

Summer 7-25-2014

# The Influence of Curriculum Quality on Student Achievement on the New Jersey Assessment of Skills and Knowledge (NJ ASK) Language Arts and Mathematics for Fifth-Grade Students in the Lowest Socioeconomic School Districts

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The Influence of Curriculum Quality on Student Achievement on the New Jersey Assessment of Skills and Knowledge (NJ ASK) Language Arts and Mathematics for Fifth-Grade Students in the Lowest Socioeconomic School Districts

by

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Submitted in partial fulfillment of the requirements for the degree

Doctor of Education

Department of Education Leadership, Management and Policy

Seton Hall University

July, 2014

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2014

SETON HALL UNIVERSITY  
COLLEGE OF EDUCATION AND HUMAN SERVICES  
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**APPROVAL FOR SUCCESSFUL DEFENSE**

Doctoral Candidate, **Jessica Luciano**, has successfully defended and made the required modifications to the text of the doctoral dissertation for the **Ed.D.** during this **Summer Semester 2014**.

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## Abstract

This study examined the strength and direction of the relationships between student and school variables found in the present literature to influence student achievement on the New Jersey Assessment of Skills and Knowledge (NJ ASK) language arts and mathematics for fifth-grade students in the lowest socioeconomic school districts. The purpose of this study was to explain the influence of curriculum customization at the school level. The independent variables in this study were: curriculum design, curriculum development, influential forces that drive curriculum, socioeconomic status including free and reduced lunch status, teachers with graduate degrees, attendance rates, percentage of special education students, instructional time, percentage of English Language Learners, student mobility, and faculty mobility rate. Despite the education reforms in the past years, an arduous task still lies ahead before all students are considered proficient.

Analyses were conducted through the use of simultaneous multiple regression models. The student data considered in this study pertained to surveyed elementary schools categorized DFG A, the lowest socioeconomic school districts in New Jersey. The results of this study, derived from 73 school principal responses located in 24 districts, revealed that the variables NJ ASK 5 language arts and results of the curriculum quality survey, accounted for the largest amount of variance in student achievement to the NJ ASK 5 mathematics. In conclusion, the study findings suggested the two predictor variables have a positive influence on the achievement of students on the NJ ASK 5 mathematics.

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## **ACKNOWLEDGEMENTS**

To a dedicated committee, it was an honor to work with individuals that provided thorough and helpful feedback without hesitation. Your knowledge and guidance helped me to produce a dissertation that reflected my passions and interests in education. First of all I must acknowledge my mentor, Dr. Tienken, for I learned a great deal from his guidance. Throughout this process, he encouraged me and challenged me to persevere and research a topic so important to urban education. Your enthusiasm and passion shined right through from our first class where you encouraged us to challenge the literature and advocate for what is best for children.

To Dr. Strobert for taking the time to read my dissertation and provide feedback. I greatly appreciate your commitment during the dissertation process as I acknowledge its time intensity.

To Dr. Fagin for finding the time in your busy schedule to read the countless pages and provide me with feedback. I was excited that you agreed to be part of my dissertation committee as I admire your enthusiasm, optimism, and knowledge in education.

To Dr. Moss where it is difficult to find the right words for the incredible support that you have provided me throughout my studies and career. You have served as a mentor, friend, and teacher in so many capacities. You were always willing to guide me from the start of my educational leadership career to the countless hours dedicated on helping me open a school. You even found time during your family vacation to provide me with feedback on my dissertation.

To the educators and my SHU peers that I had an opportunity to engage in meaningful conversations about education in my journey to do what is best for all of my students.

## **DEDICATION**

This work is dedicated to my niece, Olivia Rose, for we will ensure that you will experience an education as the one I advocate for in my dissertation. When I needed a break, spending time with you brought me joy and peace. Your adorable laughter helped me rejuvenate and kept me going.

Thank you to my family for paving the way and always supporting all of my educational endeavors.

To my loving mom for always being such a strong individual that instilled in me that hard work and education equaled success. You have always impressed me how you managed to do so much for all three of us while you showered us with love and care with such grace. Thank you for helping me juggle it all at once without hesitation. You are my ray of sunshine!

To my dad for your optimism and encouragement throughout my life goals as it helped me realize that nothing is impossible. I appreciated your frequent phone calls, prompted by mom, to check in with me. Your willingness to give me a helping hand made this process much more manageable.

To my dear sister, Patricia, who was persistent in ensuring that I pushed forward with the dissertation process. I will forever remember her countless phone calls to check in on how the writing was coming along. Your incredible support is one of the instrumental reasons why I have pursued a doctorate as you have always been by my side. You have taught me countless life lessons that the list may be equivalent to a dissertation.

To my brother, Thomas, for instilling a love for learning in me from a very young age. I will always remember our bike rides to the library on summer afternoons. I will never forget the evening that you had just finished reading a book to me as it played a critical role in cultivating

my educational goals. That night, you told me, “One day you will write a book.” Well, Thomas, I came pretty close.

To Paul for believing that I could finish my dissertation and see the “light” at the end of the tunnel. Thank you for taking the time to read over my work as I was making final touches. I made it!

To Josephine for your encouraging and positive demeanor throughout my endeavors as I greatly appreciate it. It has been awesome having you as a sister-in-law and friend.

As I always tell all of you, “I love you to pieces!” I couldn’t have done it without your support and encouragement.

I will continue to advocate for each of my students as my dissertation focus derived from my quest to make the best decisions for all of them. Thank you to Mr. Wiebusch for helping me with all of the responsibilities of a new school. I couldn’t have successfully balanced both without your help and “daily smiles.”



## CHAPTER I

### INTRODUCTION

According to Felicita Mendez from the *Mendez v. Westminster* case of 1946, “Our children, all of our children, brown, black and white [bronceados, negros y blancos] must have the opportunity to be whatever they want to be, and education gives them that opportunity” (Ruizas cited in McCormick & Ayala, 2007, p. 27). Sixty-eight years later, equality for all students continues to be an ever-present problem in the educational arena. In today’s society many children of color are not able to score at a basic or higher level on achievement tests; therefore, their future and the future of our nation are in jeopardy (Thernstrom & Thernstrom, 2003). Furthermore, test results are historically sensitive to student background characteristics such as “economic and education levels of parents, parents’ expectations for student success, students’ language backgrounds, the average length of time students attend a school, and the regularity with which students come to school” (Baker & Linn, 2002, p. 13).

#### **No Child Left Behind Act**

On January 8, 2002, President George W. Bush signed the No Child Left Behind (NCLB) Act education reform policy intended to provide a quality education for all students (United States Department of Education, U.S. DOE, n.d.). The education reform policy was the first legislation to include the federal government as a regulator on education. Most importantly, the central purpose of education accountability systems should be to improve instruction and student learning to maximize benefits and minimize unintended consequences (Baker & Linn, 2002). In New Jersey, the present forms of accountability systems continue to be standardized tests and, most recently, school progress report cards. In the past, subgroups have been identified as those

students most at risk such as classified as Limited English Proficient, Special Education, Free/Reduced lunch status, among others. With the increased accountability, state departments of education officials mandated that school administrators and board members across the United States implement a state-mandated curriculum. Zhao (2009) argued:

Even without national standards and national tests, there is little doubt that education in the United States has become authoritarian. Through NCLB, the federal government officials communicated to Americans that reading and math are the most valued subject areas and what schools should teach. (p. 38)

President Barack Obama released a blueprint to revise the Act with a focus on a world-class education for all students. The priorities outlined on the blueprint for NCLB Act reform were:

- To prepare students for college and careers through the integration of higher standards for all students; development and use of new assessments; and well-rounded education to prepare them to contribute as citizens in a democratic society.
- Effective school leaders and teachers in every school through implementation of evaluative systems; revised recruitment efforts; focus on high-need areas; and improvement of professional development.
- Equity and opportunity for all students through rigorous and impartial accountability for all; meeting the needs of all diverse students; and greater equity through balanced distribution of resources between lower socioeconomic and higher socioeconomic districts.
- Promotion of innovation and continuous improvement through cultivation of innovation and acknowledgement of success with an emphasis on local and non-profit leaders;

support for, recognition of, and reward local innovations; and support for student achievement (United States Department of Education, U.S. DOE, n.d.).

The original intention of the NCLB Act (2002) was to hold all school administrators and teachers accountable for student performance measured through state-mandated standardized test scores. A study conducted by the Center on Education Policy (2010) found:

Five years after the implementation of NCLB, about 62 percent of school district administrators had increased instructional time for English or math, or both, in elementary schools, and more than 20 percent reported increasing time for these subjects in middle school. To accommodate this increased time in English and math, 44 percent of districts reported cutting time from one or more other subjects or activities (social studies, science, art and music, physical education, and lunch or recess) at the elementary level. (p. 39)

In New Jersey, the assessment used for elementary and middle schools is the New Jersey Assessment of Skills and Knowledge (NJ ASK) Language Arts and Mathematics for Grades 3–8, as well as Science for Grades 4 and 8 to monitor student performance and progress towards adequate yearly progress (AYP). State bureaucrats established mandated AYP benchmarks to ensure that schools work towards proficiency of all students. In order for a school to make AYP, it must meet certain criteria:

- Attain objectives determined by the state for the percentage of students, including those in identified subgroups such as special education, at or above the proficient level on state reading and math examinations that includes identified subgroups (racial groups, low-income students, students with disabilities, and English Language Learners);

- Participation rate of a minimum of 95% for each subgroup; and
- Meet state-determined targets for high school graduation rate or student attendance for middle and high school (Center on Education Policy, 2010; Linn, 2008).

Brown and Clift (2010) stated that to achieve this purpose of the NCLB Act, the law relies on a single pass/fail system to execute its core accountability and incentive mechanisms through the AYP measure. McMurrer (2007) found that the creation of the NCLB Act encouraged educators to narrow their curriculum through the focus on tested subjects while teachers feel pressured to teach to the test. The sole criteria of using NCLB assessments to determine promotion is not an effective practice as the results do not provide comprehensive information on student knowledge and mastery of skills.

If a school's test results fail to meet AYP requirements for even one subgroup, the school will fail to make AYP for that particular year. Schools that do not make AYP for 2 consecutive years would have to implement interventions to remediate the issue with a progression of more severe consequences. Baker & Linn (2002) argued that the presence of incentives and sanctions will influence desired gains, but without the needed process student learning improvement will not occur. Those schools in district factor grouping (DFG) A have additional hurdles to overcome due to the disaggregated reporting requirements of subgroups such as Hispanic, African American, economically disadvantaged, English Language Learners, and special education student. Unfortunately many of the identified subgroups tend to disproportionately create the achievement gap. Those students also tend to reside in urban or rural communities with limited resources. Tanner and Tanner (2007) found that many urban schools have inadequate learning resources and unsafe environments, therefore, making it harder to develop a

desire to learn in students. Consequently the schools classified as DFG A have many additional hurdles to combat to ensure student achievement. Each school district in New Jersey is assigned a district factor grouping categorization as follows: A, B, CD, DE, FG, GH, I, and J. The variables considered to determine the district factor grouping categorization for each school district are: percent of adults with no high school diploma, percent of adults with some college education, occupational status, unemployment rate, percent of individuals in poverty, and median family income (New Jersey Department of Education, NJDOE, 2004). Despite the challenges, all schools must adhere to high standards for the achievement of all students, regardless of classifications.

In addition to the NCLB Act, state education bureaucrats created their own accountability systems to monitor student performance and progress. Many of the state accountability systems are based on a combination of student test performance and student progress from the previous year. Linn (2008) found that many of the Florida schools that received an A according to the state accountability system were determined to have performed well by state standards but failed to make AYP. Therefore state bureaucrats and educators may receive false interpretations from some of the current accountability systems that they have made progress toward the achievement of all students. New Jersey districts that did not make AYP from 2005–2009 were as follows: 13% in 2005-2006, 7% in 2006-2007, 15% in 2007-2008, and 16% in 2008-2009 (Center on Education Policy, 2010). For the state of New Jersey, 29% in 2005-2006, 26% in 2006-2007, 35% in both 2007-2008 and 2008-2009 of the schools did not make AYP (Center on Education Policy, 2010). It is likely that fewer schools will be able to make AYP unless there is drastic curriculum reform at the local school district level. Penfield (2010) argued that test policies

aligned with high-stakes student decisions must provide evidence that students had sound educational experiences to assure sufficient opportunities to acquire relevant knowledge and skills.

### **Standards for Testing**

The *Standards for Educational and Psychological Testing* (1999) stated that state and school officials should not solely use one test score as a means to make decisions that have a major impact on students. The decision by the U.S. District Court for the Western District of Texas ruled that the score requirements are acceptable, as long as it is in conjunction with other requirements (Baker & Linn, 2002). The *Standards for Educational and Psychological Testing* advocated for the consideration of student and teacher characteristics to provide a context for student achievement such as attendance, dropout and graduation, instructional resources and curriculum materials, and opportunities for students to learn the content within the standards and curriculum.

### **Students' Performance on NJ ASK**

Educators bear tremendous responsibility for students' futures; therefore, there is an urgency with regard to comprehensive, responsible decision-making. Dewey (1902) said, "What the best and wisest parent wants for his own child, that must [be what] the community wants for all of its children" (p. 7). It is educators' responsibility to break through the narrow educational experiences of the students. The transformation may be unlike the educational experiences of the school leaders and teachers. Chapman and Counts captured his own teaching in the quotation:

Greeting his pupils, the master asked: What would you learn of me? And the reply

came: How shall we care for our bodies? How shall we rear our children? How shall we work together? How shall we live with our fellowmen? How shall we play? For what ends shall we live?...And the teacher pondered these words, and sorrow was in his heart, for his own learning touched not these things. (as cited in French, 1955, p. 42)

Students who attend schools that service the lowest socioeconomic communities do not have the luxury to waste time with inadequate educational preparation through an ineffective curriculum. Charles Eliot argued that curriculum improvement is critical in the creation of opportunities for students in impoverished living conditions (as cited in Tanner & Tanner, 2007). Dewey (1902) stated that “the child is the starting point, the center, and the end; his development, his growth, is the ideal” (p. 9). Over the years, access to education has greatly improved to include underrepresented populations such as students identified as Special Education, English Language Learners, and students with poverty indicators, through the inclusion of accountability. Educators must still be vigilant of reforms that are not research based or that promote a watered-down curriculum. Despite the strides that have been made in education, an arduous task still lies ahead before all students are considered proficient.

The range of scores for each proficiency level was as follows: 250–300 for Advanced Proficient, 200–249 for Proficient, and 100–149 for Partial Proficient. In other words, a student could have scored on the New Jersey Assessment of Skills and Knowledge Grade 5 (NJ ASK5) anywhere between 66.6% and 82.9% and attained proficiency. Upon examination of the proficiency percentages data from New Jersey elementary schools, it was apparent that the highest percentages remained in partial proficiency the majority of the time for both literacy and mathematics among the most vulnerable subgroups (Table 2). In Language Arts, the majority of

students classified as special education, Limited English Proficient (LEP), economically disadvantaged, African Americans, and/or Latinos have scored partial proficient on the NJ ASK 5 (Table 2). In Mathematics, there were fewer students who scored partially proficient, yet the most vulnerable subgroups continued to lag behind higher performing subgroups (Table 1). The students classified as special education and/or LEP were more likely to score partially proficient (Table 1). The percentages significantly shifted for Whites and Asians/Pacific Islanders where there were higher concentrations of students who performed at proficient (P) or advanced proficient (AP) levels.

Table 1  
*Spring 2010 Snapshot Language Arts Literacy and Mathematics Grade 5 Results*

Categories	All students		Special education		Current LEP		Economically disadvantaged	Non-Economically disadvantaged
Proficiency Level	AP	P	AP	P	AP	P	P/AP Combined	P/AP Combined
<b>Language arts literacy</b>	8.7%	54.3%	1.7%	27%	0.6%	20.2%	42.8%	73.7%
<b>Mathematics</b>	41.9%	48.3%	14.6%	36.7%	10.7%	32.5%	63.5 %	86.6%



Table 2  
*Spring 2010 Language Arts Literacy and Mathematics*

Elementary Grade Span NJ ASK Language Arts Literacy Spring 2010

Category	Proficiency %: Partial	Proficiency %: Proficient	Proficiency %: Advanced
General Education	29.1%	60.6%	10.3%
Students with Disabilities	71.2%	20.2%	0.6%
Limited English Proficient	79.2%	25.2%	0.7%
Economically Disadvantaged	57.2%	40.7%	2.1%
African Americans or Black	58.3%	39.3%	2.4%
Hispanics	53.1%	44.1%	2.8%
Whites	27%	62.3%	10.8%
Asians/ Pacific Islanders	17.5%	59.6%	22.9%

Elementary Grade Span NJ ASK Mathematics Spring 2010

Category	Proficiency %: Partial	Proficiency %: Proficient	Proficiency %: Advanced
General Education	14.9%	43.3%	41.9%
Students with Disabilities	48.6%	36.7%	14.6%
Limited English Proficient	56.8%	32.5%	10.7%
Economically Disadvantaged	36.4%	44.5%	19%
African Americans	41.7%	42.6%	15.7%
Hispanics	32.2%	46.0%	21.9%
Whites	12.6%	42.9%	44.2%
Asians/ Pacific Islanders	6.5%	25.5%	68.0%

Note. Retrieved from <http://www.state.nj.us/education/schools/achievement/2011/njask5/> on June 16, 2013.

### **Proximal Variables Related to Student Achievement**

Wang, Haertel, and Walberg attempted to investigate the magnitude of each of the 228 variables on academic achievement from the study's population of 134 educational research experts cited in 179 literature pieces. Through a meta-analysis, they concluded that "[those] variables more closely aligned with students' defining characteristics and educational experiences, meaning experiences proximal to the learner have a greater influence over learning than variables distally related to daily experiences" (as cited in Tramaglino, 2010, p. 4). In particular, Wang et al. (1993) determined that there were 168 statistical relationships in meta-analyses, and the average *t* score was 69 for the quality of instruction; while there were 752 statistical relationships in meta-analyses, and the average *t* score was 51.3 for curriculum design. Proximal variables have a greater influence on student achievement than distal variables. Wang et al. (1993) summarized:

The effective schools literature suggest[ed] that changes in student and school-level performance are related to a variety of proximal variables such as instructional strategies and practices, as well as distal variables such as school restructuring, types of school organization, and state and local policies. (p. 254)

Dewey (1938) stated, "The main purpose or objective is to prepare the young for future responsibilities and for success in life, by means of acquisition of the organized bodies of information and prepared forms of skill which comprehend the material of instruction" (p. 18). The most appropriate approach would be to examine curriculum quality as it is an important component of the total educational program to increase student achievement as measured by traditional standardized tests.

## **Curriculum: Development, Design, and Influential Forces**

For the past two centuries the American curriculum has gone through massive revisions in the quest to best educate the students. The first time curriculum was used dated back to the 17th century at the University of Glasgow as a way to describe a formal course of study that the students completed (Harden as cited in Au, 2007). A dominant theme in the curriculum field has been the need for alignment with a democratic approach where students learn to become citizens. It is aligned with Thorndike's idea of preparation for life beyond school and the skills needed to be able to solve problems relevant to society. Throughout the curriculum revision process, there has also been the need to establish relationships among the various subjects to create coherence and avoid gaps in the framework of the curriculum (Tanner, 1966). The current trend among educators is often what dictates the focus of the curricula.

The design and development of the curricula program in a school plays a critical role in students' learning experiences. Tyler (1949) defined

learning experiences [as] the interaction between the learner and the external conditions in the environment to which he can react. Learning takes place through the active behavior of the student; it is what he does that he learns, not what the teacher does. (p. 63)

Theorists argued for the learner to play a more active role in his/her learning through the teachings of self-direction and social responsibility. Attewall and Domina (2008) argued that over the years, policy makers who are the individuals driving reform continuously expressed discontent with the curricula and content of courses in schools. Due to the dissatisfaction in education, the standardized testing movement and accountability tied to state tests has surfaced.

Studies found that there has been increase time allotted to tested subjects and a decrease in time dedicated to non-tested subjects (Resnik, 2010). From the days of Dewey when he promoted a child-centered approach to today's current system where the majority of the curriculum is driven by standards and standardized testing, there have been a great number of education theories to shape the American curriculum.

There are many individuals who played a significant role in the development and design of the curriculum. The autonomy where schools were able to design curriculum has diminished due to the federal and state mandates of standards and standardized testing. Current trends demonstrate that schools teach to the test; therefore, the curriculum is simplified to basics to cover the content on state tests. Au (2007) argued that knowledge has been geared toward the test; therefore, the content is learned in fragmented pieces within the context of the test. Consequently, schools' curricular programs have further deterred from proven best practices such as *The Eight-Year Study* that proved that a more experimental approach is more effective in student achievement (Tanner and Tanner, 2007). Additionally reports such as *The Cardinal Principles* (1928) with a framework on how to serve the needs of all children have received minimal consideration. The result was curriculum programs with an unbalanced emphasis on the tested subject matters in language arts and mathematics rather than a research-based curriculum paradigm.

The research suggested that proximal curriculum development and design matter in terms of student achievement. Studies such as the Wrightstone study (Wrightstone, 1935), New York City Experiment (Jersild, Goldman, Jersild, & Loftus, 1941), Thorndike's study on mental discipline (1906), and Aikin (1942) stated that the *Eight-Year Study* showed that when

curriculum customization is designed, deliberated, and implemented locally, in close proximity to the students subjected to it, students perform better on measures of academic achievement. Therefore it is critical for school leaders and teachers to work cooperatively to customize the curriculum at the school level (Mackenzie & Bebell, 1951). According to Tanner and Tanner (2007):

The school curriculum is presumably designed not only to inculcate each member of the rising generation in the best elements of knowledge, systematically organized or codified since the dawn of civilization, but also to enable each member of the rising generation to use that knowledge to improve the life of the individual and the life of society. (p. 121)

The social forces in the development and design of the curriculum must be of a democratic nature.

### **Statement of Problem**

French (1955) stated:

Theoretically, the American public school is now open to all the children of all the people, but a realistic view compels us to admit that where a person is born and where he lives still determines to a great extent the amount and quality of the education he will receive. (p. 367)

In 2009, 36% of schools in New Jersey did not meet AYP standards as outlined by the NCLB Act (NJDOE, 2010a). Schools were expected to make significant gains in terms of the percentage of students that attained proficiency over the span of 6 years (Table 3).

Table 3

*AYP Proficiency Targets for NJ ASK*

Content area	Grade span	2008–2010	2011–2013	2014
Language arts	3–5	59%	79%	100%
Mathematics	3–5	66%	83%	100%

*Note.* Source: NJDOE (2010a).

There has been a dearth of empirical quantitative research since the initiation of the NCLB Act on the influence of curriculum quality on student achievement of students in impoverished school communities. Research demonstrates that students from impoverished backgrounds, as a group, never score higher than their wealthier peers on any state tests in any grade level (Tienken, 2011). Furthermore, students classified as poor, as a group, scored much closer to their state-mandated proficiency cut score and in some cases scored below the cut score as a group (Tienken, 2008). Wang et al. (1993) argued that “instituting new policies, whether state, district, or school level, will not necessarily enhance student learning” (p. 244). Furthermore scripted curriculum is in conflict with the literature that suggests curriculum customization contributes to student achievement. With the rapid increase of student performance and growth accountability, there is an urgent need for school leaders to have research-based information on the variables that influence student achievement in the lowest socioeconomic districts in New Jersey.

### **Purpose of the Study**

The purpose of this study was to explain the influence of curriculum customization, in particular design, development, and external forces, on the performance of Grade 5 students on

the NJ ASK in mathematics and language arts in the lowest socioeconomic New Jersey elementary schools. I investigated the strength and direction of the relationships between curriculum quality at the school level and student achievement on NJ ASK 5 mathematics and language arts. With the implementation of policies such as NCLB, there has been limited quantitative correlational research between curriculum quality, in particular customization, and student achievement. It is pertinent for school leaders to further understand the significant variables that impact students' education and learning.

### **Independent Variables**

The independent variables in this study were: curriculum design, curriculum development, influential forces that drive curriculum, socioeconomic status including free and reduced lunch status, teachers with graduate degrees, attendance rates, percentage of special education students, instructional time, percentage of English Language Learners, student mobility, and faculty mobility rate.

### **Dependent Variables**

In this study, the dependent variables were the Grade 5 student performance on the NJ ASK language arts and mathematics.

### **Research Questions**

Through multiple regression analysis, I attempted to determine the strength and direction of the relationships between curricular and non-curricular variables and student performance on the NJ ASK 5 mathematics and language arts. The central question of this study was: How does curriculum quality influence the school level aggregate performance of Grade 5 students on the

New Jersey Assessment of Skills and Knowledge (NJASK) language arts and mathematics? The two sub-questions that were addressed to further examine the primary question were:

Research Question 1: What is the strength and direction of the relationship between curriculum quality, specifically curriculum design, curriculum development, curriculum influential forces, and student achievement on NJASK?

Research Question 2: What are the statistically significant school variables aggregated to the school level that explain the largest amount of variance in student achievement in language arts and mathematics as measured by NJASK5?

### **Null Hypothesis**

Null Hypothesis 1: There are no statistically significant relationships between curriculum quality and students' language arts nor mathematics proficiency level on the NJ ASK for the 2010-2011 school year within New Jersey school districts classified with a district factor grouping A, in particular elementary schools with a fifth grade.

Null Hypothesis 2: There are no statistically significant relationships between research-based school variables aggregated to the school level that predict student language arts and mathematics achievement outcomes as measured by the 2010-2011 NJ ASK 5.

### **Significance of the Study**

This research contributed to the present body of knowledge of elementary school students' performance on standardized testing in the state's lowest socioeconomic districts. With the pressures placed on school leaders and teachers to accelerate students' proficiency levels, there is a need for insight on the curriculum practices in New Jersey school districts. The study was most aligned with the Educational Leadership Policy (ELP) Standard 1. The first standard



stated, “An education leader promotes the success of every student by facilitating the development, articulation, implementation, and stewardship of a vision of learning that is shared and supported by stakeholders” (ELP, 2008, p. 20). Under this standard falls the idea that curriculum plans, as well as the monitoring and evaluation of the plans, are critical in the achievement of instructional goals.

### **Conceptual Framework**

In order to better comprehend the curriculum decisions and practices implemented by school district administrators it was pertinent to further examine additional concepts that relate to the study. A historical overview to demonstrate the significant events in the American curriculum has been examined for the purposes of this study. Then, the curriculum paradigm concept and its purpose are necessary to include as part of this investigation due to the focus on Grade 5.

### **Historical Events**

Through the decades, the American curriculum has gone through massive revisions in the quest to best educate the students. Educators, researchers, and policy makers have all contributed their opinions on how curriculum design and delivery of content should occur at the school level. Instruction consisted of reading, listening, memorizing, and repeating without mastery of the concepts or in-depth understanding. In the colonial elementary school, the curriculum was centered solely on literacy; therefore, students received a narrow education that consisted of a small reading and religion volume (French, 1955). A dominant theme in the curriculum field has been the need for the alignment of school curricula with a democratic approach where students learn to become citizens. This is aligned with Thorndike’s idea of

preparation for life beyond school and the skills needed to be able to solve problems relevant to society. One of the most common themes observed was the need to shift the attention to interrelations among the various subjects to create coherence and avoid gaps in the framework of the entire curriculum (Miel as cited in Tanner, 1966). With the industrial growth, the movement for universal public elementary education arose as an avenue to provide the skills related to the present jobs (Bernal as cited in Jenkins & Tanner, 1992). The majority of the people were subjected to a basic literacy curriculum, whereas the privileged were educated with a well-rounded, enriched curriculum (Jenkins & Tanner, 1992). Despite all of the curriculum revisions and initiatives, a significant racial and socioeconomic divide persisted. The privileged were provided with a world-class education; the poor were provided with a watered-down curriculum.

### **Philosophy and Curriculum Paradigm**

The two most dominant philosophies in education have been essentialism and progressivism. The conservative essentialism viewpoint has been dominated by a back-to-the-basics approach with an emphasis on the status quo. Tanner and Tanner (2007) stated that “the back-to-basics retrenchment was to extend throughout the 1970s and 1980s, buttressed by statewide minimum competency testing and national standardized tests of academic achievement” (p. 201). Thirty years later essentialism is dominant in many schools that teach to the test. In the early 1990s, a concern for the decrease of achievement expectations through testing became a dominant topic of discussion. With this concern came the rise of the progressivism philosophy, a student-centered, problem-based approach, advocated by individuals such as Dewey and Kilpatrick.

Despite the advantages and disadvantages of philosophies of education, it is critical for educators to find a research-based paradigm that will guide the curriculum vision. The dominant essentialism philosophy still remains in schools across the country. Therefore the curriculum paradigm is a tool to guide educators to develop and design the most appropriate curriculum for their students. It takes into consideration the learner, subject matter, and social forces. As early as 1891, Hall argued for curriculum content driven by the development of the child and individualized to meet the students' needs (Tanner & Tanner, 2007). This approach is driven by the theory of human development where the emphasis is placed on the development of the child rather than all students have to learn the same content and pace.

### **Limitations**

One limitation in this study was the use of a cross-sectional survey to gather information on curriculum quality. Although the collected data provided an immediate snapshot of the curriculum practices in the lowest socioeconomic school districts in New Jersey, it was difficult to identify longitudinal trends over time. Additionally the response rate may be a limitation that may greatly impact the findings of the study. When the percentage of responses received is low, there is a concern about generalizability of results because they may not represent a realistic perspective of all of the DFG A school districts in New Jersey (Gay, Mills, & Airasian, 2008).

A second limitation was the primary focus on the curriculum quality as influencing student achievement on the NJ ASK 5. This was an assumption that the quality of curriculum, in particular curriculum design and development and influential forces, were the only variables that influenced student performance. Schools are complex organizations that are composed of a number of variables that influence student achievement. Research-proven variables such as class

size reduction and improvement of teacher quality may be probable strategies (Lee & Wong, 2004, p. 798). Therefore it was critical for me to be aware of other influential variables and consider other variables. Additionally the target population was fifth grade students; therefore, I did not account for elementary school students' curriculum quality from Pre-K/K to fourth grade.

A third limitation was the design of the study as correlational, not experimental. Leech, Barrett, and Morgan (2011) and Airasian, Gay, and Mills (2008) defined correlation research as statistics collected from the data to determine the degree of the association or relationship between two or more quantifiable variables. A correlational study identifies the relationship between the dependent variables and independent variables. Consequently the results of the study did not lead to conclusions regarding cause and effect relationships among the variables.

### **Delimitations**

One delimitation in the study was that I only focused on the lowest socioeconomic districts in New Jersey. The rationale for the specific focus was that there was an urgent need to determine research-based practices that may increase student achievement as well as test scores in the lowest socioeconomic districts. Within the DFG A school districts, the specific focus is on the fifth grade students. Elementary schools set the foundation for future education. Fifth grade is the final and transition year before students enter the middle school years, making it an important year. The remaining students' proficiency scores on the NJ ASK were analyzed as part of this investigation. Additionally the standardized testing data were based on a grade level not individual students' performance because of lack of access and confidentiality.

A second delimitation was that the cross-sectional survey that was distributed to the targeted districts captured a general overview of their curriculum process; therefore, it did not

take into account the type of specific literacy and mathematics instruction nor the non-tested subject matter.

### **Definition of Terms**

For the purposes of this study the following terms were defined:

*Achievement gap* is the disparity between student achievement and certain subgroups of students, especially those students who are in the lowest socioeconomics spectrum and certain racial groups.

*Advanced degrees* refer to the percentage of teachers who possess a master's degree.

*Attendance rates* are:

The grade-level percentages of students on average who are present at school each day.

They are calculated by dividing the sum of days present in each grade level by the sum of possible days present for all students in each grade.

*Class size* is the

Average class size for elementary schools (Pre-K–8) based on the enrollment per grade divided by the total number of classrooms for that grade.

*Curriculum customization* involves the process that schools participate in to design and develop curriculum at the local level.

*Curriculum quality* is the framework that captures all of the students' educational experiences under the school's guidance, including the goals and objectives; breadth, depth, and content and subject matter organization; instructional strategies; learning activities; utilization of resources; time and space; grouping patterns; and assessment of achievement (Goodlad &

Associates as cited in Gehrke, Knapp, & Sirotnik, 1992; Kearney & Cook as cited in Goodlad, 1966).

*Curriculum paradigm* is a combination of thoughts and methodology in curriculum to make progress through authentic problem solving (Tanner & Tanner, 2007, p. 125).

*Cross-sectional survey* is “data collected from selected individuals at a single point in time” (Gay, Mills, & Airasian, 2008 p. 176).

*District factor groups* (DFG) are used to compare students’ performance on state standardized assessments across demographically similar school districts. The DFG is an indicator of the socioeconomic status of residents in each school district. The following information was utilized to determine the DFG classification: percent of adult residents who failed to complete high school; percent of adult residents who attended college; occupation status of adult household members (laborers, service workers, farm workers, operatives and kindred workers, protective service works, sales workers, clerical and kindred workers, craftsmen, foreman, and kindred workers, quasi-professionals, managers, officials, and proprietors, old and new professionals); population density (persons per square mile); income (median family income); unemployment (percent of those in the work force who received some unemployment compensation); poverty (percent of residents below the poverty level) (NJDOE, 2004).

*Faculty mobility rate* is the rate is calculated by determining the number of faculty who entered or left the school after October 15th divided by the total number of faculty on the same day.

*Instructional time* is the amount of time per day that a student is engaged in instructional activities facilitated by a certified teacher.

*Limited English Proficient (LEP)* is the percentage of LEP students in the school. It is calculated by dividing the total number of students who are in limited English proficient programs by the total enrollment. Please note that English Language Learners (ELL) is synonymous.

*NJASK* stands for New Jersey Assessment of Skills and Knowledge. The mathematics and language arts assessments are administered to students in Grades 3 through 8.

No Child Left Behind Act (NCLB) was signed into law by President George W. Bush in 2002 “to ensure that all children have a fair, equal, and significant opportunity to obtain a high-quality education and reach, at a minimum, proficiency on challenging State academic achievement standards and State academic assessments” (NCLB, 2009).

*Proficiency levels* are the performance level descriptors (advanced proficient, proficient, and partial proficient) on the NJ ASK language arts and mathematics.

*Student mobility rate* is calculated by adding the students entering and leaving after the October enrollment count divided by the total enrollment.

*Students with Disabilities* on the NJ School Report Card represent the percentage of students with an Individualized Education Program (IEP). It is calculated by dividing the total number of students with IEPs by the total enrollment.

## **CHAPTER II**

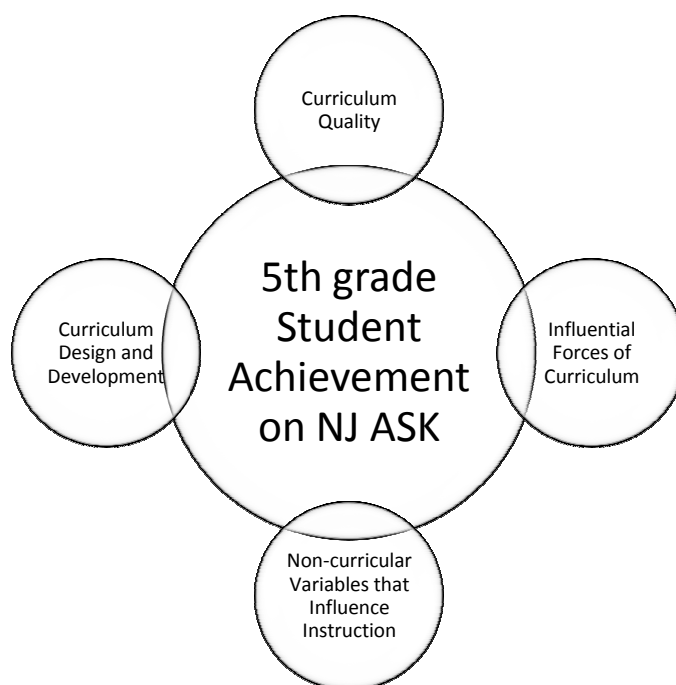
### **REVIEW OF LITERATURE**

In this chapter, I present an overview of the research and literature related to 12 curriculum and non-curricular variables that are common characteristics of schools. The purpose was to identify the influence of curriculum practices that might have an influence on students' learning experiences. In this study I examined how the curriculum quality, in particular design, development, and forces of influence, in the lowest socioeconomic (SES) New Jersey school districts influence the performance of fifth-grade students on the New Jersey Assessment of Skills and Knowledge (NJ ASK).

The other proximal variables were attendance rate, instructional time, percentage of teachers with graduate degrees, percentage of students categorized as free status, percentage of students categorized as reduced lunch status, percentage of students identified as Limited English Proficient (LEP), percentage of students identified as special education, student mobility rate, and faculty mobility rate. I first provided the research and literature on the significant events of the curriculum in the United States. Through a review of literature, I examined the elementary school curriculum, in particular the design, development, and influential forces. Upon the conclusion of the research and literature, I defined curriculum quality. The review of literature was composed of the following sections: (a) history of the curriculum, (b) curriculum development, (c) curriculum design, (d) external forces that influence curriculum, and (e) high-stakes testing. I also included a review of the variables that have longstanding history of influencing overall student achievement: (f) student attendance, (g) total instructional time, (h) student economic status, (i) percent of Limited English Proficient students, and (j) percent of



students with individual education plans (IEP). In order to make informed decisions that will provide students with the highest instructional program, it is pertinent for school leaders and teachers to become aware of the variables that significantly influence student achievement.



*Figure 1. Guiding variables for literature review.*

### **Literature Search Procedures**

I began the review of this chapter by reading books centered on the history of curriculum trends and practices. I also used online databases such as JSTOR, ERIC, SAGE, Academic Search Premier, and the American Educational Research Association array of journals. Throughout the literature review of a variety of studies, I reviewed studies that used quasi-experimental, meta-analysis, case studies, and/or nonexperimental designs. Through the search, I attempted to identify educational reform trends to understand the historical aspect of curriculum.

### **Methodological Issues in Studies of Predictors on Student Achievement**

In order to fill in the gaps due to the shortcomings of particular studies, there was a need for a combination of methodology. As I read the literature, I encountered a few difficulties due to the literature on the variables, especially the non-curricular variables, in the prediction of student achievement. Overall, there was a lack of experimental and quasi-experimental studies that determined cause and effect. Also, the results cited in the literature overall provided mixed results across various studies. Kalmus (2004), among others, have proposed the “supplementary use of more direct and intensive methods, such as questionnaires with open-ended questions, longitudinal follow-ups, extended or in-depth interviews, systematic (classroom) observation, experimental research, and autobiographical storytelling” (p. 477). The research, in particular the use of more direct and intensive methods, was scant for authentic conclusions. Furthermore, many of the major studies on curriculum are on secondary education; therefore, it was difficult to conduct an extensive search on elementary education. Due to their significance in education, some of the major secondary education studies were also included in the literature review.

### **Inclusion and Exclusion Criteria for Review of Literature**

Studies that met these criteria were included in this review:

1. Experimental, quasi-experimental, case studies, textual studies, meta-analysis, or non-experimental with control groups studies.
2. Peer-reviewed journal articles or dissertations.
3. Published within the 19th, 20th, and 21st centuries to capture the historical aspect and synthesize the educational reforms.

4. Included the use of curriculum, design, development, influential forces, standards, and high-stakes testing.
5. Books and seminal works on the history and philosophical underpinnings of curriculum.
6. Government and professional association reports.

### **Review of Literature on Variables**

#### **Significant Events in the American Curriculum**

As educators and policy makers experiment with reform and educational initiatives, the primary purpose of education remains to prepare our students for future responsibilities and a successful life through the “acquisition of the organized bodies of information and prepared forms of skills which comprehend the material of instruction” that will cause significant changes in their behavior (Dewey, 1938, p. 18; Tyler, 1949, p. 44). All students, regardless of socioeconomics, ethnicity, gender, and classifications, are entitled to a quality education.

Cremin (1961) synthesized Horace Mann’s belief for unification:

The common school was to be rich and poor alike, not only free but the equivalent in quality of any comparable institution. In it would mix the children of all creeds, classes, and backgrounds, the warm association of childhood kindling a spirit of mutual amity and respect, which the strains and cleavages of adult life could never destroy. In social harmony, then [Horace] Mann found the primary goal of school. While the common school was also to serve fundamental economic and political functions, the present focus will be on the universal access to and the unifying function of the common school... (p. 524)

Influential initiatives such as the curriculum and assessment standards movement, standardized testing programs, and NCLB Act exerted centralized external forces on curriculum development and design across school districts in the United States. The latest educational fads have diminished over time to be replaced with a new initiative, but the effects on our most vulnerable students have been permanent. There is a need to create rigorous curricula programs that hold all educators accountable for their effectiveness as well as provide all students with an effective research-based instructional program.

The quest for the most suitable curriculum has been a struggle from the inception of the public school system. As early as the 1820s, James G. Carter revealed the destitute state of free schools and the urgent need for improvement. During the early 19th century, Horace Mann argued for schools common to all people. Thomas Jefferson's overarching goals of education were: "to develop an intelligent citizenry and to provide educational opportunities that guarantee each individual the chance for optimal development," and they should be at the forefront of the curricular decision-making (Tanner & Tanner, 2007, p. 4).

One significant education reform has been the No Child Left Behind Act of 2001 (NCLB) that originally mandated that all students perform at or above proficient levels in reading and mathematics by the end of the 2013-2014 school year (U.S. DOE, 2009). The advertised purpose of NCLB was to provide all children with a fair and equal chance to a high-quality education as well as earn proficiency scores on rigorous state academic standards and assessments (NCLB, 2009). Wallis (2008) reported in an interview with Susan Neuman that some of the key players in the creation of the NCLB viewed the reform as a way to bring down the public school system and expand the market system and vouchers in the United States.

National education bureaucrats expected children across the country to achieve proficiency on state-mandated summative tests regardless of where those students might have started out academically in their school careers. Due to the 13-year old initiative, attention shifted to student achievement for all groups of students and the dismal performance of the most vulnerable subgroups in the United States. Due to the varied interpretation of proficiency defined by the states, there might be some discrepancy in what constitutes proficient. Brown and Clift (2010) described the proficiency articulation dilemma that states face as one of low academic standards to allow for more schools to attain AYP.

Defining proficiency at a fairly low standard will ensure that more of the schools at the left end of the spectrum will fall within the basin of attraction and that the distance the AYP mark moves will be smaller. Therefore a larger group of schools remain to the right of the basin and never challenged to raise its standards. States that define proficiency at a high standard achieve the reverse: Better performing schools are challenged to improve the rigor of their curricula, while low-performing schools are more likely at some point to fall too far behind. (Brown & Clift, 2010)

Consequently, those schools that have set higher expectations for their students, as compared to the standards the state education bureaucrats have set, their students may be more likely to face punitive consequences. Papay, Murnane, and Willett (2010) discovered evidence that state testing scores can have significant effects on the students' life decisions on whether to remain in school or pursue higher education, especially if the student is from an urban, low-income environment (as cited in Brown & Clift, 2010).

Case studies were conducted in California, Pennsylvania, and Georgia to investigate the mathematics and science instructional practices at elementary and middle schools after the implementation of NCLB. One noted observation was the implementation of a centralized curriculum composed of a pacing calendar with no room for teacher discretion. The curriculum received mixed reviews from teachers (Brown & Clift, 2010). In one of the middle schools, the principal advised teachers to deter from open-ended work that encouraged higher level thinking for multiple-choice work that reflected the tests (Brown & Clift, 2010). It is apparent that the students were not challenged, and a culture of lower level work was promoted for the sake of the state tests. Consequently the content covered on the tests served as a curricular ceiling rather than the law's intention to add rigor to the curriculum (Brown & Clift, 2010). There is a heavy emphasis on tested subjects, whereas the non-tested subjects are not addressed as frequent or eliminated all together.

Furthermore the structure of teaching subject areas in isolation continues to be a trend. During the first half of the 20th century, there was an emphasis on the self-contained structure for the elementary classroom. In this structure, one teacher taught virtually all subjects with the idea that they will have a comprehensive understanding of each individual student. With the knowledge of each student, this will encourage teachers to teach content more in-depth and integrate content across all subject areas. Tanner and Tanner (2007) argued that the opposite occurred as the focus became the fundamental skills for each subject area in a fragmented structure. Research repeatedly shows that teaching students through a fragmented approach does not promote student learning and retention. The fragmented approach is compounded with problems around untrained teachers, inadequate instructional materials, ineffective instructional

strategies, and lack of evidence for student learning. Consequently the more traditional teaching approach of memorization of isolated subjects rather than the conceptual understanding of the content continued to be the norm.

There has been debate on the experiences and content of education from as early as 1749 in Franklin's *Proposal Relating to Education of Youth in Pennsylvania*. Despite the push for education reform, students from the lowest socioeconomics were placed at a disadvantage. From the beginning, there was experimentation with a dual system of education where instruction geared for the poor tended to be more mechanical, whereas education for the well-to-do involved higher critical thinking skills. There were some American cities that had segregated the poor students from the rich. James C. Carter was concerned that the free schools might become mechanized seminaries to educate the poor while the private institutions would offer an advanced curriculum for the rich (as cited in Tanner & Tanner, 2007). The foundation of injustice for impoverished students was further promoted through the monitorial instruction. In place of authentic instruction, the monitorial or Lancastrian system derived in London consisted of one teacher who taught the scripted curriculum to some students. Then, the students assigned as monitors taught the rest of the students (Tanner & Tanner, 2007).

In the 20th century, mechanistic instruction resurfaced in major cities. Through mechanistic instruction, students in urban communities remained as passive learners without opportunities to engage in meaningful learning. The struggles continued around how to educate students through the most appropriate knowledge. There was a combination of pedagogical knowledge of religious views about salvation and scientific being towards how truth and self-

control should be pursued (Popkewitz, 1997). Transformation is a difficult process due to individuals' habits of ingrained practices. Dewey (1902) argued,

We get used to the chains we wear, and we miss them when removed...Unpleasant, because meaningless, activities may get agreeable if long enough persisted in. It is possible for the mind to develop interest in a routine or mechanical procedure, if conditions are continually supplied which demand that mode of operation and preclude any other sort. (p. 36)

Often times it is easier to leave things the way they are rather than work towards reform. One example is the disproportionate emphasis on direct instruction through drill and recitation of low cognitive level teaching and learning without room for professional discretion (Tanner & Tanner, 2007). It was viewed as a way for poor students to catch up to the other students. As far back as the 16th century, Francis Bacon argued against rote learning and recitation, although ineffective strategies continued to reappear in the classrooms. Three centuries later Francis W. Parker found that elementary school students in Quincy, Massachusetts did not perform at grade level in reading, writing, or speaking as their curriculum focused on rote learning and recitation. The teachers taught the students to memorize test information, including the passages and responses to questions that gave a false impression of their understanding. Dewey (1938) summarized and French (1955) emphasized, What we want and need is education pure and simple [with the child at the center], and we shall make surer and faster progress when we devote ourselves to finding out just what education is and what conditions have to be satisfied in order that education may be a reality and not a name or a slogan. All of the decision-making and actions should circle back to the individual needs of the students.



## 21st Century Skills Curriculum in the Post NCLB Era

The 21st century skills curriculum approach is about a *thinking* curriculum that pushes the curricula program beyond the basic skills. A thinking curriculum centers around high cognitive demanding instruction that involves conceptual learning, reasoning, explaining and problem solving on a daily basis integrated in all subject matters (Resnik, 2010). More than 25 years ago Resnick (2010) defined higher order thinking characteristics as involving multiple solutions, interpretations and judgments, application of a multitude of knowledge and skills, self-regulation. Almost 100 years ago the authors of the *Cardinal Principles of Secondary Education* (1928) presented a set of skills that seem very similar to those now marketed and sold as 21st century skills. They included skills in reading, writing, arithmetic computation, oral and written expression, and lifelong skills.

Rote learning to memorize predetermined facts is not central in a thinking curriculum. It goes beyond the basics of learning and takes on a more global perspective. This will require another shift in thinking among policy makers and educators as many American students do not have world knowledge; therefore, they are not prepared to compete and lead in a global work environment (Zhao, 2009). This type of thinking is tied to Darwin and William James' argument that learners have to be doers that help change the world; therefore, there is a need for a diversified curriculum to meet the objectives (Tanner & Tanner, 2007). Dewey argued that it is important to allow students to control their environment and not just adapt to it. The shift in thinking will focus on the recognition and cultivation of the individual child's strengths rather than on the focus of the child's deficiencies (Fox as cited in Zhao, 2009, p. 188). It is about taking a more proactive approach to broaden students' skills.

Through the integration of a thinking curriculum, students are exposed to lifelong skills that have real-world applications. Tyler (1949) found that “studies of learning in this field indicate that as students are faced with problems which they cannot answer immediately, it is more likely that they will be led to various types of thinking” (p. 69). It pushes students’ thinking beyond finding the solutions in a text to synthesize prior and new knowledge. One education framework that advocates for 21st century knowledge and skills promotes the belief that “every child in America needs 21st century knowledge and skills to succeed as effective citizens, workers, and leaders in the 21st century” through the integration of core subjects coupled with twenty-first themes; learning and innovation skills; information, media, and technology skills; and life and career skills (Partnership for 21st Century Skills, 2007). The idea is to create a curriculum that integrates life-long skills to prepare students for life beyond school. An alternative framework, *enGauge 21st Century Skills: Literacy in the Digital Age*, emphasizes digital-age literacy; inventive thinking (e.g., creativity, risk-taking); effective communication; high productivity, and quality results (Lemke, Coughlin, Thadani, & Martin, 2003). The skills emphasized in the framework should be integrated within the academic standards.

A case study in Scotland examined a thinking curriculum and the idea of learning to learn in computing studies. The method of teaching was problem-solving approach where students directed their own learning, collaborated with their peers, and learned from their teachers. Kirkwood (2000) found that students learned how to program, even at the elementary level, through this approach. The student programs were not only well designed but also ran without error messages, contained relatively few logical errors, were correctly sequenced, and user

friendly (Kirkwood, 2000). The students learned or further developed a wealth of higher order skills: problem-solving, metacognition, and self-regulation.

### **Common Core State Standards Initiative**

The most recent in curriculum reform has been the Common Core State Standards (CCSS) with the advertised purpose of providing a standardized, national framework that prepares students for college and the workforce, although there is no independent empirical evidence to support the claim. The idea is that implementation of the standards will allow students to be able to compete at national and global levels. When educators take the CCSS into consideration, they should have the mindset that it is the minimum rather than the maximum. It is educators' responsibility to use their expertise and experience to customize the CCSS to meet the needs of their particular students. Research demonstrates that proximal variables are the ones that have greater influence on student achievement rather than distal variables such as state and local policies. The CCSS place greater emphasis on the distal variables rather than the proximal variables. In the elementary school level, the kindergarten through fifth grade standards have been categorized into reading, writing, speaking and listening, and language for English Language Arts, then further broken down into specific skills. The elementary school mathematics standards focus on whole numbers, addition, subtraction, multiplication, division, fractions, and decimals through procedural skill and conceptual understanding. The inclusion of conceptual understanding within the standards emphasizes higher level content and skills beyond the factual knowledge. The critics argued that the Common Core State Standards will: (a) lower the states' standards to the minimum, (b) dictate to teachers what they should teach, and (c) create a national curriculum that will not allow for differentiation to meet the needs of the

students. Due to the standardization of the curriculum, Tyler would have argued for the opposite. Tyler (1949) stated, “The school’s efforts should focus particularly upon serious gaps in the present development of students” (p. 8). The needs approach to the educational program emerged during a period of the attack of the curriculum for the lack of connection in students’ needs and concerns (Taba as cited in Bullough & Kridel, 2003). With the implementation of the Common Core State Standards, educators will have to adhere to prescribed standards. Therefore, teachers must be creative with how to integrate the standards and differentiate instruction to meet the needs of each individual student. Research suggests that teachers increase their effectiveness when they attempt to understand each child as an individual (Kagan as cited in Meece & Daniels, 2008).

### **Standards-Based Curriculum**

During the Committee on Economy of Time meeting in 1918, reports promoted the establishment of minimum essentials for elementary school subjects in the quest to improve the current practices. Kliebard (2004) stated:

Minimum essentials were simply the educational counterpart to production standards or quotas where fixed amounts of learning, presumably determined by scientific means such as questionnaires and frequency studies of errors made by children, were presented as the factual and skill requirements in various subjects. (p. 137)

Over the past 30 years, states have adapted standards to guide curriculum development within the schools. In 1983, the release of *A Nation at Risk: The Imperative for Educational Reform* caused a panic about the American education compared to other industrialized countries. The main argument was that the public schools were at fault for the supposed decline of

American competition over global industrial markets. The report argued, “Our nation is at risk” because “our once unchallenged preeminence in commerce, industry, science, and technological innovation is being overtaken by competitors throughout the world” (National Commission on Excellence in Education, 1983, p. 1). Elementary schools were urged to begin high school preparation. In order to address this problem, standards and high-stakes testing to hold schools accountable were at the forefront. Zhao (2009) argued that the report advocated for increased federal control, in particular in the following areas:

1. The negative portrayal of American education continues to be at the forefront in international studies such as TIMSS and PISA, scholarly writings, and media outlets. The emphasis continues to be how other countries outperform American education.
2. The report “helped make a smooth transition from the Cold War to the global economy as a rationale for viewing education as a national security issue” (p. 28).
3. It sets the foundation for the increase control by the federal government in education.
4. Witnessed an increase for business people to become accepted speakers and advocates of education.

Supporters of standards claimed that the initiation of standards was a strategy to improve academic programs as well as push students’ performance to higher levels. Currently it provides a series of aims to align the curriculum and instruction for each identified subject matter. While enhancing the academic achievement of all students, it would balance educational options (Clune as cited in Ogawa, Sandholtz, Flores, & Scribner, 2003). The pro-standards stance was that it will aid in the closing of the achievement gap as consistency is more apparent across all grades

and classrooms. The vendors of standards advocated that missing gaps in major content areas will be addressed through a comprehensive set of standards.

The *Sandia Report on Education* (1993) discredited *A Nation at Risk: The Imperative for Educational Reform* through their findings on an improvement on public education. Their findings of positive outcomes from public schools did not reach the mass media because the results contradicted the views of many. Huelskamp (1993) shared the following conclusions from *The Sandia Report*:

1. The American high school completion rate ranked as one of the highest in the world.
2. The dropout rate was inflated by the increasing immigrant population within the schools.
3. The influential factor of decreasing SAT scores was due to the increased participation from students in the lower percentiles.
4. The increased spending on education was dedicated to special education not the overall education system.

By the same token, the *Sandia Report* (1993) acknowledged concerns on the performance of minorities and lack of workplace training compared to countries such as Japan and Germany (Huelskamp, 1993).

Opponents of the standards movement argued that it sets minimum standards to which educators would be obliged and would discourage the establishment of higher expectations. Tramaglini (2010) found that “empirical evidence also indicated that when schools use canned-curriculum or just implemented the standards as a curriculum, student achievement might decrease” (p. 28). Ogawa et al. (2003) found that “...although standards provide a focus for instruction, they marginalize important content, reinforce low academic expectations for district

students, and thus potentially undermine broader purposes of quality in education” (p. 169).

Multiple studies have identified a trend in the emphasis of standards implementation. As educators engage in curriculum development, they must take into consideration content and skills beyond the standards. Overall the standards should be accessed as guides rather than a comprehensive document that encompasses the entire school curricula program.

### **Goals 2000: Educate America Act 1994**

Goals 2000 was an initiative that emerged in 1994 from President Clinton’s administration in his attempt at a national curriculum. The idea was to set national educational goals to be achieved by 2000 around “school readiness; school completion; student achievement and citizenship; teacher preparation and professional development; mathematics and science; adult literacy and lifelong learning; safe, alcohol- and drug-free schools; and parental participation” (Zhao, 2009, p. 36). Federal funding was allocated for the creation of national standards. The major educational emphasis was on job preparedness. Students were expected to learn how to reason, solve problems, apply knowledge, and write and communicate effectively, as well as be active in activities that promote and demonstrate good citizenship, healthy, community service, and personal responsibility (Goals 2000: Educate America Act, 1994). The idea of students assuming active roles in real-world activities was emphasized through Dewey’s beliefs. Cremin (1961) argued that the “school must never be isolated from life, the child must always be an active participant in the learning process, teaching must never be dull and external...” (p. 198). Wraga (1999) highlighted that the abilities and activities resembled progressive general education perspectives, but there was a lack of application to the general task of living. Instead the process and outcome steered away from a progressive philosophy and not

aligned with the beliefs of progressive educators such as Dewey. Unfortunately most of the goals set by the legislation were not met by the 2000 deadline. Consequently the push continued for standards and assessment to hold educators accountable.

### **Curriculum Driven by High-Stakes Testing**

The seed for high-stakes testing was planted during the emergence of intelligence tests. The IQ test, designed by Binet, promoted the belief that students' learning capabilities were a reflection of their abilities based on the test results. Intelligence and achievement tests sorted the students into curricular tracks based on their performance. Unfortunately we have witnessed in education and even in the Army how these sorts of tests are a means of exclusion for many individuals. The military have utilized aptitude tests to screen potential individuals for military service. In 1917-1918, the Army Alpha and Army Beta were developed as a measurement of the ability of the military personnel. The Army Alpha measured verbal ability, numerical ability, ability to follow directions, and knowledge of information; while the Army Beta evaluated the aptitude of illiterate, uneducated, or non-English speaking draftees and volunteers (Armed Services Vocational Aptitude Battery, n.d.). These sorts of tests became the prototypes for today's achievement tests. Jenkins and Tanner (1992) argued,

Real achievement in education and life is based on motivation and power, not the speed and nervous energy of test-taking. Because these tests are limited to narrow segments of the school curriculum, they convey the message that only these segments really count.

(p. 10)



With the significant emphasis on testing, accountability measures have been put in place for the tested subject matters; while critical areas such as the arts, community service and responsibility, and the sciences are abandoned (Baker & Linn, 2002).

When accountability became part of the jargon in the education field, one of the most significant solutions was the creation of high-stakes testing. The Sputnik era in the late 1950s and early 1960s helped to drive this trend due to Americans' fear that students had fallen behind and will not be prepared to compete at a global level. Consequently it led to the creation of the National Defense Education Act (NDEA) in 1958 to provide federal aid in return for federal influence on curriculum programs to public and private education (U.S. Department of Education, 2008). The NDEA provided financial support to college students; vocational-technical training; funding for graduate fellowships; and instructional improvement in elementary and secondary schools in the areas of science, mathematics, and foreign language (U.S. Department of Education, 2008). Meece and Daniels (2008) noted that 1960s educational reformers argued that there was a lack of relevant learning experiences; therefore, the focus was on more hands-on and real world experiences programs (p. 7).

Based on students' performance on state tests, schools may face restructuring, administrative and teacher replacements, and closure. Au (2007) argued that the content knowledge is often presented in fragmented test-related material through teacher-centered instruction. Consequently "facts are torn away from their original place in experience. Classification is not a matter of child experience; things do not come to the individual pigeonholed" (Dewey, 1926, p. 10). The increased high stakes have pressured educators to create curricula programs that reflect the content and format of tests that occur once a year. This

is quite the divergence from the educators such as Dewey who advocated for a more child-centered, activity approach. The schools that tend to “teach to the test” and narrow the curriculum most frequently are the ones with those students from the lowest socioeconomic statuses who need to provide students with a more comprehensive “whole child” curriculum to meet their academic, sociocultural and social needs (Knaus, 2007). With the NCLB and testing policies, schools [with the most vulnerable student populations] tend to focus on rote educational strategies. Consequently, rote memorization conflicts with higher level critical thinking skills valued in elite schools, colleges, and the workplace (Brantlinger, 2003; McDonough, 1997). High-stakes testing serves as an accountability measure, yet the most vulnerable students, those from poverty, continue to lag behind. Despite the decades of desegregation and bilingual education legislation, White and Asian students continue to outperform Latino and African American students; therefore, educators still bear the challenge to provide equal educational opportunities for all students (Meece & Daniels, 2008, p. 16). The focus becomes complete alignment with the test, and other higher order thinking skills are not addressed due to the exorbitant amount of time dedicated to test preparation. Madaus (1999) stated that teachers become familiar with the format (e.g., multiple choice, short answer, and essay) of the test to reflect instruction (p. 75). The reality is that educators, especially in the lowest socioeconomic districts, are forced to take the high-stakes into consideration due to the severe consequences for their students. Unfortunately Madaus (1999) stated that “measurement-driven instruction invariably leads to cramming; narrows the curriculum, concentrates attention to those skills most amenable to testing, constrains the creativity and spontaneity of teachers and students, and

finally demands the professional judgment of teachers” (1999, p. 75). Oftentimes the schools with test-preparation curriculum and extended day programs are located in urban school districts.

Tanner and Tanner (2007) argued,

The testing pandemic has mitigated notable efforts in curriculum design and articulation for a core curriculum in general education, and instead it instituted a segmental and disjointed set of standards as measured by national and state test scores. Although improvements have been made in the tests over time, the pedagogical response has been teaching to the test and how can they attain higher tests scores, as opposed to the process of education as a stimulating and challenging shared endeavor. (p. 144)

The alarming effects have been a lack of transfer of learning. Despite the technical innovations in testing from multiple-choice formats to a variety of forms, Clarke, Madaus, Horn, and Ramos (2000) concluded there is a need to monitor the effects of these tests on teaching and learning because there is evidence that the innovations have lead to more effective tests or better outcomes (p. 159).

On the contrary, critics have argued that it is a tool to hold schools accountable for their students’ performance. More specifically, assessments are a crucial component to hold district personnel accountable for their students’ performance. In recent years, there has even been performance pay for students’ performance and growth on standardized testing. Au (2007) stated, “A small but important number of studies exhibited the theme of increased student-centered instruction as an effect of high-stakes testing” (p. 263). Some research has claimed that the tests have led to improved learning experiences and positive educational outcomes that promote measurement-driven instruction. Advocates of testing argued:

If the skills were well chosen, and if the tests truly measure them, then the goals of instruction are explicit; teacher and student efforts are focused on well-defined targets; standards are clear and uniform; accountability at all levels is easier and more objective; and the public has concrete information on how well the schools are doing. (Madaus, 1999, p. 74)

Essentially the need for tests from advocates goes back to having a tool for accountability in the schools.

In order to ensure that schools provide all students with the best education possible, accountability has to be part of the educational arena. Testing should be part of the accountability plan, but their use should be informative rather than punitive. Inglis believed that tests should serve as instructional tools that allow for instructional adjustment to serve individual needs (Wraga, 2006). On the contrary, high-stakes testing has depleted the curriculum from taking individual students' needs into consideration due to the exorbitant pressures of tests that consist of 2–3 days of the school year.

### **Educating Americans for the 21st Century**

There was notable anxiety in the belief that American students lack preparation for the 21st century skills, including mathematics, science, and technology. People were concerned with the country's competitive stance not only in economics and military but also in developing well-informed citizens. The fear was that other countries will surpass our children's intellectual abilities, and our areas of strength will be challenged. The solution to the impending dilemma was to return to the basics beyond reading, writing, and arithmetic. The idea was to integrate 21st century skills that prepare students to communicate, think more critically, and possess

scientific and technological knowledge. As a result it provides them with the critical tools to comprehend new advances. The initiative applied to all students regardless of intellectual abilities and socioeconomics. The National Science Board (1983) communicated the overarching goal as the opportunity to give all students the best possible mathematics, science, and technology education in the world, without adjusting the students' right to choice, equity, and opportunity by 1995. Educators were expected to know all of their students' academic abilities to provide the most appropriate instruction to push all students to high levels of achievement.

Attention was also focused on African Americans and Latinos because of their dire state, in particular with education and economics. The state of students of color was attributed to racial discrimination, extreme poverty, and poor living conditions in urban and rural areas (National Science Board, 1983). There was a sense of urgency to provide academic excellence across all schools to ensure appropriate achievement distribution. The three focused subjects (i.e., mathematics, science, and technology) were integrated in the curriculum early for incremental development. The Commission recommended that school districts should revise elementary school organization to increase exposure to the three subjects, in particular at least 60 minutes daily for mathematics and 30 minutes for science (National Science Board, 1983). Along with structural changes, ongoing revision of the curriculum at the local level was necessary to reflect the current findings and innovations. The improvements were measured through achievement scores and participation level.

### **Sputnik Era (1960s)**

During the Sputnik era, content and quality of students' learning experiences were at the forefront. Jurjevich concluded that "organizing learning experiences around broad problem areas in academic and social achievement by students which is as good as, in most instances better than, achievement in the more traditional organization" (as cited in Sand, Davis, Lammel & Stone, 1960, p. 234). The \$100 million endeavor focused on the revision of the antiquated mathematics and memorization-based science instructional programs. Discussions about the possibility of a national curriculum became a focus in some circles. Hanna argued for a comprehensive national design that comes to a consensus and addresses the curriculum issues across the country (as cited in Sand et al., 1960). Due to the emphasis on the discipline, the integration of subjects was abandoned for fragmented disciplines. Jenkins and Tanner (1992) argued the most fundamental factors in education were ignored for fragmented knowledge that did not contribute to core of learning. The three primary areas of concern for Jenkins and Tanner (1992) were the omission of the following: the learners' nature, needs, and interests; significance of knowledge application in students' lives; and Dewey's idea on the development of enlightened citizens in a free society. One of the most critical components of the study was that it allowed educators to access their expertise to create curricula that met the needs of the students in their schools.

The creation of the National Defense Education Act (NDEA) was an effect of the Sputnik launch. Zhao (2009) stated that the NDEA "was the first piece of comprehensive federal education in the United States to provide aid to education at all levels, public and private" including improvement in elementary and secondary education in the areas of science,

mathematics, and foreign language (p. 23). Consequently the interest in the improvement of the American curriculum continued as a mechanism to compete with the rest of the world.

### **The Eight-Year Study (1930s–1940s)**

The Eight-Year Study was a longitudinal study of 30 schools sponsored by the Progressive Education Association (PEA) that were charged with the implementation of a curriculum program that was guided by the progressive philosophy. The study emerged from the dissatisfaction of experimentation restriction due to college admissions requirements. The Eight-Year Study Committee identified major aspects deemed inadequate. Some of the areas of concern were: (a) lack of explicit purpose, (b) no heritage appreciation, (c) lack of preparation for community responsibilities, (d) did not push students' intellectual powers, (e) lack of teacher and student relationships, (f) conditions for effective learning were not evident, (g) creativity was not promoted; lack of connection to students' real concerns; traditional subjects did not bear the significance, (h) need for a purpose, (i) lack of continuity and unity, and (j) lack of understanding of teacher effectiveness (Aikin, 1942). The selected schools received a waiver from the traditional requirements over a 5-year period to engage in exploration and engagement on how to best serve the youth. The overarching goal was to learn how to best serve the students. The students learned best from actual practice rather than lecturing and observing the teacher. It was a push to transform the narrow traditional focus on prescribed content to increase students' preparation for college work (Cook, Kearney, & Hovet, 1956). The schools had different starting points; therefore, they took different paths in the creation of the educational plan. The 30 schools had two common principles around the nature of the learner and the ideal of democracy to guide their transformation. The first major principle was that school life and

methods of teaching should conform to the theories on human learning and growing, while the second major principle was to rediscover the school's purpose for existence (Aikin, 1942).

Similar to the Eight-Year Study, *Science in General Education* argued for an education to meet the needs of each individual student to establish an environment where students may develop to their fullest potential and participate in a democratic society (Bullough & Kridel, 2003). It was an opportunity to engage in reflection of initiatives and further explore ways to improve the curricula program. In order for fundamental revisions to occur, thoughtful, collaborative reflection on the school's function in the community was required (Aikin, 1942).

Studies found that experimental schools tended to demonstrate more comprehensive growth even in social, appreciation, aptitudes, and critical thinking areas compared to traditional schools that accessed traditional approaches not vital to the instructional program (Connor & White, 1942). The Eight-Year Study is evidence that a decrease in a mechanistic approach to a more problem-based curricular program is more effective. Further studies have determined that a more problem-based instructional approach builds students' problem. Rogers (1997) emphasized the project model approach where students work toward a culminating project through the use of problem solving skills. The study also discovered that the students "were found to be more precise, systematic, and objective thinkers and more intellectually curious" (Tanner & Tanner, 2007, p. 87). Overall the students who participated in the experimental study outperformed the rest of their peers. Consequently it proved that a more problem-based, democratic curricular approach tended to be more effective than a traditional education. Vygotsky argued for collaborative problem solving among peers for students to learn how to come to mutual understanding of the process and problem, practice their verbal skills to



communicate with their peers, and develop independent problem-solving efforts (as cited in Meece & Daniels, 2008).

The graduates of the Eight-Year Study compared to their peers ...were often judged to possess a high degree of intellectual curiosity and drive; were often judged to be precise, systematic, and objective in their thinking; more often demonstrated a high degree of resourcefulness in meeting new situations; demonstrated more active concern for what is going on in the world. (Wraga, 1999, p. 535).

Therefore it is evident that instructional programs exist that are deemed effective, yet those programs are not always the ones prevalent in the schools.

### **Committee on the Function of Science in General Education (1938)**

The Committee on the Function of Science in General Education emphasized a connection with the needs of the students. The curriculum resembled a standardized format similar to the current CCLS as they both outlined what students needed to learn. The Committee believed that the purpose of general education was to “meet the needs of individuals in the basic aspects of living in such a way as to promote the fullest realization of personal potentialities and the most effective participation in a democratic society” (Wraga, 1999, p. 529). The basic aspects of living were personal living, immediate personal-social relationships, social-civic relationships, and economic relationships.

### **Battle of Traditional Versus Progressive Education**

Educators, philosophers, and policy makers have engaged in debates about traditional education versus progressive education for more than 150 years. Philosophies such as perennialist and essentialist are prominent in the traditionalist world. In perenialism, the learner

is viewed as passive without any prior knowledge. The essentialist philosophy promotes a teacher-centered classroom with a focus on maintaining the status quo. Rogers (1997) argued that the traditional curriculum is troubling in today's society because of its emphasis on the areas that do not promote authentic student learning: fragmented collection of facts, rigid and one-dimensional quality of the transmitted knowledge, promotion of passive student behaviors, and lack of connection from the real world concerns. On the contrary, learning should be an active experience where students build their knowledge through connections and synthesize all of the knowledge. Knowledge is transmitted through a subject-matter discipline approach. Some methods that are integrated in such an environment are mental discipline, academic mastery as measured by high-stakes tests, and lectures. The traditional curriculum emphasizes a strong, homogenizing influence on the American school practice. A traditional education takes on more of a teacher-driven approach with the teachers as the ultimate authority of the curriculum content and bearer of all the knowledge. Adler (1983) stated that when the teachers attempt the authoritative role of imparting the knowledge, while the students assume the passive role, the student's memory is affected because the knowledge is only remembered through the assessment. Dewey (1926) stated:

If the teacher is really a teacher, and not just a master or authority, he should know about his pupils, their needs, experiences, degrees of skill and knowledge, etc., to be able (not to dictate and plans) to share a discussion regarding what is to be done and be as free to make suggestions as anyone else. (p. 174)

Additionally a traditional education emphasized the ideals of social-efficiency through measurement-based assessments of students. Tanner and Tanner (2007) explained the traditional

curriculum as the “cumulative tradition of organized knowledge to be imparted to each rising generation” (p. 100). Students have little opportunity to actively work because of the insistence on a passive learner that listens. Consequently it creates uniformity in the classroom without the valuable learning experiences to engage in authentic work. The child is no longer at the center of education but rather the bearer of knowledge (e.g., curriculum developer, textbook, teacher). Instead students should express their impulses and through feedback and wonderings receive guidance on what they have done and what they have to work towards (Dewey, 1902). Dewey stated:

The studies of the traditional school consisted of subject-matter that was selected and arranged on the basis of the judgment of adults as to what would be beneficial for the students without consideration for the individual learner (1938).

The traditional perspective was based on quantitative data on students’ performance rather than a combination of quantitative and qualitative.

The philosophy of progressive education emphasized the identification of the students’ interests as the focus of the educational program. The prologue of *Progressive Education* read:

The aim of Progressive Education is the freest and fullest development of the individual, based upon the scientific study of his physical, mental, spiritual, and social characteristics and needs. Teachers were expected to have a comprehensive understanding of each individual student’s needs in the classroom. The curriculum and child are no longer in opposition but rather mesh together. There is a shift from isolated knowledge to students learning how to construct meaning and knowledge to build a deeper understanding.

Rather it becomes a process of building and creating through the engagement of problem solving and active inquiry. (Rogers, 1997, p. 687)

An example of progressive education was evident in the instruction of the Dewey Laboratory School. Students learned the various subjects in contexts through real-life connections. The knowledge that students acquired in the school was closely aligned with potential future experiences. Dewey warned that educators must go beyond the superficial level before calling themselves progressive because it required more than integrating non-traditional philosophies. Through this approach, Dewey tried to steer away from the dependence and ineffective use of books, as well as the management of the three Rs (Dewey as cited in Kliebard, 2004). Instruction reached beyond the suggested prescription of courses to include the arts. Additionally he promoted independence and self-direction through the process of projects. Another example of progressive schools was the Lincoln School where all subjects were reorganized. Consequently,

Each of the units was broadly enough conceived so that different children could concentrate on different aspects depending on their own interests and the teacher's sense of their pedagogical needs; each of the units called for widely diverse student activities; and each of the units sought to deal in depth with some crucial aspect of contemporary civilization. (Cremin, 1961, p. 283)

The content is merged with a problem-based approach and real-world applications as an instructional approach. In 1922, the Denver program was born where the teachers participated in the curriculum revision process through the structures of committees.

Kilpatrick argued “rather than minimum essentials or something set out to be learned, he saw subject matter as a rich reconstruction of the child’s experience, one that results in uplifting insight, inclination, and power” (as cited in Kliebard, 2004, p. 140). The elementary school core curriculum was based on extensive, project-based units of study. Kilpatrick argued for an approach where the students assumed active roles through hands-on experience integrated in the curriculum. Many studies concluded that the activity curriculum programs “led to little or no loss in the mastery of basic skills and subject-matter knowledge and substantial gains over a subject organization in goals involving thought processes and responsible independence” (Tanner & Tanner, 2007, p. 90). Activity movement comprised students engaged in learning through activities; therefore, students learned through active, transparent experiences. One of the largest studies on the activity curriculum was the New York City Experiment with 75,000 students and 2,500 teachers. Jersild, Thorndike, and Goldman (1939) found that the students who were part of the experimental group were more successful in critical thinking, initiative, and leadership skills, as well as the arts and intellectual operations compared to students who experienced a more traditional curriculum. A Houston, Texas study designed to test the activity curriculum against a matched control group in the fourth and fifth grades found that the activity curriculum contributed to notable gains. As with any other method, activity should be used in collaboration with other forms of instruction.

Wrightstone (1935) used matched pairs of elementary and secondary schools from three pairs of public schools to study progressive education strategies (interpret facts, apply generalizations, work independently, and organize materials). Wrightstone’s study concluded that subject-centered schools did not demonstrate any statistically significant superiority over the

experimental schools, while variety in the curriculum proved to be more effective in the retention of physics and chemistry facts, literature acquaintance, and working-skills ability. In reporting the results of his study, Wrightstone and Tanner and Tanner (2007) concluded that his findings were “tentative proof of the validity of the educational theory and principles upon which the newer type of practices in the selected schools are established” (p. 116).

### **Thorndike Studies (early 1920s)**

Edward L. Thorndike conducted a study that involved more than 8,500 students to “measure relative disciplinary value of various high school subjects by assessing gains in general intelligence that could be attributed to the study of one subject or group of subjects instead of another” (Tanner & Tanner, 2007, p. 45). He found that those students who are at an advantage made the most gains. Additionally he attacked the mental discipline as not having any significance to students’ learning. His primary message was that subjects should have a direct link to real life through broad generalizations.

From the 1920s to 1940s, a number of studies on transfer confirmed Thorndike’s original 1901 study. In order to optimize the transfer of knowledge, students must receive direct study and practice of the subject. In 1927 and 1945, the Thorndike study was replicated and again confirmed the original conclusions. The studies confirmed that direct interaction in meaningful processes rather than dependence on classical subjects had a more lasting effect.

### **Cardinal Principles of Secondary Education (1918)**

The central goal of the Cardinal Principles report was to recommend a curriculum of functional studies with heterogeneously grouped students who were given the opportunity to excel to their fullest potential (Bullough & Kridel, 2003; Cardinal Principles, 1928; Tanner

&Tanner, 2007). The needs were aligned with the democratic society and opposed the inert, static classical curriculum put forth by the Committee of Ten (Presseisen, 1985). Through this more progressive approach advocated by the authors of the Cardinal Principles, educators provided students a comprehensive education with an emphasis on real world connection and application that has value beyond the classroom. The report called for curriculum differentiation while also unifying students through the curriculum. Reading, writing, arithmetic computations, and oral and written expression were proposed as the foundational subjects with inclusion of lifelong skills such as health, worthy home membership, vocation, civic education, worthy use of leisure, and ethical character (Cardinal Principles, 1928; French, 1955). Furthermore the report proposed differentiated instruction based on gender similar to Hall for the purpose of development for both sexes. Bullough and Kridel (2003) argued that there is an absence of individual student needs because the emphasis is on reading fluently, writing, and fundamental science and mathematics skills, in order to prepare students for life. Unfortunately “half the legacy of needs has been severed and lost, that half tied to discovering and enriching individual talent and developing diverse and sometimes even peculiar modes of expression and excellence” (Bullough & Kridel, 2003, p. 167). Mann emphasized that the consideration of individuality must be considered because students bear different needs; therefore, lessons must address those needs (Cremin, 1961).

The commission declared that democratic education “should develop in each individual the knowledge, interests, ideals, habits, and powers whereby he will find his place and use that place to shape both himself and society toward ever nobler ends” (Cardinal Principles, 1928, p. 9). Therefore democratic values must be transparent in the daily functioning of the school.

Democracy is not about sameness but rather about the learning tools to help students find their own path. French (1955) argued that The Cardinal Principles advocated a curriculum based on the life needs of the youth and society rather than the traditional subject matter that is transmitted to students (p. 43).

### **Social Efficiency, Scientific-Based, and Vocationalism Enter the Curriculum Field**

Social efficiency and scientific-based programs entered the curriculum field with powerful force. Creators of both movements were not educators, but their influences in the educational arena were enormous. The primary aim was for the curriculum to prepare students to serve as adults of the social order without additional enrichment opportunities (Kliebard, 2004). Edward A. Ross and Franklin Bobbitt were major proponents who advocated for the ultimate social control and deterred away from the promotion of individuality. Along with social efficiency, attention shifted to Frederick Winslow Taylor, the father of scientific management. Kliebard stated, “The immediate aim of Taylor’s system of scientific management of factories was increased production at lower costs, but beyond that economic purpose lay a penchant for order and regulation that was at least the equal of Ross’s” (p. 80).

The momentum of social efficiency paved the pathway for vocational education due to the movement’s interest on the preparation for particular social and occupational roles aligned with the student’s destiny. It was the polar opposite of the recommendations by the Committee of Ten where their focus curriculum geared toward college admissions. The transformation reflected a more hands-on approach to prepare students for jobs. A 1924 classical study in Muncie, Indiana conducted by Robert and Helen Lynd concluded that “the most pronounced region of movement appears in the rush of courses that depart from the traditional dignified



conception of what constitutes education and seek to train for specific tool and skill activities in factor, office, and home” (as cited in Kliebard, 2004, p. 127). In 1917, federal funding was allocated for vocational training through the Smith-Hughes National Vocational Education Act. Despite its popularity, educators such as Harris viewed it as a threat because of his concern for the development of intellectual thinking and cultural heritage. The Smith-Hughes Act supported specific skill training based on entry-level skills and the particular vocation. In other words, vocational training with the focus on specific skills could create a narrow curriculum that does not include knowledge and skills beyond the targeted vocation. Vocation came into play due to the emphasis on the development of an expert based on the specialized track.

Twenty-eight years later (1945) the Harvard Committee on the Objectives of a General Education in a Free Society promoted a combination of specialized and general education.

Report of the Committee on General Education (2005) stated:

A responsible education must help students develop their capacities for reasoning and for responsible judgment; it must nurture their informed responsiveness to the arts and literature and their own creative capacities; it must provide a broad introduction to the knowledge needed in an increasingly global and connected, yet simultaneously diverse and fragmented world...The Committee recommends that the current Core Curriculum be replaced by a distribution requirement consisting of nine courses, three in each of (a) the Arts and Humanities, (b) the Study of Societies, and (c) Science and Technology...At the same time, the Committee believes that the curriculum should assist students in shaping their education by providing discrete opportunities for more intensive foundational courses in general education...Finally, in order to round out the general education in

Harvard College, the Committee reaffirms Harvard's long-standing requirement that students complete a course dedicated to effective writing... (pp. 1-2)

Consequently this report advocated for a broader educational approach beyond vocational training as a way to better prepare students to compete in the global economy. While vocational training promoted a more narrow approach, the opposite was part of the curriculum recommendations for education beyond high school. Therefore contradicting viewpoints existed that may place students at a disadvantage.

### **Dewey's Approach to Education (1896)**

In contrast to Harris' proposal in the Committee of Fifteen, Dewey's Laboratory School reinforced learning through a problem-solving approach from real-world applications. "Dewey viewed education as a generative process—that is, a process through which the learner extends and deepens the capability of exercising intelligent control over changing conditions of life" (Tanner & Tanner, 2007, p. 121). The developmental curriculum integrated active, engaging learning experiences through adult and peer interactions. "Dewey believed that the maximum benefit for the child was when systematic knowledge grows out of experiences and interests that the child already has" (Tanner & Tanner, 2007, p. 36). Through the integration of interdisciplinary concepts, the students would be able to apply problem-solving skills to the task. He promoted higher level thinking skills that involved application, creation, and evaluation. The activities have to be purposeful to meet various functions:

1. The activities expose students to useful science, history, and literature facts and principles considered bodies of systematized knowledge.

2. Opportunities for curriculum synthesis of the knowledge and skills and identification of the social significance of the knowledge presented within the curriculum.
3. The development of students' impulses were taken into consideration to enhance the growth of the students (Tanner & Tanner, 2007, p. 37).

Overall the activities had to contribute to more complex interrelated subject understandings.

More than 40 years later the Harap committee and then Kilpatrick advocated for the unification of the curriculum through a series of learning. Through the integration of curriculum, researchers have determined that it can promote intellectual curiosity, enhanced problem-solving skills, and increased achievement (Austin, Hirstein, & Walen, 1997; Kain, 1993).

### **Collapse and Rise of Educational Reform (1890s)**

During the 19th century, there was an emphasis on the mental discipline derived from the works of Christian Wolff, as well as similarities to Lancaster's mechanical instructional viewpoint. The belief was that the mind could strengthen through exercise. These European ideas involved packaged lessons taught to large classes with an emphasis on a mechanical drill approach to teaching (Tanner & Tanner, 2007). Proponents of the mental discipline built on that psychological theory by alleging that certain subjects of study had the power to strengthen memory, reasoning, will, and imagination. Moreover, mental disciplinarians argued that certain ways of teaching these subjects could further activate the mind and evolve these powers (Kliebard, 2004). Through curriculum development and implement, it will help to deepen students' knowledge and skills. Consequently only a limited number of subjects were introduced to the students; while the remainder was not addressed. The two beliefs were promoted as early as 1828 in the Yale Report that ultimately emphasized an instructional system centered on

insignificant rote memorization and harsh discipline (Kliebard, 2004). Years later, Rogers (1997) would advocate for the opposite kind of learning of more dynamic experiences and active learners in control of their knowledge (p. 687). In the early 1900s, Thorndike and Woodworth conducted experiments to test the validity of mental discipline as a belief for learning. They concluded that mental discipline was not scientifically untenable, nor did it strengthen the faculties of the tasks practice through drill (Bigge, 1964). Thorndike further argued that education must be tailored to the ability levels of the students. Due to impending social changes, in particular the increased interest in secondary education, mental discipline collapsed for a period of time.

The initial interests for National Education Association's Committee of Ten were colleges and universities, but due to the increased interest in secondary education slight modifications were made. Upon its publication, there were remnants of mental discipline because of its lack of distinction among the students' lifelong plans. As a result, the Committee's conservative curriculum recommendations were for students to dedicate 4 years of comprehensive study on a few classical subjects (Tanner & Tanner 2007). Kliebard (2004) wrote "All students, the committee reasoned, regardless of destination, were entitled to the best ways of teaching the various subjects" (p. 10). Despite their statement that the secondary schools' purpose was not for college preparation, their recommendations were more aligned with preparation for college. The targeted subjects continued to be those required for college admissions regardless of students' future intentions. The Committee's rationale was to provide all students with the potential to attend college. There was opposition from G. Stanley Hall to the "one fits all model" where students are all taught in the same manner.

In 1895, the Committee of Fifteen on Elementary Education led by William Torrey Harris focused on the elementary school curriculum. The Committee advocated for a more mechanical approach to educate students en masse. The strict isolation of the elements of each subject was considered pertinent in the elementary school setting. Tanner and Tanner (2007) stated “The members of the committee’s outlook almost compelled the teacher of a given grade to take an isolated view of her work rather than be guided by the ideal of the child’s whole development” (p. 33). Essentially the members of the committee advocated teaching subjects in isolation and gave priority to grammar and arithmetic; therefore, the continuation of the present curriculum approach prevailed.

Amidst all of the various prospective arguments for education change in the 1890s, the child study movement prospered through the work of Hall. The ultimate goal was to gather information about the students to draw conclusions about how to most appropriately educate students. The teachers were active participants in the data collection process. The movement expanded beyond its creation but with different data collection approaches from laboratory settings to classroom observations of the students. Developmentalists believed that schools created environments where students were expected to be passive learners.

### **Curriculum Quality**

Often times curriculum is considered the framework that guides the coverage of content aligned with the standards. Tanner and Tanner (2007) described curriculum

...as a unity in which the reconstruction of knowledge is integrally related to the learner’s ability to increase his or her control of knowledge and experience. If the school conceives of curriculum in this way, the curriculum will be unified rather than

fragmented, and personal-social problems and needs will not be considered intrusions on the work of the school. (p. 123)

There are many variations across the country on who leads the planning, content priorities, and its instructional approaches. Curriculum theory is a theory of educational planning where planning and implementation of educational experience are the main focus due to the primary concern for students' development and learning (Telmer, 2005). The range of differences becomes disheartening when an absence of higher level thinking dominates the curricula program, low expectations are the norm, and its effectiveness on student learning is minimal. Therefore it is educators' responsibility to envision a quality curriculum and ensure its effectiveness.

The literature on curriculum quality emphasized the curriculum design and development because of the need to create a well-organized, problem-based curricula program that meets the needs of all of the students. Dewey (1902) believed that "it is our social problem now, even more urgent than in the time of Plato, that method, purpose, understanding, shall exist in the consciousness of the one who does the work, that his activity shall have meaning to himself" (p. 23). A synthesis of curriculum based on the research and literature is defined as: the framework that captures all of the educational students' experiences under the school's guidance, including the including the goals and objectives; breadth, depth, and content and subject matter organization; instructional strategies; learning activities; utilization of resources; time and space; grouping patterns; and assessment of achievement (Goodlad & Associates as cited in Gehrke et al., 1992; Kearney & Cook as cited in Goodlad, 1966). Upon further interpretation, curriculum quality is the roadmap that outlines the knowledge and rich experience interwoven with higher

thinking skills and independence that creates a challenging, intellectual environment for the students to develop through an active learning stance (Dewey, 1902, p. 13; Tanner & Tanner, 2007; Tyler, 1949, p. 63). Two of the most critical components of curriculum quality are the transmission of knowledge in an active manner and experiences, as well as how the students have received it. As students experience the curriculum, educators should ask, “What has changed in the student, and me, because of this particular experience?” (Leonard, 1968, p. 19). Consequently the focus is on the effectiveness of learning experiences and accountability rather than the stance of transmission of knowledge without thought of its effectiveness. Dewey wrote, “Learning is active. It involves reaching out of the mind. It involves organic assimilation starting from within” (Dewey, 1902, p. 9). Consequently an effective curriculum creates an environment conducive to learning with the appropriate tools. All of the efforts of curriculum planning and execution are about providing the most effective instruction to the students.

### **Curriculum Design**

The members of curriculum development committees must possess an explicit theory of learning to drive the curriculum design. In addition to a theory, the purpose of the curriculum must be explicit. Popkewitz (1997) stated that as the curriculum is executed students evolve into different individuals because of their new knowledge. The question then is, “What is the overarching goal of the newly acquired knowledge? What kinds of citizens will the students become?” Curriculum design is a complex process that involves “employing specific objectives and learning hierarchies, linking assessment and diagnostic tests to curriculum, and making curriculum available to different sizes of classroom groups and different kinds of learners...

[Furthermore curriculum design involves] alignment among goals, content, instruction, assignments, and evaluation” as part of the process (Wang et al., 1993, pp. 256, 261).

In the early 20th century, Dewey (1902) was concerned about the current narrow education with its purpose to accumulate information. On the contrary, Dewey advocated for a curriculum that made connections between content and the students’ lives to prepare them for life beyond school (Warde, 1960). Moreover Dewey believed that the role and experience of the teacher played a significant role in what students were taught. Dewey stated,

It goes without saying that a teacher may interfere and impose alien standards and methods during the operation. But as we have previously seen, this is not because of bringing to bear the results of previous experience, but because the habits of the teacher are so narrow and fixed, his imagination and sympathies so limited, his own intellectual horizon so bounded, that he brings them to bear in a wrong way. The fuller and richer the experiences of the teacher, the more adequate his own knowledge of traditions the more likely is he, given the attitude of participator instead of that of master, to use them in a liberating way. (p. 175)

He was interested in the creation of a culture of “impulses and tendencies to make, to do, to create, to produce, whether in the form of utility or of art” (Dewey, 1902, p. 26). The content of the curriculum must comprise the essentials and enrichment activities intertwined with the preparation for students to be critical thinkers who can think for themselves. By the same token, Dewey (1902) argued that students must be provided with the learning environment to begin to guide them.



Eisner viewed curriculum as a field beyond the content of overlapping, interdependent aspects such as how students learn, identification of effective teaching practices, and evaluation support of the teaching and learning according to the current structures (as cited in Rogers, 1997). The curriculum design must prepare students to be independent thinkers rather than passive learners who adapt to their own surroundings. Therefore there must be a seamless continuous integration, through articulation and practice, an approach to learning that consists of self-regulation of learning, self-monitoring, and insight through reflection complemented with “exploratory, enrichment, specialized, and special-interest studies to meet the diversified needs of a cosmopolitan student population (Jenkins & Tanner, 1992, p. 10; Kirkwood, 2000, p. 512). Students must actively engage in the learning process through an interactive learning environment.

As educators navigate the curriculum map as well as individual students’ needs, curriculum differentiation is critical. Curriculum differentiation where all students have access to a quality, rigorous curriculum with appropriate support is vastly different than tracking. When curriculum is customized at the local level, it allows for the influence of proximal variables to reflect the content and skills. Wraga (1999) argued that despite the efforts to provide differentiated curricula to address individual student needs, “differentiation deteriorated into tracking along class and racial lines, thus militating against the unifying function of the comprehensive high school and subverting a tenet of the common school idea” (pp. 525–526). It is not ethical to allow schools to place boundaries between the gifted students and students with lower abilities when heterogeneous grouping works the best for the most vulnerable students. The “challenge of individual differences is still that they be met by a rich and varied curriculum

geared toward meeting the varied needs and interests of an individual” (Tanner & Tanner, 2007, p. 83). Therefore educators must learn how to navigate state standards and an enriching, challenging curriculum to place students on a competitive stance. Furthermore as the customization of the curriculum occurs, educators must learn how to balance the grade level work and students’ possible basic skills deficiencies. Unfortunately there has been noted difference, even in teacher questions, between lower track class and higher track classes. The lower track classes were consumed with teacher-created questions in drill formats, while in the higher track classes teachers encouraged students to formulate their own questions and solutions (Terwel, 2005, p. 660). Instead of creating opportunities for all students, it has a reverse effect where the educational and social inequalities are further deepened.

The curriculum design should integrate problem-based learning to create structures that help students evolve into critical problem solvers. In this approach the teachers assume more of a facilitator role and utilize a variety of teaching methods. Barrows (2000) and Torp and Sage (2002) defined problem-based learning as concentrated, experiential learning with a focus on investigation, explanation, and meaningful resolution of conflicts. The students are able to play a more active role in learning, while the teacher does not always assume to role of bearer of knowledge but more of a facilitator and coach of students’ learning. The goals of problem-based learning are as follows:

1. construction of in-depth and flexible knowledge;
2. development in problem-solving skills;
3. development of self-directed, life-long learning skills;
4. participation in collaborative opportunities to develop social skills; and

5. development of motivation to learn (Barrows & Kelson as cited in Hmelo-Silver, 2004).

Barrows and Tamblyn (1980) defined problem-based learning as

...the learning that results from the process of working toward the understanding or the resolution of a problem. The problem is first encountered in the learning process and serves as a focus or stimulus for the application of problem solving or reasoning skills, as well as for the search for or study of information or knowledge needed to understand the mechanisms responsible for the problem and how it might be resolved. (p. 18)

The main purpose is to allow students to determine multiple causes and problems related to the presented problem. Students have the opportunity to determine what they need to learn and learn how to engage in exploration of new content and analyze text and data while the teacher assumes the role of the facilitator to guide students to attain mastery. This approach allows the students to begin at different points and access learning through multiple entry points as they work towards mastery. Jacobson stated that the curriculum should be problem focused to represent present conflicts in society, explore alternative solutions to social difficulties, and to think about the future possibilities (as cited in Wraga, 1999, p. 530). It assumes a more practical, real-life approach to learning. Additionally students take more responsibility for their own learning. One of Tyler's principles of learning was to implement a problem-based approach to maximize the retention of knowledge and skills (as cited in Wraga, 1999). Problem-based learning "guides students in the learning process, pushing them to think deeply, and model the kinds of questions that students need to be asking themselves, thus forming a cognitive apprenticeship" (Collins, Brown, & Newman, 1989; Hmelo-Silver & Barrows, 2006, p. 101).

Additionally Dochy, Segers, Van den Bossche, and Gijbels (2003) conducted a meta-analysis that found that problem-based learning is statistically and practically significant in terms of students' knowledge application. Glaser (1990) and Gijbels, Filip, Van den Bossche, and Segers (2003) claimed that students' expertise, possession of highly structured network of concepts and principles increased with problem-based learning as well as recall information was compatible to a conventional school environment. Pease and Kuhn (2010) stated that the problem-based learning approach bears metacognitive benefits such as students' awareness of their own knowledge, identification of relevant information, and contemplation of a broad set of alternatives. Hmelo-Silver (2004) stated that existing literature claimed that small group discussions and debate in problem-based learning sessions encouraged problem-solving and higher order thinking. Pease and Kuhn (2010) found during the first and second assessments:

The majority of students were able to reach the highest level of comprehensive definition and explanation for the concept they learned via problem-based learning; in contrast only between 20% and 30% were able to reach that same level for the concept via LD [lecture]...Students in both classes understood better the concept they learned in problem-based learning condition, as revealed by a significant effect favoring problem-based learning condition in both comprehension assessments. (p. 67)

Furthermore Pease and Kuhn (2010) determined that students integrated and applied content better in problem-based learning. Schwartz and Bransford (1998) found that students who were given the opportunity to make sense of the data followed by the teacher's lecture tended to learn a lot more. Consequently it steered away from a scripted curriculum as Finkelstein, Hason, Huang, Hirschman and Huang (2010) claimed:

Three nonexperimental studies have concluded the Buck Institute for Education's Problem Based Economics curriculum and its related pedagogical practices appear to benefit low-performing students.

In particular one study that utilized a descriptive pre-post design that involved 15 teachers and 1,162 students found the largest gain with a reported effect size of 0.5 for those students with low levels of prior knowledge (Finkelstein et al., 2010). The overall findings of the study reported that the students in the problem-based approach classes outperformed the control group with a point estimate of 0.54 and effect size of 0.27 on the economics literacy and essays that tested problem-solving abilities (Finkelstein et al., 2010). Cognition and Technology Group at Vanderbilt (1992) conducted a study in 16 school districts across 11 states where they determined positive effects on standardized testing. Even though there was no noted difference on single-step problems compared to the traditional mathematical instruction, there were positive effects on solving multistep problems and problem comprehension. In a problem-based learning classroom, students may encounter a dilemma that requires them to access higher critical thinking skills to determine possible solutions, gather knowledge to help them with the process, and engage more deeply in the work.

Wirkala and Kuhn (2011) conducted an experimental study in an alternative urban middle school with a focus on sixth-grade students. For this particular instructional approach, the teachers assumed facilitator roles where students had to decipher the materials to gain access to the new knowledge. In problem-based learning, students are encouraged to become authentically engaged in learning through questioning, participation, and using a number of resources to gain knowledge. The assessment focus was on long-term learning through recall, comprehension, and

application assessments administered 9 weeks after the end of instruction. The application portion of the assessment measured “students’ integration and application of concepts to a new context” (Wirkala & Kuhn, 2011, p. 1169). The mean number of concepts defined by problem-based learning was 5.02 with a standard deviation of 1.26 and range 2–7. On the other hand, for the lecture group the mean number 3.33 with a standard deviation of 1.31 and range of 1–6. The problem-based learning groups “defined a higher mean of concepts than did the [lecture discussion] LD group” with a significant difference where  $t(74) = 5.27, p = 0.01$  (Wirkala & Kuhn, 2011, p. 1173). This translated to a more in-depth understanding of the content through problem-based learning compared to a more surface understanding of the lecture discussion group. Essentially the increase of active student engagement allowed for longer-term retention and promotion of learning how to navigate the text. When the knowledge and needs of the students are integrated at the local level, it provides students with opportunities to engage with the content and skills at their level and build over the course of the unit of study.

Strobel and van Barneveld (2009) conducted a meta-analysis of the current research on problem-based learning. The problem-based learning approach was most favored and effective in assessments that measured more elaborated knowledge beyond multiple-choice as well as long-term retention, while the traditional approach is often favored for standardized assessments that require short-term retention and basic knowledge.

Critics of problem-based learning argue that the instructional approaches were minimally guided; therefore, there was a lack of human cognitive structures and failure to foster learning (Kirschner, Sweller, & Clark, 2006). However, Dewey argued the contrary that problem-based learning followed a highly structured process that provided guidance for students’ learning.

Despite Dewey's viewpoints, there is concern that students with limited background knowledge will not benefit from this instructional approach. A meta-analysis of the present empirical studies found that there was not sufficient evidence to claim that problem-based learning is better than lecture-based to increase learning (Pease & Kuhn, 2010). Hmelo (2004) directly argued against Kirschner et al.'s argument because of the combination of multiple, distinctive instructional approaches deemed as minimally guided and the use of statements that contradict the present evidence. The idea is that problem-based learning requires significant guidance to support students' learning. Furthermore, the current research is heavily on medical education since problem-based learning emerged within this field; therefore, there is a need for more K–12 education research to continue to assess its effectiveness.

The quality of students' experiences will be determined through the selection of the curricular objectives. In order to add substance to the curriculum, students' experiences must be viewed as fluent, embryonic, and vital through blurring the boundaries between the curriculum and the students (Dewey as cited in Rogers, 1997). One attempt in shift has been put forth by the National Council of Teachers of Mathematics (NCTM) to promote the learning through an integrated set of intellectual strategies for making sense of mathematical situations (NCTM as cited in Stengel, 1997). The objectives must promote the idea of students as workers as described by the Coalition of Essential Schools. The students assume roles that require active participation through higher levels of thinking such as evaluation, creation, and questioning. In alignment with Vygotsky's theory, students must engage in learning and assessment activities within the zone of proximal development through appropriate instructional supports to aid in the performance of challenging tasks (Meece & Daniels, 2008).

The exposure to quality experiences through the articulation of objectives is critical. The lack of a solid educational experience may potentially negatively affect students' learning and distort their academic growth. Therefore the curriculum design must ensure that students will be able to interact in worthwhile experiences. When curriculum is customized at the local level, it allows teachers to balance what they need to teach with the needs of the students. Dewey (1929) believed that "objectives must be determined from the educational function" through an "educative process is the means whereby truly educative objectives can be formulated, tested, and met" (as cited in Tanner & Tanner, 2007, p. 128). Dewey (1902) and Tyler (1949) argued that the learner is one of the primary determinants for curriculum development. Additionally the knowledge in the curriculum design should reflect interest, our current society, and the pertinent content of the subject. Knowledge has been liquefied to actively move in all the currents of society (Dewey, 1902). As schools decide what to teach, Herbert Spencer's question must be further explored, "What knowledge is of most worth?" Tyler would argue that the valuable knowledge must be aligned with important problems of the day and the school's philosophy (Tanner & Tanner, 2007, p. 25).

While Thorndike framed a theory of learning composed of highly specific objectives, Tyler believed in more general objectives. One of the most critical decisions is to select ...a smaller number of consistent highly important objectives need to be selected. A small number rather than many should be aimed at since it requires time to attain educational objectives; that is, time is required to change the behavior patterns of human beings. An educational program is not effective if so much is attempted that little is accomplished. (Tyler, 1949, p. 33)



The objectives must be explicit to the educators and students on the change in behavior and content to master. The approach favors a more in-depth mastery rather than a rapid superficial understanding of the content. Studies found “that the student was much more likely to apply his learning when he recognized the similarity between the situations encountered in life and the situations in which the learning took place” (Tyler, 1949, p. 18). Therefore curriculum design must reflect a combination of the standards and preparation for real world applications.

According to a study, high-stakes tests promote curricular alignment to the tested subjects while the non-tested subjects are not addressed (Au, 2007). Additionally 28 studies in the qualitative meta-synthesis demonstrated a theme of a “combination of contracting curricular content, fragmentation of the structure of knowledge, and increasing teacher-centered pedagogy in responses to high-stakes testing” (Au, 2007, p. 263). Consequently there is no vertical or horizontal curricular alignment.

Beyond high-stakes tests, an effective curriculum design involves explicit goals, collaboration among educators in the district, quality learning experiences, and ongoing assessments to monitor students’ progress. The goals should apply to all students through an articulated plan to meet the needs of every group of students. Researchers found that curriculum designed in a democratic manner, as well as a balanced structure between the nature of knowledge and students’ needs and experience, performance was more satisfactory (Aiken as cited in Tramaglino, 2010). This requires educators to utilize the student performance data at the local level as they create the curricula program. Educators must learn how to navigate the federal and state mandates while challenging the students to their maximum potential. Tyler (1949) and Rogers (1997) concluded that learning experiences should occur as activities that are

a piece of the division of the complete problem solving process, inclusion of meaningful content, spiral memorable information in a variety of ways, active inquiry in critical thinking, and synthesizing of knowledge to building understanding. Dewey (1938) emphasized that “...every experience should do something to prepare a person for later experiences of a deeper and more expansive quality” (p. 47; p. 687). In the formulation of goals stage, Stengel (1997) suggested that curricular work should focus on existential themes and well-thought out and articulated performance goals to generate deeper and broader learning of the curriculum, including students’ social growth. Schmidt et al. (2001) found that high-performing nations emphasized fewer topics with the expectation that the topics will be addressed in a more extensive manner. Consequently the focus is on the selection of meaningful content to teach and the most appropriate form of delivery.

As educators engage in the curriculum blueprint, learning experiences must engage all of the learners despite their academic and social abilities. Therefore educators must diverge from educational triage where a large proportion of the attention is dedicated to so-called bubble kids, the students who are on the verge of scoring at the proficient level (Booher-Jennings, 2005). Despite students’ test scores, all students deserve non-judgmental attention. The reality is that students enter formal schooling with distinct learning experiences. Curricular alignment with the aspects of individuality should be present at the school level. Goodlad (1999) articulated that educators should consider: the developmental differences among the students in each classroom; modes or styles of learning for each student; and varying interests, goals, and lifestyles. One approach is the integration of field study to expose students to hands-on experiences and expand their learning beyond the classroom. The Progressive Education Association’s (PEA)

investigation revealed that the 15 students who participated in a trip made significantly greater academic gains and demonstrated greater sensitivity toward social issues than the control group (Raths as cited in Tanner & Tanner, 2007).

In order to maximize the retention and experiences of the content, there are several guidelines to consider. McDonald (1994) suggested the following prerequisites:

- structures (e.g., time, space, and resources) that allow for authentic, deep understanding;
- consideration of the well-being of the students;
- accountability measures to ensure students' learning;
- variety of teaching and learning modes;
- access to relevant, appropriate, and rich resources; and
- solid, invigorated, personalized teaching.

Despite the conditions implemented in the classroom, the major educational approach emphasized in the literature is the idea of learning how to learn to develop creative, innovative, critical thinkers. Piaget thought that an emphasis on transmission of knowledge and memorization discourages students from learning to think and develop confidence in their own thinking processes (Meece & Daniels, 2008).

Even though proximal variables tend to have a more significant influence compared to distal variables, the distal variables tend to be more prominent in the educational arena. With today's educational climate, the emphasis seems to be more on distal variables. The recent education reforms, such as the CCCS and scripted curricula programs, move away from the need for the integration of proximal variables. When curriculum is designed at the local level, it

allows for educators to integrate the interests and needs of the students. As teachers integrate proximal variables, there are increased opportunities for students to be able to directly engage with the curriculum. Furthermore, teachers are able to integrate instructional practices to aid in the development of each of their students.

### **New York City Traditional Schools Versus Activity Schools Experiment**

In the quest to determine whether to improve the traditional New York City schools or to transform them into progressive or activity schools, an experiment was conducted to determine the most effective type of school. During this time, there had been a push to move beyond the traditional methods of education. Some of the schools were granted permission to experiment with an activity approach. District superintendents identified 70 schools with an enrollment of approximately 75,000 students as experimental activity schools (McCall & Loftus, 1938). These schools were identified as potential prospects for inclusion in the experiment. The stipulation was that the schools were still held accountable for the basic skills as well as the integration of an activity-based program. Consequently approximately 50% of the time was dedicated to more of a traditional approach. An advisory committee was appointed to oversee the experiment, while each school had its own evaluation committee and prepared self-evaluations to be shared with the advisory committee. The final sample population was drawn from eight activity schools and eight matching non-activity schools.

An extensive study was undertaken in New York City to measure various aspects of activity classrooms versus non-activity classrooms in 69 schools. One of the components of the study was the development of an achievement test battery that assesses what students should learn and measures the growth of each student. The Comprehensive Achievement Test was

administered to all the students in fourth to sixth grades in eight activity and eight non-activity New York City public schools. Within the schools, there was a variety among the level of execution. Overall the subtest averages were close with slight differences for the activity and non-activity classrooms. The activity classrooms performed slightly better in the following areas: buying and using things, foreseeing consequences, understanding people and things, keeping your temper, and modesty. However, the non-activity schools outperformed the other group in many other areas: health and play; reading; arithmetic; arts and crafts; understanding the world; watching the progress of the world; talking things over, handling disagreements, and getting things done; remembering things; manners; and enjoying life. The total test averages showed a slight difference of 0.10 that favored the non-activity classrooms. McCall and Loftus (1938) discovered a conclusion more favorable to the activity classrooms in a sample selected from the whole group where they performed .4 of a year ahead of the non-activity students on the same test. A further examination of the results of the Comprehensive Achievement Test revealed that the students in activity classrooms achieved better results than non-activity classrooms in a test that involves a combination of subject matter, skills, activities, attitudes, and ideals (McCall et al., 1938). The difference is found to be statistically significant with a critical ratio of 3.90.

In a New York City investigation (Wrightstone, Rechetnick, McCall, & Loftus, 1938a), elementary school students from 69 schools classified as activity control schools or non-activity schools were administered the Modern School Achievement Test to measure achievement in reading comprehension, reading speed, mathematical computation, mathematical reasoning, spelling, and language usage. According to the results, the students in the activity control

schools outperformed the non-activity schools in the following areas: reading comprehension, spelling, and language usage. Due to a critical ratio of less than 3, the difference between the average scores is not considered significant and will not persist in any other set of two groups that represent the activity and non-activity groups (Wrightstone et al., 1938a, p. 1). The non-activity students (average score of 17.75) statistically significantly outperformed the activity students (average score of 17.76) in arithmetic computation.

Another test on the measurement of the student's ability to gather facts and information from a variety of sources was administered. The tests revealed that activity-based schools more effectively developed their students' working skills to obtain facts and data compared to the non-activity schools. The critical ratio was 5.37, therefore making it statistically significant. Another factor of statistical significance was social adjustment with a critical ratio of 3.48. The activity schools outperformed the non-activity schools in explaining facts, applying generalizations, current affairs, and personal adjustment. The critical ratios for this factor were less than 3, therefore not making it statistically significant. Wrightstone et al. (1938a) found that an evaluation of the separate results revealed more desirable outcomes for the activity method of instruction; however, the measurements are static and do not represent growth indices.

A continuation of the study measured social performance factors in activity control schools versus non-activity schools in New York City. The study involved 64 classrooms, one-half were identified as the activity control curriculum approach and the other half were labeled as the non-activity curriculum approach. It specifically dealt with the effects of the two types of curriculum practices upon predetermined aspects of the social behavior of the observed students (Wrightstone et al., 1938b). They integrated a mixed methods approach to gather the data. For

the quantitative data, an observer sat in the classroom to observe the predetermined behaviors and made notes when each child exhibited the behaviors. Out of the seven social performance factors, self-initiated activities was the only statistically significant factor with a critical ratio of 3.29. Activity control schools scored on average better in cooperative activities with a .30 difference of averages, critical activities with a 5.80 difference of averages, experimental activities with a 3.76 differences of average, leadership activities with a .29 differences of average, and work-spirit activities with a .94 differences of average. The social performance factor where non-activity schools outperformed activity schools was recitational activities with a difference on average of 12.40. It is not a coincidence that recitational activities are more dominant in the non-activity schools. In this environment, the students tend to assume a more passive role; therefore, recitation tends to be more frequent.

From the qualitative perspective, the observer wrote notes on the situations, activities, experiences, and expressions for each student to be classified according to the defined categories (Wrightstone et al., 1938b). The major focus was now on the quality of the activities discussed in the quantitative section. The only activities that were statistically significant, as well as favored the activity control classroom were experimental activities with a critical ratio of 3.22 and leadership activities with a critical ratio of 3.54. The quality of cooperative activities, critical activities, self-initiated activities, and work-spirit activities was more favorable in the activity control classrooms. Once again the recitational activities were more present in the non-activity classrooms with a 1.89 difference of average. Wrightstone et al. (1938b) found that activity-control classrooms provided more opportunities for social and personal relationships,

unlike the non-activity classrooms where lessons were planned solely by the teachers, and students were not encouraged to engage in such social performance behaviors.

Authentic assessment to monitor the effectiveness of the curriculum, as well as the student achievement is crucial in the curriculum design. The Paideia Proposal advocated for teacher-created assessments that involve higher critical thinking skills.Sizer proposed that one approach to quantify assessments is to build checkpoints that help teachers focus on the curricular and instructional issues to hone priorities (Madaus, 1999). In addition to monitor students' performance, Tyler believed that assessments should be used as one tool to evaluate and improve the curriculum.

### **Curriculum Development**

Curriculum development must be continuous to reflect a society's current needs especially when inquiries and concerns continue to be present in the educational arena. The lack of thoughtful and quality curriculum bears severe consequences on students' present and future lives. Crosnoe and Cooper (2010) argued that the longer students are in school, the formal (e.g., curriculum)...processes of education account for increasingly larger shares of such disparities. Moreover, because the educational process is cumulative, small group differences tend to widen as initial advantages select children into better opportunities to learn over time. McDonald (1994) suggested "curriculum might more appropriately be seen as a continuing conversation among faculty; a basis of inquiry; a set of relations with a wider, social, moral, and economic universe; an entitlement of supports for student learning; or a set of active aims for teaching. Such a view transforms the curriculum from a schedule for organizing school time into a set of



experiences that are flexible to the demands of deep learning” (as cited in Rogers, 1997, p. 685).

Dewey (1902) said,

When the school introduces and trains each child of society into membership within such little community, saturating him with the spirit of service, and providing him with the instruments of effective self-direction, we shall have the deepest and best guaranty of a larger society which is worthy, lovely, and harmonious. (p. 29)

When the curriculum remains static, there is an absence of a sense of urgency to meet the needs of the current student population. For example, one study determined that approximately 30% of teachers nationwide reported the lack of computer integration in teaching writing because the state writing test is handwritten (Russell & Abrams 2004). One example was a questionnaire sent by the Committee on Curriculum Making to determine the schools’ involvement in curriculum development. All levels of schooling from elementary to college were engaged in curricula revision due to the present dissatisfaction. By the same token, the use of research-based curriculum development was not consistently utilized. Ruggs and Counts (1927) found

the responsibility for curriculum making is commonly borne by committees composed of teachers and administrators who are already overburdened with work. As a consequence, the existing program is always taken as the point of departure, and attention is centered on the addition of new materials or the subtraction of old materials from the established school subjects. (as cited in Tanner & Tanner).

Consequently there was not an authentic or significant reconstruction of the curriculum.

The development of curriculum must occur at the local level to reflect the needs and interests of the students. Aikin (1942) argued authentic construction of the curriculum is critical

in curriculum development. All staff members must go through the process of problem-solving through curriculum development. Therefore schools must determine their own solutions to meet the needs of their students. Despite the mandates and standards, the responsibility for curriculum design and development must be on the school district through decision-making on curriculum organization and approach (Jenkins & Tanner, 1992, p. 11). Schmidt and Prawat (2006) examined the connection between national curriculum control and curricular consistency and coherence. After several analyses, they found that national curriculum control makes no contribution to curricular consistency and coherence, a variable believed to have a positive impact on test-score performance (Schmidt & Prawat, 2006). Leander and Osborne (2008) found:

When teachers are actively engaged as curriculum and staff developers in school contexts, their work offers a unique opportunity to interpret the complex relationships of school change, an occasion to redraw boundaries (Ball & Cohen, 1996, p. 8) among teachers, new materials, and teaching practices, and think about how leadership roles are constructed within these relationships (Spillane et al., 2003). Curriculum development activities which are historically and geographically distant to schools, are at times separated from discussions of situated school change. (p. 24)

Dewey found in The Laboratory School, a progressive nursery to 12th grade school he founded in 1896 in the Hyde Park neighborhood of Chicago, that when teachers engaged in consistent collaborative decision-making and reflected, they tended to achieve a coherent curriculum (Tanner & Tanner, 2007, p. 28). Consequently the development of the curriculum was a “living document” process where there was a community of learning and improvement. In order to

close the gap between subjects within the school building, curriculum development is best done when teacher teams plan together on what and when to teach within a framework.

In order to ensure the high probability of student success, it must be a democratic process. Joseph McDonald (1994) suggested that curriculum should be viewed as

...a continuing conversation with a wider, social, moral, and economic universe; an entitlement of supports for student learning; or a set of active aims for teaching. Such a view transforms the curriculum from a schedule for organizing school time into a set of experiences that are flexible to the demands of deep learning. (p. 685)

Teachers must be closely involved in the development, reflection, evaluation, and continuous revisions. According to Dewey (1938):

The plan, in other words, is a co-operative enterprise, not a dictation. The teacher's suggestion is not a mold for a cast-iron result but is a starting point to be developed into a plan through contributions from the experience of all engaged in the learning process. The development occurs through reciprocal give-and-take, the teacher taking but not being afraid also to give. The essential point is that the purpose grow and take shape through the process of social intelligence. (p. 72)

In addition to teachers, the committee of curriculum development must expand to all stakeholders. Therefore genuine participation from district and school level leaders, teachers, parents, and students must be invited to partake in the process. Clark and Harap believed that all major stakeholders should be encouraged to actively participate in the developmental processes and school decision-making (as cited in Tanner & Tanner, 2007). The Harap Committee

identified principles for the development of curriculum. The fundamental principles for the Harap Committee (Tanner & Tanner, 2007) were:

- Teachers should utilize the available resources as there is no need to begin from scratch.
- The development of curriculum must be continuous to reflect the changes in society.
- The learning activities within the curriculum should be adapted to meet the needs of all students, including those classified as special education.
- Curriculum development is a collaborative process that must involve school staff, parents, and students.
- There is a need for shared beliefs in curriculum as well as personal commitment from the teachers.
- There is a need for adequate resources to create the curriculum.
- Solutions must be a reflection of evidence-based data rather than an education fad.
- Enthusiasm and commitment should be part of the curriculum development.

Ravitch (1977) argued that the democratic process is a mechanism for disagreeing amicably to help reach the most appropriate decisions. Mulder and Thijsen found that participants tended to reach consensus during curriculum conferences but their opinions changed; therefore, it proved that consensus is not the ultimate goal but the creation of a sound basis for decisions through open communication (as cited in Tanner & Tanner, 2007).

Dewey stated:

It is not enough certain materials and methods have proved effective with other individuals at other times. There must be a reason for thinking that they will function in generating an experience that has educative quality with particular individuals at a particular time. (1938, p. 46)

Therefore unbiased formative assessments must be planned to establish individual students' mastery. In addition schools must take into account the individual child's development and needs. Tyler (1949) argued:

...a school that is making an investigation will find it possible to draw upon general scientific studies for certain information about children of the age level concerned, and in making these investigations it will often be necessary to recognize the varied composition in the student body representing the typical school. (p. 10)

As curriculum developers explore how to best organize the curricula program, continuity, sequence, and integration must be taken into account.

- Continuity involves how to spiral the behavior and content objectives to diminish teaching in isolation.
- Sequence “emphasizes the importance of having each successive experience build upon the preceding one but to go more broadly and deeply into the matters involved” (Tyler, 1949, p. 85).
- Integration emphasizes the articulation between and among content areas.

Furthermore the modes of teaching must be considered in the curriculum development

because the “how” is another important criteria. Findings from *A Study of Schooling* concluded that teachers tended to implement passive techniques such as teacher-centered and whole class instruction rather than “activities associated with students’ own goal setting, problem setting, collaborative learning, autonomous thinking, and creativity...” (Goodlad, 1999, p. 34).

Teachers play the most critical role in the daily lesson planning and instructional execution. Therefore teachers must play an integral role in the development of the curriculum.

Dewey

...called attention to the minimal role that the teacher normally had in designing a course of study. It is, after all, the teacher who alone can make that course of study a living reality, and as long as the teacher, who is, after all, the only real educator in the school system, has no definite and authoritative position in shaping the course of study, that is likely to remain an external thing to be externally applied to the child. (as cited in Kliebard, 2004, p. 74)

When teachers’ expertise, interests, and opinions are validated through curriculum development involvement, the probabilities of reform are more likely.

### **An Experiment with a Project Curriculum**

Wraga (2006) described pedagogical progressives as those who spoke about the project method, the activity curriculum, among other methods to address individual needs of children by “subverting the hegemony of established school subjects” (p. 1082). The attempt to solve the two fundamental problems in daily programming in a one-teacher school—classification of projects and student grouping—was a 4-year process (Collings, 1929, p. 47). The finished program consisted of three different student groups with scheduled times for story projects, hand

projects, play projects, and excursion projects. One example of the group's project was centered on the question, "What are the causes of typhoid in Mr. Smith's home?" During the initial phase the students had discussions on possible causes based on their prior knowledge and experiences. The students designated an individual to serve as the interviewer, while the rest of the group determined the focus questions. Throughout the process, the students developed their oral, peer and adult interactions, problem-solving researching for background information, making sound prediction, and synthesizing skills. After the data collection, the students compared their findings to their predictions and readings. Based on the gathered evidence, observations, and background knowledge, the students reached a conclusion and then created recommendations. The students were able to take an active role in the solution of the problem statement through extension activities such as making flytraps and covered garbage pails to help Mr. Smith combat the problem. Through the administration of a survey and survey data conversion to percentage computations and tables the students were able to integrate mathematics. Finally the students had an audience beyond the classroom through the presentation at a community meeting.

A comparison between the students in the experimental and control schools revealed that the students in the experimental schools performed better. The comparisons were made in eight attitude indicators toward the school and education for all grades of the experimental and control schools at the end of the 4-year period (Collings, 1929). For the experimental schools, school enrollment was 25%; pupils daily attendance was 93%; decrease in lateness was 92%; decrease in truancy was 25%; decrease in corporal punishment was 56%; students attending school throughout the term was 76%; students graduating from the eighth grade was 85%; eighth-grade graduates entering high school was 85% (Collings, 1929). On the other hand, control schools

had consistently lower percentages than the experimental schools. For the control schools, school enrollment was 4%; pupils' daily attendance was 5%; decrease in lateness was 6%; decrease in truancy was 7%; decrease in corporal punishment was 15%; students attending school throughout the term was 2%; students graduating from the eighth grade was 10%; eighth-grade graduates entering high school was 8% (Collings, 1929). There was also an increase of parent participation in experimental schools. Outside of the school building, the students enrolled in experimental schools were more involved with community events, as well as took the time to engage in independent reading. One of the most significant changes was the percent of students participating in community activities. Both control and experimental schools were at 0%, while the control schools remained at 0%, the experimental schools jumped to 100% (Collings, 1929). Student participation in community events demonstrated that students tend to take a more active role through experimental learning.

### **Curriculum Evaluation**

With all of the curriculum reform, there has been a critical need to determine the effectiveness of the efforts. Tyler (1949) stated that the curriculum evaluation process must consist of the determination whether the planned curriculum produced the aspired results and its strengths and weaknesses. Unfortunately there has been a presence of the wrong kind and untimely evaluation that becomes meaningless to the reform efforts; therefore, it is an arduous task to determine its impact on student learning (National Advisory on Education Professions Development as cited in Westbury, 1970). The present curriculum evaluations have not provided sufficient evidence to determine its effectiveness. In the past decades, a number of evaluation proposals have made it to the education field. Evaluations must help teachers have an



intelligent awareness of the students' capacities, needs, and past experiences (Dewey, 1938).

One of the intended outcomes of the evaluation is for students to demonstrate the intended growth over time. Curriculum evaluation must not only consider the content and knowledge within the goals and objectives but also synthesize of how it will be applied in a variety of situations.

Based on the literature, Goodlad (1964) proposed an approach for curriculum evaluation that will begin to assess the validity of the curriculum planning and design. This approach consists of four avenues: (a) informal and systematic questioning of teachers and students engaged in successful implementation and learning, (b) observations of students' progress, (c) periodic assessments to determine mastery, and (d) comparative testing of experimental and control groups. The evaluation of the curriculum is a complex process.

Tyler (1949) argued that "unless the evaluation procedure closely parallels the educational objectives of the curriculum the evaluation procedure may become the focus of the students' attention and even of the teachers' attention rather than the curriculum objectives set up" (p. 124). In a high-stakes testing environment, we need to shift our attention to curriculum objectives that prepare students for real world application rather than lower level knowledge-based objectives that resemble tests.

### **Curriculum Paradigm**

Dewey argued that educational practice must be tested by theoretical ideas to ensure that educators have used the most appropriate professional judgment (as cited in Tanner & Tanner, 2007). The paradigm guides educators in the development, implementation, and evaluation of

programs for curriculum, instruction, and assessment. Without the presence of a paradigm, the likelihood that the curriculum reforms and practices are weak trends is very likely.

Remedies must reflect the most appropriate, best evidence and not the latest fads of the time.

The appropriate evaluation of curriculum is crucial in the execution and reflection process. The curriculum paradigm is a theoretical framework that guides educators in planning, executing and evaluating of the curricular program.

Tanner & Tanner (2007) stated,

A paradigm (Table 4) or set of paradigms constitutes what members of a scientific community share in accounting for the fullness of their professional communication and relative unanimity of their professional judgments...It is a synthesis of modes of thought and methodology of a field that makes progress possible through substantive problem solving. (p. 125)

Table 4  
*Visioning the Curriculum Through the Paradigm*

What we have	What we need	What we want for children
Curriculum mapping	Results of mapping and gap analysis	Philosophical foundations
Gap analysis	Focus group responses	Research & theory
Vertical articulation	Content standards	Evidence-based best practice
Horizontal coordination	Other state requirements	Informed professional judgment
Focus groups: Teachers & students		
Informal feedback: Teachers, students, parents		

*Note.* Source: Tienken, 2010, personal communication.

It further examines what educators have, need, and want for students. Tanner and Tanner (2007) wrote “The model or paradigm serves to account for the various sources and determinants in curriculum development and is based on the reflective formulation and testing of alternatives for the solution of practical problems” (p. 146). Presseisen (1985) found that the majority of

education reforms violate the paradigm and reformers continue to make errors. Through the integration of philosophies, research and theory, best practices, and professional judgment educators can make the best informed decisions for curriculum. Most importantly, the curriculum paradigm will help educators determine whether they are meeting the needs and interests of the learners. The paradigm involves three major components: the learner, subject-matter, and social forces. Research suggested curriculum should be designed around the three main sources of the curriculum paradigm: “the nature and needs of the learner, the structure and function of the curriculum, and the kind of society professed, upheld, and sought” (Tanner & Tanner, 2007, p. 124). Presseisen (1985) argued that often times education reforms violated the paradigm, and the violations led to a lack of success. This practice will allow for the curriculum to move beyond the essentialism curriculum to a more progressive approach where student experiences are part of the learning. Studies such as the Eight-Year Study emphasized that schools must be experimental based on a curriculum paradigm. Aikin (1942) stated that “no aspect of any school’s work should be so firmly fixed in practice or tradition as to be immune from honest inquiry and possible improvement. It is only in this way that life and rigor are maintained and progress achieved” (p. 19).

When educators do not possess the evidence-based roadmap for the curriculum, there tends to be lack of consistency and limited positive student achievement. Dewey reflected on curriculum reform and the cycle from its birth to its death. Curriculum reform begins with the replication of recent discovered reform, and everyone is optimistic about the changes the initiative will bring about in the school district. Dewey stated:

Within a short time, however, complaints are heard that children do not read as well as they used to or that their handwriting is bad; there develops a public outcry to rescind the reform, and there is a return to the status quo ante. (as cited in Kliebard, 2004, p. 73)

Decades later, educators found themselves tangled in similar cycles. According to Dewey, the reasons for the cycles are lack of “conscious educational standard by which to test and place each aspiring claimant” and attention to “the mechanics of school organization and administration” (Dewey, 1900, pp. 335, 337). When educators engage in curriculum development, the learner, subject matter, and social forces (Table 5) must be all considered during the process.

Table 5

*Curriculum Paradigm (Getting What You Need)*

The learner	Subject matter	Social forces
Active constructor of meaning	Problem-based	Democracy
Develops cognitively, socially, and morally in stages	Socially conscious and/or authentic	Local, state, national & International
Connects through sense and Meaning	Connects to relevant themes Flexible	Equity

### **Influential Forces of Curriculum**

Influential forces, whether positive or negative, have played a significant role in the design, development, and content of curriculum. The influential forces that drive curriculum have slowly shifted from local to federal. Tienken and Canton (2009) argued against federal control:

The influence of a mandated federal test will reach into the local classroom and control local decision making from the federal level. Local control will become but an illusion relegated to discussions in university political science classes. Unfortunately, state education leaders and governors seem willing to drink from the poisoned trough to cover budget gaps in the short-term, but water down democracy in the long run. The problem is once we shift the balance of control for education to the federal government, which is ostensibly will occur in this case due to the regulations and strings attached to receiving the money, the local citizens lose the only remaining voice they had to help determine some aspects of the curriculum and their children's education. Instead of curriculum changes coming from the bottom-up through the voice of the people, those changes become increasingly driven by national political ideology, such as social conservatism and neo-liberalism and not by empirical research. (p. 5)

There are many interested parties and resources that together create a curriculum. Local school districts have lost some control to a more centralized structure due to standardized tests. Thomas Jefferson argued for local control because the local people are the ones that authentically understand their needs to create experiences to cultivate independent and creative individuals (Tienken, 2009). Over the decades educators and theorists have argued for curricula programs that meet the needs of the individual child. Through local control with national and/or state standards set as minimums, schools will be able to have some guidance, but the local curriculum committees will be responsible for the development of the curricula. Groups and individuals have an agenda to advocate within, or even impose on, the education arena. Advocates of high-

stakes tests are at the forefront of the control of what and how curriculum customization happens in the classroom.

Despite the various influential forces, the ultimate intention of education reformers should be to collaboratively determine “how to make curriculum the living, evolving process of students’ learning and deep understanding of their world” (Rogers, 1997, p. 708). Despite all of the mandates, teachers bear a great deal of influence through the creation of lesson plans and execution of the curriculum. Dewey (1938) described teachers as “the organs through which pupils are brought into effective connection with the material. Teachers are the agents through which knowledge and skills are communicated and rules of conduct enforced” (p. 18). Therefore teachers must become well informed on research-based curriculum and instructional practices to make the most educated decisions.

Textbooks have been viewed as the authority of information and, therefore, tend to drive the content of the curriculum. Textbooks help students expand their knowledge on particular subjects, as well as build on their knowledge for future encounters with various texts. Livingstone (1990) stated that textbooks may organize students’ frames of thinking, create dichotomies and oppositions, and form associations and connotations, but they should not determine the course of study (Jenkin & Tanner, 1992; Kalmus, 2004). Through the textbooks, teachers drive students’ interpretations of the information.

The volume of academic and applied research in textbook analysis and criticism (Woodwarth et al., 1988; Johsen, 1993; Mikke, 2000) indicates that school textbooks and other educational media are seen as important instruments for [the transmission of]

knowledge and values to the young generation, and thus for reproduction or transformation of the social order. (Kalmus, 2004, p. 469)

Instead textbooks should be viewed as a portion of the resources available to the teachers.

Kalmus (2004) found that “the authors of textual studies tacitly grant objective status to the text, and in effect claim at the same time that their interpretation of the text is the preferred one” (p. 470). Curriculum developers must be cognizant that textbooks are written from the author’s perspective. Students should not be limited to one perspective. Tanner (1999) warned textbooks should not determine the curriculum; instead, the wealth of resource materials and activities must be integrated “to relate the curriculum to the life of the learner and to the wider social life” (p. 134). The unfortunate reality is that the design and development of curriculum is often a reflection and sequence of a textbook. Goodlad’s study of schooling discovered that a disproportionate emphasis was placed on workbooks and worksheets similar to tests (as cited in Tanner, 1999). Teachers, in collaboration with school leaders and standards, should determine the content and sequence not the vendors of textbooks. The textbooks should serve as one form of resources and not as the authority of the all of the content. A study on the influence of textbooks in elementary classrooms revealed that more than 80% of instructional time in the sampled classes was dedicated to topics in the mathematics textbooks; however, teachers selected the topics and provided supplementary resources (Stodolsky, 1999). Even though textbooks should be used as an instructional tool in the classroom, they should actually serve as more of a vehicle to help students develop their understanding rather than be the ultimate authority. Even though the use of textbooks has decreased due to the Internet as a

comprehensive and up-to-date resource, the alternative is not always the most reliable source of information.

### **Socioeconomic Status and Student Achievement**

The results from many studies on socioeconomic status and student achievement suggest that socioeconomics has a direct influence on student achievement. Berliner “brings in abundant data to show clearly that poverty significantly affects school performance and is responsible for the gaps between the poor, urban, minority students and their middle-class, suburban, white peers” (as cited in Zhao, 2009, p. 14). Not only do American children continue to be the poorest by age group, but about 12 million of them live in extreme poverty with family incomes below 50% of the poverty line (U.S. Census Bureau as cited in Thomas & Stockton, 2003).

Socioeconomic status is the contextual indicator of social and economic well-being that makes connections between resources available at home and academic achievement (Brooks-Gunn, Denner, & Klebanov as cited in Sirin, 2005). Biddle (1997) found that the correlation between child poverty and achievement was  $r = .700, p < .001$ . Overall schools with a significant number of students who were identified as economically disadvantaged (eligible for free lunch programs) tend to have lower achievement scores. This was evident in a study that involved more than 6,000 classrooms in Texas where it was discovered that low SES classrooms demonstrated lower gains on the norm-referenced Assessment Program of Texas compared to non-low SES classrooms (Lopez as cited in Thomas & Stockton, 2003).

One of the most renowned education studies was the 1966 *Equality of Educational Opportunity*, also known as the Coleman report. The study involved the execution of a survey to capture the lack of availability of equal educational opportunities for individuals because of race,



color, religion, or national origin in American public educational institutions (Coleman et al. as cited in Wong & Nicotera, 2004). To their surprise, lack of school resources was not the predictor of student achievement; instead, socioeconomic status was the primary predictor of student achievement. Consequently student achievement test scores strongly correlated directly with students' socioeconomic. "The Coleman production model examined school effects by measuring the proportions of variance in student achievement that could be attributed to school facilities, school curriculum, teacher qualities, teacher attitudes, and student body characteristics" (Gamoran & Long, 2006, p. 7). Jencks and his colleagues argued that educational institutions and educational resources cannot combat inequalities if parents' income, occupational status, and education remained the same (as cited in Gamoran & Long, p. 8). During the study, Title I, a program to allocate additional funding to schools with high concentrations of students categorized as poor, was created.

In 2002, the states with high-stakes testing programs found that after the testing program implementation, 67% reported decreases in Grade 4 mathematics and 50% increases in Grade 4 reading performance (Amrein & Berliner, 2002). When students do not score proficient, schools face severe consequences. Research continues to demonstrate that students in poverty tend to score below proficiency because of the academic gaps. Meece and Daniels (2008) stated:

In summary, outcomes from carefully designed early intervention programs suggest that it is possible to modify the course of intellectual development for low-income children. The results of the Carolina Abecedarian Project further suggest that earlier and longer treatments may have more powerful and longer-lasting influences on intellectual development than preschool or school-age interventions alone (Campbell et al., 2001,

2002; Helms, Sparling, & Ramey, 1998; Ramey & Campbell, 1991 as cited in Meece and Daniels, 2008, p. 220).

Curriculum quality and teacher effectiveness are critical indicators to help students be successful in school. Based on the results of a case study, Brown and Clift (2010) found that one teacher transferred to a high-performing school from a low-performing school and witnessed more than 50 points increase in test scores without even changing his teaching style. The findings demonstrate that teachers must be extra cognizant of the needs of the most vulnerable students.

Sirin (2005) conducted a meta-analysis from 1990 to 2000 on 75 independent samples in which 64 used students as the unit of analysis, and 11 used aggregated data units of analysis such as a school or school district. The studies used a variety of variables with a range of correlation from .005 to .77. Sirin found students' grade level to be a significant moderator between SES and academic achievement where the mean for elementary school students was .27. There seems to be a trend of increasing mean from kindergarten to middle school. Furthermore Sirin found, "Of all the factors examined in the meta-analytic literature, family SES at the student level is one of the strongest correlates of academic performance. At the school level, the correlations were even stronger" (p. 438).

### **Free and Reduced Lunch Status**

Harwell and LeBeau (2010) stated that for eligibility determination for free lunch, the household income must be less than 130% of the poverty guidelines. Harwell and LeBeau (2010) and stated that eligibility determination for reduced price lunch is a household income less than 185% of the federal poverty guidelines. African American and Latino students tend to disproportionately be categorized under the free lunch classification. Students who are

economically disadvantaged begin school with inferior cognitive skills compared to their classmates and then earn lower grades and exam scores, enroll in lower track courses, and obtain fewer degrees (Barker & Coley; Duncan, Brooks-Gunn, Yeung, & Smith; Peters & Mullis; Raver, Gershoff, & Aber as cited in Crosnoe & Cooper, 2010). Meece and Daniels (2008) found that child poverty has “both immediate and long-lasting negative effects on children’s development...Poverty rates are the highest for children under the age of 18 than for any other age group” (p. 14). Lower SES students enter school with significant educational deficiencies compared to their middle class peers, in particular standardized achievement and intelligence scores (Children’s Defense Fund, National Center for Educational Statistics as cited in Meece & Daniels, 2008). Jensen (2009) summarized past research suggesting that the status of students’ socioeconomics bears a significant correlation to cognitive ability, including IQ, achievement tests, grade retention rates, and literacy. Furthermore, students from poor living conditions and economics experience negative effects to their cognitive development because of poor nutrition, lack of health care, inadequate living conditions, low parental education, and stress (Meece & Daniels, 2008). In New Jersey, 11.6% of the child population come from a low-income household: in particular 20.8% Latino children and 23.3% Black children compared to 7.1% of White children and 6.9% Asian/Pacific Islander children (Children’s Defense Fund, 2009). Meece and Daniels (2008) stated,

Poverty rates, however, tend to be higher among African American and Hispanic populations. Because African American and Hispanic children make up a smaller proportion of the total child population, the percentage of poor children in these groups is considerably higher than that of non-Hispanic whites.... (p. 15)

Students of poverty tend to be concentrated in pockets within urban and rural communities. In 1975, New Jersey developed a ranking system that consists of measurable criteria to capture the wealth of each school district. The DFG system begins to bring to the surface the disparities among student achievement because of socioeconomic status.

The ECLS-K, a multistage sampling frame study, conducted by the National Center for Education Statistics (NCES) is a national representation of American kindergartners with a selection of 100 primary sampling units (measured in the form of counties), narrowed to 1,000 schools and 22,782 students in kindergarten with a time period from the fall of 1998 to spring of 2004 (Crosnoe & Cooper, 2010). The focus was on the transition into elementary school of children categorized as economically disadvantaged. The collection of data consisted of parents and school staff interviews as well as administration of diagnostic tests on the students. Crosnoe and Cooper (2010) found, “Children with no markers of disadvantage tended to be White, and majorities of children from families with four or five markers were African American or Latino/a. Generally, child profiles became more problematic with each additional marker of disadvantage” (p. 271). I focused on 26 variables that were considered markers of family economic disadvantage with a sample population of 9,089. One variable of interest for this particular study was below the federal poverty line findings where “children [between kindergarten and first grade] made smaller gains on the math and reading tests with each additional marker of family income especially the combination of low parent education, family poverty, and some third dimension of disadvantage” (Crosnoe & Cooper, 2010, p. 288).

Penfield (2010) argued that students’ test performance was attributable to students’ chance to learn the content through quality of instruction. Unfortunately all students do not have

the opportunity to enroll in a rigorous curricula program, especially students identified as low-income and of Latino or African American descent. Additionally research as summarized by Penfield (2010) has demonstrated that assessments with culture and language specific content can hinder “students of linguistically and culturally diverse backgrounds from demonstrating their knowledge and skills on the assessments” (p. 112)

## **Synthesis**

As outlined in the research discussed, socioeconomic status continues to be the single strongest indicator of student achievement. Now the challenge remains for educators, researchers, and policy makers to determine how to best educate students in poverty despite all of the challenges. It is a complex struggle that we continue to face in the educational arena.

### **Teachers with Graduate Degrees and Student Achievement**

There is limited significant research on teachers with graduate degrees and the achievement of students. There is evidence that professional education can improve teachers’ competencies in the classroom (Boyd, Grossman, Lankford, Loeb & Wyckoff, 2005). The research is mixed on the influence of teachers’ qualifications and credentials on student achievement. There has been research that found that teachers’ education and credentials have a role in student learning (Ferguson & Ladd, 1996; Fuller, 1998; Goldhaber & Anthony, 2007; Goldhaber & Brewer, 2002; Wenglinsky, 2000). Hanushek (1997) and Palardy and Rumberger (2008) found limited influence on student achievement based on teachers’ education. Goldhaber and Brewer’s (1996) study utilized data from the National Educational Longitudinal Study of 1998, a nationally representative study of approximately 24,000 eighth- grade students in 1998 who were surveyed and tested again in 10th grade. Results determined that the percentage of

teachers within a school who possessed a master's degree was not statistically significant in the areas of math, science, English, and history. Often times teachers' education in terms of graduate degrees bears a financial incentive more than a gain in student achievement. Aaronson, Barrow, and Sander (2007) found that advanced degrees explain approximately 1% of the total variation in teacher quality.

The Coleman report found that teachers' educational background impacts student achievement of minority students in upper grades (Coleman et al. as cited in Wong & Nicotera, year). In schools that are low-performing with high proportions of poor and students of color, the qualifications of teachers are already substantially worse than in higher performing urban and suburban schools (Boyd et al., 2005).

The current studies have revealed mixed conclusions. Wayne and Youngs (2003) determined that data collection improvements on degrees and coursework "led to results that make apparent that the earlier, mixed results for degree level were at least partly attributable to the failure of those studies to identify whether the additional degree was related to the subject being taught" (p. 101). Darling-Hammond (2000) concluded that the teachers with both a degree in the subject area and full state certification is positively associated with NAEP reading and mathematics scores. Furthermore Darling-Hammond accessed data from a 50-state survey of policies, state case study analyses, the 1993-1994 School and Staff Surveys (SASS), and the National Assessment of Education Progress (NAEP) to examine teacher qualifications factors that influence student achievement. Darling-Hammond found:

Teacher quality characteristics such as certification status and degree in the field to be taught are very significantly and positively correlated with student

outcomes...Characteristics such as educational level (percentage of teachers with master's degrees) show positive but less strong relationships with education outcomes...Other school resources, such as pupil-teacher ratios, class sizes, and other proportion of school staff who are teachers, show very weak and rarely significant relationships to student achievement when they are aggregated to state level. (as cited in Michel 2004, pp. 48–49 )

Goldhaber and Brewer (1997), Hawk, Coble, and Swanson (1985), and Rowan, Chiang, and Miller (1997) found that students did not score better when teachers had master's degrees; however, the students with teachers who had mathematics degrees, whether it was bachelor's and/or master's produced higher student achievement gains. In 2000, Goldhaber and Brewer conducted a similar study with a different set of students and found that students learned more from teachers with mathematics degrees. The connection between teachers' science training and student achievement was larger in higher level science courses, a result similar to what Hawk, Coble, and Swanson found in mathematics (as cited in Darling-Hammond, 1999). Monk's study found that teacher education-related coursework had a positive effect on students' mathematics and science achievement and was sometimes more influential than additional subject matter preparation (as cited in Darling-Hammond, 1999). Quasi-experimental studies have been burdened by inconclusive findings regarding the impact of teacher degree; recent studies on subject areas of graduate degrees have found a positive effect on teacher degree for high school students achievement (Croninger, Rice, Rathbun & Nishio, 2004).

Clotfelter, Ladd, & Vigdor (2007) accessed fifth grade student achievement data in North Carolina with an emphasis on teacher and student sorting among the schools as well as the

classrooms. From the emerging research, Clotfeller, Ladd, & Vigdor (2007) observed that teacher credentials, in particular teacher experience and licensures, bear a larger impact on math compared to reading. Basic regression was utilized for the single variable of teachers with graduate degrees. During the analysis, it was determined that teachers with graduate degrees had no statistically effect on student achievement and may even have a negative coefficient. When Clotfeller, Ladd, & Vigdor (2007) disaggregated the data in terms of when the teachers earned their master's degree, they determined the following:

Teachers who received their degree prior to entering teaching or any time during the first five years of teachers were no less or no more effective than other teachers in raising student achievement. In contrast, those who earned their master's degree more than five years after they started teaching appear to be somewhat less effective on average than those who do not have master's degrees. (p. 33).

Monk (1994) found that teachers' mathematics expertise and mathematics pedagogy courses taken by the teacher have significant positive effects on student achievement, while decreasing returns were noted after the fifth undergraduate mathematics course taken by the teachers. Furthermore science content and pedagogy courses have a positive impact on student achievement (Walkington et al., n.d.). Overall there are mixed conclusions on the impact of graduate degrees.

## **Synthesis**

The majority of the studies on teachers with graduate degrees and student achievement are centered on the secondary level. There is no significant literature on elementary teachers' degrees and student achievement. Most likely the focus is on the secondary level because of



specialization in a particular subject. There is strong evidence that teachers with graduate degrees influence student achievement on assessments at the secondary level. By the same token, there are mixed findings on the impact of teachers who have graduate degrees.

### **Attendance Rates and Student Achievement**

Higher attendance rates will provide students with greater chances to engage in learning opportunities. Wiley and Hamischfeger (1973) used average daily attendance rate, in addition to length of school year and day, and found a strong relationship in reading and mathematics knowledge acquisition. Robins and Ratcliff (1978) studied African American males and found that 75% of the students who had truancy problems in elementary school did not graduate from high school. Furthermore Karweit (1976) determined that the number of days had a small yet positive effect on student achievement. A number of authors found negative correlations between student absences and achievement (as cited in Fisher, Filby, & Marliave, 1977, p. 4). The more students attend school, the higher likelihood that they will learn.

An empirical analysis was conducted in 97 Baltimore public elementary schools on school characteristics, the students, and the measures on student performance on standardized tests. Researchers found that “the coefficient on the attendance variable was positive and statistically significant at the 5% level for a one-tailed test;” therefore one can conclude that attendance has a positive influence on student performance, other factors held constant (Lamdin, 1996, p. 158). The final conclusion suggested that the school average attendance has a positive influence on student performance. According to Lamdin:

One could draw the conclusion that there is *prima facie* evidence to support the view that devoting resources to increasing attendance rates is warranted. This conclusion,

however, presumes that policies and programs could in fact increase attendance rates and, moreover, do so in a manner that is cost effective. (p. 161)

Chen and Stevenson (1995) conducted a comparative study of Asian American, Caucasian American, and East Asian students' motivation and mathematics achievement. One of the five variables was attendance, in particular the number of days students skipped school. Chen and Stevenson concluded that for each day a student did not attend school contributed to 0.36 points drop on the mathematics test (p. 1230). Wheat (1998) examined the influence of the truancy program implemented by Virginia Governor and the General Assembly in 1996 where they expected that the reduction of excessive absenteeism by 25% would result in 22,000 more students to score above the national average on standardized tests. After a statistical analysis, Wheat (1998) determined that schools with higher attendance rates tended to score higher on tests even when the social and economic factors are held constant. Consequently, the absentee rate is severely detrimental to and correlated to student achievement.

Roby (2003) conducted a study to examine the correlation between student achievement and school attendance measured by the Ohio Proficiency Test and school-wide attendance average for fourth, sixth, ninth and twelfth grades. The correlations were significant at the .01 level with a substantial sample ranging from 691 to 1,946 depending on the grade. For the fourth, sixth, and twelfth grades, it was noted that moderate positive relationships exist between student achievement and school attendance, while the ninth grade had the strongest correlation (Schmidt as cited in Roby, 2003). When students' attendance average is lower, it impacted the amount of instruction, which ultimately affects student achievement. Specifically Roby (2003) found that the closer to 90% attendance rate the more negative impact on student achievement

and 91 schools reported attendance rates below 85%. Consequently it was equivalent to a cumulative yearly loss of student learning of about 54,000 instructional hours per school (Roby, 2003). Since there is a statistically significant relationship between student achievement and school attendance, it is critical for schools to monitor attendance average for it negatively affects the performance of students.

### **Synthesis**

Based on the literature, there was a significant relationship between attendance rates and student achievement on assessments. Studies show that the more absent days a student has, the more his or her performance will be negatively affected. Therefore, it is imperative for schools to have systems that promote daily attendance. There are no studies that directly measure the impact of increased instructional time on student achievement in a controlled experimental design.

### **Special Education Identification and Student Achievement**

The Individuals with Disabilities Education Act (IDEA) enacted into federal law in 1975 addressed the education of students with physical and mental disabilities (U.S. Department of Education, n.d.). Schools were held accountable for providing appropriate services for students classified as special education. Singer and Butler stated that despite the insufficient data, large numbers of students previously excluded were brought into the schools and provided with the legal rights to an appropriate education (as cited in Hanushek, Kain, & Rivkin, 2002). In order to provide special education students with the best possible education, it is most appropriate to place them in the least restrictive, inclusive environments. In 50 studies analyzing the academic performance of mainstreamed and segregated special education students, the average academic

performance of the integrated group was in the 80th percentile, while the segregated students scored in the 50th percentile (Gartner & Lipsky, 1987). Despite IDEA, educators must be vigilant of instructional practices geared towards special education students. Based on Gartner and Lipsky's (1987) literature review, they found:

There appears to be at least three discrepancies between the suggestions for best practice and the observation of actual teaching practice for mildly handicapped students: (a) there is almost no instruction presented to these students that might be classified as involving high level cognitive skills, (b) there is a small amount of time spent in activities that could be considered direct instruction with active learner response and teacher feedback, and (c) students receive a low frequency of contingent teacher attention.

Furthermore, Meece and Daniels (2008) argued that students classified as special education have a minimum of average intelligence as measured by intelligence tests, but they still demonstrate delayed academic performance on grade level assignments and achievement tests. Meece and Daniels (2008) claimed that as students reach adolescence, those with specific learning disabilities

...continue to fall further behind in academics as their deficits manifest themselves in more subtle or controlled ways (Deshler, 1978, p. 68)...The adolescent's need for organization and structure intensifies as curricular demands shift from learning skills to learning content at the secondary level...Alley and Deshler (1979) also describe troublesome writing characteristics: a narrow word pool; frequent errors in spelling, capitalization, and punctuation; organizational problems; and poor monitoring of writing errors. (p. 81)

Additionally districts and schools are faced with the counter viewpoints of the Individualized Educational Plan (IEP) and state assessments. The IEP flourished as a structure to educate the individual child categorized as special education according to their needs, yet state assessments create an environment of uniformity with the greater student population.

Approximately 14% of the student population in the United States has been categorized as special education, and all of the students will be expected to attain proficiency by 2014. Urban schools tend to have a disproportionate number of students classified as special education. With the implementation of the NCLB Act, attention was placed on the performance and progress of special education students. Despite the increase in federal accountability, assessments requirement, and standards-based instruction, students identified as special education continue to perform significantly below their nondisabled peers (Center on Education Policy, 2009). The current federal legislation and accountability measures hold all students, despite categorizations, to the expectation of proficiency. Each special education student has an IEP that outlines the individual curriculum goals for the school year. Despite the disabilities of the special education students, the ultimate goal must be the same as general education students: “enable students to maximize potential, earn a living, enjoy free time, lead a productive life, treat other people humanely, and develop intellectual skills” (Evans & Weld, 1989, p. 236). Even though the process and pace might vary to accommodate the needs of students classified as special education, educators must hold them to high expectations. Lipsky and Gartner (1992) found that students identified as special education must be equally respected, given opportunities to access their knowledge, and provided with discretion on the pace and sequence of tasks. As a result, they tend to be more productive. Unfortunately the trend continues to prevail where

students who are special education are performing below grade level. Despite the students' disabilities, approximately 80% of students categorized as special education do not possess intellectual impairments that would prevent them from proficiency as long as the appropriate instruction and accommodations are in place (Center of Education Policy, 2010). Despite literature that argued that students classified as special education may attain proficiency, many of the students in special continue to lag behind their regular education peers. Research shows that appropriate and rigorous special education programs can have a positive effect. Hanushek et al. (1998, 2002) found that "the average effect of special education is positive once heterogeneity is allowed for with fixed effects" (p. 590) with a boost in math scores by at least 0.09 standard deviations and the average reading score with a minimum of 0.04 standard deviations in one year as well as cumulative positive effects. Special education programs with low expectations driven by a basic-skills curriculum have detrimental effects on the students' lives. Similar to general education students, educators are responsible for preparing students classified as special education for life outside of the school environment. Stainback and Stainback (1992) argued:

To be accepted in the workplace and the community at large, people with disabilities need to learn how to function and perform in the real, regular world and interact with their peers, and equally important, their peers need to learn how interact and function with them. This cannot occur if educators place students with disabilities into segregated, special classes and, in effect, separate students with and without disabilities during their school years. (p. 30)

The Center for Education Policy conducted a study that examined test scores trends from 2006 to 2008 to attempt to determine the achievement of students identified as special education,

in particular upward or downward trends. The focus was on Grade 4 special education students with achievement levels as basic-and-above, proficient-and-above, and advanced-and-above. Calculations determined the average yearly gains or declines according to each trend line; then, the researchers concluded each of the states' direction of achievement. The study findings were as follows:

1. Due to the non-transparent state test data for students categorized as special education, it was difficult to ascertain achievement trends. The proficiency levels derived from a variety of sources: state assessments, assessments with accommodations, or alternate assessments. Additionally there is no alignment in the interpretation of proficiency levels. The median for the 47 states in reading and 46 states for math that had data available was an increase of 1% for both content areas. Only four states noted an increase of 20%.
2. There are more noted gains than declines for those states with available assessment data. Among the basic-and-above level, 19 students noted gains in reading and 24 states in mathematics, while 11 states observed declines in reading and mathematics, respectively. For the proficient-and-above level, 28 states in reading and 29 states in mathematics observed gains, but 11 states in reading and 15 states in mathematics noted declines. Under the advanced proficiency level, 25 states made gains in reading and 26 states in mathematics, but 11 states noted declines in both reading and mathematics.
3. Despite some gains in assessment performance, the gap between students with disabilities and their non-disabled peers continues to be significant. Unfortunately disparities from 30 to 40 points are common in the United States (Center on Education Policy, 2009).

Due to the varieties in assessments and proficiency levels, accurate measurements could not be made; therefore, the data should be viewed as estimates. Additionally, many students classified as special education receive testing accommodations without empirical data of its effectiveness. According to *Standards for Educational and Psychological Testing* (1999), test modifications for students classified as special education should undergo a pilot study to investigate the appropriateness and feasibility of the modifications.

### **Synthesis**

There was limited empirical literature on special education and student achievement. Hanushek et al. (1998) found limited evidence on connections between special education programs and student achievement. I encountered more literature on the urgent need to provide students classified as special education with access to a quality education in a least restrictive environment.

### **Instructional Time and Student Achievement**

Instructional time, the amount of time that the average student is engaged in instruction under the supervision of a certified teacher, was one of the components on the New Jersey School Report Card. Within the state of New Jersey, for districts classified as DFG A, there was not significant variation in regards to instructional time. Michel (2004) stated that elementary school schedules tended to be determined by three factors: (a) instructional minutes of each subject area as dictated by district or state mandates; (b) non-core classes such as art, physical education, library; and (c) other components of the school day such as lunch times. Research (Smyth, 1985; Zhao, 2009) “has consistently shown the proportion of study time students spend actively engaged to be positively related to academic achievement” (p. 8). Instructional time for



schools with a large concentration of students who are considered economically disadvantaged tends to be less (Crosnoe & Cooper, 2010). Wiley and Harnishfeger (1973) conducted an analysis of the Equal Educational Opportunity dataset based on sixth-grade students in 40 elementary schools in Detroit, Michigan. The authors determined that the amount of instructional time was a significant determinant in degree of students' academic achievement success. Currie (1884) argued that that art of teaching was compromised by the approach of the how the teachers sustain their students' attention. Currie (1884) defined satisfactory attention as the students' consistent willingness to engage with the work, as well as the students' mental state of the class to actively engage along with the teacher to engage in a learning stance. Studies showed that increasing the amount of time devoted to a topic may increase understanding (Clark & Linn, 2003). Jacobson (1980) studied 200 third-grade students and determined that increased mathematics instructional time resulted in increased mathematics achievement. However, Levin (1984) cautioned that increased instructional time may influence student achievement, and the cumulative effect has potential for greater impact. Instructional time provided teachers with the opportunities to deliver a rigorous, quality curriculum that meets the needs of the students (Marzano, 2007). With the increased accountability, school leaders and teachers have tried to brainstorm a variety of scheduling structures to maximize the time dedicated to instruction. The increase of instructional time allowed teachers to spend more time on a variety of subject areas, as well as critical thinking and higher level skills. There is a need for school leaders to find a balance in subject areas and more interdisciplinary opportunities to allow students the opportunity to learn beyond the tested subject areas. One study on efficient time utilization found the average from the sampled elementary schools was 22.4 hours per week, while 54% of

class time was dedicated to English language arts and mathematics and the remainder to social studies, science, physical education, and the arts (Goodlad, 1999, p. 37). There were great disparities among the sampled schools. Tobin (1987) found that by allowing students more instructional time through wait time, higher cognitive level achievement was observed in elementary science because students had more time to process their thinking.

Clark and Linn (2003) studied 50 students through the implementation of the curriculum to investigate the impact of instructional time on knowledge and integration. Through interviews, they assessed the students' knowledge integration. In the current state where it is a race between time because of the standards and high-stakes testing, teachers do not have the opportunity to teach students in depth on the content concepts. On the contrary, studies demonstrate that the teaching of less content knowledge to incorporate more hands-on activity does not decrease outcomes on standardized tests (Clark & Linn, 2003). For students to authentically engage in knowledge integration and learn in depth about the topic, instructional time must be protected. Consequently teachers were then able to devote more instructional time to complex concepts. The integration of complex concepts allowed for higher levels of student learning. Clark and Linn argued that unless teachers invest appropriate opportunities for students to be autonomous guides of their own learning, effective outcomes from the knowledge integration process cannot be expected (p. 482). Furthermore, Clark and Linn found that inquiry assessments reflect the impact of less instructional time on knowledge integration, while the multiple-choice assessments did not reflect the decreases.

Repeatedly, findings demonstrated that students must be given the time to learn the content and apply the skills. In order to maximize student learning, the school day must be

maximized through dedication on academic activities. The Cato-Meridian School District in New York from 1963 to 1967 experimented with a longer school year (220 to 225 days), as well as a longer school day (10 to 70 minutes depending on the grade). Standardized testing was the measurement tool used to assess student achievement. The students in the experiment were compared to students attending school prior to the project and with other experimental students with one year less in the experiment (National Education Association, 1968, p. 30). After 3 years, the conclusions were:

Experimental pupils (1964-67) had higher composite ITBS scores than control pupils (1961-1964); the differences were not great, but they approached statistical significance at the 1 percent level of confidence. Experimental pupils made their greatest measured gain, significant at the 1 percent level of confidence, in work-study skills such as map reading and use of reference materials...Fifth-grade pupils with two years in the program scored significantly higher, at the 1 percent level of confidence, than fifth grade pupils with one year in the program on the Stanford Achievement subtest on arithmetic computation. (National Education Association, 1968, p. 30).

Through a teacher questionnaire, two thirds of the teachers believed that the increase in instructional time positively impacted students' learning due to greater depth curriculum and time for enrichment (National Education Association, 1968). On the contrary, it is pertinent that increased time does not equate to quality instruction. Reports showed that academic achievement was not sufficient to lengthen the elementary school day. Walberg (1988) argued that increases in instructional time, as well as productive time that takes into account allocated

and engaged time, have to be considered. Therefore, the increased instructional time must be followed with a revised curriculum.

Nelson (1990) reviewed studies on instructional time and student achievement and found that the use of the time was critical in determining student achievement. Nelson found one study that demonstrated a correlation between allocated time and student achievement, four studies indicated a moderate predictor of student academic success, and seven studies suggested that significant increases in instructional time must occur to impact student achievement.

Dewalt and Rodwell (1988) studied underachieving students in both a remedial mathematics and science classes. For the mathematics class, there was no statistically different change between the experimental group of fifth, sixth, and seventh grades that received 30 minutes of additional time and the control group that did not receive additional time. On the other hand, for the remedial science class with a different set of randomly selected students, there was a significant difference. According to the mean pre- and post-test science score on the Science Research Association (SRA), there was a significant difference between the experimental and control groups. Upon further examination, Dewalt and Rodwell found:

1. The mathematics teachers taught the same content as the regular mathematics class, while the science teachers differentiated between the regular science class and remedial class.
2. The mathematics teachers focused on specific skills and the science teachers focused on the overall concepts.
3. In the mathematics remedial class, it was 30 minutes of additional time on exactly the same content and skills. On the contrary, the science teachers allocated the additional time to make it more engaging and different than the regular science class.

The Beginning Teacher Evaluation Study examined achievement gains on reading and mathematics tests at the classroom level in Grades 2 and 5 based on a non-random sample of eight California school districts (McDonald & Elias, 1976). It was determined that correlations of allocated time and student achievement gains were  $-.24$  for Grade 5 math and zero for Grade 5 reading. In other words, there is a weak correlation between allocated time and student achievement on the Grade 5 math; while there is no relationship between allocated and student achievement on the Grade 5 reading. Lomax and Cooley (1979) reviewed a number of similar factors and found a lack of a strong and significant relationship without the consideration of certain qualifications between instructional time and student achievement in the literature. Smith (1979) correlated allocated time and social studies achievement for approximately 70 sixth-grade classes and concluded that there was no statistically significant relationship ( $r = 0.17$  for allocated time and achievement gain). By the same token, it must be acknowledged that a number of studies have occurred since their findings.

### **Synthesis**

There was extensive research available on instructional time, but I noted that the variable of instructional time was one piece of the larger puzzle. Overall the research on instructional time was mixed because of other factors such as the learning activities in which students engaged within the instructional time. Aronson, Zimmerman, and Carlos (1998) argued that consistent research showed that impact on student learning outcomes may be altered when instruction reflected the level of difficulty appropriate to each student. Increased instructional time has a positive effect on student achievement, as long as engaged time and student learning are

components of the bigger picture. Essentially instructional time on its own might not necessarily be a statistically significant predictor of achievement.

### **Limited English Proficient/Home Language and Student Achievement**

The influx of immigrants into the United States has placed pressure on schools to ponder how to best educate Limited English Proficient (LEP) students. The number of English Language Learners (ELLs) in the schools has nearly doubled since 1979 (Federal Interagency Forum on Child and Family Statistics as cited in Fry, 2007). Historically LEP students were not included in the accountability measures, and exemptions were in place for some of them. With the inception of the NCLB Act, schools are held accountable for the student achievement of LEP students on standardized tests, and LEP students are included in the accountability metrics. Abedi (2004) determined LEP issues related to AYP reporting: (a) lack of consistent LEP classification across the nation, (b) varied LEP population across the nation, (c) lack of LEP students' stability due to declassification, (d) low reliability and validity assessments more aligned for native English speakers, (e) low LEP baseline scores, and (f) the cutoff points that make it difficult for LEP students to score proficient.

When students categorized as ELLs take the tests, it becomes a measurement of achievement as well as language ability consistently performed leading to validity and reliability concerns. Even though they may have known or were able to decipher the content in their native language, the complexity and vocabulary of the English language made it more difficult. Abedi (2002) argued that analyses demonstrated:

ELL and non-ELL students had the greatest performance differences in the language-related subscales of tests in areas such as reading. The gap between the performance of

ELL and non-ELL students was smaller in science and virtually non-existent in the math computation subscale, where language presumably has the least impact on item comprehension. (p. 231)

It is further emphasized in several studies where LEP students consistently perform higher on linguistically modified test items (Abedi, 2004). Unfortunately, students identified as LEP consistently perform on the lower end of the proficiency spectrum. There is a concern that there are validity and reliability issues on achievement tests for ELL students. For example, 46% of fourth graders nationwide achieved at the below basic level in math and 73% in reading compared to their White peers who averaged 11% at the below basic level in math and 25% in reading (Fry, 2007). Coltrane (2002) and Menken (2000) argued that “when ELLs take standardized tests, the results tend to reflect their English language proficiency and may not accurately account for their content knowledge or skills,” therefore it weakens the test’s validity for them. If ELLs are not able to demonstrate their knowledge due to the linguistic difficulty of the test, the test results will not be a valid reflection of what the students know and can do” (p. 3). Furthermore, there could potentially be a lack of cultural context, due to their limited cultural experiences, that would not benefit them in exams.

The students categorized as LEP who excel are declassified; therefore, those students who continue to have difficulties with content and/or language continued to be categorized as LEP. Additionally it adds to the complexity because of the ever-changing student population through declassification and new entrants to the country. The complexity and process of learning English dramatically impacted students’ academic experiences and trajectories (Borrero & Yeh, 2010). It is an urgent matter that must be addressed because of the increase in students categorized as LEP

and the combination of the lowest achieving subgroup in both reading and mathematics (Robinson, 2010). Abedi and Dietel (2004) determined that students categorized as LEP tend to perform 20 to 30 percentage points lower and tend to demonstrate little improvement over time. The research on the performance of the students categorized as LEP has been well documented. The additional complexity is the multitude of levels and language backgrounds of students categorized as LEP.

On the contrary, few relevant longitudinal studies existed on the academic models of second language acquisition to inform educational decisions (Mancilla-Martinez & Kieffer, 2010). Despite that it takes on average 5 to 7 years for LEP students to become proficient in academic English, they are expected to take NJ ASK in their first year with four accommodations. The accommodations were extended time (time and a half), translation of directions, use of a bilingual dictionary, and separate location from general education students. Often times, researchers found that the accommodations were ineffective and did not bear significant validity; therefore, no conclusions exist of whether the constructs of the test have been altered (Baker & Linn, 2000). The students faced numerous challenges upon school matriculation: adaptation to a new cultural environment, adaption to a new language, the pace of the present curricula program, and navigation of grade-level content. Therefore it is critical for school staff to know each individual child's development, academic proficiency, and needs to best meet the needs of each student. Lev Vygotsky's "theory stresses relations between the individual and society. He asserted that it is not possible to understand a child's development without some understanding of the culture in which the child is raised" (as cited in Meece & Daniels, 2008, p. 165). As students continue to arrive from around the world to American



schools, teachers must get to know each child extensively in order to provide the most appropriate learning experiences to enhance student achievement. Thomas and Collier (1997) stated

Only those groups of language minority students who have received strong cognitive and academic development through their first language for many years (at least through Grades 5 or 6), as well as the second language (English), are doing well in school as they reach the last of the high school years. (p. 15)

With the rise in immigration in the United States, bilingual/bicultural programs in schools with non-English speaking students were court-mandated in 1974 from the *Lau v. Nichols* ruling and now funded by the federal government (Chastain, 1980, p. 11; *Lau v. Nichols*, 1974). Even though the Court mandated bilingual/bicultural programs, there was no evaluative system in place. Seven years later, the United States Court of Appeals for the Firth Circuit ruled in favor of Castenedas in *Castaneda v. Pickard* (1981). The court decision established criteria to determine how bilingual education programs would have to meet the Equal Educational Opportunities Act of 1974 requirements. The guidelines were as follows:

1. Schools must provide a bilingual education program that is based on solid educational theory.
2. The implementation of the program must reflect effective use of resources, including staff, instructional materials, and space.
3. There must be evidence of program effectiveness in reducing language barriers and handicaps after a set time (*Castaneda vs. Pickard*, 1981).

With the expected increase of LEP students, schools must have a strategic plan in place to learn how to best teach LEP students. Thomas and Collier (1997) predicted that by the year 2030, language minority students would account for approximately 40% of the student population. Therefore, language minority students will be the majority of the American schools' population.

Thomas and Collier (1997) conducted a study that involved 700,000 records on students classified as Limited English Proficient from five school districts between 1982 and 1996. The cross sectional and longitudinal analyses study was limited to students with no prior English language experience and categorized as free or reduced lunch that have been exposed to a variety of instructional strategies through experienced teachers. Thomas and Collier found three main predictors that help Limited English Proficient students move towards long-term academic success in their K–12 study:

1. There must be a balance between cognitively complex grade level academic instruction in both the students' first language as well as the second language. Consequently the gains students make during their time in the bilingual program will benefit them in their later academic life;
2. There is the need for integration of current teaching approaches to deliver the curriculum in both languages.
3. Within the curriculum integrate sociocultural context for Limited English Learners within the school environment. In this particular environment, both languages are encouraged and celebrated.

One study compared the performance of LEP students and English proficient students on mathematics word problems on the National Assessment of Educational Progress (NAEP) tests

and analyzed whether linguistic modifications of the word problems affected student achievement on tests. Abedi and Lord (2001) reported that LEP students scored lower than students who were proficient in English on elementary mathematics standardized tests, as well as the Scholastic Aptitude Test and the quantitative and analytical sections of the Graduate Record Examination. Therefore, the reality of the potential effects on standardized testing and student achievement were long-term. Abedi and Lord observed that language modifications to simpler English language on word problems had a greater impact on LEP students; this aligned with previous research on reading ability and abilities of mathematics word problems. National Center for Research on Evaluation, Standards, and Student Testing (CRESST) conducted a controlled study to measure the effectiveness of accommodations for LEP students and found that the students' language abilities interfere with the performance of content knowledge assessments (Abedi & Dietel, 2004).

Despite the federal accountability requirements, students identified as LEP lagged behind general education students. Kindler found that out of 41 states, only 18.7% of students identified as LEP scored above the state norm for reading (as cited in August & Shanahan, 2006). Furthermore the Massachusetts Comprehensive Assessment System (MCAS) results in 1998 showed that only 7% of students categorized as ELL were proficient in the Boston Public Schools and 8% statewide in 10th-grade English Language Arts (Abedi & Dietel, 2004). Consequently there was a 30 to 31 points gap compared to the rest of the student population.

Kieffer (2010) conducted a study on reading abilities among LEP students and native English speakers through the use of longitudinal data on a nationally representative sample of American students. He found:

ELLs were at substantially greater risk than native English speakers for newly emerging difficulties at each developmental period; at each of Grades 3, 5, and 8, the hazard probability of reading difficulties (i.e., the probability of scoring below the 25<sup>th</sup> percentile, conditional on not previously having done so) was significantly greater for ELLs than for native English speakers (all  $ps < .05$ ). (p. 485)

## **Synthesis**

Based on the current research, there was evidence that in many situations, classification of students as ELL statistically significantly influenced their achievement. Thomas and Collier (1997) found that there are many studies on language-minority students with flaws in the area of misinformation of appropriate research methodology. Additionally there is a need for long-term studies to authentically assess the student achievement of Limited English Proficient students. When students score poorly on high-stakes tests, the magnitude of the consequences are too great; therefore, it is pertinent for educators to have sound research on how to best teach students categorized as LEP.

## **Student Mobility**

Based on the current literature, there is a negative relationship between student mobility and student achievement especially for students that tend to have high mobility rates. Students with high mobility tend to have to adapt to the frequent changes, adjustment to different curricula, exposure to different teaching styles, among other challenges. According to the 2004 Annual Social and Economic Supplement to the U.S. Census, 15% to 20% of students moved the prior year. Repeated school changes have an augmented affect on students' achievement and likelihood of dropping out for it may place them a year behind their peers (Kerbow, 1996;

Rumberger & Larson, 1998). Kerbow (1996) stated that 41% of highly mobile students tend to be classified as lowachievers compared to 26% of non-mobile students. Dauber determined that mobility during the elementary school years had a negative association in the areas of test scores, grades, special education referral, and retention in the fifth grade (as cited by Michel, 2004). Furthermore the effects seem to be more significant among students identified as minority as well as students from urban neighborhoods and low income socioeconomics (Temple & Reynolds, 1999). The negative impact of student mobility may be balanced if the student remains in the new school. Studies concluded that mobility played a significant factor in school success and student achievement in urban districts (Rhodes, 2001). Student mobility also affects non-mobile students as the implementation of the curriculum such as the pacing may be impacted due to the needs of the new students.

Furthermore the Rhodes study (2001) found that student mobility has a more significant impact on school success compared to ethnicity, socioeconomic status, and enrollment size.

Raundenbusch (2010) stated:

Some kinds of mobility are harmful than others. Moves made within districts are more likely to be harmful, as are moves made during the school year, rather than between grades. However, the reasons people move vary, as do their destinations. Mobility could have positive effects in some situations and negative ones in others. For this reason, the effects tend to average out in the context of large data sets, suggesting that mobility has little effect when averaged over heterogeneous populations. However, the impact may be quite significant for subgroups, even though these effects can be difficult to capture.

(Graziano, 2012, p. 81)

A 1999 policy brief by Policy Analysis for California Education demonstrated that schools in California with high mobility rates (30% or higher) reported that test scores for non-mobile students were notably less compared to schools with lower mobility rates.

## **Synthesis**

Even though the conclusions for the current research on student mobility are consistent, they tend to be limited in quantity. Consequently there is a need for additional studies on the long-term impact on student achievement when student mobility is high.

### **Faculty Mobility Rate**

The need for schools, especially in urban settings, to identify qualified teachers coupled with teacher mobility is of paramount concern. The most recent data on teacher mobility claimed:

Of the 3,380,300 full-time and part-time public school teachers who were teaching during the 2007-2008 school year, 84.5 % remained at the same school (“stayers”), 7.6% moved to a different school (“movers”), and 8.0% left the profession (“leavers”) during the following year. (U.S. DOE, National Center for Education Statistics, 2010, p. 3).

The annual turnover rate for teachers in high poverty schools is 20%, while teachers in low poverty schools have a rate of 12.9% (Alliance for Excellent Education, 2008). Simple descriptive statistics demonstrated that new teachers were more likely to leave schools with lower test scores, lower income, or high percentage of minorities.

In addition to student achievement impact due to teacher mobility, school administrators also have to contemplate the effect on costs to the system, which may impact other resources. In New Jersey it is estimated that teacher turnover cost more than \$1.5 billion a year and may

skyrocket to \$4.9 billion annually with the addition of teachers who transfer schools (Alliance for Excellent Education, 2005). Ascher (1991) and Darling-Hammond (1999) argued that schools in urban settings faced greater teacher mobility, higher teacher absenteeism, and higher percentage of substitute teachers compared to suburban or rural school environments. The reality is that the assignment of less experienced and minimally trained teachers, especially for African American students who are twice as likely to be assigned ineffective teachers, continues to be a source of educational inequality between urban and suburban schools (Ascher, 1991; Darling-Hammond, 1999; Darling-Hammond, Berry, Haselkorn, & Fideler, 1999). Graziano (2012) stated that “schools’ racial compositions and proportions of low-income students predict faculty mobility; salaries and working conditions—including large class sizes, facilities problems, multi-track schools, and lack of text-books—were strong and significant factors in predicting high rates of mobility” (p. 67). Unfortunately the schools that are in dire need of the most effective, experienced teachers are the ones that face the obstacle of teacher recruitment and mobility.

One case study of five elementary schools that comprised varied student demographics and faculty mobility rates determined that correlations between student performance and mobility rates were significant but negative (Guin, 2004). Furthermore Guin found that “schools with higher mobility rates had fewer students meeting standards on statewide assessments in both reading ( $n = 418$ ,  $r = -.306$ ,  $p < .001$ ) and math ( $r = -.282$ ,  $p < .001$ ) (p. 7). In another case, the New York City Board of Education (1992) found that teacher mobility on student performance for the Grade 3 reading test had a negative impact ( $r = -.27$ ). Consequently the

impact of high teacher mobility has a negative affect on student performance especially when there is a lack of consistency and the lack of opportunities to develop teachers over time.

### **Synthesis**

There was consistent evidence that teacher mobility impacts student achievement. Based on the current literature and studies, the schools that are most affected by teacher mobility are those in urban school environments. Studies consistently indicated that teacher mobility negatively affects student achievement.

### **Theoretical Framework**

Over time, individuals interested in education continued to disagree on the variables that influence student achievement. The most prominent variables that tend to influence student achievement tend to be categorized as school, student, and teacher. In my study, the output variables were the students' achievement on the NJ ASK 5 Language Arts and Mathematics. The quality of the curriculum is crucial to provide students with the experiences and knowledge to become successful students. French (1955) defined curriculum as the prescribed educative experiences with the goal "to provide an individual with the best possible training and experience to fit him for the society of which he is part or to qualify him for a trade or profession" (p. 20). In order to provide students with a quality education, there must be autonomy for curriculum customization to meet the needs of the individual students. The students of interest are those in the lowest socioeconomic districts in New Jersey. Therefore there is even more urgency to establish the bottom line as the needs of the students. Jenkins and Tanner (1992) captured it simply as:



The school staff must keep in mind adolescent's need for a structured situation in which a caring individual creates a challenging but supportive program. This kind of environment can only be established through a program in which a teacher has sufficient time with students. It is also important to remember that core functions as a stabilizer. It is, in effect, a student's home away from home. In fact, for many students from dysfunctional homes, it could very well be the only stable aspect of their lives. (p. 66)

Based on the current literature, curriculum quality will influence student achievement. The curriculum is the ultimate vehicle that educates our students in the schools. Jenkins and Tanner (1992) argued that curriculum restructure emphasis should be placed on

...idea-oriented, problem-focused studies as opposed to error-oriented teaching. The former are of interest to students from a wide range of backgrounds and abilities and are more stimulating than error-oriented approaches consisting of disjointed facts and narrow skills. Skills are best developed through meaningful and useful contexts. Facts are synonymous with knowledge; they must be transformed into the working power of intelligence. (p. 11)

Despite the incredibly low validity of standardized achievement tests as predictors of future academic success when controlling for student socioeconomic status, these tests drive the curriculum, and the media has promoted the idea of them serving as scientific gauges of educational failure or effectiveness (Jenkins & Tanner, 1992). Curriculum quality based on a research-based curriculum paradigm should be the strongest vehicle to drive curriculum development in schools.

### **Conclusion**

Even though the education system in the United States has made great strides since the days of the Lancasterian plan of education where the teachers' primary role was to maintain order rather than teach, the essentialist philosophy continues to take precedence in classrooms across the country. Over the centuries, there have been many significant reforms to transform the education system. As educators, policy makers, and community members attempt to influence the curriculum in middle school, the end goal must be to make informed, research-proven decisions to best educate all students.

## **CHAPTER III**

### **METHODOLOGY**

#### **Introduction**

This quantitative study examined the influence of curriculum design, curriculum development, and influential forces that drive curriculum on Grade 5 student performance on the NJ ASK in language arts and mathematics in New Jersey elementary schools located in some of New Jersey's poorest communities. Nine other independent variables aggregated at the school level were also initially considered: (a) percentage of students on free and reduced in school, (b) teachers with graduate degrees, (c) attendance rates, (d) percentage of special education students, (e) instructional time, (f) percentage of English Language Learners, (g) student mobility, and (h) faculty mobility rate. In addition to the examination of strength and direction of the relationship between curriculum quality and student achievement in lower socioeconomic districts, I examined the statistical significance of independent school and student variables. Through the inclusion of multiple school and student variables that may have a statistical relationship to student achievement, educators and policy makers have research-based knowledge on student achievement. Additionally it added to the limited empirical quantitative research on the influence of curriculum quality on student achievement in underprivileged communities. The study expands upon an early study conducted of high schools in New Jersey of A, B, and CD school districts.

### **Research Design**

For this study, the most appropriate research design was non-experimental, correlational, and cross-sectional as it is one used frequently in education because of ethics and/or feasibility reasons (Johnson, 2001). Kerlinger defined non-experimental as

...systematic empirical inquiry in which the scientist does not have direct control of independent variables because their manifestations have already occurred or because they are inherently not manipulable. Inferences about relations among variables are made, without direct intervention, from concomitant variation of independent and dependent variables. (as cited in Johnson, 2001, p. 7)

In the further dissection of non-experimental research, the explanatory approach seemed to be the most appropriate type. Johnson (2001) stated that researchers should ask themselves two questions to determine if the study is explanatory:

(a) Were the researchers trying to develop or test a theory about a phenomenon to explain *how* and *why* it operates? (b) Were the researchers trying to explain how the phenomenon operates by identifying the causal factors that produce change in it? If the answer is *yes* (and there is no manipulation) then the term explanatory non-experimental research should be applied. (p. 9)

Furthermore the data were collected from the participants in a single time period; therefore, it was cross-sectional.

In order to determine whether there was a statistically significant relationship between two or more quantifiable variables, correlational research was utilized, in particular multiple regression. During the correlational research, it was important for me to acknowledge that the

results did not suggest cause-effect relationships, rather potential influential factors on student achievement. Consequently it was difficult for me to determine how the independent variables cause an effect to student achievement. The three quantifiable independent variables were curriculum development, curriculum design, and influential forces that drive curriculum. In the interest of quality, I attempted to identify statistically significant ( $p < .05$ ) relationships between two independent variables. The two independent variables were curriculum quality and independent school and student variables aggregated at the school level that influence instruction. The types of variables that were used in this study were attribute variables, rarely manipulable, that represented characteristics of different people (Johnson, 2001; Leech et al., 2008).

In order to answer the first and second research questions, I utilized a simple non-experimental cross-sectional survey research approach. Gay, Mills, and Airasian (2007) stated, “Cross-sectional designs are effective for providing a snapshot of the current behaviors, attitudes, and beliefs in a population” (p. 176). Regarding sample size for regression, I relied on Field (2009) to determine the minimum acceptable sample size. Field (2009) wrote:

If you want to test the model overall, then he [Green] recommends a minimum sample size of  $50 + 8k$ , where  $k$  is the number of predictors. So, with five predictors, you’d need a sample size of  $50 + 40 = 90$ . If you want to test the individual predictors then he suggests a minimum sample size of  $104 + k$ , so again taking the example of 5 predictors you’d need a sample size of  $104 + 5 = 109$  (p. 222).

We needed a minimum of 90 cases to meet Field’s (2009) and Green’s (1991) requirement for sample size with five predictors to ensure power to test the full model. I received 79 responses

from 24 districts of which 74 were eligible for inclusion in the study. Five of the responses were omitted from the study because the grade levels did not include fifth grade. Based on the responses, the sample consisted of 16 fewer than the 90 needed.

Because I did not know the strongest variables, I first used simultaneous regression to help me answer the research questions. Simultaneous regression was the most appropriate method to use when there were a modest set of predictors and the researcher did not know “which variables will create the best prediction equation” (Johnson, 2001, p. 94; Leech et al., 2008;). Furthermore, this predictive model is most appropriate since I attempted to determine how much of the variance in the outcome (dependent variable) may be explained by the predictor (independent) variables. Through the use of simultaneous regression it maximized the prediction of the variables (Pedhazur, 1997).

Upon the conclusion of the simultaneous regression, I analyzed the variables that had statistically significant relationships. The use of simultaneous regression is most appropriate to utilize when there is uncertainty of which variables will create the best prediction equation model. A total of 12 independent variables were considered initially to help increase the likelihood in the explanation of the outcomes.

The initial models included curriculum design, curriculum development, influential forces of the curriculum, attendance rate, instructional time, percentage of teachers with graduate degrees, percentage of students categorized as free, percentage of students categorized as reduced lunch status, percentage of students identified as Limited English Proficient (LEP), percentage of students identified as special education, student mobility rate, and faculty mobility rate.

However, several variables were not strongly linked to student achievement in Grade 5 or lacked variance among the responding districts such as (a) school size and (b) instructional minutes. They were removed from the final models. Multiple regression aimed to determine the relationship between the dependent variable and several possible predictor variables (school, teacher, student variables). Multivariate statistical analyses informed me on “how much of the variance found in the outcome variable [was] attributed to the independent variables” (Gay, Mills & Airasian, 2007, p. 345). The value of multiple regression was that it analyzed the results to determine the relationship of the variables and its strength and direction. On the other hand, multiple regression analysis did not determine causation, rather associations between variables. Additionally this study initially examined 12 variables to decrease the chances that other variables not included in the study are the result of student achievement.

I used the Enter method of the SPSS software program (also known as simultaneous regression) where all variables were entered at the same time. I ran two multiple regression analyses for each, one for language arts and one for mathematics. Through the SPSS analyses, I analyzed the following:

- Explanation of Variance: The variance explained how much of the variance in the NJ ASK 5 scores can be explained by the multiple variables.
- Significance of the Regression Equation: The regression equation informed me whether the regression equation is statistically significant ( $p \leq .005$ ).
- Explanation of Coefficients: The standardized coefficients indicate a positive or negative direction and the influence the variables have on the NJ ASK 5 scores. The Beta ( $\beta$ ) and

$p$  value were identified. The closer the Beta ( $\beta$ ) to 1, the stronger the influence of the predictor is. The  $p$  value determines significance.

The data analyses added to the current limited literature on the influence of curriculum practices and research-based independent variables on the NJ ASK5 student achievement.

Table 6

*Variables Entered/Removed*

Model	Variables entered	Method
1	Attendance rate	Entered
2	Instructional time	Entered
3	Percentage of teachers with graduate degrees	Entered
4	Percentage of students categorized as free	Entered
5	Percentage of students categorized as reduced	Entered
6	Percentage of students identified as Limited English Proficient	Entered
7	Percentage of students identified as Special Education	Entered
8	Student mobility rate	Entered
9	Faculty mobility rate	Entered
10	Grade 5 ELA	Entered
11	Grade 5 Math	Entered

*Note.* Dependent variables: Grade 5 student performance on the NJ ASK language arts and mathematics.



I then ran a hierarchical regression on the SPSS software. The process to run a hierarchical regression was to select analyze, regression, linear and then enter the variables. The independent variable was Grade 5 Math and the independent variables (Grade 5 ELA, Curriculum Survey, and % Free Lunch) were entered in order of significance. Under the statistics menu, I selected model fit, *R* square change, descriptive, part and partial correlations, and collinearity diagnostics.

### **Research Questions**

The central question of this study was: How do the curriculum practices and research-based independent variables in lower socioeconomic New Jersey districts influence the performance of fifth graders on the New Jersey Assessment of Skills and Knowledge (NJ ASK) language arts and mathematics? The subquestions further examined the primary question as follows:

Research Question 1: What is the strength and direction of the relationship between curriculum quality, specifically curriculum design, curriculum development, curriculum influential forces, and student achievement on NJ ASK?

Research Question 2: What are the statistically significant student variables aggregated to the school level that explained the largest amount of variance in student language arts achievement and mathematics as measured by NJ ASK 5?

### **Null Hypothesis**

Null Hypothesis 1: There are no statistically significant relationships between curriculum quality and students' language arts nor mathematics proficiency level on the NJ ASK for the

2009-2010 school year within New Jersey school districts classified with a district factor grouping A, in particular elementary schools with a fifth grade.

Null Hypothesis 2: There are no statistically significant relationships between student variables aggregated to the school level that predict student language arts and mathematics achievement outcomes as measured by the 2009-2010 NJ ASK 5.

### **Participants and the Identification Process**

The target population was all schools that contained Grade 5 sections in the 41 school districts located in District Factor Group A in New Jersey. There were 268 elementary schools within the 41 school districts. School level data from elementary schools that met the following criteria were included in the study: (a) elementary school is located in New Jersey and is a public school, (b) classified as an A district according to the district factor grouping guidelines, and (c) elementary school has fifth grade students. Census was the most appropriate approach. I contacted all of the elementary school principals who fit the district factor group criteria to request completion of the survey. There were a number of school districts that I had to contact the district office for permission of the dissemination of the surveys. The independent variable was curriculum quality measured by a census study of the school level leaders responsible for elementary school, in particular fifth grade, Language Arts and Mathematics curriculum in DFG A New Jersey school districts. The outreach was conducted via e-mail and/or mail through a solicitation letter. Additionally, I accessed the literacy and mathematics standardized testing and the other data accessed from the school report card results of the fifth grade students in the lowest socioeconomic districts in New Jersey.

### Data Collection: Census

Through a census approach for the data collection, attempts were made to collect data from all elementary schools with a fifth grade in DFG A. There are more than 16,500 fifth grade students who took the NJ ASK 5 language arts and mathematics exams (Table 7). School districts classified as *A* are considered the lowest socioeconomically by the NJDOE. Gay, Mills and Airasian (2007) stated “The larger the sample, the more closely it approximates the population and therefore the more probable it is that a given correlation coefficient represents a significant relation in the population” (p. 200).

Table 7

*Test Takers by District Factor Groups (2010)*

DFG	Students in DFG taking NJ ASK 5 Language Arts	% of Total population	Students in DFG taking NJ ASK 5 Mathematics	% of Total population
A	16,843	16.7%	16,914	16.7%
B	10,367	10.3%	10,425	10.3%
CD	9,480	9.4%	9,498	9.4%
DE	12,976	12.9%	13,005	12.9%
FG	12,682	12.6%	12,705	12.6%
GH	14,126	14.0%	14,183	14.0%
I	19,492	19.4%	19,537	19.3%
J	4,507	4.4%	4,524	4.4%

Source: New Jersey Department of Education, Performance by Demographic Group (2010).

### Instrumentation

The purpose of the study was to determine if a significant relationship exists between NJ ASK 5 Math and Language Arts and school, teacher, and student variables found in the literature to influence student achievement and the New Jersey School Report Card. For this study, I accessed the New Jersey School Report Card and the New Jersey Proficient Assessment of Skills and Knowledge database as sources of information. The data were used to collect information

for state assessment scores to determine students' performance on the NJ ASK. Currently there was no database to access information on curriculum quality at the elementary school level. In order to gather the data for the study, I accessed present surveys on curriculum to construct the survey best fit to meet the needs of the investigation.

The New Jersey Assessment of Skills and Knowledge (NJ ASK) is an assessment administered in New Jersey for students in Grades 3 through 8. The assessment has been designed to assess students' mastery of the Common Core States Standards. At the present time, there were standards in the following areas: English Language Arts (Reading, Writing, and Speaking and Listening); Mathematics; Reading in History and Social Studies; Science; and Technical Subjects. There have been higher percentages of students who scored partial proficient within school districts classified as DFG A. In both NJ ASK 5 language arts and mathematics (Table 8, Table 9), it was almost double the percentage of students who scored partial proficiency within DFG A compared to the state level. An astonishing fact was that only 1.9 percent of students within DFG A scored advanced proficient.

Table 8

*2009-2010 NJ ASK 5: Language Arts*

	<b>Number tested</b>	<b>Partial</b>	<b>Proficient</b>	<b>Advanced Proficient</b>
State Level	103,160	21.3%	42.0%	36.8%
DFG A	16,914	40.5%	41.3%	18.2%

Table 9  
2009-2010 NJ ASK 5: Mathematics

	Number tested	Partial	Proficient	Advanced Proficient
State Level	102,844	36.9%	54.3%	8.7%
DFG A	16,843	61.3%	36.9%	1.9%

### Survey Design

The instrument used to collect curriculum quality data was a survey adapted from Tanner and Tanner's (2007) *Best Practice Checklist for Curriculum Improvement and School Renewal*. The questions were selected in alignment to the research questions and the literature review on curriculum quality. Since this dissertation was an expansion of the study of *Student Achievement in Lower SES High Schools* by Tramaglini (2010), there was no reason to conduct a pilot study of the curriculum survey. There were eight questions on curriculum design, six questions on curriculum development, and seven questions on influential forces of curriculum. Each section of the survey included questions with the same four answer choices: *strongly in evidence, some evidence, little or no evidence, evidence to the contrary*.

### District Factor Groups

The District Factor Groups (DFGs) were the criteria that were used to determine the eligibility for the districts to participate in the study. Michel (2004) stated:

The variables...were combined using a statistical technique called principal components analysis, which resulted in a single measure of socioeconomic status for each district.

Districts were ranked according to their score on this measure and divided into eight groups based on the score interval in which their scores were located. (p. 54)

DFGs were developed in 1975 to compare students' performance on state standardized assessments across demographically similar school districts (New Jersey Department of Education, 2004). The variables used were: percent of adults with no high school diploma, percent of adults with some college education, occupational status, unemployment rate, percent of individuals in poverty, and median family income (NJDOE, 2004). The DFG is re-examined every 10 years using data from the U.S. Census Bureau. For this study, the focus was on the lowest SES school districts classified as DFG A. School districts may be labeled as A, B, CD, DE, FG, GH, I, or J.

### **Reliability**

Reliability determined the degree to which an assessment regularly measured what it attempted to measure. Gay, Mills and Airasian (2007) stated:

The more reliable a test is, the more confidence we can have that the scores obtained from the test are essentially the same scores that would be obtained if the test were re-administered to the same test takers at another time or by a different person. (p. 158)

Gay, Mills and Airasian (2009) explained that Cronbach's alpha

...estimate[s] internal consistency reliability by determining how all items on a test relate to all other test items and to the total test. Internal consistency results when all the times or tasks on a test are related, or in other words, are measuring similar things. (p. 161)

Additionally alpha tended to be utilized often because it provided the degree of reliability during the study from just one testing session or one administration of a survey (Leech et al., 2008).

Based on Tramaglini's (2010) pilot study results for internal consistency, the "Cronbach's Alpha coefficient for curriculum design was .835, curriculum development, .859, and forces that

influence curriculum was .804;” therefore determining high reliable measurements as he had previously determined that .70 or higher Cronbach’s alpha (Table 10) were reliable measurements (p. 70).

Table 10

*Determination of Internal Consistency through Cronbach’s Alpha*

Cronbach’s Alpha	Internal consistency
$a \geq .9$	Excellent
$.9 > a \geq .8$	Good
$.8 > a \geq .7$	Acceptable
$.7 > a \geq .6$	Questionable
$.6 > a \geq .5$	Poor
$.5 > a$	Unacceptable

*Note.* Source: Fraenkel & Wallen (2007, p. 71).

On the other hand, an extremely high alpha (e.g., greater than .90) translated to repetitive items, or there are more items than necessary (Leech et al., 2008). In conclusion, the Cronbach’s Alpha for each of the sections was high; therefore, it was a reliable instrument.

According to the NJ ASK Technical Report, “The New Jersey Department of Education was required by federal law to ensure that the instruments it uses to measure student achievement for school accountability provide reliable results” (NJDOE, 2009, p. 160). Additionally, Penfield (2010) stated the National Research Council described fair and applicable test use through three overarching guidelines:

- (a) the general psychometric adequacy of the test (e.g. issues of validity and reliability); (b) the extent to which the students had appropriate opportunity to gain the requisite

knowledge and skills and to demonstrate such knowledge and skills during the testing process; and (c) whether the use of the test had an educationally beneficial outcome.

For the construction of the NJ ASK, the New Jersey Department of Education underwent an item development process: item questions were constructed; New Jersey state content experts reviewed questions; teachers and a committee reviewed items to determine whether items could be field-tested; range-finding committee and state educators reviewed items before scoring; field tests occurred with students from New Jersey; additional review by New Jersey state content experts, teachers, and committee; and approved items added to item bank (NJDOE, 2009). The Classical Test Theory (CTT) supported the creation of NJ ASK, in the interest of the creation of a score free of error. In a situation where there was an observed measurement, such as a test score  $X$ , was defined as a composite of a true score,  $T$ , and its associated error:  $X = T + \text{error}$  (NJDOE, 2009). The NJ ASK 2009 Technical Report explained,

Estimated the size of the measurement error associated with the true score is the key to estimating reliability. Errors in measurement can result from any of a multitude of factors, including environmental factors (e.g. testing conditions) and examine factors (e.g. fatigue, stress). CTT provides a means for this quantification of examinee inconsistency; i.e., measurement error. (as cited in Robinson, 2012, p. 116)

During the evaluation, it must be taken into consideration that “reliability is partially a function of test length; therefore, the reliability of a content area is likely to be greater than the reliability of a cluster simply because the content area has more items” (NJDOE, 2009, p. 12). One immediate concern was the inferences made about student achievement and the academic standing of schools through the utilization of cluster scores instead of larger content areas.



Consequently the least reliable data were utilized, which do not provide an explicit representation of the assessment outcomes.

There was a possibility for validity problems related to measurement errors of high-stakes testing. It was critical to consider the standard error of measurement (SEM) related to the assessments. Harville (1991) stated that the SEM is utilized for test score interpretation, in particular to define how far the results may differ from students' scores on assessments. The larger the SEM, the lower the reliability of the test, and less precision there was in the scores. Consequently a student whose level of achievement should conclude a passing score earned a score that deemed him/her as failing and vice versa (Baker & Linn, 2002). Often times students from low-income households tended to score close to the state's proficiency cut points; therefore, some of the most vulnerable students tend to be most affected when conditional standard error of measurement was not considered (Tienken, 2011). One suggestion was to construct assessments longer in length to attempt to truly capture student achievement, as well as explanations of measurement error and scores interpretation. Furthermore there was no assessment to measure skills such as collaboration and self-directed learning that are critical for students to become life-long learners (Hmelo-Silver et al., 2007). Popham determined that 15% to 80% of questions, depending on the tested subject, on norm-referenced standardized achievements tests are linked to socioeconomics (as cited in Jensen, 2009). One of Rogosa's (1999) analyses revealed that a test with a reliability of .90 and a student who scored at the 20th percentile may score below the cut score due to measurement errors of .0633.

Upon a superficial examination, the coefficient variables were high for both Language Arts Literacy and Mathematics. The guidelines were as follows: .90 and above was considered

highly reliable; .80–.89 was considered good reliability; .70–.79 was considered fair reliability; .60–.69 was considered marginal reliability; and under .60 was considered unacceptable reliability (Reinard, 2006). Tienken (2008 as cited in Frisbie, 1988; Rudner & Schafer, 2001) argued “a reliability estimated of at least .85 out of a possible 1.00 should be used when an education leader makes high-stakes decisions about students, although an argument can be made for a minimum of .90–.95” (p. 36). In terms of Language Arts Literacy, reading was considered to be a good reliability measurement with an alpha score of 0.85 and SEM of 2.48. On the other hand, it is critical to acknowledge that tests with high reliability coefficients considered too high may result in misclassification probabilities (Rogosa, 1999). As for Mathematics (Table 11), number and numerical operations (alpha score of 0.85 with a SEM of 1.54), problem solving (alpha score of 0.85 with a SEM of 2.21), and calculator (alpha score of 0.85 with a SEM of 2.24) were considered good reliable measurements. On the other hand, patterns and algebra (alpha score of 0.63 with a SEM of 1.20) and data analysis, probability, and discrete mathematics (alpha score of 0.61 with a SEM of 1.33) were not considered reliable measurements based on the coefficients alpha (Table 11). According to the New Jersey Department of Education (2009):

It is the responsibility of test developers to maximize reliability and minimize error by (1) identifying likely sources of error, (2) controlling the conditions of error, (3) estimating the size of error and/or level of reliability, and (4) reporting the estimates by metric and unit of analysis. (p. 75)

Table 11  
2010 NJ ASK Grade 5 Coefficient Alpha

	MC	CR/ECR	SCR	Number of possible points	Alpha	SEM
<b>Language Arts Literacy</b>	30	5		62	0.85	3.24
Writing		2		20	0.72	1.51
Reading	30	3		42	0.85	2.48
Working with Text	18	0		18	0.76	1.68
Analyzing Text	12	3		24	0.74	1.78
<b>Mathematics</b>	33	2	8	47	0.92	2.95
Number & Numerical	12	0	3	15	0.85	1.54
Operations						
Geometry & Measurement	11	1	2	16	0.78	1.71
Patterns & Algebra	7	0	1	8	0.63	1.20
Data Analysis, Probability &	3	1	2	8	0.61	1.33
Discrete Mathematics						
Problem Solving	17	2	2	25	0.85	2.21
Calculator	20	2	0	26	0.85	2.24

### Validity

Gays, Mills and Airasian (2009) defined validity as the extent to which an assessment measures the identified criteria and allows for applicable interpretation of scores. As validity is taken into consideration in assessments, it is critical that the results provide sound evidence in order to make fair interpretations. During the development and evaluation of assessments, designers must consider their validity for the specific determined purpose. During the test creation process, validity is critical as it involved

...the steps taken in planning it [assessment], the processes of developing the content of the tests, the processes of consulting with stakeholders, the processes of communicating about the test to users, the processes of scoring and reporting, and the processes of data analysis. Each is an inherent part of validity. (p. 12)

Baker and Linn (2002) stated, “The content of a test is critical to the creation of scores that support valid inferences about student achievement. Two questions were central in the evaluation of content aspects of validity: Was the definition of the content domain assessed deemed adequate and appropriate? Did the test provide an adequate representation of the content domain the test was intended to measure?” Furthermore Baker and Linn (2002) argued that assessments must be closely aligned with content standards “so that student performance on the assessment can be used as the basis for making inferences about the degree to which a student has mastered the domain of content defined by the standards” (p. 7). The reality was that it was impossible to comprehensively capture the performance and growth of students from an isolated, yearly state assessment with a limited number of test questions. Messick (1989) argued that a validity conflict appeared when inadequate coverage occurred. This was a significant concern in assessments because of the adverse effect of including material that is easy to assess and possibly distorts instructional decisions. He suggested an “integrated criteria and content validity with intended and potential unintended consequences associated with high stakes testing within the construct validity framework” as well as acknowledgement for the intentional and unintentional consequences during the formation of a testing program (Messick as cited in Tienken, 2011, p. 258). Furthermore states have known to change the cut score ranges for each proficiency level; therefore, it makes it difficult to measure authentic school and student growth. Tienken (2011) emphasized:

If a state’s proficiency cut score is 200, as it is in New Jersey, and a student scores a 198, then the student is categorized as not proficient, even though there are approximately nine points of error at the cut-point on the New Jersey tests. (p. 264)

## Variables

### Independent Variables

**Curriculum quality.** The curriculum quality instrument had 21 questions, with three subsets of questions. There were eight questions on curriculum design, six questions on curriculum development, and seven questions on forces of curriculum that might influence student achievement. All of the questions in each of the three subsets had a 4-point rating scale (*strongly in evidence, some evidence, little or no evidence, and evidence to the contrary*). During the data collection and analysis phase, each question was scored from 1 to 4. A 4 represented a high score, while a 1 represented a low score. For each subset, the points were added from each of the responses to gather an overall score.

**Independent school-level variables that influence instruction.** Independent variables were collected from the archived New Jersey Department of Education School Report Card database: <http://education.state.nj.us/rc/>. All school level data were collected from each individual school report card. The collection of the data included: special education, Limited English Proficient, teachers with graduate degrees, instructional time, and attendance rates. Also, the percentage of students on free and reduced lunch, grade level range, and the school enrollments was downloaded from the New Jersey Report Card database.

### New Jersey Assessment of Skills and Knowledge (NJ ASK)

The New Jersey Assessment of Skills and Knowledge (NJ ASK) for each school was gathered from the New Jersey Department of Education School Report Card database. The scores were reported as scale scores for each of the content areas. The score ranges for each level were as follows: Advanced Proficient (250–300), Proficient (200–249), and Partially

Proficient (100–199). The classification of the three levels communicated the students' performance on the NJ ASK. Advanced Proficient (250–300) meant the student scored at or above the cut score so he/she demonstrated comprehensive and in-depth mastery on the information presented. Proficient (200–249) meant the student scored at or above the cut score so he/she demonstrated solid mastery of the content within the assessment. Partially proficient (100–199) meant the student scored below the cut score so he/she demonstrated partial mastery of the content of the information captured with the assessment. Depending on the students' performance on the NJ ASK, it demonstrates their understanding from advanced to more limited (Table 12). The NJ ASK Language Arts Grade 5 assessed writing, narrative reading, and everyday text reading. The two types of reading passages that students were expected to analyze, critique, and interpret were informational (400–900 words text) and narrative (500–1,000 words text) on the NJ ASK 3–8 (NJDOE, 2010). For the writing prompts, fifth-grade students were given an expository prompt and a speculative prompt with a time limit of 30 minutes for each. Students were expected to answer 31 multiple choice questions, as well as open-ended questions, based on three reading passages.

Table 12  
*Reading and Writing Demonstration of Skills by Proficiency Levels*

	Advanced Proficient	Proficient	Partially Proficient
Reading	<ul style="list-style-type: none"> <li>Consistently demonstrate the skills outlined for proficient</li> <li>Extend meaning by making connections, generating new ideas, and making sound judgments about text</li> </ul>	<ul style="list-style-type: none"> <li>Construct meaning by using reading strategies to comprehend literally and inferentially</li> <li>Synthesize details and analyze text</li> <li>Identify and explain literary elements, figurative language, and text structures</li> <li>Make connections, draw conclusions, and identify author's purpose, views, or beliefs</li> <li>Determine meaning of words and phrases by applying knowledge of word structure and using context clues</li> </ul>	<ul style="list-style-type: none"> <li>Construct meaning to comprehend on a literal level, make some connections to the text, and provide limited support for opinions and conclusions</li> <li>Demonstrate limited understanding of text structures and literary element</li> <li>Attempts to use context clues to determine the meaning of unknown words</li> </ul>
Writing	<ul style="list-style-type: none"> <li>Consistently demonstrate the skills outlined for proficient performance</li> <li>Use supporting details to convey and elaborate ideas</li> <li>Use fluid transitions, strong and appropriate word choice and sentence variety to purposefully engage the reader</li> </ul>	<ul style="list-style-type: none"> <li>Develop and maintain a single focus by organizing and connecting ideas with relevant details</li> <li>Exhibit some variety in word choice and sentence structure</li> <li>Attempts writing techniques</li> <li>Uses some transitions while incorporating basic writing mechanics</li> </ul>	<ul style="list-style-type: none"> <li>Develop a single focus</li> <li>Attempt to organize and connect ideas with relevant details</li> <li>Use limited word choice and sentence structure</li> <li>Incorporate basic writing mechanics</li> </ul>

Table 13  
*Mathematics Demonstration of Skills by Proficiency Levels*

Advanced Proficient	Proficient	Partially Proficient
<ul style="list-style-type: none"> <li>Clearly and consistently demonstrate the qualities outlined for Proficient performance</li> <li>Clearly and consistently demonstrate thorough conceptual understanding of procedural and analytical skills</li> <li>Demonstrate the use of abstract thinking and provide explanations that are consistently clear and thorough</li> <li>Use both inductive and deductive reasoning to solve non-routine problems as well as consistently demonstrate the ability to abstract relevant information</li> <li>Use multiple strategies and/or reasoning methods</li> <li>Use various forms of representations to solve complex problems</li> <li>Demonstrate an understanding of the reasonableness of their answers</li> </ul>	<ul style="list-style-type: none"> <li>Recognize and understand basic mathematical concepts, skills, and vocabulary and apply them to theoretical and real world situations</li> <li>Understand that a quantity can be represented numerically in various ways</li> <li>Perform basic computational procedures</li> <li>Apply geometric properties and spatial relationships</li> <li>Use informal algebraic concepts and processes</li> <li>Read, construct, and interpret data and graphs</li> <li>Apply the concepts and methods of discrete mathematics</li> <li>Infer, reason, and estimate while problem solving</li> <li>Demonstrate flexibility in selecting a successful process or strategy</li> <li>Demonstrate a basic understanding of mathematic concepts through written expression and/or symbolic representation</li> </ul>	<ul style="list-style-type: none"> <li>Have limited recognition and understanding of and inconsistently apply basic mathematical concepts, skills, and vocabulary to theoretical and real world situations</li> <li>May understand that a quantity can be represented numerically in various ways</li> <li>Perform basic computational procedures with inconsistent accuracy</li> <li>Struggle to apply geometric properties and comprehend spatial relationships</li> <li>Have difficulty using informal algebraic concepts and processes</li> <li>Inconsistently read, construct, and interpret data and graphs</li> <li>Inconsistently apply the concepts and methods of discrete mathematics</li> <li>Occasionally infer, reason, and estimate while problem solving</li> <li>Frequently ineffectual in selecting a successful process or strategy</li> <li>Have difficulty demonstrating a basic understanding of mathematical concepts through written expression and/or symbolic representation</li> </ul>



For the NJ Ask Mathematics Grade 5, five mathematical strands were addressed: number and numerical operations; geometry and measurement; patterns and algebra; data analysis, probability, and discrete mathematics; and mathematical processes. Students were expected to answer 35 multiple choice questions, 3 extended-constructed responses, and 6 short-constructed responses. For students who scored advanced proficient, they were able to demonstrate clear, consistent understanding of the mathematical concepts while students who scored partially proficient demonstrated limited understanding (Table 13).

### **Data Collection**

The two types of data that were collected for this study were historical and survey. I obtained all of the elementary school achievement data from the New Jersey Assessment Proficiency Assessment dataset. The New Jersey Report Card was used to make connections to the standardized testing data by the individual elementary schools.

In order to collect the survey data on curriculum quality, I conducted a census of principals or their designee in the elementary schools located in communities with the lowest socioeconomic student demographics in New Jersey. The census approach allowed me to have a more comprehensive, realistic picture of the curriculum quality of the DFG A school districts. All survey results were coded to guarantee confidentiality. During the first outreach attempt, I e-mailed principals or mailed a letter to explain the purpose of the investigation, as well as a letter of consent. Along with the letter, they were e-mailed a link to a secured, confidential survey for completion. Respondents who did not complete the entire survey were excluded from the study. Once all of the data were collected I uploaded the information onto an Excel spreadsheet (Table 14).

Table 14

*Range for Surveyed DFG A Schools by Variables*

Variable	Range for surveyed DFG A schools
Teacher Mobility	0%–38.7%
Student Mobility	0.9%–47.8%
NJ ASK5 Literacy Partially Proficient	11.6%–88.2%
NJ ASK5 Literacy Proficient	14.1%–68.3%
NJ ASK5 Literacy Advanced Proficient	0%–11.8%
NJ ASK5 Mathematics Partially Proficient	11.4%–76.5%
NJ ASK5 Mathematics Proficient	14.1%–63.2%
NJ ASK5 Mathematics Advanced Proficient	0%–43.9%
Attendance	85.9%–97.5%
Instructional Time	310 minutes–380 minutes
Advanced Degrees	13.2%–60%
English Language Learners Classification	0%–48.6%
Special Education Classification	0.7%–39.9%

### **Data Analysis**

I received approval from the Institutional Review Board (IRB) at Seton Hall University to be able to use the standardized testing data on the fifth-grade students. Additionally I secured permission (Appendix A) for the use of the survey instrument centered on curriculum design, curriculum development, and influential forces that drive curriculum questions. I distributed surveys via e-mail and mail in five cycles and then the collected data were uploaded on an Excel spreadsheet. Each of the variables (Table 15) were labeled and coded.

Table 15

*SPSS Variable Coding*

Variable	Label	Measure	Coding
Curriculum Quality Survey	Curric Survey Full	Ordinal	4= <i>Strongly in evidence</i> 3= <i>Some evidence</i> 2= <i>Little or no evidence</i> 1= <i>Evidence to the contrary</i>
Free Lunch Eligible	% Free Lunch	Interval	Number of students
Reduced Lunch Eligible	Reduced %	Interval	Number of students
Faculty Mobility	Teacher Mobility	Interval	Percentage indicated
Student Mobility	Student Mobility	Interval	Percentage indicated
NJ ASK ELA Proficiency Levels	Grd 5 ELA	Interval	Percentage indicated
NJ ASK Math Proficiency Levels	Gr 5 Math	Interval	Percentage indicated
Attendance Rate	Attendance	Interval	Percentage indicated
Instructional Minutes	Instruction Mins	Interval	Percentage indicated
Advanced Degree	N/A	Interval	Percentage indicated
Special Education	Special Education	Interval	Percentage indicated
Limited English Proficient	ELL	Interval	Percentage indicated

Once all of the processes were completed, I then began the data analysis process. All of the data were entered onto the SPSS software. Through the utilization of multiple regression, the independent and dependent variables were entered. During the analysis, I attempted to identify the size and direction of the relation between variables through correlation coefficients ranging from  $-1.00$  to  $+1.00$  (Gay et al., 2009).

The two sets of data considered were the survey results and archived NJ ASK 5 Language Arts and Mathematics. A correlation analysis was conducted to determine a correlation coefficient and the relationship between curricular and non-curricular variables and

student performance on NJ ASK 5 Mathematics and Language Arts. The data that were analyzed consisted of: the aggregate curriculum quality score of each elementary school principal or designee, data compiled from the New Jersey School Report Card, and NJ ASK 5 Mathematics and Language Arts test scores for the 2010-2011 school year.

### **Assumptions**

The data were checked for violations of linearity, independence, homoscedasticity, and normality. I used scatterplots to check for linearity between the dependent and independent variables and plots of the residuals versus predicted values to check for linearity, and I used a Durbin-Watson test to look for violations of independence. To check for homoscedasticity I relied on the results from linearity and independence because the study was not a time-series study. To check for normality I examined skewness and kurtosis, and two tests were conducted: (a) Kolmogorov-Smirnov, and (b) Shapiro-Wilk.

### **Summary**

The purpose of this research was to identify the influence of curriculum practices, in particular design, development, and influential forces and compare them to the performance of fifth-grade students on the NJ ASK in mathematics and language arts in the lowest socioeconomic New Jersey districts categorized as DFG A. I hypothesized that curriculum quality played a significant role in the students' performance on the NJ ASK. I also considered nine other control school and student variables: attendance rates, instructional time, percentage of teachers with graduate degrees, percentage of students categorized as free, percentage of students categorized as reduced lunch status, percentage of students identified as Limited English Proficient, percentage of students identified as special education, student mobility, and faculty

mobility. A sample was drawn from the targeted census population of the lowest socioeconomic public elementary schools in the state of New Jersey.

## **CHAPTER IV**

### **ANALYSIS OF THE DATA**

#### **Introduction**

The purpose of this quantitative study was to investigate the influence of curriculum design, curriculum development, and external forces on the performance of Grade 5 students on the NJ ASK in language arts and mathematics in the elementary schools located in the lowest socioeconomic status in New Jersey. In the interest to identify the variables that had a statistically significant relationship to student achievement, this study revealed factors that could help educators make decisions about curriculum in the districts categorized as DFG A. Within DFG A, there were a total of 41 school districts. The sample consisted of the participants who completed the survey from schools that had a Grade 5 within DFG A. I utilized the multiple regression model to analyze the data and determine the relationship of the dependent variable to the independent variables.

#### **Research Questions**

The central question of this study was: How do the curriculum practices and research-based independent variables in lower socioeconomic New Jersey districts influence the performance of fifth graders on the New Jersey Assessment of Skills and Knowledge (NJ ASK) language arts and mathematics?

Research Question 1: What is the strength and direction of the relationship between curriculum quality, specifically curriculum design, curriculum development, curriculum influential forces, and student achievement on NJ ASK?

Research Question 2: What are the statistically significant school variables aggregated to the school level that explain the largest amount of variance in student achievement in language arts and mathematics as measured by NJ ASK 5?

### Description of the Variables Within the Sample

Through the execution of a census sampling procedure of the 41 school districts identified as part of the DFG A, I distributed surveys to all of the elementary schools within the targeted districts. Of the 41 school districts, a total of 73 elementary school principals responded and fully completed the survey on curriculum quality. We needed a minimum of 90 cases to meet Field's (2009) and Green's (1991) requirement for sample size with five predictors to ensure power to test the full model. I received 73 responses from school principals located in 24 districts. From the schools that responded, the average student population was 694. Based on the responses, the sample consisted of 17 less than the 90 needed. Table 16 describes the data related to the independent variables from the 73 schools.

Table 16

#### *Demographics of Variables*

	Descriptive Statistics				
	<i>N</i>	Minimum	Maximum	Mean	Std. Deviation
% Free Lunch	73	14.20	95.22	70.0127	18.07348
Reduced %	73	1.85	61.22	9.0807	8.98333
Instruction Mins	73	310.00	445.00	347.7397	16.72658
Attendance	73	85.90	97.60	93.8767	1.91967
Gr 5 Math	73	18.80	93.90	60.5178	16.30089
Grd 5 ELA	73	11.80	83.40	40.9014	14.57895
Student Mobility	73	.00	42.80	19.7151	9.47860
Teacher Mobility	73	.00	38.70	4.8219	6.75558
Valid <i>N</i> (listwise)	73				

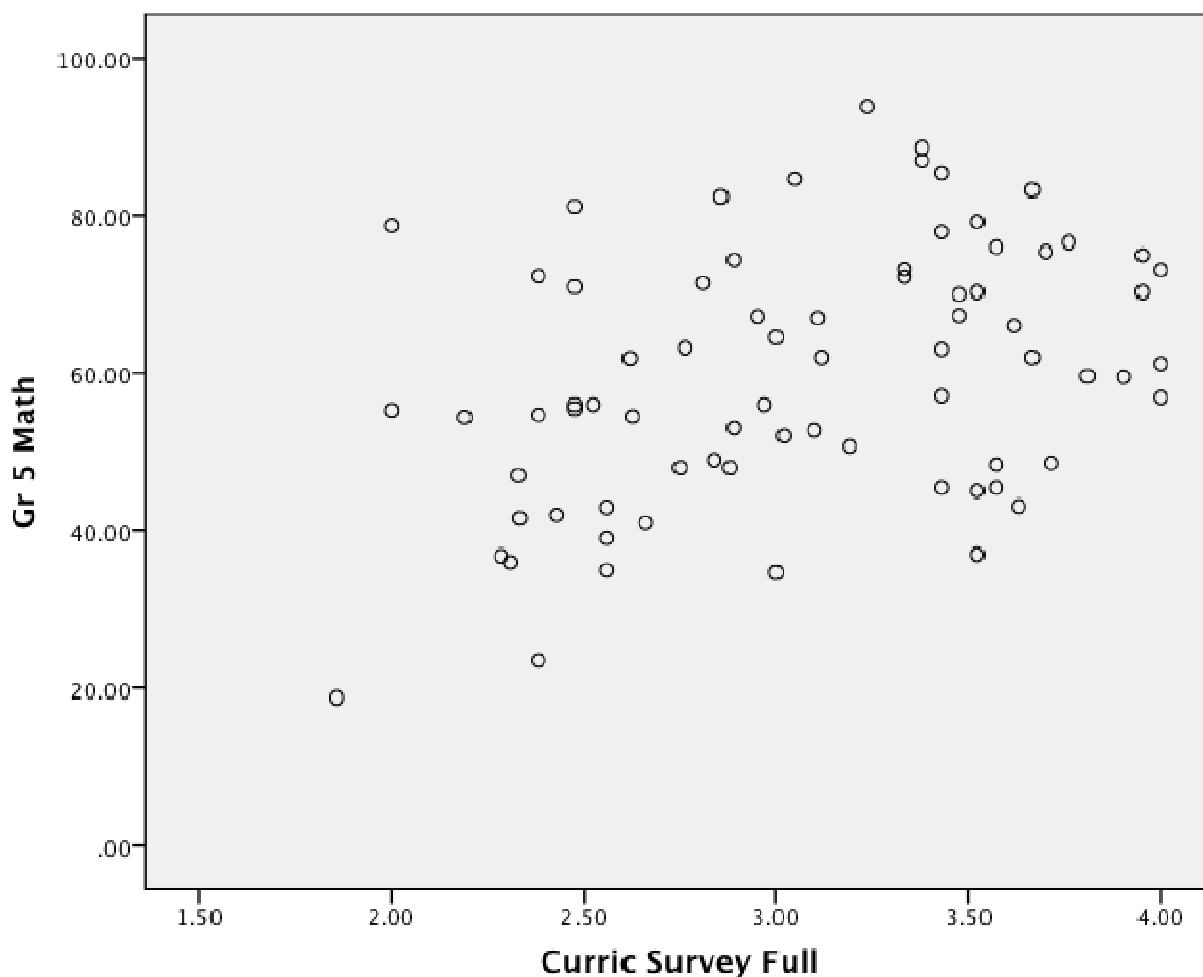
The survey instrument on curriculum quality consisted of the three subcategories of curriculum design, curriculum development, and influential forces that drive curriculum. For the first subcategory, there were 32.0 possible points associated with curriculum design. The maximum for curriculum development was 24.0 possible points. The last subcategory was influential forces that influenced curriculum that may yield a maximum of possible points of 28.0. The compilation of all the three subcategories within the curriculum quality survey yield a mean of 3.07 with the standard deviation of .58.

## **Results**

### **Assumptions**

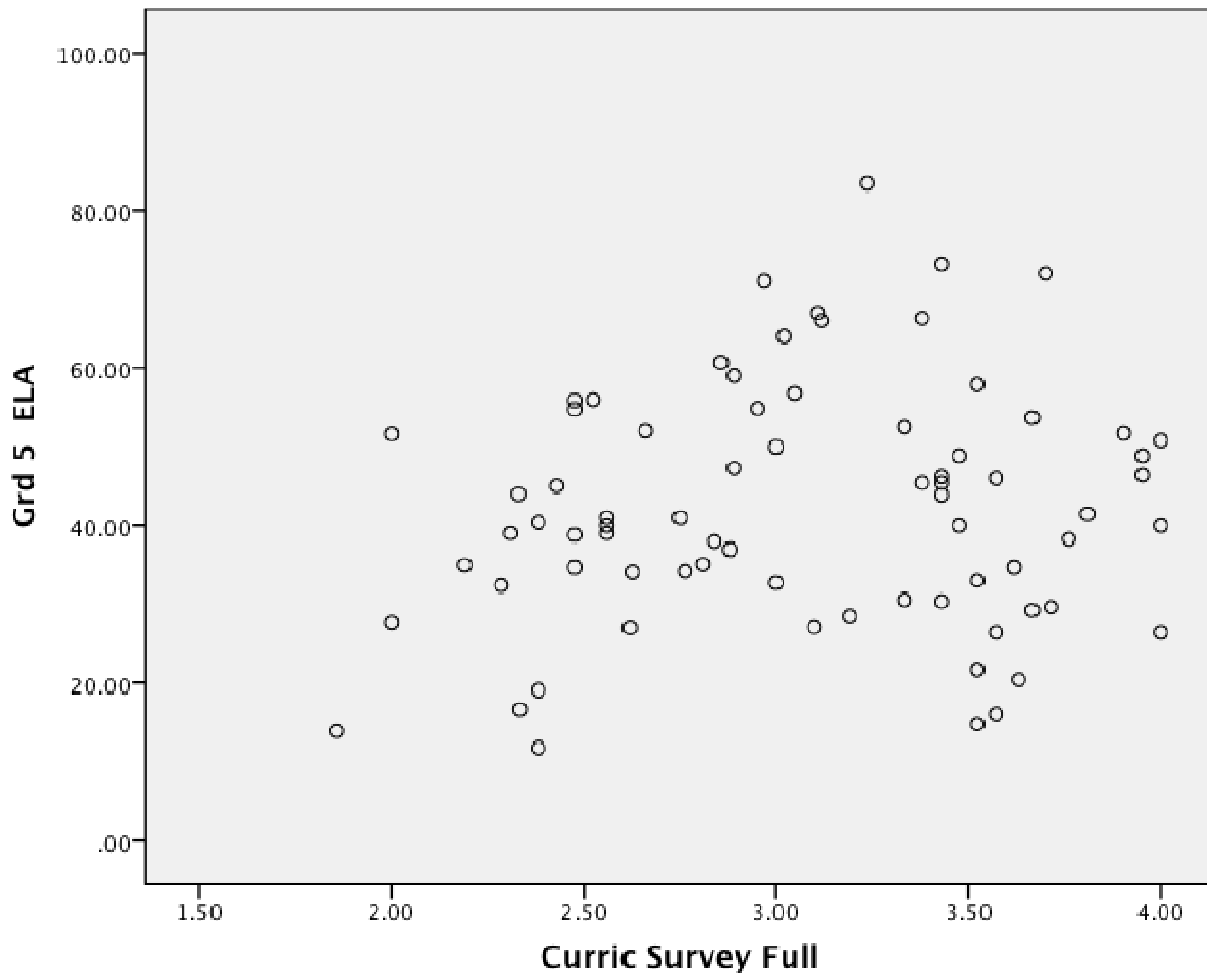
I created a scatterplot (Figure 2) to determine if the variables were related to each other in a linear fashion. The scatterplot created a pictorial representation of the relationships. Based on the results, there was a positive correlation between curriculum quality and NJ ASK Grade 5 Mathematics. The points clustered closely around the imaginary straight line moving upward on the scatterplot, the stronger the relationship that exists between the variables. Based on the results, the points were not clustered around the imaginary line; therefore, the correlation was lessened between the curriculum quality and NJ ASK Grade 5 Mathematics.





*Figure 2.* Correlation between Curriculum Quality and NJ ASK Grade 5 Math.

Second, I created an additional scatterplot (Figure 3) to investigate the possible relationship between the average of curriculum quality comprised of curriculum design, curriculum development and influential forces of curriculum and NJ ASK 5 ELA results. Based on the results, the correlation between curriculum quality and NJ ASK Grade 5 English Language Arts was not strong.



*Figure 3.* Correlation between Curriculum Quality and NJ ASK Grade 5 ELA.

The Durbin-Watson statistic for the model with the dependent variable Grade 5 Math was within acceptable limits at 1.713. The statistic for Grade 5 ELA was 1.632, although the model itself was not statistically significant at  $p = .136$ . Skewness and Kurtosis were within acceptable limits of  $\pm 2$  for both dependent variables. Grade 5 Math Skewness was  $-.193$ , and Kurtosis was  $-.496$ . Skewness was  $.355$  for Grade 5 ELA, and Kurtosis was  $.258$ . Furthermore, the results of the Kolmogorov-Smirnov and Shapiro-Wilk tests were not statistically significant for either of the dependent variables (See Table 17).

Table 17  
*Tests of Normality*

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Grd 5 ELA	.059	73	.200 <sup>*</sup>	.986	73	.613
Gr 5 Math	.076	73	.200 <sup>*</sup>	.987	73	.633

*Note.* a. Lilliefors Significance Correction \*. This is a lower bound of the true significance.

The Q-Q Plots (Figures 4 and 5) for Grade 5 ELA and Grade 5 Math demonstrated normality.

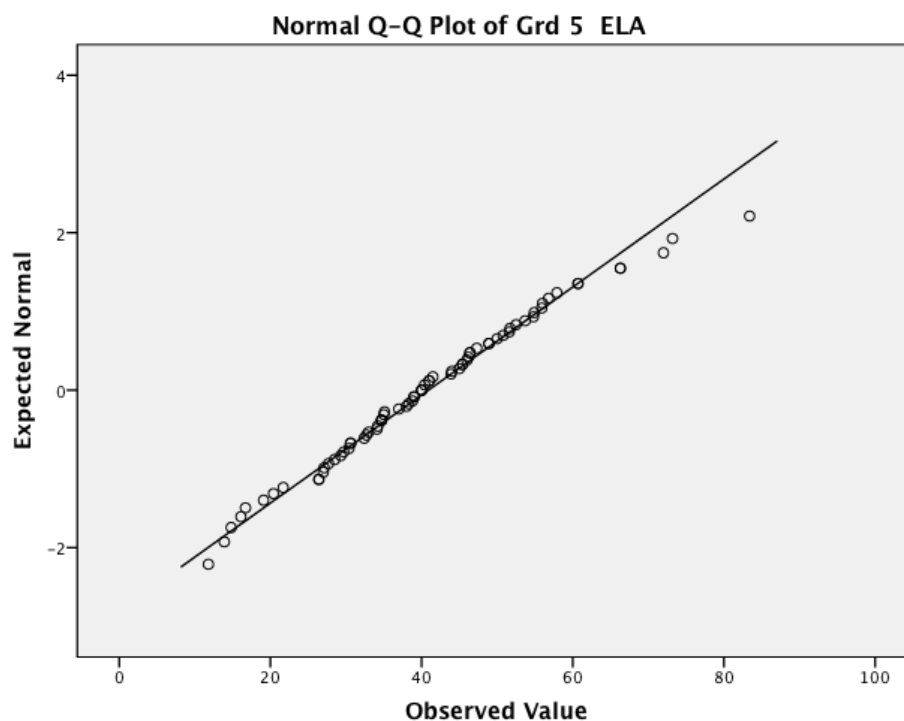


Figure 4. Normal Q-Q Plot of Grade 5 ELA.

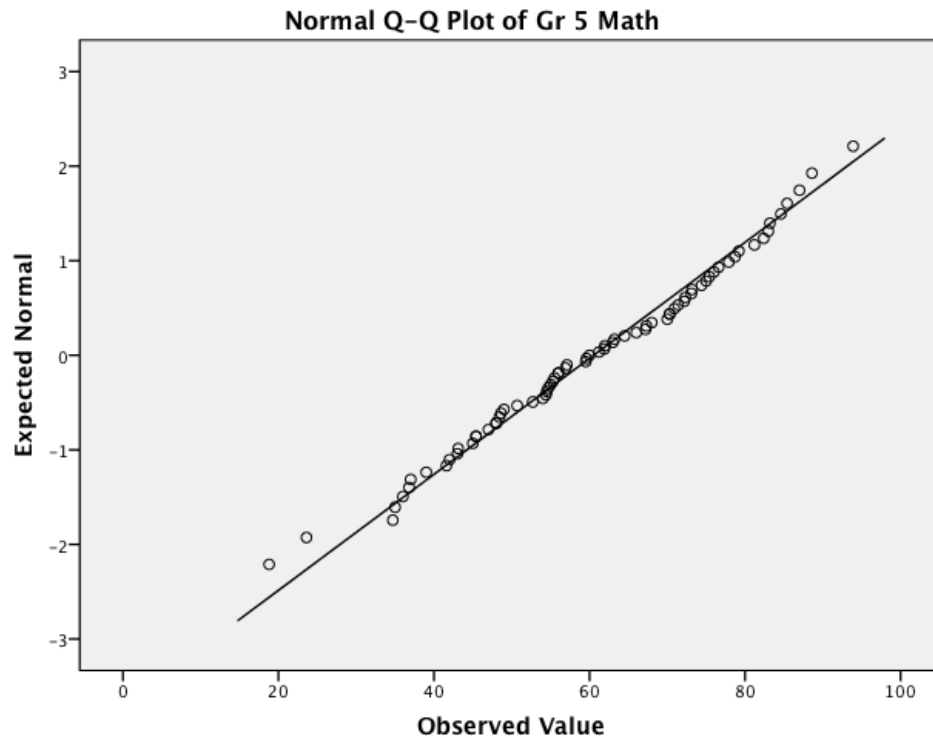


Figure 5. Normal Q-Q Plot of Grade 5 Math.

### Correlations

I ran a correlation matrix (Table 18) to determine statistically significant relationships that might prove meaningful in the regression model. The values of the correlation coefficients between  $-1$  and  $+1$  indicated a correlated negative and positive relationship. I also used the correlations as a preliminary check for possible multi-collinearity. There was a significant correlation between NJ ASK 5 Mathematics and NJ ASK 5 English Language Arts. The table showed a strong relationship between NJ ASK 5 Mathematics and NJ ASK 5 English Language Arts at 0.681.



Table 18 (continued)

	Gr 5 Math	% Free Lunch	Reduced %	Instruction Mins	Teacher Mobility	Student Mobility	Grd 5 ELA	Attendance
Instruction Mins	73	73	73	73	73	73	73	73
Teacher Mobility	73	73	73	73	73	73	73	73
Student Mobility	73	73	73	73	73	73	73	73
Grd 5 ELA	73	73	73	73	73	73	73	73
Attendance	73	73	73	73	73	73	73	73

## Mathematics

Then, I ran a simultaneous multiple regression (Table 19) with mathematics as the dependent variable. Multiple regression helped me in making predictions using a number of independent variables where correlations do not (Morgan, Leech, Gloeckner, & Barrett, et al., 2013). Using the enter method, a statistically significant model emerged ( $F = 10.317$ , 72 df,  $p \leq .001$ , Adjusted  $R^2 = .509$  and Durbin-Watson of 1.736) that suggested the residuals were normal. The model summary (Table 20) suggested that approximately 51% of the variance in student performance on NJ ASK 5 Math and coefficients revealed statistically significant predictors.  $R^2$  indicates the percentage of variance in the criterion variable explained by the predictor variables.

Table 19

*Multiple Regression Descriptive Statistics for NJ ASK 5 Mathematics*

	Mean	Std. Deviation	<i>N</i>
Grd 5 ELA	40.9014	14.57895	73
% Free Lunch	70.0127	18.07348	73
Reduced %	9.0807	8.98333	73
Instruction Mins	347.7397	16.72658	73
Attendance	93.8767	1.91967	73
Curric Survey Full	3.0747	.57551	73
Teacher Mobility	4.8219	6.75558	73
Student Mobility	19.7151	9.47860	73

Table 20

*Multiple Regression Model Summary for NJ ASK 5 Math*

Model Summary <sup>b</sup>										
Model	<i>R</i>	<i>R</i> <sup>2</sup>	Adjusted <i>R</i> <sup>2</sup>	Std. Error of the Estimate	<i>R</i> <sup>2</sup> Change	<i>F</i> Change	df1	df2	Sig. <i>F</i> Change	Durbin-Watson
1	.751 <sup>a</sup>	.563	.509	11.42619	.563	10.317	8	64	.000	1.736

Note. a. Predictors: (Constant), Curric Survey Full, Instruction Mins, Teacher Mobility, Reduced %, Attendance, Student Mobility, Grd 5 ELA, % Free Lunch

b. Dependent Variable: Gr 5 Math

The ANOVA table (Table 21) showed that  $F = 10.317$  and was statistically significant at  $p < .000$ . In other words, the predictor variables significantly combined together to predict the Grade 5 Mathematics performance. The combination of variables to predict the Grade 5 Mathematics performance from the average of curriculum survey, instructional minutes, teacher

mobility, reduced percentage of lunch, attendance, student mobility, Grade 5 ELA, and percentage of free lunch was statistically significant,  $F(8, 64) = 10.317, p < .000$ .

Table 21

*Multiple Regression ANOVA Table for NJ ASK 5 Mathematics*

Model		Sum of Squares	Df	Mean Square	<i>F</i>	Sig.
1	Regression	10776.065	8	1347.008	10.317	.000 <sup>b</sup>
	Residual	8355.702	64	130.558		
	Total	19131.767	72			

*Note.* a. Dependent Variable: Gr 5 Math

b. Predictors: (Constant), Curric Survey Full, Instruction Mins, Teacher Mobility, Reduced %, Attendance, Student Mobility, Grd 5 ELA, % Free Lunch

Two independent variables displayed statistically significant betas: (1) Grade 5 ELA .651,  $p = .000, t = 7.333$ , and (2) Curriculum Survey Full .314,  $p = .001, t = 3.506$  (Table 22). The beta coefficients revealed the amount of influence that statistically significant variables had on the dependent variable in the model. The curriculum survey's significance was extremely close, therefore it is worth mentioning. Multicollinearity, determination of whether the variables were highly correlated, may be calculated through variance inflation factor (VIF) or tolerance scores. In this instance, there was no multicollinearity (Table 22) because the tolerance was within acceptable limits as calculated by  $1 - R^2$  square as well as the VIF scores were less than 2.00. If the scores were more than 2.00, then a multicollinearity issue exists.



Table 22

*Multiple Regression Coefficients for Mathematics with VIF Scores*

Model	Unstandardized Coefficients		Standardized Coefficients Beta	T	Sig.	Collinearity Statistics	
	B	Std. Error				Tolerance	VIF
(Constant)	50.162	74.320		.675	.502		
% Free Lunch	.099	.084	.110	1.184	.241	.790	1.266
Reduced %	.022	.165	.012	.132	.896	.830	1.205
Instruction Mins	-.049	.085	-.050	-.576	.567	.898	1.114
Teacher Mobility	.024	.212	.010	.113	.911	.881	1.135
Student Mobility	.154	.154	.090	1.005	.319	.856	1.168
Grd 5 ELA	.728	.099	.651	7.333	.000	.866	1.155
Attendance	-.427	.752	-.050	-.568	.572	.870	1.149
Curric Survey Full	8.894	2.536	.314	3.506	.001	.851	1.175

Note. a = dependent variable: Gr 5 Math.

**English Language Arts**

Using the enter method, the regression model (Table 23) emerged ( $F = 1.438$ , 72 df,  $p = .206$ , Adjusted  $R^2 = .041$  and Durbin-Watson of 1.626). The model summary revealed that it was not statistically significant at  $p = .21$ .

Table 23

*Multiple Regression Model Summary for NJ ASK 5 English Language Arts*

Model	R	$R^2$	Adjusted $R^2$	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					$R^2$ Change	F Change	df1	df2	Sig. F Change	
1	.366 <sup>a</sup>	.134	.041	14.27840	.134	1.438	7	65	.206	1.627

Note. a. Predictors: (Constant), Student Mobility, Attendance, Instruction Mins, Teacher Mobility, Curric Survey Full, Reduced %, % Free Lunch

b. Dependent Variable: Grd 5 ELA

The ANOVA table (Table 24) showed that  $F = 1.438$  and was not statistically significant at  $p = .206$ . In other words, the predictor variables did not statistically significantly combine to predict the Grade 5 Mathematics performance. The combination of variables to predict the Grade 5 English Language Arts performance from the average of curriculum survey, instructional minutes, teacher mobility, reduced percentage of lunch, attendance, student mobility, and percentage of free lunch was not statistically significant,  $F(7, 65) = 1.438, p = .206$ .

Table 24  
*Multiple Regression ANOVA Table for NJ ASK 5 English Language Arts*

	Model	Sum of Squares	Df	Mean Square	$F$	Sig.
1	Regression	2051.562	7	293.080	1.438	.206 <sup>b</sup>
	Residual	13251.728	65	203.873		
	Total	15303.290	72			

Note. a. Dependent Variable: Grd 5 ELA

b. Predictors: (Constant), Student Mobility, Attendance, Instruction Mins, Teacher Mobility, Curric Survey Full, Reduced %, % Free Lunch

None of the independent variables were statistically significant (Table 25). Multicollinearity, determination of whether the variables were highly correlated, may be calculated through variance inflation factor (VIF) or tolerance scores. In this instance, there was no multicollinearity because the tolerance was within acceptable limits as calculated by  $1 - R^2$  square as well as the VIF scores were less than 2.00. If the scores were more than 2.00, then a multicollinearity issue exists.

Table 25  
*Multiple Regression Coefficients for English Language Arts with VIF Scores*

Model	Unstandardized Coefficients		Standardized Coefficients	<i>T</i>	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-51.762	68.936		-.751	.455		
% Free Lunch	-.105	.078	-.130	-1.351	.181	.795	1.258
Reduced %	.133	.152	.082	.877	.384	.840	1.191
Instruction	.018	.079	.021	.226	.822	.894	1.119
Mins							
Teacher	.244	.195	.113	1.252	.215	.903	1.108
1 Mobility							
Student	-.084	.143	-.055	-.589	.558	.847	1.180
Mobility							
Attendance	.726	.694	.096	1.046	.300	.881	1.136
Curric Survey	-4.235	2.516	-.167	-1.684	.097	.745	1.341
Full							
Gr 5 Math	.627	.086	.701	7.333	.000	.804	1.244

Note. a. Dependent Variable: Grd 5 ELA.

### Hierarchical Regression

In hierarchical regression, independent variables were used to predict a dependent variable. The independent variables were entered in different steps; therefore, it impacted the significant levels associated with each of the independent variables. In social science research, the threshold was  $p \leq .05$ . Therefore, it was the statistical significance referred to for this particular study. The Pearson correlation coefficient measured the linear relationship between two variables. According to Hinkle, Wiersma, and Jurs (2003), the linear relationship may be reported and described as follows:

- .9 to 1            very high positive or negative correlation
- .7 to .9           high positive or negative correlation

.5 to .7	moderate positive or negative correlation
.3 to .5	low positive or negative correlation
.0 to .3	little if any correlation

The hierarchical regression model included NJ ASK 5 Mathematics as the dependent variable as well as independent variables (NJ ASK 5 ELA, average for the curriculum survey, and percentage of free lunch within DFG A schools). The independent variables were uploaded by order of strength. Model 1 the variables entered were Grd 5 ELA; Model 2 was Grd 5 ELA and Curric Survey Full; and Model 3 the variables entered were Grd 5 ELA, Curric Survey Full, and % Free Lunch (Table 26).

Table 26

*Variables Entered*

Variables entered	Variables removed
Grd 5 ELA <sup>b</sup>	.
Curric Survey Full <sup>b</sup>	.
% Free Lunch <sup>b</sup>	.

*Note.* a. Dependent Variable: Gr 5 Math

b. All requested variables entered.

Table 27

*Hierarchical Regression Descriptive Statistics*

	Mean	Std. Deviation	N
Gr 5 Math	60.5178	16.30089	73
Grd 5 ELA	40.9014	14.57895	73
Curric Survey Full	3.0747	.57551	73
% Free Lunch	70.0127	18.07348	73

When I performed the hierarchical regression (Table 27), the independent variables were entered in the order of importance. Due to its significance in the multiple regression, NJ ASK 5 Mathematics was the dependent variable. Using the enter method, three models emerged with varied statistical significance (Table 28). The first model (Table 29) was statistically significant ( $F = 61.237$ ,  $df = 1, 71$ ,  $p \leq .000$ , Adjusted  $R^2 = .456$  and Durbin-Watson of 1.796). The model summary (Table 29) suggested that approximately 46% of the variance in student performance on NJ ASK 5 Mathematics and the variable NJ ASK 5 ELA revealed statistically significant predictors. The second model was statistically significant ( $F = 12.552$ ,  $df = 1, 70$ ,  $p \leq .001$ , Adjusted  $R^2 = .532$  and Durbin-Watson of 1.796). The model summary (Table 29) suggested that approximately 53% of the variance in student performance on NJ ASK 5 Mathematics and the variables NJ ASK 5 ELA and average curriculum survey revealed statistically significant predictors. The third model (Table 29) was not statistically significant ( $F = .933$ ,  $df = 1, 69$ ,  $p = .337$ , Adjusted  $R^2 = .531$  and Durbin-Watson of 1.796) when the percentage of free lunch was included with NJ ASK 5 ELA and average curriculum survey.

Table 28  
*Hierarchical Regression Correlations*

		Gr 5 Math	Grd 5 ELA	Curric Survey Full	% Free Lunch
Pearson Correlation	Gr 5 Math	1.000	.681	.390	-.119
	Grd 5 ELA	.681	1.000	.158	-.197
	Curric Survey Full	.390	.158	1.000	-.238
	% Free Lunch	-.119	-.197	-.238	1.000
Sig. (1-tailed)	Gr 5 Math	.	.000	.000	.158
	Grd 5 ELA	.000	.	.091	.048
	Curric Survey Full	.000	.091	.	.021
	% Free Lunch	.158	.048	.021	.
N	Gr 5 Math	73	73	73	73
	Grd 5 ELA	73	73	73	73
	Curric Survey Full	73	73	73	73
	% Free Lunch	73	73	73	73

Table 29

*Hierarchical Regression Model Summary*

Model	R	$R^2$	Adjusted $R^2$	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					$R^2$ Change	$F$ Change	df1	df2	Sig. $F$ Change	
1	.681 <sup>a</sup>	.463	.456	12.02823	.463	61.237	1	71	.000	
2	.738 <sup>b</sup>	.545	.532	11.15492	.082	12.552	1	70	.001	
3	.742 <sup>c</sup>	.551	.531	11.16024	.006	.933	1	69	.337	1.796

*Note.* a = Predictors: (Constant), Grd 5 ELA. b = Predictors: (Constant), Grd 5 ELA, Curric Survey Full. c = Predictors: (Constant), Grd 5 ELA, Curric Survey Full, % Free Lunch. Dependent Variable: Gr 5 Math.

Table 30

*Hierarchical Regression ANOVA*

Model		Sum of Squares	Df	Mean Square	$F$	Sig.
1	Regression	8859.602	1	8859.602	61.237	.000 <sup>b</sup>
	Residual	10272.164	71	144.678		
	Total	19131.767	72			
2	Regression	10421.502	2	5210.751	41.876	.000 <sup>c</sup>
	Residual	8710.264	70	124.432		
	Total	19131.767	72			
3	Regression	10537.750	3	3512.583	28.202	.000 <sup>d</sup>
	Residual	8594.017	69	124.551		
	Total	19131.767	72			

*Note.* a. Dependent Variable: Gr 5 Math. b. Predictors: (Constant), Grd 5 ELA. c. Predictors: (Constant), Grd 5 ELA, Curric Survey Full. d. Predictors: (Constant), Grd 5 ELA, Curric Survey Full, % Free Lunch.

The ANOVA table (Table 30) demonstrated that  $F = 61.237$  for Model 1,  $F = 41.876$  for Model 2, and  $F = 28.202$  for Model 3. All of the three models were statistically significant. In other words, the predictor variables statistically significantly predicted the NJ ASK 5 Mathematics performance. Whether it included the NJ ASK 5 ELA or combined with average curriculum survey and percentage of free lunch, it was statistically significant at .000.

Model 1 (Table 31) was statistically significant because  $p \leq .000$  had a tolerance of 1.000 and VIF of 1.000. Model 2 (Table 31) was worth noting since  $p \leq .001$  had a tolerance of .975 and VIF of 1.026. The third model was not statistically significant at .337 with a tolerance of .917 and VIF of 1.090. Multicollinearity, determination of whether the variables were highly correlated, may be calculated through variance inflation factor (VIF) or tolerance scores. In this instance, there was no multicollinearity because the tolerance was within acceptable limits as calculated by  $1 - R^2$  as well as the VIF scores were less than 2.00. If the scores were more than 2.00, then a multicollinearity issue exists.



Table 31  
*Hierarchical Regression Coefficients*

Model		Unstandardized Coefficients		Standardized Coefficients	<i>t</i>	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	29.397	4.219		6.968	.000					
	Grd 5 ELA	.761	.097	.681	7.825	.000	.681	.681	.681	1.000	1.000
2	(Constant)	6.286	7.606		.826	.411					
	Grd 5 ELA	.710	.091	.635	7.773	.000	.681	.681	.627	.975	1.026
	Curric Survey Full	8.196	2.313	.289	3.543	.001	.390	.390	.286	.975	1.026
3	(Constant)	-.964	10.688		-.090	.928					
	Grd 5 ELA	.725	.093	.648	7.822	.000	.681	.686	.631	.948	1.055
	Curric Survey Full	8.685	2.369	.307	3.666	.000	.390	.404	.296	.931	1.075
	% Free Lunch	.073	.076	.081	.966	.337	-.119	.116	.078	.917	1.090

*Note.* Dependent Variable: Gr 5 Math.

### Research Questions

How does curriculum quality influence the school level aggregate performance of Grade 5 students on the New Jersey Assessment of Skills and Knowledge (NJ ASK) Language Arts and Mathematics?

Research Question 1: What is the strength and direction of the relationship between curriculum quality, specifically curriculum design, curriculum development, curriculum influential forces, and student achievement on NJ ASK?

Null Hypothesis 1: There were no statistically significant relationships between curriculum quality and students' language arts or mathematics proficiency level on the NJ ASK for the 2010-2011 school year within New Jersey school districts classified with a DFG A, in particular elementary schools with a fifth grade.

As evident in the scatterplot (Figure 2), there was some positive correlation in terms of the points that were clustered around the imaginary line moving upward. However, there were quite a few points that did not yield a positive strength and direction and weakened the correlation between curriculum quality and NJ ASK 5 Mathematics. As for the scatterplot for the results of the curriculum quality and NJ ASK 5 results (Figure 3), it did not yield a positive correlation as evident in the scatterplot.

In terms of the curriculum quality survey results and its correlation to Grade 5 NJ ASK ELA, it was not significant (.097) with a beta of -4.235 and  $t$  value of -1.684. In terms of the correlation of between the survey results for curriculum quality and Grade 5 NJ ASK Math, it was not statistically significant at .314 with a beta of 8.894 and  $t$  value of 3.506.

Research Question 2: What are the statistically significant school variables aggregated to the school level that explain the largest amount of variance in student achievement in language arts and mathematics as measured by NJ ASK 5?

Null Hypothesis 2: There were no statistically significant relationships between research-based school variables aggregated to the school level that predict student language arts and mathematics achievement outcomes as measured by the 2010-2011 NJ ASK 5.

The null hypothesis was rejected. The NJ ASK 5 Mathematics and NJ ASK 5 ELA tests were statistically significant predictors of student achievement. When the dependent variable

was the NJ ASK 5 ELA, NJ ASK 5 Math was statistically significant at  $p \leq .001$ . Furthermore it yielded an adjusted  $R^2$  of .041, which indicated that approximately 4% of the variance in NJ ASK 5 ELA scores was explained by the variables in the model. When the dependent variable was the NJ ASK 5 Mathematics, the NJ ASK 5 ELA was also statistically significant at .000. For this particular model, the adjusted  $R^2$  was .509, which translated to 51% of the variance in NJ ASK 5 Mathematics scores was explained by the variables in the model. Consequently, student achievement on the NJ ASK 5 ELA and Mathematics tests were the best predictors of one another's student test scores. The influence of the NJ ASK 5 Mathematics on the NJ ASK 5 ELA was not apparent as there was no mathematics content on the NJ ASK 5 ELA. On the other hand, students were expected to utilize their language arts skills in NJ ASK 5 Mathematics because of the amount of reading required on the test.

Research Question 3: How do the curriculum practices and research-based independent variables in lower socioeconomic New Jersey districts influence the performance of fifth graders on the New Jersey Assessment of Skills and Knowledge (NJ ASK) Language Arts and Mathematics?

Null Hypothesis 3: There were no statistically significant relationships between curriculum practices and research-based independent variables in lower socioeconomic New Jersey districts and its influence on the performance of fifth graders on the New Jersey Assessment of Skills and Knowledge (NJ ASK) Language Arts and Mathematics.

The variable curriculum survey did not yield a significant relationship between either of the NJ ASK 5 tests. The relationship between curriculum survey and NJ ASK 5 ELA was not statistically significant at .097 with a beta of -4.235 and  $t$  score of -1.684. The relationship

between curriculum survey and NJ ASK 5 Mathematics was not statistically significant at .314 with a beta of 8.894 and  $t$  score of 3.506. One of the limitations of the study was that the results of the curriculum survey were based on self-reported responses. The possible range for each of the questions was 1 to 4 with 32 maximum possible points in the curriculum design section, 24 maximum possible points in curriculum development, and 28 maximum possible points in the influential forces that influenced curriculum. Based on the responses, the range was calculated between 1.86 to 4.00 with a mean of 3.0599 and standard deviation of .54923.

### **Summary**

The variables, NJ ASK 5 language arts and results of the curriculum quality survey, accounted for the largest amount of variance in student achievement to the NJ ASK 5 Mathematics. In conclusion, the study findings suggested the two predictor variables have a positive influence on the achievement of students on the NJ ASK 5 mathematics. Unfortunately there was no statistical significance when NJ ASK 5 was the dependent variable.

## **Chapter V**

### **CONCLUSIONS AND RECOMMENDATIONS**

#### **Introduction**

As federal and state bureaucrats continue to impose mandates for increased accountability measures focused on standardized curricula and standardized testing, educators and students in underperforming schools tend to be the most targeted. Personnel in schools identified as “failing” face severe consequences that can include loss of employment, public humiliation, and state bureaucratic control of school and district-level decision making with regard to curricula, instruction, and finances. One result of such sanctions has been that curriculum design and development became further removed from local control through state imposition of a “model curriculum” developed at the New Jersey Department of Education.

The local control of proximal variables such as curriculum and instructional practices tend to have a greater influence on student performance than distal variables such as state regulations and policies (Wang et al., 1993). Over the years, results from empirical studies suggested a variety of variables, which influenced student achievement. For example, previous research suggested that “student variables such as I.Q. and socioeconomic status were the biggest predictors of student performance on standardized test” (Coleman Report as cited in Amiot, 2004, p. 135). In this study, I examined the influence of the curriculum on standardized tests that highlighted another variable that was statistically significant.

The purpose of this non-experimental, correlational, cross-sectional, quantitative study was to examine how curriculum customization at the local level influenced student achievement in Grade 5 students who attend schools in the lowest socioeconomic (SES) communities in New

Jersey. Moreover, the study examined potential statistically significant school variables aggregated at the school level to attempt to explain the largest amount of variance in student language arts and mathematics achievement as measured by NJ ASK 5. The existing literature as well as the findings from this study suggested that the more proximal the curriculum development was, the greater the influence on students' learning (Sadler, 1989; Schunkas cited in Periera, 2011).

*The Eight-Year Study* found that curriculum customized at the local level positively influenced student achievement. Additionally, the curriculum paradigm framework composed of the learner, subject matter, and social forces encouraged educators to examine curriculum from a number of perspectives. Curriculum created at the school allowed for the integration of all three components. In other words, teachers will be able to take into account the students' academic abilities in their classrooms and create a customized curricular path to help students reach their full potential. Furthermore, teachers will teach the subject matter with the consideration of what influences curriculum, for example, factors such as human development, social forces, the nature of knowledge, and the nature of the learner (Tanner & Tanner, 2007).

The proximal variables included in the study were attendance rate, instructional time, percentage of teachers with graduate degrees, percentage of students categorized as free, percentage of students categorized as reduced lunch status, percentage of students identified as Limited English Proficient (LEP), percentage of students identified as special education, student mobility rate, and faculty mobility rate.

The results of my study revealed that students' performance on the NJ ASK 5 Mathematics was influenced by the results on the NJ ASK 5 Language Arts and the survey

average of curriculum, including curriculum design, curriculum development, and influential forces of curriculum. The findings further emphasized that the greatest curriculum influences occur when curriculum design and development occurred at the school level (Tanner & Tanner, 2007; Wang et al., 1993). Essentially the NJ ASK 5 mathematics and degree of curriculum customization were the most statistically significant predictors of student achievement. Consequently, I discussed the influence of the NJ ASK 5 Language Arts and curriculum, in particular, design, development, and influential forces, on students' performance on the NJ ASK followed by policy recommendations, planning, and future research.

### **Conclusions**

Curriculum customization at the local level made a difference for the schools in this sample and influenced student achievement on mathematics achievement. Essentially, customizing the curriculum to meet the needs of the students who must experience it matters in terms of student output on standardized tests in some of the school districts located in New Jersey's poorest communities. The current political climate has placed emphasis on distal variables such as state policies and a "one-size-fits all" approach to curriculum development at the state level rather than the proximal variables that could provide students with opportunities to directly engage with the curriculum. Findings from previous research demonstrated that proximal variables, including instructional practices and strategies, tended to have a more significant influence on student achievement. Consequently curriculum customization allows for the greater integration of instructional practices and strategies that best address the needs of the students in the particular school.

The results from the existing literature on curriculum customization suggested that the design and development of curricula had to be well structured and problem based to allow students the opportunity to engage in meaningful learning experiences. Furthermore, there was an emphasis in the literature to ensure that the learning needs of all students are met. As Goodlad (1966) wrote:

A synthesis of curriculum based on the research and literature is defined as: the framework that captures all of the educational students' experiences under the school's guidance, including the including the goals and objectives; breadth, depth, and content and subject matter organization; instructional strategies; learning activities; utilization of resources; time and space; grouping patterns; and assessment of achievement (Goodlad & Associates as cited in Gehrke, Knapp & Sirotnik, 1992; Kearney & Cook as cited in Goodlad, 1966).

Therefore, curriculum content goes beyond a focus on rote memorization and test preparation; rather, it provides experiences for higher thinking that actively engage students in learning experiences.

A diversified curriculum, customized at the local level, should challenge students to build upon their knowledge and skills through the exposure of real-world, lifelong applications that would allow them to engage in more meaningful learning. Meaningful learning experiences allow for students to make connections between the school and the real world. Similar to current educational beliefs, education theorists such as Dewey and Mann and *Cardinal Principles* advocated for a curriculum that reflected real world connections and applications. Therefore, this will also require teachers to be able to modify the curriculum to meet the specific



needs of their students. Curriculum that is customized and based more on a thinking, problem-based approach, and scaffolded to meet the needs of the students actually sitting in the classroom, tends to be more effective as evidenced by the results found in the existing literature.

Consistently, the literature argued for the benefits of a customized curriculum in order to provide students with opportunities to actively engage with their learning as they evolve into independent thinkers. When students were more engaged in the curriculum, it influenced their retention and authentic mastery of the content and skills. A meta-analysis conducted by Doehy et al. (2003) and the work of Pease and Kuhn (2010) aided with retention of knowledge, distinguished relevant information, and explains the conceptual understanding of the content. In order for this sort of curricula program to exist in schools, the design of the curriculum must be democratic to ensure that relevant knowledge and higher order skills as well as students' needs and experiences are all taken into account.

According to results from case studies in three states, a centralized curriculum, enforced with a high-stakes standardized testing regime, has been imposed, which does not allow for teachers to utilize their expertise to ensure that the curriculum meets the needs of their students (Brown & Clift, 2010). The shift in the emphasis to student output from state assessments has influenced the design and development of curriculum in the sense that standardized test content and skills are the priority for what is included and then taught in the classroom. Despite the shifts to a culture of assessment and standardization since the start of the NCLB era in 2002, only 42.8% of economically disadvantaged students were proficient in the NJ ASK 5 ELA compared to 73.7% of the students classified as non-economically disadvantaged in 2010. In terms of NJ ASK 5 Mathematics, 63.5% were proficient among students classified as economically

disadvantaged, while 86.6% of students classified as non-economically disadvantaged were proficient. The hyper-focus on standardization has done little to improve the experiences for the children who need improved experiences the most.

Hart and Risley (1995) conducted a study where children considered poor from the Turner House as well as a group of University of Kansas professors' children participated in a preschool program that involved language-intensive activities. The sample for the study consisted of 42 families of which 13 of the families were upper socioeconomic status (SES), 10 were middle SES, 13 were lower SES, and six were on welfare. The collected data reflected 2 ½ years or more of monthly hour-long observations. In the initial phase of the Hart and Risley study, parents took a vocabulary test that yielded a vocabulary size discrepancy among the professional families who knew 89% (41 words) of the words, working class families who knew 67% (31 words) of the words, and welfare families who knew 30% (14 words).

Students must have opportunities to engage in meaningful learning opportunities via the vehicle of a quality curriculum to attribute for other variables that may influence student achievement on state assessments. Students with different needs need different curricula, organized to meet those needs.

### **Recommendations for Practice and Policy**

#### **Practice**

Due to the influential forces of curriculum design and development, there is a need for a shift to give schools at the local level more control of the curricula program. This will allow for curriculum planning to occur from the bottom up based on the expertise of the educators and their knowledge of students (Tienken & Canton, 2009), enabling teachers to strategize on how to

navigate the higher order thinking skills while meeting the needs of the students. Additionally, there is a need to conduct needs assessments on the state of the current curriculum to identify strengths and gaps. During the needs assessments, it must involve all stakeholders for a comprehensive representation on how to best serve all of the students. This may be in the form of focus groups where responses may be analyzed. Educators may access current resources such as the curriculum paradigm and research such as *The Eight-Year Study* to identify research-based curriculum that actively engages students in meaningful learning experiences.

Essentially, school administrators must create opportunities for teachers to be able to plan and implement quality curriculum that reflects the needs of the student population. When the curricula are: (a) developed democratically and locally, (b) reflect the children who are compelled to experience it, and (c) hold high expectations for higher order thinking skills, it facilitates school leaders to advocate for knowledge and skills beyond test preparation. Consequently, there is a need for educational leaders to ensure that the design and development of the curriculum goes beyond the basic content knowledge. When the curriculum reflects one of rote-learning students are not taught to engage in critical thinking nor do they have opportunities to synthesize what they have learned to be able to apply it within a variety of contexts. School administrators should examine the current literature on curriculum and evaluate curriculum resources against the literature to help them make informed decisions. It is apparent that a one-size-fits-all curriculum approach does not meet the academic needs of students. Therefore school administrators should identify research-based curriculum paradigms that best fit the needs of their student population. Periera (2011) stated,

What is successful in one building and location might not necessarily yield the same results in another, even within the same school district or DFG. Within the same district there can exist vast between-school differences in terms of demographics that influence achievement. (p. 226)

Along with the customization of the curriculum and the integration of school-based student assessments, these policies will gauge the effectiveness of curriculum and impact of student achievement. Furthermore, school-based student assessments throughout the school year will provide ongoing, real-time student achievement data.

Beyond literacy proficiency, school administrators should provide teachers with professional development and curriculum and assessment support to work towards a more rigorous curriculum that challenges and exposes students to lifelong skills that enable them to apply to real-world situations. During the curriculum development phase, there is a need for a paradigm to guide educators in curriculum development, curriculum execution, and evaluation of its effectiveness. An evidence-based curriculum that reflects philosophical foundations, research and theory, and informed professional judgment is needed across all schools (C. Tienken, August 24, 2010, personal communication). Through the utilization of this paradigm, it will begin to help school leaders make decisions on how to best meet the needs and interests of learners.

School administrators in public schools may balance the mandated curriculum with the need to customize. Tienken (2013) suggested curriculum practices that promote curriculum customization despite the federal and state mandates imposed on schools. Tienken's (2013)

- School administrators and teachers engage in collaborative review of the standards specifically with the focus of their student population;

- Analyze the standards individually to create “learning objectives in order to understand more fully what students must master and how to best organize the content for them” (p. 10);
- Create a scope and sequence of “integrated units based on problems and themes that provide students opportunities to use their knowledge to create solutions and products.... (p. 11); and
- Include scaffolding opportunities and differentiated tiered activities to help students build the knowledge and skills necessary to attain mastery.

School administrators and teachers must then evaluate the curriculum via impact studies to begin to gauge the curriculum’s influence on student achievement. On an ongoing basis, both school administrators and teachers must regularly monitor student performance data.

In taking a step back, there is a need for revision of curriculum within the university preparation of teacher training and school administrator training programs. Students in university preparation education programs must learn about the theories and studies specifically on proximal variables that influence student achievement. Furthermore, there is a need for coursework on how to design, develop, and implement curriculum customized to meet the needs of their students.

## **Policy**

On the contrary, the New Jersey Department of Education and the United States Department of Education should steer away from the stringent mandates. In the present time universally prescribed policies to all schools seem to be the norm, but school districts and administrators need increased autonomy in curriculum design and development. State policy

should then create accountability structures that do not derive entirely from state assessments. Furthermore, the potential high-stakes consequences associated with state testing could potentially negatively impact students' lives. Instead funds should be reallocated to support districts and schools with curriculum design and development as well as evaluations of its effectiveness. Schools should have flexibility in the form of committee to make decisions on measures of student learning beyond state assessments.

According to the *Abbott v. Burke* decision, the state was required to increase state funding to some of the New Jersey's poorest school districts (Education Law Center, n.d.). This funding source could be utilized for schools to pay teachers for the creation of curriculum at the local level. Additionally, as teachers spearhead curriculum development, reallocation of funding for teacher professional development is integral. Ball and Darling-Hammond (1997) found that teachers who dedicated more time to studying teaching tend to be more effective especially "for developing higher-order thinking skills and meeting the needs of diverse students" (p. 3).

University preparation programs for teacher training and school administration training should be held accountable for the preparation of their students. One recommendation is to create research-based guidelines for university education programs to reference in their creation of their programming and content of course work. The guidelines should be created by a board that meets regularly, of school administrators, teachers, professors, and education students as a way to ensure varied perspectives and expertise.

### **Recommendations for Future Research**

This research adds to the current literature that curriculum quality influences student achievement on the NJ ASK 5 Mathematics and Language Arts. Tramiglini (2010) focused on

high school, but there was a need for further research in the elementary grades. However, one study is not extensive enough to provide all the answers related to curriculum quality in the poorest school districts across New Jersey. In addition, this study focused on New Jersey public elementary schools with a fifth grade. As there is a need to add more to the literature, I suggest future research on the following topics:

1. Replicate this study in other states and at the national level and then compare the findings.
2. Expand the study to include other grade levels beyond Grade 5 in New Jersey.
3. Survey teachers of Grade 5 in schools within DFG A with a focus on curriculum development, curriculum design, and forces that influence curriculum.
4. Conduct a study that investigates the relationship of curriculum between DFG A, poorest school districts, and DFG J, the wealthiest school districts.
5. Conduct a qualitative study of teachers in districts with high levels of curriculum customization and low levels of curriculum customization in order to ascertain their perceptions of the influence of curriculum on their practice and student learning.

The results of this study emphasized that there is an urgent need for further study on the influence of proximal variables that may influence student achievement. As educators, it is our responsibility to engage in innovative, research-based curriculum design and development. Evidently, this will require educators to be reflective and open to reform in exploring the best methods to customize the curriculum aligned with the curriculum paradigm that considers the learner, subject matter, and social forces.

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## Appendix A

### Permission



Graduate School of Education  
GSE, Room 011  
Rutgers, The State University of New Jersey  
10 Seminary Place  
New Brunswick, NJ 08901-1183

[www.gse.rutgers.edu](http://www.gse.rutgers.edu)  
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May 2, 2011

Ms. Jessica Luciano  
Doctoral Candidate  
Seton Hall University  
Executive Ed. D. Program for Education Leadership

Dear Ms. Luciano:

I give you my permission to utilize the Curriculum Quality portion of the survey instrument that I developed and amended with the permission of Dr. Daniel Tanner (Tanner & Tanner, 2007) for my dissertation, *Student Achievement in Low SES High Schools*. The proper citation and publication for this study is below.

Trammaglini, T. (2010). *Student achievement in lower SES high schools*. Unpublished doctoral dissertation, Rutgers University.

[http://mss3.libraries.rutgers.edu/dlr/TMP/rutgers-lib\\_29712-PDF-1.pdf](http://mss3.libraries.rutgers.edu/dlr/TMP/rutgers-lib_29712-PDF-1.pdf)

Sincerely yours,



Thomas W. Trammaglini  
Rutgers, The State University of New Jersey  
Graduate School of Education

## Appendix B

### Curriculum Survey

Directions: Please circle the response that is most applicable to your school.

#### *Curriculum Design*

1. Adequate attention is given to the scope and sequence of the total school curriculum.
  - a. Strongly in evidence
  - b. Some evidence
  - c. Little or no evidence
  - d. Evidence to the contrary
2. The curriculum in general education is designed to meet the needs of a heterogeneous student population.
  - a. Strongly in evidence
  - b. Some evidence
  - c. Little or no evidence
  - d. Evidence to the contrary
3. Curriculum articulation is developed horizontally (between and among subject fields) and vertically (from grade level to grade level and from school to school within the district).
  - a. Strongly in evidence
  - b. Some evidence
  - c. Little or no evidence
  - d. Evidence to the contrary

4. Statements of educational objectives emphasize the development of higher thinking abilities, in which facts and skills are put to meaningful use.
  - a. Strongly in evidence
  - b. Some evidence
  - c. Little or no evidence
  - d. Evidence to the contrary
5. The professional staff gives concerted attention to the “general design” of the school curriculum.
  - a. Strongly in evidence
  - b. Some evidence
  - c. Little or no evidence
  - d. Evidence to the contrary
6. The design of the curriculum serves as a useful resource for lesson design and implementation.
  - a. Strongly in evidence
  - b. Some evidence
  - c. Little or no evidence
  - d. Evidence to the contrary

7. Curriculum design is a reflection of a system that includes the voices of all teachers, not just one curriculum writer.
  - a. Strongly in evidence
  - b. Some evidence
  - c. Little or no evidence
  - d. Evidence to the contrary
8. The scope of all curriculum reflects goals and objectives beyond mandated core curriculum content standards.
  - a. Strongly in evidence
  - b. Some evidence
  - c. Little or no evidence
  - d. Evidence to the contrary

### *Curriculum Development*

1. Teachers and supervisors under the leadership of the director of curriculum [or other school leader] are engaged in continuous and systematic curriculum development.
  - a. Strongly in evidence
  - b. Some evidence
  - c. Little or no evidence
  - d. Evidence to the contrary

2. The responsibility for the curriculum, including the selection and use of curricular materials, resides with the professional staff, not with any external source or special-interest group.
  - a. Strongly in evidence
  - b. Some evidence
  - c. Little or no evidence
  - d. Evidence to the contrary
3. The [curriculum] committee is provided with the needed time for appropriate curriculum development.
  - a. Strongly in evidence
  - b. Some evidence
  - c. Little or no evidence
  - d. Evidence to the contrary
4. A standing curriculum committee is in operation in the school, devoting its efforts to curriculum articulation and to the development of promising programs for educational improvement.
  - a. Strongly in evidence
  - b. Some evidence
  - c. Little or no evidence
  - d. Evidence to the contrary



5. Curriculum development is treated as a problem-solving process involving the entire professional staff of the school and the school district.
  - a. Strongly in evidence
  - b. Some evidence
  - c. Little or no evidence
  - d. Evidence to the contrary
6. Stakeholders such as students, parents and Board of Education members work with professional staff on curriculum development.
  - a. Strongly in evidence
  - b. Some evidence
  - c. Little or no evidence
  - d. Evidence to the contrary

*Forces That Influence Curriculum*

1. Standardized tests are used appropriately and do not mitigate a balanced and rich curriculum.
  - a. Strongly in evidence
  - b. Some evidence
  - c. Little or no evidence
  - d. Evidence to the contrary

2. The balance and coherence of the curriculum is maintained in the face of any special priorities that may be established for the school.
  - a. Strongly in evidence
  - b. Some evidence
  - c. Little or no evidence
  - d. Evidence to the contrary
3. The textbook does not determine the course of study, but is used along with a rich variety of curricular materials, resources, and activities for productive learning.
  - a. Strongly in evidence
  - b. Some evidence
  - c. Little or no evidence
  - d. Evidence to the contrary
4. Standardized tests are used for diagnostic purposes, not for purposes of determining student grades or for segregating students into different classes.
  - a. Strongly in evidence
  - b. Some evidence
  - c. Little or no evidence
  - d. Evidence to the contrary

5. The curriculum is aligned to multiple performance outcomes, not just proficiency on statewide assessments.
  - a. Strongly in evidence
  - b. Some evidence
  - c. Little or no evidence
  - d. Evidence to the contrary
6. Benchmark assessments are utilized several times per year to provide data that drives curriculum and instruction.
  - a. Strongly in evidence
  - b. Some evidence
  - c. Little or no evidence
  - d. Evidence to the contrary
7. Results from student assessment of curricular goals on statewide assessments are utilized to place students in courses.
  - a. Strongly in evidence
  - b. Some evidence
  - c. Little or no evidence
  - d. Evidence to the contrary

## Appendix C

### Seton Hall University IRB Approval



June 9, 2011

Jessica Luciano

Dear Ms. Luciano,

The Seton Hall University Institutional Review Board has reviewed your research proposal entitled "The Influence of Curriculum Quality on Student Achievement on the New Jersey Assessment of Skills and Knowledge (NJ ASK) Language Arts and Mathematics for Grade 5 in the Lowest Socioeconomic School Districts" and has approved it as submitted under exempt status.

Enclosed for your records is the signed Request for Approval form.

Please note that, where applicable, subjects must sign and must be given a copy of the Seton Hall University current stamped Letter of Solicitation or Consent Form before the subjects' participation. All data, as well as the investigator's copies of the signed Consent Forms, must be retained by the principal investigator for a period of at least three years following the termination of the project.

Should you wish to make changes to the IRB approved procedures, the following materials must be submitted for IRB review and be approved by the IRB prior to being instituted:

- Description of proposed revisions;
- *If applicable*, any new or revised materials, such as recruitment fliers, letters to subjects, or consent documents; and
- *If applicable*, updated letters of approval from cooperating institutions and IRBs.

At the present time, there is no need for further action on your part with the IRB.

*In harmony with federal regulations, none of the investigators or research staff involved in the study took part in the final decision.*

Sincerely,

A handwritten signature in dark ink that reads "Mary F. Ruzicka, Ph.D."

Mary F. Ruzicka, Ph.D.  
Professor  
Director, Institutional Review Board

cc: Dr. Christopher Tienken  
Presidents Hall • 400 South Orange Avenue • South Orange, New Jersey 07079-2641 • Tel: 973.313.6314 • Fax: 973.275.2361