State leaders have adapted their financial systems to encourage vertical equity in its equalization formula (Oklahoma State Department of Education, Oklahoma School Finance Technical Assistance Document, 2013). The researcher recommends that district leaders adopt a similar fiscal philosophy of vertical equity. The vertical equity lens enables district leaders to identify subgroups that lag behind in academic achievement and direct additional monies to encourage improvements. As mentioned earlier, the District Report Card revealed average to dismal scores for the reading, English II, and English III. In overall student achievement, the district's Performance Index for all students assessed was a

72, or a C average, for reading, English II, and English III. The overall student growth or progress towards proficiency scored a 76, or a C average. In terms of the bottom quartile of student growth, the district scored a 49, or an F average. This study reaffirms the District Report findings. It is recommended that district administrators be cognizant of the fact that students who score in the bottom quartile do not improve. District monies and additional support is needed to generate effective programs to assist subgroups that perform and score below proficiency as identified in the bottom quartile. In addition to district leadership, it is pertinent to building leadership.

Site-based management (SBM) was introduced in the early 1990s, and it was quickly implemented in school districts across the United States (Clover, Jones, Bailey, & Griffin, 2004; Odden & Clune, 1998). This trendy management philosophy argued that school districts should focus their resources and efforts in support of their sites. Based on the premise that principals knew what was best for their schools, the site-based management philosophy empowered principals to lead autonomously. Regarding fiscal capacity, district leaders believed site allocations were vital to school operations. District leaders granted principals yearly budget allocations, which were a projection of their student count for the next school year. It is important to note that spending was left to the discretion of principals, who were expected to spend appropriately for their schools. The Site Based Management philosophy grants practitioners to identify subgroups and/or inadequacies in their buildings.

The OSDE has adopted a policy titled *The Reading Sufficiency Act*. Policymakers authored legislation so school districts can retain third grade students if they do not score *proficient* on the OCCT reading test. For the most part, American Indian students have scored *proficient* in third grade. It is recommended that school leaders and parents encourage students to consistently score *proficient* or better. School leaders must communicate research findings to parent committees to ensure funding mechanisms are directed to support literacy among American Indian students. It is recommended that district leaders direct revenues in support of literacy for American Indian students who are in transition to middle school.

Federal revenues are unpredictable and inconsistent. It is recommended that district leaders and American Indian stakeholders urge federal policymakers and officials to supply consistent federal revenues for state and local educational agencies. Federal officials must understand that a majority of American Indian students attend public school districts. Federal revenues aid supplementary programs in schools. It is imperative that Congress remains cognizant of the fact that supplementary programs require a steady and consistent flow of federal revenue. District leaders and parent committees rely on federal dollars to support supplementary programs to encourage effective initiatives for American Indian students. In addition, most American Indians attend public schools. On a national scale, policymakers and Indian educators must realize a majority of American Indian students are public school attendees and direct a portion of federal revenue and resources to support them.

Recommendations for Further Research

The purpose of the study was to explore academic achievement among an American Indian student population who attended a HIE public school district. The purpose and results of the study are critical for further scholarly research.

It is proposed that further research include mixed methodology investigations of phenomena among American Indian populations. The mixed-methodology perspective reinforces empirical evidence based on quantitative and qualitative insights. This type of research design combines both perspectives to advance qualitative or quantitative methodologies.

This study analyzed American Indians in a HIE public school district. The sampled population was economically disadvantaged. It is recommended that future research develop a comparative study in which socioeconomic status (SES) is a constant variable to analyze statistical differences between American Indians and other ethnic groups. This comparative study would include Title I funding as a control variable.

In this study, fiscal revenues were analyzed to better understand academic achievement among American Indian students. The researcher argues fiscal analysis of state and local revenues is critical to understanding trends at local levels. Local revenues are significant for public schools and it is crucial for district leaders to examine how funds are related to academic achievement for educationally disadvantaged students. This research would investigate current practices of school districts to identify whether schools are focused on subgroups and their performance. This study identifies how the A-F Report Card scored the district with

an F average for improving the bottom quartile of students. The researcher argues critical research is needed to reveal how districts are educating struggling students.

The study sought to analyze how fiscal revenues relate to academic achievement among American Indian students in a HIE public school district. It is critical that graduate students incorporate quantitative methodology to analyze phenomena among American Indian populations. It is also argued that future research include a comparative study of American Indian students and other ethnic groups to analyze whether fiscal revenues are related to academic achievement. Finally, it is argued that scholarly research should begin to explore how local school districts are serving educationally disadvantage students.

Conclusion

The exploratory study investigated a phenomenon that occurs every day in public school districts. The study sought to analyze whether there were any relationships between fiscal revenues and academic achievement among American Indians who attended a HIE public school district. The researcher conducted statistical analyses to support contemporary literature regarding American Indian students. The findings suggest fiscal adequacy cannot be directly link federal supplementary revenues to academic achievement among American Indian students. The federal revenues fail to support this argument of fiscal adequacy as it pertains to this particular sampled population.

The study also serves as a springboard for critical discussions of federal revenues in support of American Indian education. The study is a practical inquiry into a HIE public school district in Oklahoma. The study is conducive for

replication by district leaders in order to analyze how fiscal revenues relate to academic achievement for American Indian students.

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