A COMPARATIVE ANALYSIS OF THE ACHIEVEMENT GAP AND INTERNATIONAL BACCALAUREATE CURRICULUM WITH IMPLICATIONS FOR SCHOOL LEADERS

by

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DEDICATION

I dedicate this dissertation to my son, Jordan Grandison, who is the reason why I smile. It is my hope that I have instilled in you a love of learning and a desire to dream big and persevere to achieve your goals.

To my mother, Yvonne Grandison whose love and encouragement helped this dream become a reality by supporting me and my son throughout this process.

To my aunt, Jennifer, who shares my love of teaching and learning and encouraged me to pursue my doctorate degree.

To Alisa, Tamarre, Tisha, and Margaret for being my sounding boards and keeping me lifted up when I encountered challenges.

To my brother, Christopher, his wife, Shannon, and their children, David and Nadia; to my sister, Sharon, her husband, Leonard, and their children, Leonard II and Christian; and to my cousin Shernette and her daughter, La’ren, I truly appreciate all the love and support that you have shown me over the years.

I am truly grateful to have all of you in my village!
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ABSTRACT

AYESHA ODESSA GRANDISON
A COMPARATIVE ANALYSIS OF THE ACHIEVEMENT GAP AND INTERNATIONAL BACCALAUREATE CURRICULUM WITH IMPLICATIONS FOR SCHOOL LEADERS
Under the direction of DR. KEVIN JENKINS, ED.D.

There is limited evidence on how school-based international curriculum (International Baccalaureate-Primary Years Program) impacts achievement gaps in U.S. elementary schools in comparison to implementation of standards-based curriculum using common core standards and, more specifically, the Georgia Standards of Excellence.

The purpose of this research was to determine if a significant difference exists in the rate of achievement on the English Language Arts and Mathematics End of Grade Georgia Milestones Assessments between fifth-grade students enrolled in an International Baccalaureate (IB-PYP) school curriculum as compared to those not enrolled in an International Baccalaureate (IB-PYP) school curriculum for the 2017-2018 school year. An ex post facto analysis was conducted using ELA and math proficiency rate data for IB and nonIB schools with Title I distinction.

Conclusions about the appropriateness of the International Baccalaureate Primary Years Program as a sole instructional model for economically disadvantaged student populations cannot be drawn from this study. The study revealed that, although no significant difference in ELA and math achievement rates between IB and nonIB schools
existed, IB schools are making a positive difference in content mastery among Title I public school fifth-grade students. Furthermore, the positive movement of proficiency rate in ELA and math is encouraging.

Several avenues for further research were identified. Other researchers could examine school characteristics and individual differences as they pertain to achievement across grade levels, enrollment practices, family engagement, and transiency in relation to IB-PYP program participation. In addition, an examination of the implementation of standards-based curriculum, professional learning, and instructional resources of nonIB-PYP schools would be beneficial as a comparative measure to IB-PYP curriculum implementation, professional learning, and instructional resources. Since the International Baccalaureate Organization offers a learning continuum that supports early childhood education through high school (Primary Years Program, Middle Years Program, Diploma Program), examining school systems that utilize the full continuum as opposed to school systems who do not may be beneficial. A qualitative study examining implementation of global competencies in relation to core academics in both IB and nonIB Title I schools would also add to the body of literature concerning IB-PYP curriculum and economically disadvantaged students.
CHAPTER 1

INTRODUCTION

The need for American schools to ensure that children develop a lifelong awareness and understanding of other countries and cultures has grown exponentially over the last century (Arshad-Ayaz, Andreotti, & Sutherland, 2017; Eaude, 2017; Torres, 2017; Winter-Simat, Wright, & Choi, 2017). Much of this urgency is due to the growth of sociopolitical changes in the world, unprecedented expansions in migratory patterns, and increasing discourses related to nationalism and patriotism (Ariely, 2012; Ozkirimli, 2017). Franklin Roosevelt (1920/1999) asserted, “Modern civilization has become so complex and the lives of civilized men so interwoven with the lives of other men in other countries as to make it impossible to be in this world and not of it” (p. 2).

Further indications of the pressing need to increase international knowledge among Americans can be seen in the results of a 2016 global literacy survey, for it revealed “significant gaps between what young Americans understand about today’s world and what they need to know to successfully navigate and compete in it” (Council on Foreign Relations, p. 12). The survey, completed by 1,203 Americans between the ages of 18 and 25 who were attending or had attended a U.S. college, contained items related to geography, current events, and economics and trade. The average score on the 75-item survey was only 55 percent (Council on Foreign Relations and National Geographic, 2016).
The Yale University Center for Teaching and Learning (2016) defined global international education as “a complex idea that is taught to enhance one’s meaning of the world” (p. 1). Globalized education continues to be a focus for many nations around the world, including the United States (Berry, Barnett, & Hinton, 2015; Nelson, 2010; U.S. Department of Education [USDOE], 2015b). The globalized international paradigm is an integration of global education and international education. The National Council for the Social Studies (NCSS) (2016) claimed that global education and international education are perspectives that complement one another but focus on different aspects of education:

Global education focuses on the interrelated nature of condition, issues, trends, processes, and events while international education emphasizes specific world regions, problems, and cultures. International education encompasses studies of specific areas or regions of the world as well as the in-depth examination of a single culture or some aspect of that culture, such as its history, language, literature, religion, political organization, economic system, or current issues. It also includes cross-cultural studies that use a comparative approach in the examination of the characteristics of two or more cultures. (para, 3)

The emphasis on globalization and the demand to develop a knowledge economy have led to sweeping reforms in education since the 1990s (Mok, 2015). The United States began its participation in international assessments to examine the academic levels of its students in comparison to students in other countries in the 1960s (Loveless, 2011). In 1964 U.S. students participated in the First International Math Study (FIMS) for students aged 13, and in 1970 US students participated in the First International Science
Study (FISS) for students aged 10 and 14, developed by the International Association for the Evaluation of Educational Achievement (IEA) (Loveless, 2011). Loveless (2011) reported the goal of these assessments was to compare the academic achievement of students in various countries by testing a random sample of students in a specific age group. The IEA later developed the Trends in International Mathematics and Science Study (TIMMS, 1995) and the Progress in International Reading Literacy Study (PIRLS) (Loveless, 2011).

Currently, the United States participates regularly in three international assessments: TIMMS every four years, PIRLS every five years, and the Program for International Student Assessment (PISA) developed by the Organization for Economic Co-Operation Development (OECD) every three years. West (2012) contended that IEA utilizes a different approach in the development of the TIMMS and PIRLS in contrast to the development of the PISA by OECD. The TIMMS and PIRLS evaluate students based on the alignment of the test to the curriculum of the participating countries, whereas the PISA evaluates students based on its own definitions and criteria for each content area, as well as students’ ability to apply their knowledge to real world circumstances (West, 2012). Although the designs of these assessments differ, the outcomes for U.S. students remain consistent in that the academic performance of U.S. students is lagging (Loveless 2011; West, 2012).

As an active participant and contributor to the Agenda 2030, the United States has increased its promotion and adoption of globalized education in schools. Ranked 25th in the world for education performance on the PISA (OECD, 2015), the USDOE has
implemented the Every Student Succeeds Act (ESSA) of 2015 (USDOE, 2015a) to address deficits in student achievement and to promote college and career readiness among racial/ethnic groups. In addition, national educational organizations such as Achieve, Inc. and the National Governors Association for Best Practice have placed an emphasis on looking at the education of students as a “global endeavor” (Gaudelli, 2013).

In 2012, the USDOE developed a strategic plan to address international education and engagement in public schools. The strategic plan, which spanned the years 2012-2016, identified two strategic goals: strengthening education with US public schools and advancing US international priorities. These goals also emphasized four core objectives to address the need for a globalized, world-class education for all students: increased global competence, international benchmarking, education diplomacy and engagement, and integrated and coordinated activities and programs (USDOE, 2012). Through the development of this strategic plan, international engagement was geared towards systematic and integrated programs within public schools (USDOE, 2012). The Global Competence Task Force and the Asia Society defined globally competent individuals thusly:

... those who use their knowledge and skills to investigate the world beyond their environment, recognize their own and others’ perspectives, communicate their ideas effectively with diverse audiences, and translate their ideas in appropriate actions ... 21st century skills applied to the world. (USDOE, 2015b, p. 5)

To further its goal to improve achievement and develop globalized youth, the USDOE has increased its affiliation with globally focused organizations (Asia-Pacific
Economic Cooperation-APEC, Organization of American States-OAS, OECD, and United Nations Educational, Scientific and Cultural Organization (UNESCO) and increased participation in international testing and evaluations for students in grades K-12 (PIRLS, PISA, TIMSS), adults (Program for International Assessment of Adult Competencies-PIACC), and educators (Teaching and Learning International Survey-TALIS) (U.S. Department of Education, 2012). According to the USDOE (2012), participation in these assessments/evaluations provides information and pertinent data that are analyzed to uncover trends in global preparedness and competencies in comparison to other nations to be utilized at the state and local levels.

Second year high school students from various countries are assessed on their mastery of content and skills in core subject areas as well as cognitive ability on the PISA assessment as a means of comparing achievement and global competencies (Organization for Economic Co-operation and Development (OECD), 2016). This assessment is administered on a three-year basis to identify trends and/or changes in international rankings.

OECD reported 72 countries participated in the 2015 assessment (National Center for Education Statistics [NCES], 2017). As reported by the NCES (2017), On the 2015 PISA administration, among students who were fifteen years of age, 36 educational systems across the globe demonstrated higher averages than the U.S. education systems in mathematics, 18 demonstrated higher averages in science, and 14 demonstrated higher averages in reading. In addition, 15-year old minority students from low socioeconomic households scored disproportionately lower than students from homes with average to
above average median household incomes in the areas of mathematics, reading, and science. According the OECD students who have low socioeconomic identification are six times more likely to perform at a lower rate than their counterparts who are not economically disadvantaged. This is evident in mathematics data collected by the OECD in 2012, which shows low socio economic populations performing at a proficiency rate that was almost 50% as compared to only 10% of economically advantaged populations (OECD, 2015).

Within the United States, the achievement gap among subgroups in public schools has been persistent (Williams, 2011). In an analysis of achievement growth both nationally and internationally on National Assessment of Educational Progress (NAEP), PISA, trends in International Mathematics and Science Study (TIMSS), and Progress in International Reading Literacy Study (PIRLS) assessments, Hanushek, Peterson, and Woessmann (2012) reported that while the performance of fourth- and eighth-graders in America improved in reading, mathematics, and science by an average annual rate of 1.6% standard deviation from 1995-2009, their performance in comparison to students in 24 international countries was lagging. Of those countries, three countries improved by an annual rate of 4% of a standard deviation; eight countries improved at a rate that was double the rate of students in the U.S. (Hanushek et al., 2012).

Hanushek and colleagues discovered great disparities when analyzing students’ scores among states. Maryland, Florida, and Delaware were among the top performing states that demonstrated significant growth. These states were successful in achieving gains in the number of students who earned a score at or above proficiency, as well as
decreasing the percentage of students who were low performers, which in most cases were disadvantaged students (Hanushek et al., 2012). Chapin (2006) claimed that the achievement gap exists between White and minority students before entering kindergarten.

Through education reforms from No Child Left Behind Act (NCLB) and Every Student Succeeds Act of 2015 (ESSA) (Pub.L. 114-95), national efforts have been made to address the disparities in achievement among racial groups. In addition, rulings of numerous notable court cases such as Brown vs. Board of Education of 1954 and the Civil Rights Act of 1964 brought change to the educational landscape through the desegregation of public schools (Williams, 2011). Although many leaders in education fought alongside civil rights leaders for equity and quality education in low performing schools, progress has become stagnant in many states across the United States over the past 20 years as segregation in schools based on race and disparities in achievement outcomes have grown (Darling-Hammond, 2010; NCES, 2017).

The Role of Global Education on Student Achievement

Beginning in the 1960s and after the Cold War, international schools and programs were created to educate children of an “internationally mobile population of parents” (Hill, 2012, p. 255) employed by the United Nations, embassies, and international corporations. Hill (2012) wrote that, during this time, international schools and programs were elitist. In the 1970s and 1980s, global education became an integral part of the educational movement as an avenue for peace education, international development, human rights education, and social justice education (Hanvey, 1976; Pike
Leaders around the world sought to develop educational programs to highlight the interdependence and connectedness of nations. In establishing the need for global education in schools within the United States, Anderson (1990), grounded his argument of global education on three propositions, one of which is the common idea that “education mirrors society in the sense that social change generates educational change” (p. 32).

According to Mundy and Manion (2008) and Wagner (2014), global education developed into a field for curriculum development to address changes in education. These changes reflected the need to integrate the acquisition of global competencies with core curriculum. These developments generated support from teacher organizations, the United Nations (UN), and other international organizations such as UNESCO and the United Nations International Children’s Emergency Fund (UNICEF). Global education is often conceptualized along a continuum, fluctuating between ideals of global education and traditional forms of education (Mundy & Manion, 2008).

In the 21st century, education around the world continues to evolve in the forms of technological advances as well as the globalization of private and public industry, which has led to an increase in educational initiatives geared towards student achievement and engagement in global awareness (Hill, 2012). With the implementation of common core standards by most states within the United States as well as Every Student Succeeds Act of 2015 by the Obama administration, government, district, and school leaders are charged with developing and implementing comprehensive
instructional programs to meet students’ needs and to prepare them for the global society (Georgia Department of Education [GaDOE], 2017).

Statement of the Problem

In accordance with the Every Student Succeeds Act of 2015, the state of Georgia has developed initiatives geared towards improving global competency among racial/ethnic groups within the state’s public schools (GaDOE, 2017). The mission of the Georgia Department of Education includes developing international perspectives, cross cultural competence, and language proficiencies as avenues for increasing college and career readiness as well as economic success for all students (GaDOE, 2017). Through the development of Georgia Dual Language Immersion Program, The International Skills Diploma Seal, and The Georgia Seal of Biliteracy, an emphasis has been placed on the importance of facilitating global awareness in the form of initiatives and curriculum within the state’s school districts (GaDOE, 2017).

To further align with the Georgia Department of Education, public schools (with or without Title I distinction) located in various districts throughout the state have adopted International Baccalaureate Programs (GaDOE, 2017). There is limited evidence on how school-based international curriculum (International Baccalaureate-PYP) impacts achievement gaps in U.S. elementary schools (Hemelt, 2014; Stilisano, Waxman, Hostrup, & Rollins, 2010) in comparison with common core standards and more specifically, the Georgia Standards of Excellence.
Purpose of the Research

The purpose of this research was to determine if a significant difference exists in the rate of achievement on the English Language Arts and Mathematics End of Grade Georgia Milestones Assessments between fifth-grade students enrolled in an International Baccalaureate (IB) school curriculum as compared to those not enrolled in an International Baccalaureate school curriculum for the 2017-2018 school year. The results of this study provide research-based initiatives for school leaders to examine what may be beneficial to current curriculum policies that impact the collective student body at their school. The study examined whether a Title I school’s participation in the International Baccalaureate Primary Years Programme (IB-PYP) significantly impacts the achievement rate in English Language Arts and Mathematics for fifth-grade students as compared to fifth-grade students who participate in a traditional school curriculum. This study investigated the relationship of IB-PYP curriculum as compared to traditional, standards-based curriculum for the percentage of students who score at or above proficiency on the Georgia Milestones End of Grade Assessments. The results of this study provide critical information to district and school administrators as well as curriculum and instruction developers who seek to improve academic achievement among subgroups. This study adds to the body of literature pertaining to leadership practices and the implementation of international curriculum to serve as a conduit to improve student achievement.
Research Questions and Hypotheses

This study sought to answer the questions regarding the impact of IB-PYP curriculum instruction for fifth-grade students as compared to those students who do not receive instruction through IB-PYP curriculum on increasing the proficiency rate of achievement in English Language Arts and Mathematics between subgroups as measured on the Georgia Milestones End of Grade Assessment. To accomplish this, each research question or hypothesis involved a comparison of scores between IB-PYP schools and matched nonIB-PYP schools. The two school groups (“they”) were compared. The first five research questions addressed how well the two groups of schools were matched.

1. Do they differ in school enrollment?
2. Do they differ in the percentages of suburban and urban schools?
3. Do they differ in the percentage of economically disadvantaged students?
4. Do they differ in the percentage of inexperienced teachers?
5. Do they differ in the certification level of teachers?

Research questions six and seven defined the outcomes of interest. After controlling for any group differences described in questions one through five, do the IB and nonIB schools differ in the percentage of students proficient or more in ELA and math achievement?

6. After statistically holding constant the control variables, do the IB and nonIB schools differ in percent of English Language Arts scores at or above proficient achievement?
7. After statistically holding constant the control variables, do the IB and nonIB schools differ in percent of math scores at or above proficient achievement?

The associated hypotheses for the control variables are as follows:

H1$_{a}$ There is a difference in school enrollment IB-PYP curriculum schools versus nonIB_PYP curriculum schools.

H1$_{0}$ There is no difference in school enrollment of IB-PYP curriculum schools and nonIB_PYP curriculum schools.

H2$_{a}$ There is a difference in the percentage of urban and suburban schools between the IB-PYP schools and the nonIB_PYP schools.

H2$_{0}$ There is no difference in the percentage of urban and suburban schools between the IB-PYP schools and the nonIB_PYP schools.

H3$_{a}$ There is a difference in the percentage of economically disadvantaged students between the IB-PYP schools and the nonIB_PYP schools.

H3$_{0}$ There is no difference in the percentage of economically disadvantaged students between the IB-PYP schools and the nonIB_PYP schools.

H4$_{a}$ There is a difference in the percentage of inexperienced teachers between the IB-PYP schools and the nonIB_PYP schools.

H4$_{0}$ There is no difference in the percentage of inexperienced teachers between the IB-PYP schools and the nonIB_PYP schools.

H5$_{a}$ There is a difference in the teachers’ certification level between the IB-PYP schools and the nonIB_PYP schools.
There is no difference in the teachers’ certification level between the IB-PYP schools and the nonIB_PYP schools.

The associated hypotheses for the outcome variables were:

H6a After holding the control variables constant, IB-PYP schools tend to score higher than to nonIB_PYP schools’ percent of English Language Arts scores at or above proficiency.

H60 After holding the control variables constant, IB-PYP schools do not tend to score higher than to nonIB_PYP schools’ percent of English Language Arts scores at or above proficiency.

H7a After holding the control variables constant, IB-PYP schools tend to score higher than to nonIB_PYP schools’ percent of math scores at or above proficiency.

H70 After holding the control variables constant, IB-PYP schools do not tend to score higher than to nonIB_PYP schools’ percent of math scores at or above proficiency.

Theoretical Framework

The researcher used the human capital theoretical lens to examine globalized international education as it pertains to cultural understanding and academic preparation of students that affect their abilities to compete in an international economy. The human capital theory (HCT) is consistently utilized in the adoption of education and development policies (Olaniyan & Okemakinde, 2008) and is used strategically to determine economic performance among western countries (Fitzsimons, 2015). As cited
in the Task Force Report by the Council of Foreign Relations (2012), the security of the United States is directly linked to the human capital that is developed and indicative of the successes and failures within public schools.

According to Becker (1964), human capital theory consists of activities that will allow individuals to increase their financial earnings as well as build non-material wealth. Becker contends that non-material wealth pertains to an individual’s job satisfaction or the enjoyment the individual receives from their work experiences. Becker (1964) also explained these resources consist of getting an education, participating in apprenticeships or internships and skill based training on the job that have shaped the development of a framework to examine aspects of human behavior that highlights how economics can impact social issues. These resources are critical investments in developing human capital. Investing in human capital promotes higher levels of academic attainment as well as improved average income (Becker, 1964).

Human capital theory focuses primarily on how academic attainment can improve and increase the ability of workers to be productive and effective by increasing their skill set and level of cognition, which is a result of knowledge that is inherent. In addition, education increases the overall investment in the financial and social welfare of individuals (Olaniyan & Okemakinde, 2008). Olaniyan and Okemakinde (2008) explained,

The focus on education as a capital good relates to a concept of human capital, which emphasizes that the development of skills is an important factor to the development of production activities. It is widely accepted that education creates
Three major tenets support the ideals of human capital theory in education with regards to new generations: (a) they must be provided with adequate knowledge and skills as their older counterparts; (b) education on current technology and production must be provided to develop new processes and services; and (c) innovation and creativity should be encouraged to increase the development of goods and services for the greater good (Babalola, 2003). Heckman & Mosso (2014) supported the theory of human capital in Heckman’s conceptualization of Rate of Return to Investment (ROR). Heckman & Mosso (2014) posit that the earlier you invest in the educational and social development of children, the greater the return of human capital as academic attainment, knowledge, and skills.

Klees (2016) acknowledged the human capital methodology in conjunction with rates of return methodology as a framework implemented regularly to examine comparative and international education; however, he identified theoretical flaws. Although HCT and ROR are grounded in economic policy, economists do not focus on the private individual’s income benefits as a result of investing in education. In addition, economists posit that the only way education will have a rate of return on society is if it increases an individual’s productivity thereby increasing its monetary income (Klees, 2016). Klees (2016) elaborated: “The fundamental flaw comes about because economics is most concerned with whether a particular human capital activity is a good investment
compared to other investments, or equivalently, to an economist, whether it is an ‘efficient’ investment” (p. 647).

Bowles and Gintis (1975), recognized critics of human capital theory, identified an inherent flaw in that human capital theory does not include the impact of economic class systems. Bowles and Gintis (1975) contended that it is necessary to conduct a class analysis to fully understand how wages are established and structured in a given society, how the market within that society is valued and how the societal, educational norms are developed.

Significance of the Study

A detailed analysis of the findings of this study adds to the body of preexisting research regarding global international education curriculum implementation as represented by IB schools. This study will also add to the breadth of research the comparatively examines achievement rates of students who have participated in a globalized education curriculum.

Procedures

The researcher utilized a quasi-experimental, ex post facto quantitative research design to conduct this study. The targeted population for this study consisted of students in fifth grade who had taken the spring 2018 Georgia Milestones End-of-Grade (EOG) Assessment within the state of Georgia that have Title I distinction. The participants in the sample included fifth-grade students from Title I Elementary Schools. The employment of purposive sampling was used to create two groups of Title I schools. The first sample group consisted of Title I public elementary schools from school districts
within the state of Georgia that have implemented the Primary Years Programme (PYP) IB curriculum and identified as authorized IB-PYP schools by the International Baccalaureate Organization. The second sample group consisted of Title I public elementary schools from identified school districts within the state that utilize traditional standards-based curriculum practices. These schools utilized the Georgia Standards of Excellence in conjunction with standards-based district curriculum resources.

The researcher retrieved archival data from the Governor’s Office of Student Achievement (GOSA) and the Georgia Department of Education. Achievement data and sociodemographic data (race/ethnic subgroups, economically disadvantaged status, enrollment, teacher experience and certification) of comparable IB-PYP and nonIB-PYP schools was retrieved for the 2018 school year. Geographic data were retrieved to identify suburban, urban, or rural geographic identifications from the Georgia Department of Community Health. School authorized participation data in the IB-PYP program were retrieved from the International Baccalaureate Organization.

The researcher used descriptive statistics to illustrate sociodemographic data. A multiple regression was utilized to analyze the data after controlling statistically for preexisting differences among the sample groups. The independent variable was the school type (IB-PYP curriculum schools versus nonIB-PYP curriculum schools). The dependent variables were the 2018 ELA and math Georgia Milestones at or above proficiency achievement rates. The control variables consisted of rate of economically disadvantaged students, directly certified teacher percentages, school enrollment,
inexperienced teacher percentages, and school geographic location. The researcher utilized a multiple regression to determine if the difference was significant.

Limitations and Delimitations

Narrowing the accessible population to elementary schools with Title I distinction from the state of Georgia and proportionate demographic populations as identified in the Governor’s Office of Student Achievement (GOSA) state reporting was a limitation of this study. Furthermore, the researcher assumed that the data collected from GOSA was accurate due to state verification processes. Finally, the study was restricted to the scores of fifth-grade students who participated in the spring 2018 Georgia Milestones Test and who attended a Title I elementary school that implemented the Primary Years Programme of the International Baccalaureate curriculum or traditional standards based curriculum.

Definitions of Terms

The following terms were utilized throughout this study:

*Achievement gaps* “occur when one group of students (such as, students grouped by race/ethnicity, gender) outperforms another group and the difference in average scores for the two groups is statistically significant (that is, larger than the margin of error)” (NCES, 2015, para. 1).

*Every Student Succeeds Act of 2015* replaces the No Child Left Behind Act and reaffirms the Elementary and Secondary Education Act that provides educational laws in an attempt, *inter alia*, to ensure equity in education for all students (USDOE, 2015a).
Global education, according to NCSS (2016) “focuses on the interrelated nature of condition, issues, trends, processes, and events while international education emphasizes specific world regions, problems, and cultures” (para. 3).

Georgia Milestones End of Grade Assessment “measures how well students in grades three through eight have learned the knowledge and skills outlined in state adopted content standards in English Language Arts, Mathematics, science, and social studies” (GaDOE, 2018, para. 2).

Honesty gap is “the discrepancy between proficiency rates on state assessments and the NAEP” (GOSA, 2016, para. 2).

International Baccalaureate is a program that aims:

to develop internationally minded people who, recognizing their common humanity and shared guardianship of the planet, help to create a better and more peaceful world. The program centers on learners, develops effective approaches to teaching and learning, works within global contexts, explores significant content. (ibo.org, 2015, para. 4).

International education

emphasizes specific world regions, problems, and cultures. International education encompasses studies of specific areas or regions of the world as well as the in-depth examination of a single culture or some aspect of that culture, such as its history, language, literature, religion, political organization, economic system, or current issues. It also includes cross-cultural studies that use a comparative
approach in the examination of the characteristics of two or more cultures.
(NCSS, 2016, para. 4)

*Primary Years Programme*

provides schools with a curriculum framework of essential elements—the
knowledge, concepts, skills, attitudes, and action that young student need to equip
them for successful lives both now and in the future. Schools work with the five
elements to construct a rigorous and challenging primary curriculum for
international education. The curriculum is transdisciplinary, meaning that it
focuses on issues that go across subject areas. (ibo.org, 2018, para. 1)

*Programme for International Student Assessment (PISA)* is
a triennial international survey which aims to evaluate education systems
worldwide by testing the skills and knowledge of 15-year-old students. In 2015
over half a million students, representing 28 million 15-year-olds in 72 countries
and economies, took the internationally agreed two-hour test. Students were
assessed in science, mathematics, reading, collaborative problem solving, and
financial literacy. (OECD, 2018, paras. 1-2)

*Psychic income* refers to intangibles/invisibles and nonmonetary benefits that
bring about satisfaction and pride in the workplace (Guramatunhu-Mudiwa & Scherz,
2013).

*Title I, Part A (Title I)*, of the Elementary and Secondary Education Act, as
amended (ESEA) provides financial assistance to local educational agencies (LEAs) and
schools with high numbers or high percentages of children from low income families to help ensure that all children meet challenging state academic standards (USDOE, 2017).

*Title I, Part A (Title I) of the Elementary and Secondary Education Act*, as amended by the Every Student Succeeds Act (ESEA) provides financial assistance to local educational agencies (LEAs) and schools with high numbers or high percentages of children from low-income families to help ensure that all children meet challenging state academic standards. (USDOE, 2018, para. 1)

**Summary**

Even with policies like Common Core Standards, which have been developed with global competitiveness in mind, deficits are still evident and linked to poor student outcomes (Gaudelli, 2013). Gaudelli (2013) posited that global education implementation allows students to gain a better sense of self that will in turn allow them to gain perspectives about the world. This idea lends itself to the theory that providing students with access to a globalized international education will increase human capital (Olaniyan & Okemakinde, 2008). This concept is supported by Darling-Hammond (2010), who maintained that providing equitable experiences of global education to all students is critical to raising achievement in efforts to increase global competencies and the ability to compete in the global market.

This chapter presented the problem addressed in this study, the background for the problem, the guiding research questions, and the framework and research methodology. Chapter 2 presents a review of the literature relevant to the topic. Chapter
3 provides greater detail of the research design, data collection procedures and instrumentation, and data analyses techniques.
CHAPTER 2
LITERATURE REVIEW

Within the United States, there has been a realization that the domestic economy cannot function without a degree of interdependence with the global market. For successful integration and participation in a global financial system, American citizens need adequate training and education to function and thrive in an international setting. Preparation must begin prior to an individual entering the workforce. Therefore, a more global perspective should begin upon an individual's entrance into an educational system. Within the boundaries of the U.S. public school system, students need instruction in skills to enable them to be competitive and able to strive and survive in a global environment. Despite current national and state initiatives to develop and implement a more globalized curriculum to ensure educational equity and access to increase student achievement, the achievement gap persists in U.S. public schools (Darling-Hammond, 2010; Hanushek et al, 2012; Hanushek, Peterson, Talpey, & Woessmann, 2019; Williams, 2011).

To be an integral participant in the global market, U.S. public school systems and policies that govern them must effectively adopt a global perspective rooted in emphasizing a globalized curriculum that is taught across primary and secondary grades (Becker, 1979) and stages of learning (Hill, 2012). This differs from the dominant paradigm of education that negatively affects a student’s depth of knowledge, in addition to permanence or retention of concepts and content(Cañas, Reiska, & Möllits, 2017);
introducing content in “a positivist mechanistic approach” (Young, 2010, p. 147), based on a 12th-century model of acquiring knowledge (Darling-Hammond, 2010), and utilizing “discrete subject area blocks” (Young, 2010, p. 147). This paradigm shift—transitioning global and international education from the confines of social studies (Gaudelli, 2013; Pike, 2015) to an interdisciplinary model—must be initiated by school leaders at each individual public school.

Defining Global Education

The features of global education have shifted to coincide with societal changes (Cook, 2015). Case (1993) claimed, “Strengthening the perceptual dimension of global education towards increasing open-mindedness, anticipation of complexity and empathy, and resistance to stereotyping and chauvinism in understanding and decision making was necessary” (p. 318). Kirkwood (2001) and Lapayese (2003) contended that within the definition of global education, the importance of analyzing, evaluating, and skills that encourage participation in private and public life are essential components.

According to Pike (2015), the focus of global education in the United States is more curriculum-based, pertaining to the key concepts of countries being interdependent, examining and seeking to understand existing cultures and views of countries around the world. Since its inception, global education has also been recognized as education in development, global perspectives, intercultural relationships, global studies (Mundy & Manion, 2008; Pike, 2015), intercultural education, and international education (Hill, 2012)—it has taken on many meanings within educational systems worldwide. Hanvey (1976), one of the early researchers of global education, presented a definition of global
education that researchers in this field of education typically utilize. Hanvey (1976) posited that global education has five dimensions that enable students to develop global awareness. Kirkwood (2001) explained,

> Perspective consciousness relates to developing understandings based upon the perspectives of others in various countries and cultures around the world. Individuals that possess a state-of-the art planet awareness are those who have a deep understanding of global conditions, trends and problems. Cultural awareness among various cultures is the development of compassion and empathy of cultures in relation to individual cultural perspectives. Development of global dynamics means that one believes that the world consists of interconnected systems that are interdependent on society and culture. Awareness of human choice involves increasing individuals as well as countries consciousness of conflicts and problems of global systems expands. (p. 11)

In efforts to determine congruence among definitions presented by various researchers, Kirkwood (2001) analyzed Hanvey’s (1976) definition of global education with that of definitions from researchers Alger, Becker, and Case. From this analysis, he uncovered that the definition of global education is grounded in four core themes. The themes that have been uncovered consist of multiple perspectives; comprehension and appreciation of cultures; knowledge of global issues; and the world as a series of intertwined systems. In a similar analysis, Mundy and Manion (2008) consolidated the perspectives of early researchers to emphasize the characteristics of a global education continuum.
Although researchers have sought to define the objectives and parameters of global education clearly, the field has received criticism for ambiguity within its fundamental concepts (Lamy, 1987). Global education draws on emotions and a communal spirit and operates as an educational slogan instead of a sound conceptual framework (Case, 1993). Lapayese (2003) posits within the global education community, some educators are in favor of the goals and initiatives of global education due to its inclusion of students from diverse backgrounds and geographic areas. However, Case (1993) warned that the lack of clarity and consistency across the board may cause educators to abandon the overarching goals of a globalized education.

Defining Global Education and Pedagogy

The integration of global education within school curriculum has been a primary focus in school districts as a means for increasing achievement and competitiveness. In 1979, the Task Force on Global Education of the United States Commissioner of Education incorporated Hanvey’s definition in addition to adding an ethical component that stated: “developing relationships between enlightened self-interest and the concerns of people throughout the world and awareness of informal learning experiences that will increase an individual's ability to understand his or her condition in the community and in the world” (Kirkwood, 2001, p. 13). Embedding ethical principles into how society defines global education places emphasis on the importance of developing and cultivating conscientious and civic-minded students. Banks et al. (2005) contended that teaching for the equitable distribution of wealth, opportunity, and privilege within society should be front and center in the promotion and advancement of global education. Encompassed
with the Global Structured Educational Agenda (GSEA), global education should support the fundamental principles of unity and diversity, global interconnectedness, human rights, and experience and participation (Banks et. al, 2005 p. 716). Significant educational changes should be integrated with interdependent global, national, and political economy complexes (Verger, 2014).

Since the early 1990s, the National Council for Accreditation of Teacher Education and the American Association of Colleges for Teacher Education have developed specific global education objectives for instruction that target social science and social studies curriculums. School-based programs like that of the International Baccalaureate Program (IB) have been implemented in high needs schools to support students’ academic and social needs. New York’s Binghamton High School Principal, Dr. Penna stated,

Implementation of a program such as IB gives students from the poorest neighborhoods in the city an opportunity to have academic experiences as those who attend elite schools . . . it shows that students can compete academically on a global stage. (Hill, 2012, p. 345)

It is easy to announce that schools need to possess a more global perspective. However, such statements cannot be made without initially establishing a definition of globalization that relates to the field of education. In the handbook, Going Global: Preparing Our Students for an Interconnected World, the Asia Society (2008) provided an excellent definition of globalization relating to students. Globalization requires individuals to be fluent in a second language, be sensitive to the cultures and climates of foreign regions,
understand the inner workings of international trade, and, above all, be grounded ethically. These individuals should also be technologically shrewd, be able to manage complex work using twenty first century skills, and be ethically centered (Asia Society, 2008).

Gibson, Rimmington, and Landwehr-Brown maintained that globalization allows society to face major challenges in trade, technology, and the environment, and by doing so, increases interdependence, interconnectedness, and cultural diversity (2008). School leaders who wish to incorporate a more global focus through their vision and/or mission statements can utilize the definition communicated by the Asia Society (2008). Through comprehensive adoption and utilization of this definition, schools are then able to embrace globalization. As a result, these schools will experience favorable outcomes in the forms of graduates who are college and career ready, as well as more competent, well-rounded, global citizens who can navigate in the international market.

Defining globalization is essential to determining which schools have already mastered or are currently progressing towards mastery when it comes to both educating and graduating their students with a global perspective. Through such a definition, the key characteristics that are essential in a school that has adopted globalization or claims to be more globally conscientious in their school culture, curriculum, and vision, can be identified (Asia Society, 2008).

Historical Precedents of Globalized Education and Achievement in the United States

By examining historical precedents surrounding the inception of globalization in American education, the actual inclusion process is also evident. The progress that the
United States has taken towards not only maintaining but also improving the standards of American education towards a more global perspective is apparent in the literature.

The National Defense Education Act of 1958

Bouie (2016) reported:

In September 1958, the National Defense Education Act was passed by Congress and signed into law by President Eisenhower. The purpose of the NDEA was to provide resources to improve the educational practices within U.S. public school systems and to encourage enrollment beyond the twelfth grade. (p. 37)

Bouie (2016) claimed the launch of Sputnik was a catalyst in changing the direction of the American education system through the establishment of NDEA to focus on increasing education technology, instruction in science and math, promotion of standardized testing, and the introduction of federal funding for public schools and education initiatives. If a foreign power imposed an educational system such as the one in the U.S., the American government would have seen this as an act of war. The American education system had risen to the challenge of Sputnik posed by the Soviet Union. However, the demise of the education system could be attributed to the negligence of the U.S. government, not the influence of a foreign power (NCEE, 1983).

A Nation at Risk

In 1983, The National Commission on Excellence in Education (NCEE) released a report entitled *A Nation at Risk*, which surveyed various studies that highlighted national and international underachievement in critical content areas (Bouie, 2016).
The goal of the report was to reform the nation’s dedication to supporting primary and secondary educational institutions throughout the country. The report stated that educational institutions failed to maintain its focus on establishing core beliefs, common goals of schooling, and high expectations. This document also explained that the public education system was compromised due to schools often have conflicting demands placed upon them. In addition, the solution to the personal, social, and political problems faced by the students was neither solved or could not be addressed at home or at other institutions. Finally, the demands that schools and colleges faced often resulted in costing the nation both on educational and academic levels (NCEE, 1983).

The report provides several instances where the achievement of students within the United States lagged behind students from other nations. The report noted that during the period from 1963 to 1980, average SAT scores showed a 50-point decrease in the verbal composite score as well as a 40-point decrease in the composite mathematics score. Approximately 40% of the nation’s 17-year-old students tested, were unable to make inferences based on given texts. In addition, the report revealed, “Only one-fifth can write a persuasive essay, and only one-third can solve a mathematics problem requiring several steps” (NCEE, 1983, p. 9). Furthermore, the report presented tests taken by American students in the 1970s to further their position that students in American schools were consistently lagging behind other nations and evaluated the progress of the United States surrounding the country’s education system.

Other nations were not only matching the U.S. in their school systems, but also surpassing Americans in academics. NCEE pointed out that the United States no longer
dominated the globe in commerce, industry, science, and technology. Instead, other countries were beginning to not equal, but also surpass, the U.S. in these fields (NCEE, 1983). Ultimately, even though there were many dimensions to the problem, the underlying cause was the current American school system (NCEE, 1983).

In 2016, Bouie reported,

Between 1972 and 1991, average Scholastic Aptitude Test scores fell 41 points. This included scores for both black and white students. The number of students scoring over 600 on the verbal part of the SAT fell by 37 percent in the same period, so the overall decline couldn’t be blamed on low-performing students dragging down the overall average. In 1986, only 6 percent of eleventh graders could solve multistep math problems and use basic algebra. Seventy-five percent didn't know when Lincoln was president, and only one in five knew what Reconstruction was. (p. 63).

Bouie (2016) added,

When compared to the scores of other countries that have undergone industrialization, it was clear the United States was underperforming. The United States spent more money per elementary and secondary school pupil than any other country, but without the expected results. Between 1965 and 1992, more than ninety billion dollars was spent on Title I compensatory education funding for local education agencies and schools in areas with high rates of poverty. Despite this huge investment, there was scant evidence of any positive effect.
Pre- and post-tests administered to the same groups of students through a Department of Education study identified minimal progress made. (p. 64)

Human Capital Theory

Educators and economists have long ascribed to the philosophy that human capital theory (HCT) is exemplified by the fact that the higher individuals achieve in education, the more they will earn. In addition, education is the ultimate investment, whereas the costs of obtaining a good education will be returned through career advancement and higher wages (Klees, 2016; Sidorkin, 2007). Contrary to this ideal, Bowles and Gintis (1975) asserted that within the U.S. education school system, the relationship between the transference of skills to work production is more complex. Researchers have taken a closer look to examine HCT as it relates to household dynamics, student outcomes, and the role of the educational establishment.

According to Bowles and Gintis (1975), HCT is derived from the idea that individuals faced with the option of choosing various careers that require certain skills will invest in themselves through training and education for their own personal development. Bowles and Gintis (1975) explained: “The supply of human capital is the simple aggregation of these individual choices. The demand for those services which turn raw potentials into developed capacities is derived from the individual demand for human capital” (p. 77). The utilization of human capital theory is shifting the paradigm of economic hierarchy and class systems as a major construct (Bowles & Gintis, 1975).

Human capital theory emphasizes labor as a means of producing educational and economic growth. It centers on the differentiation of the labor force and allows for the
analysis of social structures (home and school) (Bowles & Gintis, 1975; Peers, 2015).

Peers (2015) posited that the home environment and family structure are the foundations of human capital because of the “biological and naturalistic terms” (p. 58). Peers further maintained that as children are an extension of the family, they are the source of reproduction—regeneration of capital. With this mindset, families must invest in cultivating their children through the expenditure of tangible and intangible resources (Peers, 2015).

In reference to labor roles as a means of production, education is a choice made on an individual basis taking into consideration educational opportunities, technological resources, and supplies (Bowles & Gintis, 1975). In addition to individual choices, the decisions of the family, availability of household resources, and educational and social patterns within the family are driving forces to the development of human capital.

Bowles and Gintis (1975) explained,

The educational system does much more than produce human capital, it segments the workforce, forestalls the development of working class consciousness, and legitimates economic inequality by providing an open, objective, and ostensibly meritocratic mechanism for assigning individuals to unequal occupational positions. (p. 78)

Within public schools, teachers are limited in their understanding of teacher pedagogy and typically look for superficial signs of skills mastery. Identifying when a child “owns a concept/knowledge” (Peers, 2015, p. 56) is intangible and does not
constitute “use-value” (Peers, 2015, p. 56) unless the student understands the skill and can transfer the knowledge with accuracy.

In the era of global competitiveness, the principles behind HCT play an integral role in enabling individuals to excel in specific content areas and subject matter, as this will increase the skill levels of the labor force that can be reinvested to improve industries within the United States (Checchi, 2014). As students are exposed to screening (Sidorkin, 2007), cognitive assessments, varied grading practices, and ratings on curriculum mastery, levels of achievement and a hierarchy developed within schools (Bowles & Gintis, 1975; Peers 2015). As educational systems invest in schools, the benefits will be three-fold. First, there is an increased probability that they will experience an increase in labor power through the development of skills, the ability to produce, and the attainment of credentials that may lead to workforce advancement (Bowles & Gintis, 1975). Second, schooling (Bowls & Gintis, 1975) and language (Peers, 2015) may also increase the level of ease in which labor can be taken from individuals based on the education, skills, and expertise. Third, an educated worker has an increased value to the organization, whereas his/her income level and status may inhibit the development of workforce coalitions that may have the ability to disrupt the balance of power within the organization (Bowles & Gintis, 1975). Literacy and numeracy are critical areas that educational systems utilize and measure to determine cultural capital (Peers, 2015).
21st Century Learning and the Global Achievement Gap

Since the dismal performance of U.S. students on the 2009 PISA Assessment, policymakers, government leaders, and school leaders have focused on developing students who are 21st-century learners who demonstrate competencies that will assist in U.S. advancement (Wagner, 2014). According to Wagner, it is the responsibility of parents and educators to provide appropriate educational opportunities to equip students with the tools to be successful in the global market. Twenty-first-century learning focuses on the ability to reason, think critically, justify, problem solve, and communicate effectively (Wagner, 2014). In addition, the 21st-century skills framework developed by the Partnership for 21st Century Learning incorporates global awareness along with core competencies for students to engage in the global economy (Kerkhoff, 2017; Wagner, 2014). The increased levels of competitiveness among nations and the United States has led researchers and leaders to delve deeper into the ways in which students acquire knowledge and skills and how the lack thereof contributes to the global achievement gap (Wagner, 2014). According to Wagner (2014), the global achievement gap is the “gap between what the best urban, suburban, and rural public schools are teaching and testing versus what all students will need to succeed as learners, workers, and citizens in today’s global society” (p. 8). West (2012) posited that increasing awareness of the global achievement gap may increase the support of political and social reforms.

Wagner (2014) asserted that the increase in the global achievement gap is due to technological advances, economic changes, and societal and political shifts. This concept is supported by Koyama (2013) and Ornstein and Levine (2006), who posited the push
for educating students who are 21st-century learners that can change the economic, political, and social direction of the world is driving current school reform.

The International Baccalaureate Programme (IB)

The International Baccalaureate Programme (IB) was established in 1962 at the International School of Geneva. Its nonprofit establishment was designed to set provisions for an education that focused on critical thinking, intercultural understanding, and an international diploma (Hill, 2012). Since its inception in the United States in 1971, 1,781 IB World Schools have been established to include 84 career-related programs, 906 Diploma Programme, 648 Middle Years Programmes, and 530 Primary Year Programmes (ibo.org, 2017). According to ibo.org (2017), 1,669 universities within the United States recognize IB diplomas.

The Primary Years Programme (PYP) is one of three components that encompass the IB program (Hill, 2012). Structured inquiry is essential in the primary years and acts as an appropriate avenue for developing skills in communication, critical thinking, cultural understanding, risk taking, and citizenship (Hill, 2012). Hill (2012) reported that IB has transitioned from being attuned towards international schools to being implemented in public schools, with the largest public school participation located in U.S. Title I schools. The IB Organization maintains it is paramount that students develop international mindedness, an understanding that by working cooperatively students can enhance their knowledge and develop a shared understanding of the world through examining commonalities and differences within local/global communities in addition to accepting shared responsibility of being an agent of action and change (Singh & Qi, 2013). In
addition to developing international mindedness, students must participate in multilingualism and engage in global initiatives through authentic learning experiences and environments (Singh & Qi, 2013).

To address efforts to equip students for college and/or careers, the IB organization adopted the Common Core State Standards (CCST) used by several states in attempts to promote further alignment with public school curriculum (ibo.org, 2013). The IB curriculum directly aligns to the level of rigor found in the standards and performance goals of the common core curriculum. Like the common core, the IB programme utilizes an interdisciplinary framework for instruction, integrating content specific standards along with the IB learner profile, which facilitate the development of 21st century skills such as critical thinking, collaboration, problem solving, inquiry, and communication (ibo.org, 2013).

The emphasis on utilizing a more rigorous curriculum contributed to the increased number of public schools implementing the IB program from 133 in 1994 to 1,390 in 2013 (Saavedra, 2014). The development and utilization of CCSS and IB curriculum within the United States led to research studies comparing the effectiveness of both in relation to student performance in public schools. Case studies examining the effectiveness of IB programs in Texas Schools, Michigan, Georgia, and North Carolina Public Schools emerged from 2009-2014 (Hall, Elder, Thompson, & Pollack, 2009; Hemelt, 2014; Stilisano, Waxman, Hostrup, & Rollins, 2010). Within all studies, positive attributes of the IB curriculum were uncovered. The research identified sound instructional practices, a balance of the IB curriculum with state standards, critical
thinking skills development and an increase of global awareness (Hall et al., 2009, Hemelt 2014; Stilisano et al., 2010). Apart from Georgia, where IB research was comprised singularly of program induction implementation (Hall et al., 2009), the case studies for Texas, Michigan, and North Carolina analyzed student achievement data as measured by the respective state assessments for grades three and five in ELA and math (Hemelt, 2014; Stilisano et al., 2010). Hemelt (2014) reported students in North Carolina and Michigan experienced a negative effect of PYP on mathematics performance, especially among males, and only third-grade students realized a positive effect of IB implementation in reading. On the Texas Assessment of Knowledge and Skills (TAKS), Stilisano and colleagues (2010) concluded that students who participated in the IB-PYP performed as well as their nonIB-PYP peers. Since the inception of the Georgia Standards of Excellence and revised World Language Curriculum, no new studies have been introduced to examine the achievement of nonIB-PYP and IB-PYP participants in the state of Georgia.

From Common Core State Standards to Georgia Standards of Excellence

In 2009, 48 states embarked on a journey that led to the development of Common Core State Standards (CCSS) (CCSS Initiative, 2018). In addition, the District of Columbia and two US territories joined these states in this endeavor. Governors and school chiefs within each state utilized their platforms to seek ways to develop standards and goals that were relevant, consistent, and rigorous enough to provide students with college and career readiness skills (CCSS Initiative, 2018). From 2009-2010, The National Governors’ Association (NGA) and Council of State School Chiefs’ Officers
(CCSSO) used the backwards design model to identify what students needed to be
college and career ready and develop the standards for each grade level. This initiative
was solidified through feedback from teachers’ associations, educators, and the public
(CCSS Initiative, 2018; Greer, 2013).

On July 8, 2010, the Georgia Department of Education adopted the CCSS for
English Language Arts and mathematics. Upon revision completion, the CCSS standards
were renamed Common Core Georgia Performance Standards. This adoption was
formulated under §OCGA 20-2-140, which mandates that the state adopt a uniform
curriculum every four years. From 2010-2013, the state of Georgia revised the state
standards due in part to the partial role out of the Georgia Performance Standards and an
Elementary and Secondary Education Act (ESEA) waiver granted from the development
of the College and Career Readiness Performance Index (CCRPI) (Greer, 2013). In
addition to these revisions, Georgia adopted a new assessment system that would align to
the rigor infused in the new standards (GaDOE, 2015). The state board approved the
adoption of the Georgia Standards of Excellence (GSE) in ELA and mathematics, which
further aligned with the state’s CCRPI, and Georgia Milestones Assessments.
Implementation of ELA and math GSE standards began during the 2015-2016 school
year (GaDOE, 2015).

Georgia Milestones End of Grade Assessment

The Georgia Milestones Assessments for grades three through eight replaced all
previous state tests in Georgia in the 2014-2015 school year and align to the National
Association for Educational Progress (NAEP) and the state’s proficiency standards more
closely than the previously adopted Criterion Referenced Competency Test (CRCT). The English Language Arts (ELA) and mathematics Georgia Milestones assessments contain multiple-choice, open-ended, and writing test items aligned to the Georgia Standards of Excellence, whereas social studies and science Georgia Milestones assessments include only multiple-choice questions aligned to the previously adopted Georgia Performance Standards (GaDOE, 2018). Currently used to measure student achievement on a criterion and normative level (Governor's Office of Student Achievement [GOSA], 2014), the Georgia Milestones Assessments serve as an accountability measure for schools and districts (GaDOE, 2018).

GOSA (2014) reported the Georgia Milestones Assessments replaced the CRCT in 2015 to address a below proficiency rating known as the honesty gap issued by the NAEP. This biennial report exams state testing data for fourth and eighth grades in mathematics and reading and compares them on a national level (GOSA, 2014). As identified in recent test data, the proficiency rates of the Georgia Milestones Assessments align to the proficiency rates provided by the NAEP. Alignment is established by comparing the proficiency rates of the Georgia Milestones Assessment and the NAEP (GOSA, 2014). In 2015, the proficiency rate of the Georgia Milestones was within five percentile points of the proficiency rate of the NAEP assessment in fourth-grade reading (GOSA, 2016).

GOSA released the K-12 Public Schools Report Card, which is a consolidated summary of student performance for the 2014-2015 and 2015-2016 End of Grade Assessment by subgroups, as well as academic levels. Student achievement levels are
categorized on the Georgia Milestones Assessment as Beginning Learners, Developing Learners, Proficient Learners, and Distinguished Learner (GaDOE, 2018). To meet promotion eligibility requirements, students must score as a Developing Learner or above. Students who obtain a rating of a Proficient Learner or Distinguished Learner are performing at or above grade level (GaDOE, 2018).

Curriculum Implementation as a Leadership Initiative

As school leaders seek to improve student outcomes, implementation of a rigorous school curriculum that prepares students for post-secondary education and careers is critical. Since the 1970s, researchers have conducted studies to uncover the roles and responsibilities of principals that are essential to improving instructional practices in schools (May & Supovitz, 2011). Practices conducted by leaders have a measurable effect on student achievement (Marzano, Waters, & McNulty, 2005), and they are second only to direct, explicit teaching among school-related achievement factors (Leithwood, Louis, Anderson, & Wahlstrom, 2004). Since the inception of the No Child Left Behind Act in 2001 and most currently the Every Student Succeeds Act (ESSA) in 2015, increased accountability and pressure to improve student performance has been placed on school district personnel and leaders, particularly in low-performing Title I schools (Bigham & Riney, 2017). With increased levels of accountability that encompass organizational leadership as well as instructional leadership, school leaders leverage decisions that will impact student outcomes (Sergis, Sampson, & Giannakos, 2018). Leaders make informed decisions through the analysis of student data, more specifically identified as school analytics, which
. . . refer to methods that allow school leaders to collect, analyze, and act upon educational data which are generated from many factors of the school ecosystem, at three conceptual layers. These layers consist of the micro layer, related to the learning and assessment practices of the school, both in the physical premises and beyond, the meso layer which relates to monitoring and assessing staff’s skills and practices, as well as school-wide curriculum planning, and the macro layer which is related to overall development of the school as an organization. (Sergis et al., 2018, p. 355)

Leaders, particularly those of underperforming schools continuously analyze varied data sets to make collaborative decisions regarding curriculum and classroom instruction for the student populations they serve. In addition, they make adjustments to address students’ changing needs (Darling-Hammond, Ramos-Beban, Altamirano, & Hyler, 2016). Through an analysis of over 5,000 studies, Marzano and colleagues (2005), concluded that principals in low performing schools use schoolwide data to set goals and make dramatic changes, known as second order change, that will impact curriculum implementation. Often, school principals have a desire to make changes or adjustments to their school’s instructional initiatives and resources based on the academic progress and achievement of neighboring schools or school districts (Bigham & Riney, 2014). To facilitate these adjustments, school principals have increased their involvement with curriculum design and implementation, assessments, goal-setting, and professional development. There is also an increase in monitoring protocols to measure the
effectiveness of school and instructional practices as well as learning communities to support all stakeholders (May & Supovitz, 2011).

Summary

Since the mid-1900s, the United States has been on a journey to maintain its position as a leader in the global economy. To further its position, supporting public education through curriculum, resources, and funding has been at the forefront of national, state, and local government agendas. In addition, emphasizing the need for students to be globally competent has become an integral component of this effort. According to government leaders, educational leaders, researchers, and economists, using the human capital approach as the conduit to knowledge and skills attainment by way of a globalized educational curriculum is paramount. It not only enables individuals to become self-sustaining, productive citizens, but it also enables them to contribute to the improvement of the country and the advancement of the world market.

Increased accountability on the local and state levels to improve students’ academic achievement and global competency has led to implementation of rigorous standards-based curriculum designed to enhance skills in core content and developing 21st-century skills. As the literature on global education and globalization indicates, the world economy is interdependent. In order for the United States to play a major role in the world economic system, its citizens must be educated in a manner that will enable them to successfully interact and compete in a global society.
CHAPTER 3
METHODOLOGY

The comparative deficits in global awareness, cultural understanding, and academic preparation of students in low-performing schools negatively affect their abilities to compete in an international economy. This study sought to answer the questions regarding the impact of IB Curriculum instruction for fifth-grade students as compared to those students who do not receive instruction through IB Curriculum on increasing the proficiency rate of achievement in English Language Arts and mathematics between subgroups as measured on the Georgia Milestones End of Grade Assessment. This study on global education adds to the existing literature examining the relationship between globalized curriculum and academic achievement in low performing schools, thereby assisting inform local and state educational leaders on policy regarding globalized curriculum implementation.

Research Questions and Hypotheses Reiterated

Each research question or hypothesis involved a comparison of scores between IB-PYP schools and matched nonIB-PYP schools. The two school groups (“they”) were compared. The first five research questions address how well the two groups of schools were matched.

1. Do they differ in school enrollment?

2. Do they differ in the percentages of suburban and urban schools?
3. Do they differ in the percentage of economically disadvantaged students?

4. Do they differ in the percentage of inexperienced teachers?

5. Do they differ in the certification level of teachers?

Research questions 6 and 7 define the outcomes of interest. After controlling for any group differences described in questions one through five, do the IB and nonIB schools differ in the percentage of students proficient or more in ELA and math achievement?

6. After statistically holding constant the control variables, do the IB and nonIB schools differ in percent of English Language Arts scores at or above proficient achievement?

7. After statistically holding constant the control variables, do the IB and nonIB schools differ in percent of math scores at or above proficient achievement?

The associated hypotheses for the control variables are as follows:

$H_{1a}$ There is a difference in school enrollment IB-PYP curriculum schools versus nonIB_PYP curriculum schools.

$H_{10}$ There is no difference in school enrollment of IB-PYP curriculum schools and nonIB_PYP curriculum schools.

$H_{2a}$ There is a difference in the percentage of urban and suburban schools between the IB-PYP schools and the nonIB_PYP schools.

$H_{20}$ There is no difference in the percentage of urban and suburban schools between the IB-PYP schools and the nonIB_PYP schools.
H3ₐ There is a difference in the percentage of economically disadvantaged students between the IB-PYP schools and the nonIB_PYP schools.

H3₀ There is no difference in the percentage of economically disadvantaged students between the IB-PYP schools and the nonIB_PYP schools.

H4ₐ There is a difference in the percentage of inexperienced teachers between the IB-PYP schools and the nonIB_PYP schools.

H4₀ There is no difference in the percentage of inexperienced teachers between the IB-PYP schools and the nonIB_PYP schools.

H5ₐ There is a difference in the teachers’ certification level between the IB-PYP schools and the nonIB_PYP schools.

H5₀ There is no difference in the teachers’ certification level between the IB-PYP schools and the nonIB_PYP schools.

The associated hypotheses for the outcome variables were

H₆ₐ After holding the control variables constant, IB-PYP schools tend to score higher than to nonIB_PYP schools’ percent of English Language Arts scores at or above proficiency.

H₆₀ After holding the control variables constant, IB-PYP schools do not tend to score higher than to nonIB_PYP schools’ percent of English Language Arts scores at or above proficiency.

H₇ₐ After holding the control variables constant, IB-PYP schools tend to score higher than to nonIB_PYP schools’ percent of math scores at or above proficiency.
After holding the control variables constant, IB-PYP schools do not tend to score higher than to nonIB_PYP schools’ percent of math scores at or above proficiency.

Research Design

To conduct the study, the researcher utilized a nonexperimental quantitative approach to conduct a multiple regression because several independent variables were used (Salkind, 2014). Through an analysis of the data, there was a determination as to whether there was a significant difference in the relationship between the implementation of a globalized curriculum (International Baccalaureate Primary Years Programme) and achievement rate of students versus the relationship between implementation of a standards-based curriculum and achievement rate of students. Creswell (1994) related that quantitative research is a research method that employs the utilization of numerical data that will be statistically analyzed. A multiple regression was used to determine relationships among the variables.

This positivist approach emphasizes the scientific method, statistical analysis, and generalizable findings (Mack, 2010). Crotty (1998) explained that positivists seek to uncover relative levels of objectivity through scientific methods as opposed to absolute objectivity. The researcher used a positivist approach and the human capital theoretical framework as the lens to examine the relationships among global education, school demographics, and student achievement. Human capital theory emphasizes the positive impacts of education on job productivity and worker efficiency through the increase of
their skill set and level of cognition, which is a product of inherent abilities and investment in human beings (Olaniyan & Okemakinde, 2008).

Population

Students in fifth grade who took the spring 2018 Georgia Milestones End-of-Grade (EOG) Assessment were the targeted population of this study.

Sample

The sample of this study consisted of Title I Elementary Schools within the state of Georgia. Title I, a federally funded program that is a component of EASA, provides monetary supplement to schools with a high percentage of low-income families to improve student achievement (USDOE, 2015a). Within the state of Georgia, Title I designation is given to Local Education Agencies (LEAs) that meet eligibility requirements from Full Time Equivalency and free and reduced meal percentages (Georgia Department of Education (GaDOE), 2017).

The participants in the sample included fifth-grade students from Title I elementary schools. Purposeful sampling was employed to create two groups of Title I schools. The first sample group consisted of public elementary schools from the identified school districts that have been authorized to implement school wide global education (IB) curriculum by the International Baccalaureate Organization. Within the state of Georgia, 13 Title I schools are authorized IB-PYP schools. The identified Title I IB-PYP schools (13) were used in the sample group. The second sample group consisted of 13 comparative public elementary schools within the state of Georgia that utilize traditional curriculum practices.
Instrumentation

The researcher utilized the May 2018 Georgia Milestones End of Grade (EOG) Assessment. Fifth-grade students take the EOG assessment in English/Language Arts (ELA), math, science, and social studies. ELA and math scores are used for grade promotion. For this study, the researcher analyzed assessment data from ELA and mathematics subtests.

Data Collection

The researcher extracted spring 2018 Georgia Milestones End of Grade (EOG) archival data from the Georgia Office of Student Achievement (GOSA, 2019). The Georgia Milestones EOG is a state-mandated assessment designed to assess student proficiency in core content areas for grades 3-8. GOSA commissions testing organizations to develop content-specific tests that directly correlate to the Georgia Standards of Excellence and Georgia Performance Standards. Committees of educators within the state of Georgia review questions for direct correlation to state standards (Georgia Department of Education, 2018). The archival data collected for IB-PYP schools and nonIB schools included enrollment; percent of disadvantaged students; race; percent of inexperienced teachers; percent of certified teachers; ELA proficiency scores; and math proficiency scores. Title I school designation data were collected from the Georgia Department of Education (2019). The researcher collected urban and suburban geo mapping designation data from the Georgia Department of Community Health (2019).
Institutional Review Board

The researcher submitted an application for Research with Human Subjects to the Institutional Review Board (IRB) at Mercer University. Upon obtainment of approval, the researcher sought archival data for International Baccalaureate Title I elementary schools within the state of Georgia. In addition, data were retrieved for comparative Title I elementary schools that use traditional standards-based curriculum. Archival data were used throughout the study. The researcher did not use individual student information in this study. The data collected had no identifying information for any of the schools in the study.

Data Analysis

The researcher utilized SPSS statistics, a software package that runs statistical analysis of data sets (Cronk, 2012), to run a series of tests to test the null hypotheses. A multiple regression was suitable for this study because it is used to examine relationships between multiple variables and directionality (Salkind, 2014). A descriptive analysis including appropriate tables and graphs were used to report findings of the study.

Reporting Results

Results of the statistical analysis are reported in descriptive and narrative form. Tables are shown to illustrate mean score comparisons of IB and nonIB schools to answer research questions one through five. Detailed block multiple regression tables are used to answer research questions six and seven. The results are made available to researchers and education practitioners for review and further study.
Summary

With the implementation of common core standards by most U.S. states and Every Student Succeeds Act of 2015, government, district, and school leaders are charged with developing and implementing comprehensive instructional programs to develop global competence. This study used a quantitative nonexperimental approach to examine if there is a significant relationship between global education curriculum and student achievement among disadvantaged students. The study explored archival data to compare ELA and math proficiency rates of fifth-grade students enrolled in the International Baccalaureate Primary Years Program and not enrolled in an International Baccalaureate Primary Years Program in Georgia. This chapter provided a description of the research design used to answer the research questions. Chapter 4 provides an analysis of the data results.
CHAPTER 4

RESULTS OF DATA ANALYSIS

The achievement gap continues to persist in schools with high percentages of economically disadvantaged students. According to the Organization for Economic Co-Operation Development (2016), economically disadvantaged students are likely to score as much as six times lower than students who have advantages due to economic means. Elementary schools implement the International Baccalaureate Primary Years Program (IB-PYP), which supports a globalized education for students in grades kindergarten through fifth grade. The IB-PYP schools have undergone a three-year authorization process with the International Baccalaureate Organization (IBO.org, 2018). The IB-PYP schools in this study, public schools identified as Title I based on state and federal guidelines, received funding to support instructional programs.

The purpose of this research was to determine if there was a difference in the English Language Arts (ELA) and math achievement rates between fifth-grade students who participated in the IB-PYP program in Title I schools as compared to fifth-grade students who participated in traditional standards-based curriculum in otherwise comparable Title I schools. In this chapter, the researcher restates the research questions and hypotheses, describes the sample studied, and presents the findings regarding academic achievement proficiency rate in ELA and math among fifth-grade students in IB-PYP schools and nonIB-PYP schools.
The quasi-experimental research design for this study utilized a multiple regression to analyze the data controlling for a statistically preexisting difference among the schools in the data set. Multiple regression utilizes a linear model, and it is appropriate for nonexperimental research (Keith, 2019). The quasi-experimental research design for this study utilized linear regression to analyze the data after controlling for preexisting differences among schools.

In this study, the researcher controlled for enrollment, economically disadvantaged students, teacher experience and direct qualification, and neighborhood location (urban/suburban). The independent variable was IB or nonIB school designation. The dependent variables were the fifth grade 2018 Georgia Milestones ELA and Math achievement proficiency rate.

For the first sample group, the researcher identified IB-PYP authorized schools with Title I designation within the state. Using the state’s school comparability identifier, the researcher selected schools with Title I designation and comparable demographics, including subgroups, for the nonIB sample group. Each identified Title I IB school was matched with the most comparable Title I nonIB school to create two comparable sample groups. Teacher experience and certification data were obtained from the Georgia Office of Student Achievement (GOSA) for the schools in the sample. In addition, geo mapping data with neighborhood locations for the state were garnered from the Georgia Department of Community Health (2019). The researcher also extracted ELA and math achievement rates, which included the percentage of fifth-grade students who scored at or above proficiency on the 2018 spring administration of the Georgia Milestones End of
Grade (EOG) Assessment, for each school. A dependent measure research design was also used to detect significant differences between IB and nonIB schools.

Review of Research Questions and Hypotheses

Each research question or hypothesis involved a comparison of scores between IB-PYP schools and matched nonIB-PYP schools. The two school groups (“they”) are to be compared. The first five research questions addressed how well the two groups of schools were matched.

1. Do they differ in school enrollment?
2. Do they differ in the percentages of suburban and urban schools?
3. Do they differ in the percentage of economically disadvantaged students?
4. Do they differ in the percentage of inexperienced teachers?
5. Do they differ in the certification level of teachers?

Research questions 6 and 7 defined the outcomes of interest. After controlling for any group differences described in questions one through five, do the IB and nonIB schools differ in the percentage of students proficient or more in ELA and math achievement?

6. After statistically holding constant the control variables, do the IB and nonIB schools differ in percent of English Language Arts scores at or above proficient achievement?
7. After statistically holding constant the control variables, do the IB and nonIB schools differ in percent of math scores at or above proficient achievement?

The associated hypotheses for the control variables were as follows:
H1\(_a\) There is a difference in school enrollment IB-PYP curriculum schools versus nonIB_PYP curriculum schools.

H1\(_0\) There is no difference in school enrollment of IB-PYP curriculum schools and nonIB_PYP curriculum schools.

H2\(_a\) There is a difference in the percentage of urban and suburban schools between the IB-PYP schools and the nonIB_PYP schools.

H2\(_0\) There is no difference in the percentage of urban and suburban schools between the IB-PYP schools and the nonIB_PYP schools.

H3\(_a\) There is a difference in the percentage of economically disadvantaged students between the IB-PYP schools and the nonIB_PYP schools.

H3\(_0\) There is no difference in the percentage of economically disadvantaged students between the IB-PYP schools and the nonIB_PYP schools.

H4\(_a\) There is a difference in the percentage of inexperienced teachers between the IB-PYP schools and the nonIB_PYP schools.

H4\(_0\) There is no difference in the percentage of inexperienced teachers between the IB-PYP schools and the nonIB_PYP schools.

H5\(_a\) There is a difference in the teachers’ certification level between the IB-PYP schools and the nonIB_PYP schools.

H5\(_0\) There is no difference in the teachers’ certification level between the IB-PYP schools and the nonIB_PYP schools.

The associated hypotheses for the outcome variables were as follows:
H6a  After holding the control variables constant, IB-PYP schools tend to score higher than to nonIB_PYP schools percent of English Language Arts scores at or above proficiency.

H6b  After holding the control variables constant, IB-PYP schools do not tend to score higher than to nonIB_PYP schools percent of English Language Arts scores at or above proficiency.

H7a  After holding the control variables constant, IB-PYP schools tend to score higher than to nonIB_PYP schools percent of math scores at or above proficiency.

H7b  After holding the control variables constant, IB-PYP schools do not tend to score higher than to nonIB_PYP schools percent of math scores at or above proficiency.

Respondents

The purposive sample consisted of IB and nonIB elementary schools in urban or suburban school districts in a southeastern state within the United States. The data collected were archived by the state’s office of student achievement, and all information that identified individual schools were removed. Information for a total of 26 schools was collected. Thirteen schools were assigned to each group based on their IB or nonIB status. Standardized test data were also included. Scaled scores for the fifth-grade population were extracted based on percent proficient in ELA and math.
Data Entry, Cleaning, and Screening

The researcher entered data from the 26 individual schools into an Excel spreadsheet, then imported the data into SPSS. String or alphanumeric variables were converted into numeric codes. IB was coded 1 and Not IB was coded 0. Suburban was coded 1 and urban was coded 0. The 26 participating schools were coded 1 through 26 respectively. All identifying information was removed from the data set.

Checking the Match of the IB and NonIB Schools

The control and outcome variables of the thirteen 13 IB-PYP schools and 13 matched nonIB_PYP schools were compared. Table 1 displays a summary of the results.

Table 1

Mean Score Comparisons for IB and NonIB Schools

<table>
<thead>
<tr>
<th>Variablesa</th>
<th>IB School</th>
<th>NonIB School</th>
<th>Correlation between Matched Schools</th>
<th>t(12)</th>
<th>p</th>
<th>Cohen’s d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrollment</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>.95</td>
<td>1.73</td>
</tr>
<tr>
<td></td>
<td>0.06</td>
<td>1.03</td>
<td>0.06</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suburbanb</td>
<td>0.92</td>
<td>0.28</td>
<td>0.62</td>
<td>0.51</td>
<td>.37</td>
<td>2.31</td>
</tr>
<tr>
<td>% Economically Disadvantaged</td>
<td>0.09</td>
<td>0.99</td>
<td>0.09</td>
<td>1.03</td>
<td>.87</td>
<td>-.89</td>
</tr>
<tr>
<td>% Inexperience FTE</td>
<td>0.32</td>
<td>0.78</td>
<td>-0.32</td>
<td>1.11</td>
<td>-.19</td>
<td>1.73</td>
</tr>
<tr>
<td>%Directly Certified</td>
<td>0.13</td>
<td>0.99</td>
<td>-0.13</td>
<td>1.02</td>
<td>.64</td>
<td>1.15</td>
</tr>
<tr>
<td>%ELA</td>
<td>0.26</td>
<td>0.90</td>
<td>-0.26</td>
<td>1.05</td>
<td>.82</td>
<td>3.26</td>
</tr>
<tr>
<td>%Math</td>
<td>0.22</td>
<td>0.86</td>
<td>-0.22</td>
<td>1.10</td>
<td>.59</td>
<td>1.78</td>
</tr>
</tbody>
</table>

Note. a The first five rows of the table describe control variables. ELA and Math achievement are the two outcomes of interest.
b There were no rural schools included in the study; 77% of the schools were suburban, and the rest were urban. For analysis, the suburban variable was coded so that suburban location is a one, and urban location is a zero.
The correlation between variable scores for the IB and nonIB schools and Cohen $d$ statistics support the success of the matching process. The mean and median correlations of variables between the matched schools were .61 and .73 respectively. The mean and median Cohen $d$ statistics for the control variables were .37 and .32 in turn. With the exception of suburban location, the matched schools did not differ much in their mean control variable scores.

Checking for Multivariate Outliers

Wittig’s (2004) method was used to check for possible multivariate outliers. One outlier school was detected. Table 2 shows how it compares to the average scores of the other schools.

**Table 2**

*Comparison of the Detected Outlier to the Other Schools*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Nonoutlier Schools’ Mean</th>
<th>Outlier School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrollment</td>
<td>623</td>
<td>696</td>
</tr>
<tr>
<td>Suburban</td>
<td>76%</td>
<td>100%</td>
</tr>
<tr>
<td>%Economically Disadvantaged</td>
<td>39%</td>
<td>31%</td>
</tr>
<tr>
<td>%Inexperience FTE</td>
<td>45%</td>
<td>62%</td>
</tr>
<tr>
<td>%Directly Certified</td>
<td>39%</td>
<td>90%</td>
</tr>
<tr>
<td>IB school</td>
<td>48%</td>
<td>100%</td>
</tr>
<tr>
<td>%ELA</td>
<td>36%</td>
<td>60%</td>
</tr>
<tr>
<td>%Math</td>
<td>31%</td>
<td>51%</td>
</tr>
</tbody>
</table>

Stepwise multiple regression supports the idea that the percent directly certified and the percent economically disadvantaged are the two major correlates of outlier status. The outlier school has a much greater percentage of directly certified teachers and
substantially higher mean ELA and math scores. It also has a greater percentage of inexperienced teachers than do the other schools. The outlier school was not included in the main data analyses.

Main Findings

Multiple regression was calculated to determine the relationship between the control and predictor variables and outcome variables. In these analyses, the 2018 fifth grade Georgia Milestones ELA scale score and the similar math score were the dependent or outcome variables. The control variables were enrollment, suburban location, the percent economically disadvantaged, inexperience fte percentage, and directly certified percentage. IB school status was the predictor variable of interest.

Separate multiple regression equations were developed with the control and predictor variables from IB and nonIB schools to predict the ELA scale score and the math score on the Georgia Milestones End of Grade Assessment. The control variables were entered stepwise in the first block of the block multiple regression. Then the IB status variable was entered into the equation in the second block. Table 3 displays these correlations.
Table 3

Correlations of Control Variables and IB School Status with ELA and Math Percentages of Proficient or More

<table>
<thead>
<tr>
<th>Variable Number</th>
<th>Variable Name</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Enrollment</td>
<td>1.00</td>
<td>-.11</td>
<td>-.20</td>
<td>.00</td>
<td>-.23</td>
<td>-.03</td>
<td>.04</td>
<td>.22</td>
</tr>
<tr>
<td>2</td>
<td>Suburban</td>
<td>-.11</td>
<td>1.00</td>
<td>-.32</td>
<td>.11</td>
<td>-.16</td>
<td>.37</td>
<td>.50</td>
<td>.37</td>
</tr>
<tr>
<td>3</td>
<td>%Economically Disadvantaged</td>
<td>-.20</td>
<td>-.32</td>
<td>1.00</td>
<td>-.04</td>
<td>.75</td>
<td>-.06</td>
<td>-.54</td>
<td>-.64</td>
</tr>
<tr>
<td>4</td>
<td>%Inexperience FTE</td>
<td>.00</td>
<td>.11</td>
<td>-.04</td>
<td>1.00</td>
<td>.18</td>
<td>.36</td>
<td>.09</td>
<td>-.03</td>
</tr>
<tr>
<td>5</td>
<td>%Directly Certified</td>
<td>-.23</td>
<td>-.16</td>
<td>.75</td>
<td>.18</td>
<td>1.00</td>
<td>.14</td>
<td>-.26</td>
<td>-.39</td>
</tr>
<tr>
<td>6</td>
<td>IB School or Not&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-.03</td>
<td>.37</td>
<td>-.06</td>
<td>.36</td>
<td>.14</td>
<td>1.00</td>
<td>.28</td>
<td>.23</td>
</tr>
<tr>
<td>7</td>
<td>%ELA = or &gt; proficient</td>
<td>.04</td>
<td>.50</td>
<td>-.54</td>
<td>.09</td>
<td>-.26</td>
<td>.28</td>
<td>1.00</td>
<td>.83</td>
</tr>
<tr>
<td>8</td>
<td>%Math = or &gt; proficient</td>
<td>.22</td>
<td>.37</td>
<td>-.64</td>
<td>-.03</td>
<td>-.39</td>
<td>.23</td>
<td>.83</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Note.  
<sup>a</sup> IB schools were coded 1 and nonIB schools were coded 0.

Results for ELA scores

The outlier school, identified in Table 2, was temporarily held out of the sample to compute the multiple regression to predict the average school ELA scores. Table 4 summarizes the results for predicting the ELA scores.

Table 4

Percent ELA Proficient Regression Coefficients<sup>a</sup>

<table>
<thead>
<tr>
<th>Control or Predictor Variable</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
</tr>
<tr>
<td>Constant</td>
<td>42.26</td>
<td>7.91</td>
<td>5.34</td>
</tr>
<tr>
<td>Directly Certified Percentage</td>
<td>-.41</td>
<td>0.14</td>
<td>-.48</td>
</tr>
<tr>
<td>Suburban</td>
<td>10.13</td>
<td>5.56</td>
<td>.33</td>
</tr>
<tr>
<td>IB status</td>
<td>3.46</td>
<td>4.60</td>
<td>.13</td>
</tr>
</tbody>
</table>

Note.  
<sup>a</sup>Dependent variable: Percent ELA at or above proficiency achievement rate  
<sup>b</sup>Suburban status had a p value of .04 when combined with only directly certified percentage. Its p value increased when IB status was added to the model.
The PRESS multiple correlation was .52 to predict ELA scores. The directly certified percentage, suburban status, and IB status, in turn were the variables most strongly correlated with percent of students at or above proficiency on the ELA assessment.

*Figure 1* shows the relationship of the ELA scores to the predicted values, and the location of the detected outlier.

![Figure 1](image)

*Figure 1.* Relation of predicted values to actual ELA scores. The red dot in the upper left hand corner of the figure shows the location of the outlier school.

Results for Math Scores

The same outlier was again temporarily held out of the sample to compute the multiple regression to predict the average school math scores. Table 5 summarizes the results for predicting the math scores.
Table 5

Percent Math Proficient Regression Coefficients\(^a\)

<table>
<thead>
<tr>
<th>Coefficients(^a)</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
</tr>
<tr>
<td>(Constant)</td>
<td>50.88</td>
<td>5.58</td>
<td></td>
</tr>
<tr>
<td>Directly Certified Percentage</td>
<td>-0.58</td>
<td>0.13</td>
<td>-.69</td>
</tr>
<tr>
<td>IB SCHOOL OR NONIB</td>
<td>5.46</td>
<td>3.90</td>
<td>.21</td>
</tr>
</tbody>
</table>

Note. \(^a\) Dependent variable: Percent math at or above proficient achievement rate

The percent directly certified was the most important predictor, and IB school status was positively related to math achievement. The PRESS multiple correlation was .71 to predict math scores. The directly certified percentages, and IB status, in turn were the variables most strongly correlated with percent of students at or above proficiency on the math scores.

*Figure 2* shows how the predicted math scores are related to the actual math scores. It also shows how the outlier school is related to the other schools in predicting math scores.
Figure 2. Relation of predicted math scores to actual math scores. The red dot in the upper left hand corner represents the outlier school.

Conclusion

Although the researcher failed to reject the null hypothesis that participation in an IB-PYP would increase ELA and math percentages among economically disadvantaged Title I schools, the findings are beneficial for school leaders. The sample is a census of all the IB title I schools in the state studied. Therefore, it does fully represent that population of IB versus comparable nonIB schools. In spite the lack of nominal “significance”, IB schools are making a positive difference in math and ELA scores in the state where the study was conducted. Even though economically disadvantaged students in IB schools scored better than did economically disadvantaged students in
nonIB schools in ELA and math as predicted by the multiple regression equation, no large difference existed between the mean scores of IB and nonIB schools. The percentage of certified teachers was negatively related to ELA or math scores. This finding warrants further investigation. These results are encouraging and warrant further study using a larger sample that includes data sets from all testing grades in the primary years’ program.
International Baccalaureate Programs (IB) are used in many schools to provide a globalized international curriculum as well as core academic instruction. Particularly in public Title I schools and school districts, International Baccalaureate Programs are implemented to provide instruction to increase outcomes for economically disadvantaged students. Implementation of IB programs in public schools across the nation has increased tremendously, particularly due to its perception as more rigorous and advantageous for equipping students for colleges and careers than traditional standards-based instruction (Saavedra, 2014).

This study centered on two main research questions. After statistically holding constant the control variables, do the IB and nonIB schools differ in percent of English Language Arts scores at or above proficient achievement? After statistically holding constant the control variables, do the IB and nonIB schools differ in percent of math scores at or above proficient achievement? To determine if there were significant differences, multiple linear regressions were conducted. Archival data were collected from 13 Title I IB schools and 13 Title I nonIB schools in the state of Georgia. The following data sets were collected: enrollment, urban/suburban designation, economically disadvantaged percentages, directly certified percentages, inexperienced teacher percentages, and spring 2018 ELA and math proficiency rate percentages.
The purpose of the study was to determine if economically disadvantaged fifth-grade students participating in an International Baccalaureate Primary Year Program school curriculum have higher or lower achievement rates than do economically disadvantaged fifth grade students not enrolled in an International Baccalaureate Primary Year Program school curriculum for the 2017-2018 school year. This information enabled the researcher to make inferences regarding program participation for economically disadvantaged students.

Summary of Major Findings

The major findings show nominal significance among achievement rates among IB and nonIB schools was not evident. However, IB schools are making a positive difference in math and ELA scores as illustrated in the progression models. The directly certified percentage, suburban status, and IB status were the variables most strongly correlated with percent of students at or above proficiency on the ELA assessment. The directly certified percentages and IB status were the variables most strongly correlated with percent of students at or above proficiency on the math assessment.

An outlier IB school was detected and removed from the sample group due to its substantially higher ELA and math mean scores. The outlier school also had a substantially higher percentage of directly certified teachers and inexperienced teachers. The percentage of economically disadvantaged students was also lower than the mean score of the remaining sample group.

A multiple regression was conducted with the remaining twelve schools in the sample to predict ELA and math proficiency. In order to determine if the ELA and math
proficiency achievement rate for fifth grade students were higher for students enrolled in an IB-PYP school, a regression equation was developed utilizing student data from students enrolled in IB and nonIB school. Predictor variables included percentage of economically disadvantaged students, enrollment, urban/suburban designation, percentage of directly certified teachers, and percentage of inexperienced teachers. Using the block regression method, directly certified and IB school designation were identified as strong predictors for both ELA and math. Overall, the results of the study show that the percentage of economically disadvantaged students is the major effect that contributes to achievement rate.

Discussion of Findings

Although the research results show that economically disadvantaged IB schools scored better than nonIB schools in ELA and math as predicted by the multiple regression equation, a nominally significant difference was not found between the mean scores or predicted scores of IB and nonIB schools. Additional information is necessary to conclude whether the IB-PYP is appropriate as a primary instructional option for Title I schools. This study focused on examining outcomes in the form of Georgia Milestones End of Grade scores. Prior researchers (Hall, Elder, Thompson, & Pollack, 2009; Hemelt 2014; Stilisano, Waxman, Hostrup, & Rollins, 2010) examined implementation of IB-PYP in elementary schools and identified components of the program that support the achievement of economically disadvantaged students.

Stilisano and colleagues (2010) conducted a study comparing IB schools (primary year programs and middle year programs) and nonIB schools in Texas. Similar to the
current study, Stilisano et al. (2010) conducted a mixed methods study that matched schools based on ethnicity and socioeconomic status in an effort to compare reading and mathematics achievement on the state standardized assessments in addition to programs characteristics. The study revealed that while IB schools performed as well as nonIB schools in reading and mathematics—yielding no significant difference in achievement between the comparison schools—overall quality of instruction in IB schools was generally higher. The current study, while holding predictor variables constant, found that fifth-grade students’ ELA and math proficiency rates in IB schools were not significantly different than fifth-grade students’ ELA and math proficiency rates in nonIB schools.

The current study also found that the IB-PYP curriculum is making a positive difference in fifth grade ELA and math proficiency rates. The results of this study support the human capital theoretical framework, particularly in regards to formal schooling. Increased or higher proficiency rates in core academics (in this study ELA and math) identified in IB-PYP schools in this study yield a higher rate of return on schooling.

IB school curriculum implementation in elementary has steadily increased in the United States. Data analysis reported by Gordon, Vanderkamp, and Halic (2015) for IB research revealed 65% of all IB-PYP public schools are Title I designated, which is a 93% increase from the 2009-2010 academic year (IBO.org, 2015b). Although limited research exists to support the appropriateness of the IB-PYP program as a primary instructional model in Title I schools, previous studies conducted attribute access to in-
depth teacher preparation, rigorous exploratory learning experiences and opportunities to engage in cooperative learning to students’ positive academic movement (Alford, Rollins, Stilisano, & Waxman, 2013; Hall et al., 2014; Hemelt, 2014; Hill, 2012). While this study compared achievement rates among IB and nonIB schools, it did not examine the instructional practices, family engagement, or years of individual student participation.

Conclusions

Conclusions about the appropriateness of the International Baccalaureate Primary Years Program as a sole instructional model for economically disadvantaged student populations cannot be drawn from this study. The study revealed that while there was no significant difference in ELA and math achievement rates between IB and nonIB schools, IB schools are making a positive difference in content mastery among Title I public school fifth grade students. In addition, the positive movement of proficiency rate in ELA and math is encouraging.

Implications

The goal of leaders and researchers in education is to provide stakeholders with information that can inform decisions. This study provides information for principals, school administrators, and International Baccalaureate Primary Years Program Coordinators. The findings of this study were inconclusive as to whether or not economically disadvantaged students in Title I IB-PYP program had significantly higher achievement rates than economically disadvantaged students who do not attend Title I schools with IB-PYP. Based on this study, no additional information has been garnered about the effectiveness or significance of the IB-PYP in Title I public schools. Further
research is necessary in this area to examine the academic outcomes of economically disadvantaged students participating in this program. In addition, a closer examination of the outlier school is warranted due to its mean differences in comparison to the other schools in the study. Since there is an observed increase in the number of public schools (both Title I and nonTitle I) that have selected this program for implementation to address academic deficits, more information about the effectiveness is necessary. District and school leaders may want to examine implementation fidelity as well as student outcomes (proficiency rates) that result from using the IB-PYP across grade levels.

While the IB-PYP is a comprehensive program, a comparative to standards-based curriculum implementation from a professional development standpoint may be beneficial. Currently, IB-PYP utilizes common core standards to support instruction. Examining how these standards are integrated into the program would be beneficial to schools who do utilize this program.

Recommendations for Future Research

This study compared two groups of Title I schools: those that utilize the International Baccalaureate Primary Year Program and those who utilize traditional standards-based instruction. Fifth grade ELA and math scores for one state test administration were used. A closer analysis of school characteristics and individual differences as they pertain to achievement across grade levels, enrollment practices, family engagement, and transiency might be of interest for further research. In addition, examination of the implementation of standards-based curriculum, professional learning, and instructional resources of nonIB-PYP schools would be beneficial as a comparative
measure to IB-PYP curriculum implementation, professional learning, and instructional resources. Since the International Baccalaureate Organization offers a learning continuum that supports early childhood education through high school (Primary Years Program, Middle Years Program, Diploma Program), examining school systems that utilize the full continuum as opposed to school systems who do not may be beneficial. A qualitative study examining implementation of the global competencies in relation to core academics in both IB and nonIB Title I schools would also add to the body of literature concerning IB-PYP curriculum and economically disadvantaged students.

Study Summary

In this study, the researcher sought to determine if achievement rates in ELA and mathematics among economically disadvantaged students increased significantly based on participation in the International Baccalaureate Primary Years Program (IB-PYP) curriculum. The IB-PYP is one option utilized by elementary schools to provide a rigorous, globalized curriculum to increase academic achievement and global competence (Gaudelli, 2013).

To address this problem, seven questions were developed and answered. The first five research questions addressed how well the two groups of schools were matched:

1. Do they differ in school enrollment?
2. Do they differ in the percentages of suburban and urban schools?
3. Do they differ in the percentage of economically disadvantaged students?
4. Do they differ in the percentage of inexperienced teachers?
5. Do they differ in the certification level of teachers?
Research questions six and seven defined the outcomes of interest. After controlling for any group differences described in questions one through five, do the IB and nonIB schools differ in the percentage of students proficient or more in ELA and math achievement?

6. After statistically holding constant the control variables, do the IB and nonIB schools differ in percent of English Language Arts scores at or above proficient achievement?

7. After statistically holding constant the control variables, do the IB and nonIB schools differ in percent of math scores at or above proficient achievement?

To determine if there were significant differences, a mean comparison was conducted for IB and nonIB schools. Block multiple regressions for ELA and math proficiency rates were conducted. Data collection and analysis revealed that directly certified percentages and IB status were strong predictors for ELA and math GA milestones proficiency rates. Suburban status was also a strong predictor for ELA proficiency rates. The results did not reveal a nominally significant difference in ELA and math proficiency rates between the IB schools and nonIB Title schools. Archival data were collected from 13 Title I IB schools and 13 Title I nonIB schools in the state of Georgia. The following data sets were collected: enrollment, urban/suburban designation, economically disadvantaged percentages, directly certified percentages, inexperienced teacher percentages, and spring 2018 ELA and math proficiency rate percentages.
REFERENCES


APPENDIX

MERCER IRB LETTER
Wednesday, May 1, 2019

Ms. Ayesha O. Grandison
3001 Mercer University Drive
Educational Leadership
Atlanta, GA 30341

RE: A Comparative Analysis of the Achievement Gap and International Baccalaureate with Implications for School Leaders (H1905122)

Dear Ms. Grandison:

On behalf of Mercer University’s Institutional Review Board for Human Subjects Research, your application submitted on 24-Apr-2019 for the above referenced protocol was reviewed in accordance with the 2018 Revised Federal Regulations 46.104 under category(ies) 4 and is Exempt from further review at this time.

Any changes to the above protocol MUST be resubmitted for IRB review to ensure that risks to the subject have not changed.

Item(s) Approved (01-May-2019):

The purpose of this study is to determine if there is a significant difference in the rate of achievement on English Language Arts and Mathematics Georgia Milestones Assessment between fifth grade students enrolled in an International Baccalaureate (IB) school curriculum as compared to those not enrolled in an IB school curriculum for the 2017-2018 school year.

NOTE: Although this study has been reviewed and exempt under the 2018 revision of the common rules, the IRB may ask that you submit a status report should the study continue beyond one year.

We at the IRB and the Office of Research Compliance are dedicated to providing the best service to our research community. As one of our investigators, we value your feedback and ask that you please take a moment to complete our Satisfaction Survey and help us to improve the quality of our service.

It has been a pleasure working with you and we wish you much success with your project! If you need any further assistance, please feel free to contact our office.

Respectfully,

Ava Chambliss-Richardson, Ph.D., CIP, CIM.
Director of Research Compliance
Member
Institutional Review Board

*Mercer University has adopted and agrees to conduct its clinical research studies in accordance with the International Conference on Harmonization’s (ICH) Guidelines for Good Clinical Practice.*