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The effects of external controls on teachers' development of technology competencies in an economically disadvantaged district

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THE EFFECTS OF EXTERNAL CONTROLS ON TEACHERS' DEVELOPMENT OF TECHNOLOGY COMPETENCIES IN AN ECONOMICALLY DISADVANTAGED DISTRICT

by
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Dedication

In loving memory of those who have inspired me.

To my family—Gwendolyn, Shaylyn, Jocelyn, and Brianna Rodriguez. To my brothers Herbert, Alexis, and Luis Rodriguez, and my closest friends, William Martinez and Irv Roman. To my mother, Libertad Perez Adams, whose name is everything I believe in. To my grandmother, Amparo Medina Adams, whose pride and faith in me made me believe anything is possible.

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"Do not go where the path may lead, go instead where there is no path and leave a trail."

—Ralph Waldo Emerson

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Abstract

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Exponential growth in technological innovations has changed the dynamics of global economic competition. These changes have redefined the relationships between economy and education, which has redirected national and state interest toward the development of human capital within public schools to meet the demands of a new knowledge-based economy (Martens, Rusconi, & Leuze, 2007; Sahlberg, 2006). This study will explore the effects of external controls on education as they affect reform policies, the technical core of "teaching and learning," and teachers' development of technology competencies at an elementary school level within a socioeconomically disadvantaged setting. The study will attempt to determine whether externalized mechanisms of control created by federal and state policies are unintentionally hindering teachers' technological competency development as a result of competing demands to determine whether reform policies can or are unintentionally operating as technology immobilizing agents capable of creating digital inequality (Keller & Bichelmeyer, 2004; Lawton, McKevitt, & Millar, 2000).

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Chapter 1

Introduction

Exponential growth in technological innovations has changed the dynamics of global economic competition, which has redirected national and state interest toward the development of human capital within public schools to meet the demands of a new knowledge-based economy (Sahlberg, 2006). This study will explore the effects of external controls on education as they affect reform policies, teachers' development of technology competencies, and the technical core of "teaching and learning" (Hoy, 2008) at an elementary school level within a socioeconomically disadvantaged setting. This study will attempt to determine whether externalized mechanisms of control created by federal and state policies are unintentionally hindering teachers' technological competency development as a result of competing demands (Keller & Bichelmeyer, 2004; Lawton, McKevitt, & Millar, 2000). The environmental analysis will be conducted by evaluating pressures and constraints, and will investigate how conditions affect internal operating conditions of choice and action in public schools. The framework will link interacting components' influence, involving the external and internal operating environments of teachers, through a systemic view of the dynamic interactions between globalization, markets, control mechanisms, resource dependency, and technology in order to advance a holistic view of phenomenon and determine whether the summation of circumstances has the potential for creating digital inequality (Anderson & Johnson, 1997; Snyder, Acker-Hocevar, & Snyder, 2008).

Problem Statement

Federal and state mandates, initiatives, and accountability-driven sanctions intended to raise educational standards through assessments have resulted in unintended consequences in underperforming and economically disadvantaged elementary schools (Pedulla et al., 2003). Franklin and Bolick (2007) maintain that mandates have unintentionally limited teachers' opportunities to develop and explore the benefits of technology integration in classroom teaching and learning practices. As a result of the underutilization, some believe it has limited constructive pedagogical advantages (Resnick, 1989). Using and integrating technology into the classroom would allow students to develop into active participants in knowledge creation and provide skills to cultivate and bridge learning beyond traditional instruction (Bellanca & Brandt, 2010). Despite technology's potential, policies design to induce change and close student achievement gaps between high, middle, and low socioeconomic status (SES) communities, a sanction-driven accountability environment has occurred, which is furthering low-SES students' knowledge gaps. Furthermore, practitioners within this environment are hindered from developing and acquiring pedagogical connections in technological instructional and learning practices due to the inhibiting effects and demands of policies (Bolman & Deal, 2008). These conditions result in an expansion of inequality, as cultural conditions formed to deal with anxieties, uncertainties, and instabilities of sanction-based change alters occupational identity, which affects teachers' learned patterns of competence, authority, and shared assumptions (Pfeffer & Salancik, 1978; Evans, 1996; Bolman & Deal, 2008). An environment that may promote negative

forms of instruction due to survival adaptations and the need for cognitive stability becomes inevitable (Schein, 2004).

The North Central Regional Educational Laboratory (NCREL) (2003) believed the conditions produced under these dynamics prevented urban teachers and students from acquiring vital 21st century technological literacy skills. Consequentially, essential knowledge building and critical thinking skills in economically disadvantaged districts stagnated and declined which limited opportunities and expanded inequality for its youth. Practitioners at the forefront of instructional delivery require sufficient time, opportunities, and training to explore and discover modern day basic skills, such as critical thinking and information and communication technology (ICT) literacy (Trilling & Fadel, 2009). Innovative teaching is necessary so students can learn to use and manage ICT and conceptualize the accelerated, interdisciplinary, global, and technologically complex information-based society (Lemke et al., 2008).

The NCLB has directed the American public's attention to its schools in a way that no other educational policy ever had before. NCLB is a bi-partisan law intended to improve the quality of American education. It has been plagued with controversies since its inception under President George W. Bush. Researchers and experts have stated federal and state mandates have had a significant impact on education; they have warned its long-term outcomes are being undermined by the government and proponents of the legislation (Hollingsworth et al., 2007). While researchers have posed a variety of questions concerning the effects of external regulations, not many studies have particularly concentrated on the impact of federal and state mandates as an external influence or control on economically disadvantaged public elementary schools.

Numerous studies asserted present urban school conditions and environmental pressures influenced classroom instruction and are evident throughout federal and state accountability, e.g., standardized testing and monetary sanction policies (International Society for Technology in Education (ISTE), 2002; Pedulla et al., 2003; Au, 2007). Furthermore, some researchers claimed media attention has substantially heightened pressures on teachers. Conceivably, this is why Au (2007) suggested the complexity of emotional anxiety and the uncertainty experienced by teachers created behavioral changes in efficacy dynamics, which not only shaped their belief in themselves, but in teaching practices and organizational culture. Pfeffer and Salancik (1978) framed support for such effects under conditions of externalized controls, "It is a fact of the organization's dependence on the environment that makes the external constraint and control of the organization's behavior both possible and almost inevitable" (p. 43). It can therefore be surmised that control mechanisms in impoverished schools with high economic dependency in combination with the threat of economic sanctions, incorporation of market principles, and negative utilization of data can shape and modify teachers' behavior (Bartlett, Frederick, Gulbrandsen, & Murillo, 2002).

A school is an open system, an organization that takes its resources and interacts with its external environment. An organization's survival is largely determined by its ability to deal with its environmental dependency (Pfeffer & Salancik, 1978). The external environment is capable of affecting the internal behavior of an organization through its control of resources and the organization's dependency. Pfeffer and Salancik (1978) identified sources of external controls as the control of rules and regulations and the access, ownership, and possession of resources. When the federal government applies

rules and regulations on states with financial aid as the reward, it is exploiting external control sources (Epstein, 2004).

The federal government utilizes monetary sanctions and incentives through legal mandates with state agencies to influence reform. Therefore, more often than not, state or federal policy has direct or indirect effects on schools. The effects of regulatory policies are not equal across school districts because socioeconomic inequalities allow for variations in dependency and environmental exchange. For example, economically distressed schools that underperform on high-stakes testing are more dependent than their counterparts on federal and state government for funding, which makes then overwhelmingly more subjugated to regulatory controls.

Boyatzis (2008) pointed out that mandates are heavily reliant on standardized testing scores to determine educational effectiveness, with a narrow focus and substantial time consumption on two subjects, language and math, which has unintentional consequences, e.g., limiting teachers' technological learning. The consequences of these external conditions have continued to produce internal changes in teachers as they adjust to the escalation of legislated pressures (Evans, 1996). Teachers' pedagogical organizational beliefs suffer in order to mediate anxiety and survival pressures (Pfeffer & Salancik, 1978).

Under these circumstances, the production of a teaching culture where teachers focus more on preparing students for high-stakes testing is created (Mintrop & Sunderman, 2009). This triggers mechanized memorization and learning practices, which effect practitioners coping with demands imposed by external controls (Freire, 2000; Pfeffer & Salancik, 1978). Kress (2006) concluded these circumstances were a byproduct

of accountability sanctions and quota measurements focused on narrow learning outcomes that undermine education technology integration in urban elementary schools. The comprehension of 21st century technology literacy is viewed as a vital component in U.S. economic goals (NCREL, 2003; Franklin & Bolick, 2007). Integrating 21st century technologies in education with academic literacy skills within content area and learning standards have significantly increased test scores (ISTE, 2002). Nevertheless, 21st century educational technology integration is not supported as strongly as high-stakes testing is.

Kim and Sunderman (2004) maintained choice and actions regarding educational practices are constrained by externalize education policies because of its disengagement from knowledge, practice, and context environments. This disengagement marginalized epistemological curiosity and narrowed understandings of environmental conditions as they limited the process of knowledge acquisition. Additionally, Pedulla et al. (2003) observed how a disconnect from knowledge, practice, and context negated mental models of how students constructed meaning in accordance with their perceptions and assumptions with their diverse cultural backgrounds. This supported the assumption that how individuals learn and teach cannot be made into standardized concepts or hypothesized effectively without the recognition of human individuality and environmental context.

Present federal and state educational practices regarding economically distressed cities demonstrate how evident control over rules, regulations, and monetary resources influence educational processes and practices. Economically distressed public schools' are subject to high levels of resource dependencies, which make them more reliant on subordinate and external decisions than cities with middle and high-SES. Au (2007)

proposed the relinquishment of educational independence subjected schools to federal and state governments' educational policymakers, who may have prejudicial judgments about students, teachers, and parents based on test scores that theoretically measure learning without regard to socioeconomic conditions. Educational policymakers are a complex mixture of administrators, universities, advisors, politicians, business, and regulatory groups. These policymakers are interconnected and interdependent and maintain strong public and private interests. It is reasonable to acknowledge there are multifaceted means of influencing control over policy and that decisions can be politicized, subordinated, and inconsistent with local structures of culture, diversity, economics, which contain characteristics of social control (Kim & Sunderman, 2004).

Federal and state education policies are heavily test-driven standards and sanctions that altered and changed core cultural norms, values, and behavior patterns of teachers in urban elementary schools (Schein, 2004). According to Kress (2006), these conditions negatively shaped instructional practices. The culture of "teaching to the test" has been established and internalized by teachers in urban school settings because of performance-based pressures (Kim & Sunderman, 2004). In addition, teaching competency assessments have been focused on two subject areas, math and English Language Arts. These learning and teaching environments diminished teachers' development of technology efficacy, and affected their ability to acquire, engage, and teach 21st century technology literacy skills to provide students with the educational opportunities necessary to compete in the modern-day, knowledge-driven world. Kim and Sunderman (2004) emphasized urban children have a high probability of being left behind under these conditions.

Stephens (2007) noted decades of research linking teachers' self-efficacy to individual teachers' beliefs regarding their ability to teach students effectively. External environmental pressures have caused teachers' socio-psychological need for stability when dealing with anxieties. This results in disengagement from creativity and a lack of knowledge exploration (Boyatzis, 2008). Consequently, Schein (2004) argued the need for survival and stability, under the above conditions, leads to an inertia culture. In low performing schools, teachers are not vehicles of knowledge creation, which transforms teachers into passive deliverers of learning.

Affluent districts, on the other hand, illustrate external control mechanisms have not had the same impact in changing the nature of educational practices and the utilization of technology in teaching and learning (Franklin & Bolick, 2007; Hew & Brush, 2007). When talking to a superintendent about federal and state education based testing policies, the superintendent of an affluent school district stated, "We pay little attention to these testing mandates because we are not subject to their monetary forces of control and we exceed state and national academic requirements." Teachers from the same school district reaffirmed the superintendent's cultural beliefs and took pride in the fact that they did not need governmental interference because, according to them, "They make things worse." It appears teachers in this environment are not affected by the anxiety and uncertainties typically found in economically distressed urban elementary schools.

Hew and Brush (2007) argued these schools actively explore technology integration in teaching, learning, and community involvement, and their technology literacy competencies are at a more advanced level and accelerated pace than urban

districts'. Because of teachers' constant application of ICT, they demonstrate elevated beliefs regarding technology use, which is essential for the development of technological self-efficacy (Ertmer, 2005; Harrison, Rainer, Hochwarter, & Thompson, 1997). Teachers' beliefs are critical to the integration of technology and frequent utilization of technology increases their self-efficacy (Albion, 2001). Urban cities struggle with the placement of and support for computers in the classroom, as affluent towns have already engaged students with interactive SMART boards. Disadvantaged urban children face critical gaps between mission and practice that could hinder their ability to compete in the future. The moral obligation to make education equal across socioeconomic barriers will frame this research and the quest to reduce ambiguity, which then will encourage policymakers to step outside their ideology and reconsider the unintended consequences of policy-based decisions.

The millions of dollars spent on testing urban students have labeled and defined students, teachers, and their communities by scores, creating socio-psychological effects (Braden & Schroeder, 2004). Low-income urban students, who historically underperform on these tests, are affected by remedies that hamper their learning by narrowing curricular focus, the promotion of unsound "skill and drill" instruction, and prejudiced judgments about themselves, their teachers, and their schools (Sacks, 1999). Mintrop and Sunderman (2009) presented the effects of policy, accountability, and sanctions, "Policies of NCLB are weakening public education perception by undermining its support" (p. 4). Mintrop and Sunderman (2009) claimed high-stakes accountability sounds good, but does not work. Federal policy's influence on state education policy formulation cannot be disregarded because NCLB is still an active law and may be used to establish government

agendas and purposes (Karp & Christensen, 2003. Protest from states has pressed the federal government to become more flexible in meeting requirements. As a result, waivers have been institute in federal policy to mediate academic goals and concerns of states.

Purpose

This study will seek to examine the phenomenon of external controls created by government standard-based reforms and sanction-driven accountability mandates in order to determine whether they unintentionally function as a hindrance towards the development of technology competencies for teachers who compete with demands in an economically disadvantaged setting. Elementary school teachers will be studied because the National Board on Educational Testing and Public Policy (NBETPP) indicated external policy controls have the greatest impact on teachers at this academic level (Pedulla et al., 2003). This study will interpret and understand whether the impact of pressures and constraints derived from externalized government compliance measures hinder teaching and learning and expand digital inequality (Pfeffer & Salancik, 1978; Hall & Ryan, 2011). If these conditions exist, the consequences will result in furthered inequality for students due to diminished capacity to participate in the knowledge age.

Research Questions

1. How do external policy controls transform teachers' culture of teaching and learning in socioeconomically disadvantaged public elementary schools?
2. Do the driving sources behind externalized mechanisms of control function as immobilizing agents in the development of teachers' technological competencies? If so, can these conditions produce digital inequality?

Definition of Terms

- External Controls: “resources and dependencies through possession, ownership, access, and control of rules and regulation” (Pfeffer & Salancik, 2003).
- Technology Competencies: term is used interchangeably with the phrases “information and communication technologies” (ICT), “information and computer literacy,” “21st century skills,” and “social factors of operating digital devices” (Adeyemon, 2009; Krumsvik, 2008; Plomp, 2009; Punie, Cabrera, Bogdanowicz, Zinnbauer, & Navajas, 2005).
- Technical Core: the primary mission of an organization; the technical core of schools is teaching and learning (Hoy & Miskel, 2008).
- Digital Inequality: unequal access and use of technology (DiMaggio, Hargittai, Celeste, & Shafer, 2004).

Significance

Integrating technology into learning practices is essential to the stimulation of innovation, creativity, and autonomy (Warschauer, 2006). These skills are indispensable to the development of human capital in a knowledge-based economy. Providing low-SES students with technological competencies offers endless opportunities for skill and knowledge enhancement beyond conventional methods. Technology used for instructional processes provides educational opportunities that assist in making educational and social resources available, as well as furthering social and economic equality (Hew & Brush, 2007). Investigating conditions that hinder this process is fundamentally important, as opportunity reduction should not result from policies designed to address inadequacies. Educational leaders and policymakers must be aware

of their policies' unintended consequences and the importance of achieving technological literacy. If policy is designed to engage the development and modification of schools' technical core, connections between the organization's complex external and internal environments must be examined (Stopford, 2003; Kädtler, 2003).

Conclusion

The inquiry into the relationship between the impact of controls, technology integration, and teachers' development of technology skills will provide interpretive lenses within the complexities involved with externalized control mechanisms, competing demands, and the socio-psychological effects teachers face. These conditions will be assessed to determine whether the effects hinder teachers' technology competency development in grades 1-6 within economically disadvantaged elementary schools using quantitative research regarding the impact of high-stakes standardized testing. Controls can affect and reshape the educational practice of teachers. This often leads to teachers coping with their professional environmental and adjusting to ensure internal survivability, which hinders technology competencies development and furthers the knowledge gap between disadvantaged students and their affluent peers (Pfeffer & Salancik, 1978; Schein, 2010).

Chapter 2

Literature Review

One of the primary goals of the federal government's state education reform policies is the academic improvement of elementary and secondary students with technology through integration, building access, parental involvement, and technology accessibility (Lemke, Wainer, & Haning, 2006). In addition, it seeks "to assist every student in crossing the digital divide by ensuring that every student is technologically literate by the time the student finishes the eighth grade, regardless of the student's race, ethnicity, gender, family income, geographic location, or disability" (Lemke et al., 2006, p. 5). Within districts where student needs are paramount and the environment limits the ability to meet federal and state mandated goals, pressures have grown (Stamler, 2010). With the 21st century emerging as a technologically knowledge-based age, economically disadvantaged students are at a risk of being left behind.

External controls established through school financial dependencies provide the ability to influence rules and regulations, a primary unintentional inhibitor of technology competencies development for teachers serving disadvantaged populations (Pfeffer & Salancik, 1978; Keller & Bichelmeyer, 2004; Cullen & Reback, 2006). Higher demands for elementary school teachers under increasing incentive and sanction-driven policy initiatives are reshaping teachers' efficacy (Spillane, Parise, & Sherer, 2010; Pfeffer & Salancik, 1978; Schein, 2010). As a result, teachers and school districts are more concerned with complying with externalized controls than their effectiveness as educators, and fail to recognize the importance of developing technological skills for themselves and their students. The intense pressure of test-driven accountability policy produces

institutional conformity, making technology literacy another measure for the gap between advantaged and disadvantaged students.

Educational Reform

When examining assumptions of forces involved in the shaping of choices, actions, and control of educational reforms, it is essential to evaluate history and the present reality in order cultivate conditions for insight to emerge so future decisions may be addressed with clarity (Sharpe & Van der Heijden, 2007). As Fear (2001) said, "History matters because learning—be it social, organizational, or personal—is a difficult process, requiring one to evaluate the past, and perhaps reconsider it, to alter the present and confront the future" (p. 162). The agenda of education reforms have shown how America's vision has evolved over the past several decades regarding schools' responsibilities and how teachers should be educated to adjust to environmental changes. Historical examination advances understanding of formulated educational policy reforms, environmental pressures, constraints, and their unintended consequences (Pfeffer & Salancik, 1978).

The National Commission on Excellence in Education (NCEE) claimed the U.S. educational system was "being torn apart by a surge of mediocrity" (1983, p. 9) and by remaining passive, Americans engaged in "an act of thoughtless, autarchic, educational decommissioning" (1983, p. 9). President Ronald Reagan's accepted the report, but largely ignored most of it despite its shocking statements and risk indicators. The report popularized the term "at-risk children" and indicated the inadequacies within major areas, such as a weak secondary school curriculum, teachers' lower expectations for students, improper use of classroom time, and improper homework implementation.

Sizer (1984) studied 15 secondary schools in various parts of the U.S., and advocated for a closer relationship between the teacher and students, higher student motivation, and a cohesive curriculum that only mandated certain subjects (e.g., English, math, and civics). Sizer chaired the Coalition of Essential Schools and focused on education reform. The coalition stated reforms could have been carried out in two steps, "The first step is to rethink how the school is designed, and then rearrange the design to make best possible work. The second step is to shape teaching practices that make it possible for all students to use their minds well" (Sizer, 1984, p. 24).

Recommending teachers be more rigorously trained and educated is not a new suggestion. In 1986, it was recommended the National Board of Professional Teaching Standards be established (NBPTS, 1989). They would be responsible for testing and certifying working teachers. Another report recommended improving working conditions for the teachers and requiring new teachers to have bachelor's degree in any academic field and post-graduate degrees in education.

The growth of educational federalism. Goals 2000 was established in 1994 and the Educate America Act was soon converted into law, representing "one of the greatest intrusions of federal government into education policy" (Superfine, 2005). Goals 2000 was comprised of eight goals, all targeting improving the education system by making sure students were well-rounded, responsible citizens, who were encouraged toward advanced studies, provided with employment opportunities, and kept away from drugs, alcohol, and violence. Goals 2000 focused on maintaining the U.S.'s leadership in science and mathematics, training teachers, technology integration, and improving parent and community participation.

In 2001, President George Bush signed NCLB into law, the most robust federally funded program for education in U.S. history. NCLB re-endorsed the 1965 Elementary and Secondary Education Act (ESEA). ESEA/NCLB primarily focuses on the allocation of federal funds to assist each state educate its economically disadvantaged children, called Title I: Improving the Academic Achievement of the Disadvantaged (Braden & Schroeder, 2004). The new federal controls over public education indirectly pushed forward the implementation of a national educational policy.

The NCLB educational reform initiative followed many previous initiatives found in Clinton's Goals 2000. However, under NCLB, the federal government implemented external control mechanisms through sanction-based accountability mandates. The expanded federal involvement was further advanced by NCLB's increased statutory and budgetary power, which applied standards, curriculum reforms, and sanction-driven accountability requirements in educational reform to induce change and reduce achievement gaps between racial and ethnic groups (Manna, 2006; Kafer, 2004; Linn, Baker, & Betebenner, 2002).

NCLB's four main pillars are accountability, scientific research, expanded parental options, and expanded local control and flexibility. Eight other titles exist in addition to NCLB Title I; they address language teaching for limited English proficiency (LEP) and immigrant students, educator quality, school safety, assessments, innovation, and American Indian education. The most important component of NCLB is Title I because it focuses on state accountability for improving student learning as shown via statewide testing. It is important to understand NCLB Title I legislation vis-à-vis external assessment and accountability, the stakes or consequences connected to assessment, the

consequences of large-scale assessment (i.e., intended and unintended), and suggested responses.

Previous assessment requirements of the ESEA were largely expanded by the NCLB, which increased external accountability controls in terms of mandates for expectations and consequences for failures than any of the previous administrations. Previous versions of ESEA required states to create educational standards recognizing what students were expected to know and do. States were also required to annually test students in elementary, secondary, and high school; students' improvement was also assessed and schools were mandated to show adequate yearly progress (AYP). States controlled the assessments, subject matter, AYP expectations, and what steps to take regarding schools that failed to meet AYP expectations. Earlier legislation was not as expansive or explicit in explaining assessment or accountability requirements. The following are the most important changes NCLB made to previous legislation:

1. By definition, AYP is progress towards achieving the goal of 100% of all students in a state to measure up to state proficiency standards by the year 2014. Attendance among other indicators may also be applied to monitor progress, but achievement is regarded as the major goal.
2. For states that fail progress and inclusion requirements, federal funds will be withheld. States are required to make funding and "corrective steps" available to schools that fail to meet AYP for two consecutive years, which is known as "in need of improvement." Schools needing more than two consecutive years' improvement are required to look into major restructuring, such as reconstitution as a charter school.

3. Schools that fail to meet AYP for two consecutive years must develop improvement plans. Improvement plans must integrate instructional strategies crafted from “scientifically based research.” No less than 10% of NCLB funds must be spent by the school on professional development.
4. Annual reading and mathematics exams were required for grades 3-8 and one high school grade by the 2005-2006 school years. An annual science assessment was added in 2007–2008 for elementary, middle and junior high, and high school.
5. Schools are required to monitor and measure AYP for recognizable subgroups, including groups defined by English proficiency, ethnicity/race, poverty, gender, and disability. States must account for at least 95% of the students in each group in annual assessments.
6. States are required to inform parents of the AYP position of every school, and to give parents the right to transfer their children an AYP proficient school within the same district and with free transportation available. The district must supply supplemental services, including private tutoring, for economically disadvantaged students attending schools in need of improvement for more than a year.

State assessments are often described as high-stakes testing, meaning insufficient test scores overall can lead to consequences for the school. When test results influence important decisions, it affects students, teachers, administrators, schools, districts, and communities (Pedulla et al., 2003). High-stakes tests are specifically meant to “link the score on a set of standardized tests to grade advancement, graduation from high school, and, in fact in certain cases, teacher and principal salaries plus tenure decisions” (Orfield & Wald, 2000, p. 38). Stakes are also seen as high because results and categorical

rankings are officially communicated to the public (McNeil, 2000). There are severe economic consequences under federal mandates for states that fail to meet AYP and assessment inclusion goals. Federal mandates require that states provide money to schools that do not meet AYP and inclusion targets, and permits states to give monetary compensations to schools that exceed expectations. Loss of autonomy is a more likely consequence for failure than loss of funds. School or district educators who fail are likely to forfeit the opportunity to decide teaching resources and approaches, governance structures, as well as other categories of professional autonomy, including the freedoms and privacy common to virtually all individual classroom teachers. Educators at schools are required to reconstruct their practices and embrace new practices reinforced by scientifically based research, meaning that substantial changes in organization and behavior are expected.

It is crucial to note stakes missing from federal mandates, such as promoting, retaining, or graduating students; renewing teachers' contracts; and linking teachers' pay to test performance. Increased uses of high-stakes testing policy design mechanisms were evident in President Obama's $4.35 billion competition-based Race to the Top (RTTT) program. RTTT promotes standards, accountability, and further advances the increase of federal controls on education through conditions set by monetary incentives and waivers given to states provided they adopt common core standards. Federal funding is provided to states that comply with connecting teacher evaluations to student performance on tests, nation standards, the expansion of charter schools, and the promotion of valued-added methods with ideas of merit pay (Guisbond, Neill, & Schaeffer, 2012; Scott, 2011). Teachers have been paid based on results before, such as in English and Welsh

elementary schools from 1862-1897 (Rapple, 1994). Those schools faced many of the unintentional outcomes produced through sanction-driven accountability practices currently experienced in the United States (Rapple, 1994). Elementary school teacher compensation was tied to results and gave rise to de-professionalism, teaching to test, mechanical repetition of facts, cheating, low teacher morale, narrowing of subjects and extracurricular activities, and increased government control (Rapple, 1994). Furthermore, the accountability process penalized good teachers who serviced disadvantaged students. The results of performance-based pay were unfavorable.

Invoking such consequences is optional; however, teacher pay based on performance was endorsed by congress in 2006 under the Teacher Incentive Fund and Obama's RTTT Fund, demonstrating a shift in federal policy. The merit pay process indicated how externally mandated policies influenced profession management (Shor, 1986). According to Guisbond et al., "Measures may pick up some differences in teacher quality, but they can be influenced by a number of factors, including statistical controls and characteristics of schools and peers" (2012, p. 12).

President Obama and Secretary of Education Duncan's agenda with RTTT and waiver proposals indicated the continuation of previous federally mandated practices and further expansion of federal involvement in educational policy (Guisbond et al., 2012; Hall & Ryan, 2011). Nevertheless, it must be noted that such stakes are not required by NCLB. In 2002, no fewer than 19 states required graduation tests, with at least six of them using tests to promote students. Federal testing requirements largely target educational agencies and educators' professional practices. Intra-district transfer and supplementary educational services are the only direct consequences for other

educational stakeholders. Executive use of monetary incentives and federal requirements waivers given to states are the driving control mechanism for shaping states' educational agendas. States could circumvent adaptation of federally supported standards if their standards are considered rigorous enough.

Consequences of high-stakes testing. The primary of aim of using large-scale assessments is to increase student achievement. Large-scale assessments create certain consequences, some intended and others not. Ethically, educators are required to deliberate on all assessment consequences, including the intended ones. The intended consequences include the following:

1. Bridging or eradication of the achievement gap between majority and historically low-performing or underserved groups.
2. Academic improvement of elementary and secondary students via technology.
3. Improving instruction efficiency and resource allocation to enhance student performance/achievement.
4. Increasing the application of evidence-based instructional techniques (and reducing the use of ineffective methods).
5. Providing further motivating factors and/or conditions for teachers, students, and parents to teach, perform, and support respectively.
6. Shaping instructional focus and ensuring the standardization of instruction.

Unintended consequences are largely unfavorable and affect both schools and individuals. They include the following:

1. Corruption, such as replacing teaching to the standards with teaching directly to the test or even cheating.

2. Incorrect application of resources, such as targeting students close to the cutoff while discounting students who are not as close to cutoff levels.
3. Limited application of test results, which is using a single data source to make high-stakes decisions.
4. Limiting teachers' focus on curricular content to teach students only what is tested, such as discontinuing art or music classes.
5. Loss of academic motivation among students, teachers, and parents after repeated test failure.
6. Increased anxiety among students, teachers, and parents.
7. Marginalizing and undermining teachers learning and integration of technology.

The evidence to which intended and unintended consequences take place is inconclusive. While some studies propose states utilizing high-stakes tests do not perform significantly better on National Assessments of Educational Progress (NAEP), other analyses of NAEP data claim there is a positive correlation between higher stakes reduction in minority achievement gaps within states. In the long run, individual educators will influence the level to which consequences affect students and teachers.

Federal and state educational mandates induce change through high-stakes testing, sanction-based accountability, and market driven ideology encompassed the removal of failing schools' instructional autonomy (Sacks, 1999). Moreover, competing demands brought about by externalized control conditions significantly impacted elementary school teachers' efficacy in economically disadvantaged cities, where the uncertainties and anxieties produced by federal and state legislated controls are experienced at greater levels, public participation in policy formulation is marginalized, and competing forces

between political and special interests influence policy (Wirt & Kirst, 2009). For example, NCLB was amended 28 times during the legislative process before becoming a law. The need for fast results put schools into a "failure trap," where "one idea after another is tried out and then abandoned before enough experience has been accumulated for it to be used successfully" (Dierkes, Antal, Child, & Nonaka, 2007, p. 867).

Education policy debate: Towards closing the achievement gap. Since education mandates went into effect, the subject of AYP has continued to catch the attention of education policy debate. Some stakeholders and interest groups view AYP as the most realistic means by which federal and state governments can drive and achieve quality education in U.S. public schools. Federal mandates permit states to outline AYP for schools, provided the AYP goals considers the school's level of performance as specified by the 2002 mandate, and aims at having all students proficient by 2014. Adequate yearly progress is defined by fixed or absolute methods, cross-sectional methods, and longitudinal or value-added methods.

Under fixed methods, the proportion of proficient students must greater than or equal to a calibrated standard. An example of such calibration includes yearly percentages such as 70%, 85%, and 100% in 2002, 2008, and 2014 respectively. The cross-sectional methods (Gall, Gall, & Borg, 2007) entail the use of scores from one or more years, such as the mean of two consecutive years and comparing to other years' scores. This enables policymakers to examine the school's overall progress toward proficiency. This comes with the expectation that schools starting with lower scores will need to have more rapid progress than the ones with higher scores. For longitudinal or value-added methods, calculated score changes for the same set of students moving up

from one year to the next are used to decide whether the school is making notable progress.

Significant pros and cons exist for each of the AYP methods. For the fixed or absolute standards method, schools are expected to either measure up to or fall short of specified standards. Fixed standards are not sensitive to inter-school variations or changes in students' characteristics, and are most prone to error due to small samples. The cross-sectional methods are quite sensitive to inter-school variations, since they adjust for the school's preliminary starting point. Sampling error is also less evident in cross-sectional methods, due to their ability to combine multiple years' results, although these cross-sectional methods show some discrepancies in the event of year-to-year change in student characteristics. More often, school quality is reflected in longitudinal methods because they adjust for student differences. However, absolute levels of proficiency according to educational guidelines are not reflected by longitudinal methods. Longitudinal methods illustrate outcomes similar to those in other methods.

Gains are commonly smaller for students with low performance than for students with high performance; consequently, schools with many low-performing students will likely turn out smaller mean gains than schools with many high-performing students. Usually, more than one of these approaches is applied in most states to determine AYP. A state may decide to calibrate an absolute standard, such as at least 50% student proficiency, and also necessitate a minimum average or mean gain from grade to grade (i.e., longitudinal or value-added method) along with some improvements on data from preceding year (i.e., a cross-sectional method). A school might be unsuccessful per federal standards due to its failure to meet the absolute standard for proficiency in a

particular year; however, the same school could be spotted as standard by the state considering its value-added or cross-sectional improvements. The reverse can also take place: a school may surpass federal standards, but underperform per state standards in the event that it fails to show notable improvements from year-to-year (i.e., longitudinal improvement) or from preceding years (i.e., cross-sectional improvement).

Almost as many individuals see the AYP as the device antagonists of public education will use to shred the United States' public school system. The AYP discussion has been argued from a variety of viewpoints, academic to polemic. It is against this backdrop that Rothstein (2004) has thoughtfully and logically challenged the myths and addressed the genuineness of reforms by commenting the reforms are primarily aimed at closing the achievement gaps found between children with high, middle, and low socioeconomic status in the United States. Rothstein (2004) explored the possible causal factors of these achievement gaps, and did not excuse, exclude, or attempt to justify them in any manner. Instead, he declared the academic gaps a grave national concern, which gave a considerable level legitimacy to his argument.

A comprehensive assessment of the sociocultural and economic issues connected to the achievement gap among contrasting student groups was the anchor of Rothstein's discussion and ensuing recommendations. Rothstein (2004) argued the variables associated with social and cultural factors limited children's opportunities. Right from the outset of his argument, he disposed of the beliefs regarding hereditary influencing factors and tackled the socioeconomic influences, including income, health, mobility, and housing. Rothstein (2004) investigated the role attendance of, or absence from, after school and summer learning programs played regarding the expansion of the achievement

gap. Rothstein examined the facts behind “break the mold” schools, which campaigners claimed have bridged the achievement gap or achieved considerable progress to that effect. Rothstein (2004) stated the value of these schools has turned into an “article of faith” within the community of school reform campaigners. The leaders of these schools have turned into folk champions and have gone on to appear on stages all over the United States, enlightening people on how schools can be transformed.

Rothstein (2004) noted each one of these schools has now been seen and tagged as “successful” on the account of insufficient or distorted data. The majority of them are schools that serve a selection of populations. Others are those schools that offer programming way too far in surplus of that which might be envisioned in a public school with a traditional population representative of any U.S. cities. In other terms, while these schools might be exemplary, they fail to represent accessible models for the country’s children who fall among the population of poor and minority. Rothstein (2004) agreed each of these schools deserves some level of commendation; however, not one of them provided a formula capable of making all schools proficient.

The meagerness of these pencil-paper tests of achievement creates another strong and logical pillar of Rothstein’s (2004) criticism of the school reform movement; he questioned whether these assessments could offer an accurate measure of student proficiency. Echoing the underlining difficulty in defining proficiency, Rothstein claimed, “Proficiency in itself…is not mere objective fact, but rather a subjective judgment” (2004, p. 88). The U. S. federal government’s own research findings have considered the NAEP proficiency stages as “fundamentally flawed” (Rothstein, 2004, p. 88). The set of academic standards vary affectedly, even on a state-by-state basis, in

addition to the lack of curriculum standardization between states, which is usually tenuous at its best (Rothstein, 2004). Additionally, the rather heavy handed, exam-based answerability efforts mandated by policies may support non-cognitive variances among children in manners that further hinder poor and minority children (Rothstein, 2004).

When schools are measured based on cognitive skill assessment alone, it diminished the level of attention given to training non-cognitive skills in a proactive way; such skills, including leadership, pro-social behavior, and diligence, are often as potent as cognitive skills in shaping future success, making them a necessary focal point of formal schooling (Rothstein, 2004). The relationship pattern described among the variables was coherent and convincing. Rothstein (2004) shifts the focus from categorizing examples of success to focus on the ability to calibrate success appropriately and fairly across the population of schools that serve underprivileged children.

Another important note by Rothstein is his contrary view regarding how social and economic reforms likely to lessen the achievement gap can be cheaply obtained. For each reform he proposed, Rothstein (2004) articulated a projected cost and the impact each of the reforms suggested could have on bridging the achievement gap. Inequity of income, steady housing, clinics, in school-community, early childhood education, and programs such as after-school packages and summer school packages may not sound like school reforms, but Rothstein (2004) claimed they tackle fundamental issues demonstrated as affecting the achievement gap. A different line of attack is needed to adjust public policy, such as a significant investment in new programs. Rothstein (2004) argued for a reconsideration of how public policy is designed to address vital issues.

Unifying these rival goals is not an easy task. Colorado, for example, allows students with disabilities to be categorized as proficient even with performance levels significantly lower than their peers without disabilities (Branden & Schroeder, 2004). As a result, Colorado's AYP criteria permit low-performing students with disabilities to add to AYP goals. However, corruption may be encouraged through the same criteria by mounting pressure on educators to recognize students with low performance as having disabilities, making them count in favor of AYP goals.

Insider's view. Ravitch (2010) noted her personal support for federal education legislation was strong until November 30, 2006, when she realized the toolkit for fixing schools was a failure for her. While at a conference focused on whether major educational reform remedies prescribed by federal mandates were working and effective, Ravitch heard quite a number of highly reputable scholars present their critical views and analyses regarding possible remedies for federal education policy. Ravitch (2010) stated the presentations revealed state education departments were being "drowned in new bureaucratic requirements, procedures, and routines," (p. 99) and that not even one of the federally prescribed remedies made a difference.

The conference participants agreed school choice was failing, as evidence suggested only a minuscule percentage of eligible students sought transfers to better schools (Ravitch, 2010). In California, Miami, and Michigan, less than 1% of eligible students in failing schools sought transfers; Less than 2% sought transfers in Colorado; and none of the eligible students sought a transfer in New Jersey because most districts had only a school per grade level, and urban districts did not have a sufficient number of seats in successful schools to absorb students from underperforming schools (p. 99).

Consequently, Betts posited choice was not a successful strategy (as cited in Hess & Finn, 2007, p. 148-152).

Ravitch (2010) highlighted primary reasons students did not seek transfers as permitted via federal education policy (NCLB):

1. Schools generally failed to inform parents in an understandable and clear manner. In cases where the letters sent were cogent, some parents were reluctant to allow their children to bus to school. In some districts, there were already public school choice programs that had not benefited from federal education policy, while in others the number of eligible students exceeded the number of available seats.
2. Parents and students were reluctant to leave their neighborhood school, despite the offer of free transportation and the promise of a better school. English-language learners' parents were particularly preferential of their neighborhood schools, likely due to familiarity.
3. Betts claimed choice was unpopular because parents want their local schools to succeed and, unaware of the offer of free transportation, assume they have to drive their children across town.
4. The lack of transfers is also seen because children with learning disabilities have failed to meet AYP, causing otherwise excellent schools to fail. As a result, parents and students saw no reason to transfer.

Participants noted seeking Supplementary Educational Services (i.e., free after school tutoring) was significantly more sought after than transfers among eligible students, however, barely 20% of eligible students actually received tutoring, even though it was free and readily available (Ravitch, 2010). Whether the blame lies with the districts or the

tutoring companies was highly debated. In their complaints, tutors claimed the cost of liability insurance was high, while the districts alleged some tutoring agencies were not effective or were unprofessional, especially by offering students money or gifts if they agreed and signed up for their classes. Ravitch (2010) observed the remedies presented by federal education policies were not working, whether through lack of awareness, credibility, or availability, and commented incentives and sanctions were only right for profit making in business organizations and not appropriate for school.

Globalization of Education

Shifting economic powers, alliances, and participants produced through technology innovations and the decline of trade barriers has made the world more interconnected, integrated, and interdependent than ever before (Friedman, 2005). The global shifts of power and competing resource demands have renewed national concerns regarding controlling environmental uncertainties through the management of resource dependencies (Pfeffer & Salancik, 1978). Both natural resources and human resources apply in these conditions. Pfeffer and Salancik (1978) named education a resource, and its significance in controlling dependency demands cannot be underestimated.

According to Carnoy (2005), “Globalization increases the demand for education” (p. 3). The characteristics and implications of the commodification and rescaling of education through the economic effects of competition, with a focus on domestic policy and political concerns regarding the influence of globalization, drives public education governance and reform policy changes (Ball, 2004; 1998; 2006; 2000). This has become more evident through political intensification and subsequent increased expenditures in

education by nations in order to develop the skills and abilities essential to meet the challenges of 21st century global market economies (Trilling & Fadel, 2009).

Blinder (2008) calls technology competencies "Education for the Third Industrial Revolution." Historically, the United States of America has substantially profited from attracting talented and skilled people from all academic disciplines and arts throughout the world. Global changes for competition for human resources have increasingly changed this advantage. Empirical evidence has shown foreign-born students represent the majority of PhD degrees awarded by U.S. universities, which is neither new nor unexpected. What is unusual is these highly trained and skilled students are no longer staying and obtaining citizenship at rates previously experienced, and the relationship between education and economics has changed with market demands and the emergence of a knowledge-based economy (Milind, 1995; Robertson, 2005). Dahlman and Andersson define a "knowledge based economy as one where knowledge is created, acquired, transmitted and used effectively by organizations, enterprises, individuals and communities for greater economies and social development" (2000, p. 13). ICT is considered a major component influencing its development. Consequently, external environmental influences on education in the United States that traditionally afforded the nation with external recruitment and development of human resources can now be observed in a global context. The global commodification of education has renewed federal and state interest in public education competiveness to develop human capital domestically among all demographics to meet the nation's needs for the 21st century (Sahlberg, 2006; North Central Regional Educational Laboratory (NCREL), 2003).

Information and knowledge are important factors driving globalization, making knowledge a commodity (Allee, 1997). Cuban (2001) argued the idea of globalization changed the framework of how educators work and, as a result, altered the involvement of both formal and informal education with the development of various types of knowledge in different communities. Cuban (2001) noted the educational reform agendas have always been fraught with challenges, such as reform promoters seeking profit from sales of equipment and software to schools, and to a greater extent national educational policies—and their eventual (or subsequent) modifications—are a demonstration.

The current globalization efforts are motivated to reorganize not only the right of entry by the facilities, resources, competence, expertise, and education quality, but to hinder virtually all students from poor or low-income families by reason of the inequity in income distribution and the high importance attached to knowledge. According to Carnoy (1998), decentralization could generate a positive effect on educational productivity; however education quality is at risk because governments bank heavily on educational measurements being applied by international organizations. More often than not, nations tend to pass the burden of rewarding with the "financial risks" of such an action to the people in preference to prioritizing educational improvement (Carnoy, 1998). For example, World Bank assumes an across-the-board role in stimulating educational improvement from the top down. The policies proposed for the national education structure describe how nation states ought to adjust their education structures and policies. Deeply rooted in the lender-borrower connection claiming reconstruction and improvement, unavoidable "terms and conditions" are often attached. These terms and conditions significantly impact the government's reaction to educational problems,

including participation, skill development, equity, incompetence of education, lack of educational planning, and management. The actual danger of such actions leads to the nation's independence in regard to their own educational policies and systems. Governments have the power to be involved with the educational process, whereas the World Bank needed to increase their central direction and involvement by way of national curricular content requirements, educational policy reform, and other institutional pointers. The optimization of academic involvement is slowed by many elements researchers have described as technical hitches when implementing system-wide education policy, the obstacle of imposing far-reaching national goals, the polarization of heightened social discrimination, and the discount of fair play due to poor family income and the ensuing parental bias (Benton-Borghi, 2006; Franklin & Bolick, 2007).

Several international organizations have become deeply involved in the process of globalization, most notably the World Trade Organization (WTO) and the International Monetary Fund (IMF). These organizations wield tremendous influence on the education system through their human capital development programs. A primary purpose of both IMF and WTO is to improve the effectiveness of education systems of all countries through globalization trends (Jones, 1999). Globalization in education refers to the creation of institutions that train individuals to successfully compete within the world market. This is extremely difficult to achieve since many states lack the means and knowledge required for a profound education reform (Robertson, Bonal, & Dale, 2002).

Franklin and Bolick (2007) asserted most states are exceedingly rigid in how they implement their policies on education-related issues. Instead of constantly adjusting these

policies to meet international requirements, states are not concerned with what happens beyond their borders. As such, the emergence of conflict—with unfavorable results for citizens' education—between national and international education policies seems inevitable. In order to preserve the stability of their governments, some countries have decentralized their educational system. Governments managed to boost their legitimacy by reaping the benefits resulting from expertise of those trained in decentralized education. This phenomenon characteristic of Western countries is called "marketization of education" (Bartlett et al., 2002; Martens, Rusconi, & Leuze, 2007).

The market-focused education system is meant to prepare individuals for industries that need to be stimulated, for example, information and communication technologies (ICT). During this time, the state reduced its education expenses, but continued to set goals for the entire education process (Benton-Borghi, 2006; Carnoy, 1998; Cuban, 2001; Jones, 1999). Many theorists agree international policies regarding education evolved side-by-side with globalization trends established by powerful countries in the English-speaking world (Ball 1998; Slaughter, 1998; Carnoy 1998; Jones, 1999; Cuban, 2001; Benton-Borghi (2006; and Ravitch, 2010). These new policies are not focused on students assimilating a set of well-rounded knowledge; rather the new education system has become corporatized by preparing future employees for the existing or emerging economies of scale. The change from centralized education to corporatized instruction is supported by a coherent curriculum, a high degree of autonomy, and access to funds. These changes significantly improved the countries' competitiveness. When the new education system seemed efficient, less developed countries followed the same pattern of decentralization.

This evolution of education systems across the world is the direct consequence of international organizations activities and education marketization, both of which are oriented towards the restructuration and standardization of education frameworks (Martens et al., 2007). This process considerably reduces the influence of officials concerned with education, which causes officials to support existing trends. Under these developments, education has turned into a tool that serves economic development and integration. The education system is constantly reforming at an accelerated pace due to the economic influences of technology and global competition. The relationship between education and community has changed significantly; the education systems' decentralization created a system where learning would not serve the community, but the economic interests of the government. This lack of community service should encourage parents to reevaluate the decisions made regarding the children's education institutions.

Education globalization constantly changes to satisfy the demands of the current economy (Henry, Lingard, Rizvi, & Taylor, 1999). This phenomenon should be allowed to manifest itself without any hindrance, as a general trend towards instrumentalism brought fundamental changes to the way education policy would be implemented. More specifically, most theorists argued the purpose of education is to provide a source of highly trained individuals essential to a country that wants to maintain its global competitiveness or improve its position internationally. This perspective required a shift in education policy in order to create entrepreneurial elite, and weakened the force of the principle of equity, which constituted the basis of education until the globalization era. Currently, the marketization of non-market aspects of society with the sole purpose of increasing profit can be seen at a national level.

The constant demand for global competitiveness changes schools and universities. This phenomenon impacted existing policymaking bodies, meaning the bodies must be reformed. There is a strong relationship between globalized ideologies, political structures, cultures, and communities. More precisely, globalization will create a specific economic context in which competitiveness on the international scene becomes essential for survival. In order to compete internationally, national governments need to implement changes within the education system to better prepare individuals to sustain or improve the economy. National efficiency is crucial as losing ground to a competitor may create complications between state sovereignty and national goals, conditions already experienced through federal education policy (Epstein, 2004). Globalization is all about competition; states that are unable to adapt will incur substantial losses.

Although self-regulation is expected to lead current developments in education, state involvement is essential. While globalization will continue to govern the marketization of education, states should not ignore or sacrifice human development. The current rate of unemployment could potentially have a negative impact on education, as younger people may decide to take jobs rather than pursue their education further. This is especially the case for people disadvantaged by the existing education system. The decentralized system widens the socioeconomic and achievement gaps due to an early selection process where particularly talented students are separated from the rest. The state should not ignore those who may seem unnecessary for the economic development of the country, and high-quality education is necessary for everyone. The population as a whole may experience a general decrease in skill level if the human development factor is ignored.

Many people believe global competitiveness is influenced by the nature of the education system, making education a commodity used in the international market to benefit the government and society. Education is a complex phenomenon, however. Marketization of education is known to cause "positional goods," which turn into "positional capabilities." Positional goods generate new status symbols, which become the monopoly of the privileged socioeconomic class. Positional goods create elitist education system only available to a small proportion of the population—a natural by-product of the marketization of education. Positional goods and positional capabilities bring substantial change to the nature of competition and inequity within a society.

Globalization, when left to act on its own, has negative and potentially irreversible effects on society. According to Jones (1999), the implementation of the principles of internationalism mitigated the adverse effects of education marketization. Internationalism promoted peace and harmony between countries. Consequently, internationalism complemented and balanced globalization. Governments should limit the tendency to change the education system exclusively based on economic considerations. For the best possible results, states should create teaching institutions to promote the emergence of academic collaboration between nations. The curriculum and the teaching process should be put into practice with the consent of the majority within the society, and devised with the organizations concerned about education policy.

The World Bank, IMF, and WTO struggled to provide a common framework where necessary changes can be made by national governments. Globalization has brought significant changes to education policymaking; the purpose and methods of education have been substantially altered. It is impossible to avoid the emergence of an

academic interaction among nations; even states are expected to be involved. Governments need to strive for internationalism, as it is an alternative in creating more effective education policies. The nature of the United States' creative and innovate educational spirit, however, must be buffered from mechanized forms of learning.

Education and market view. Economically centered and market-driven research reports connected to international organizational activities, such as UNESCO's quality assurance systems on human resource competitive assessments, profoundly influenced American political interest groups and policymakers' views on the efficiency of the U.S.'s public education system (Martens et al., 2007; Cuban, 2001). A sense of urgency drove policy decisions in public education due to various negative reports of the U.S. educational system when compare to foreign counterparts. Market principals were implemented legislatively through political leaders and influenced by interest groups to transform public education systems from their described ineptitude and complacency (Bartlett et al., 2002). Consequently, policymakers increased urgency levels using marketing strategies in a similar manner to Kotter's (1996) approach for offsetting organizational inertia and complacency by "counteracting insider myopia with external data" (p. 49).

Negative corporate-style quantitative measurements were marketed to advance federal and state control of public education and agendas. The strategy was simple. First, external measurements of America's public school underperformance were compared to its economic competitors. Then, national and state policymaking was connected the global market and economic standing with the need for human capital development (Ball, 2006). Bolman and Deal (2008) commented, "[when] resources are scarce, the dynamics

of conflict, power, and self-interest comes to the forefront" (p. 311). What they intended by the strategy—and effectively accomplished via marketing method—was to exploit the public's socio-psychological fear of economic uncertainty and the human need for stability. Pfeffer and Salancik (2003) identified fear, uncertainty, and stability as factors that influence behavior. The process allowed policymakers to obtain support for federal and state educational reform and control of public school education through legislative mandates, but the federal government does not have explicit power to regulate education, so the Constitution's Spending Clause was used (Epstein, 2004). The Spending Clause allows Congress authority over taxing and spending for public welfare and enables Congress to set conditions for funding (Sky, 2003). In the case of public education, federal directives can be set through the Spending Clause for any state accepting monetary aid; this provides the federal government with significant regulatory influence over any state accepting funding. Furthermore, given current economic and budgetary constraints, it is unlikely many states would choose not to participate, which reveals the decision-making complexities behind policy, economics, and choice. Many states with economic needs are unable to mediate resource dependencies, necessitating the need to adhere to federal requirements. NCLB is a clear example of the increased use of the Spending Clause to set rules and regulations shaping educational agenda. Consequently, the conditional spending power of the federal government functions as a mechanism of control and increased centralization (Epstein, 2004; McDermott & Jensen, 2005).

Under politicized pressures, many policies and initiatives instituted unfairly questioned teaching methods and deprofessionalized teachers based on unsubstantiated numerical results with linear measures that devalued contextual variables. Market-

pressured teachers have surrendered professional academic understandings to market pressures, which Gardener describes as “The price paid for increased financial support and detached from the moral purpose of developing understandings, to market demands of outputs” (as cited in Ball, 2006, p. 139). Consequently, educational high-stakes and accountability-sanctioned policies have unintentionally created inhibiting effects on public school teachers in economically distressed elementary schools. These policies hindered disadvantaged students from developing modern technology literacy skills, making them less prepared to compete and contribute in a global society (Warschauer, 2007).

Many scholars consider this an era of sanction-driven accountability, excessive high-stakes testing standards, and centralized and externally controlled public school education. The passage of NCLB gave the United States’ government more power over public school governance than ever before (McDermott & Jensen, 2005). The underlying structures of marketed influences on policymakers and how they driving relationships and partnerships between businesses, as well as the creation of educational markets need further examination. Koretz (2008) described this relationship as a specialist in evaluating test-focused educational accountability systems, overemphasizes or misuses quantitative social indicators. Ravitch (2010) commented, “The more any quantitative social indicator is used for social decision-making, the more subject it will be to corruption pressures and the more apt it will be to distort and corrupt the social processes it is intended to monitor” (p. 34). Rothstein (2004) further added to the discussion about quantitative use by indicating the purpose of reinforcing the risk of overdependence on quantitative measure is to highlight how many economic and management writings advised against such usage.

Deming and Drucker concurred businesses should “eliminate management by numbers, numerical goals,” as the strategy promoted short-term vision over long-term (as cited in Koretz, 2008, p. 50). Organizations alter their behavior to meet external measures and external controls effect internal operations of an organization, which affects how the development and integration of technology competencies are immobilized in economically disadvantaged elementary schools (Campbell, 1979; Pfeffer & Salancik, 1978). According to Ravitch (2010), transformation through external accountability pressures was heavily reliant on quantitative measures with erroneous educational objectives and led practitioners to concentrate more on measures than educational goals.

When utilizing a market view towards educational reform, market imperfections must be examined. For example, Stone (2002) concluded markets were imperfect at producing social welfare efficiency when exchanges were unclear “between coercion and voluntarism,” and when “information is incomplete, interpretive, and deliberately controlled,” (p. 81). The lack of available alternatives can also manipulate the market. Moreover, Stone stated, “An exchange between two parties has bad side effects on third parties who have no say in the exchange” (2002, p. 81). Public school teachers in economically distressed elementary schools function under market-imperfection dynamics, which lead to unequal exchanges produced by inequities in the organization’s resource dependencies.

Globalization and technology in education. Globalization has found its way to the forefront of international considerations, such as financial, industrial, transportation, economic, ecological, cultural, social, technical, legal and ethical, political, and informational aspects. The very last facet has a direct connection with education, as “two

of the main bases of globalization are information and innovation, and they, in turn are highly knowledge intensive" (Carnoy, 2005, p. 3). Without a doubt, information and innovation have significant consequences on the economics, politics, and culture of present-day education. Globalization has become more incorporated into national economies and education, particularly policy development as it can be dictated, designed, and influenced by international organizations and hegemonic countries. Reform agendas to increase technology access have become a loosely tied national agreement among government officials, corporate bodies, policymakers, vendors, and parents since the early 1980s (Cuban, 2001).

The global education framework provided examples of technology's educational importance at the Group of Eight Summit (G8) in Okinawa, Japan in 2000. The eight member nations issued the following statements: "We are committed to provide all citizens with an opportunity to nurture IT literacy and skills through education," and, "We will also encourage the use of IT to offer innovative lifelong learning opportunities, particularly to those who otherwise could not access education and training" (Plomp, 2009, p. 10). United Nations Educational, Scientific, and Cultural Organization (UNESCO) developed its ICT competency standards for teachers that emphasized technology literacy, knowledge deepening, and knowledge creation (UNESCO, 2008). Moreover, some of the highest performing education systems (Chinese Taipei, Hong Kong, and Singapore) on the international assessments' Program for International Student Assessment (PISA) specified a minimum percentage of class time spent using a computer (Plomp, 2009).

Anderson and Dexter (2009) indicated all U.S. states should have incorporated national educational standards by 2006. However, "Implementation of NCLB has concentrated on reading, science, and mathematics, and has paid no attention to technology except for managing student-related data" (Anderson & Dexter, 2009, p. 705)**.** Even though there have been changes regarding ICT use, they have been focused on meeting federal mandates; technology funds are being utilized for "student data management and reporting software or to supply software for remedial learning in reading and mathematics" (p. 705-706). United States' technology-related educational policy prioritizes demands and may inadvertently produce digital inequality. Anderson and Dexter (2009) called attention to the lack of ICT use in economically disadvantaged communities. Although funding for hardware and Internet increased to mediate these conditions, low-income schools "have not received help with acquisition of software, training of teachers, and instructional ICT support for teachers" (p. 707).

External Controls

Addressing controls that affect some schools more than others will require acknowledging schools as open systems. Schools depend on exchanges with environment to exist. Bandura (1997) argued, "People struggle to regulate events that affect their lives in order to attain self-efficacy." Understanding schools as dependent systems provided the rationale for their need to enter into exchanges due to resource dependencies. Control through dependency of organization on another centers on the resources' significance for survival, the level to which interest groups control resources, and limited substitute options; resources are controlled are through "ownership, access, rules, and regulations" (Pfeffer & Salancik, 1978). As schools are heavily dependent on environment, external

control of behavior becomes possible for organizational survival, as seen with state policy and the federal government's use of the Spending Clause.

In a perfect environment, coordinated relationships would exist to provide stability and predictability (Pfeffer & Salancik, 1978). In reality, many studies have shown current conditions under educational mandates with the marketization of education has created a very unstable environment for economically disadvantaged schools (Ravitch, 2010; Smith & Bingman, 2007). Pfeffer and Salancik claimed when dependent schools entered into exchanges to resolve their dependence, three primary scenarios occurred due to negotiations with the environment: (1) "not all interest of served," (2) "not everyone participates in the process," and (3) "solutions to interdependence lead to actions that create additional interdependence" (1978, p. 183-184). In addition to the resource dependencies, impoverished schools must also cope with accountability being used as a form of external control.

Accountability is a crucial mechanism of control (Uhr, 1993). Educational mandates utilize external accountability controls to influence schools' internal operations through professional accountability dictated by sanctions and rewards (O'Day, 2002). For example, mandated educational measurement under the direction of external accountability and interpretation is a mechanism of control because "the power to measure is the power to control" (Stone, 2002, p. 187). Bovens (1998) raises the critical question of whether the accountability and blame process undeniably created issues of choice and responsibility, which also can be said about rewards. The conflict of internal acceptance of professional accountability provoked by external sources to influence human behavior is problematic when accepted sanctioned and reward-based

accountability standards contradict teachers' professional norms and participation in the process (Stone, 2002; Mulgan, 2000).

Rewards used for internal motivation within this environment lead to "acting for the reward" (Kohn, 1999). Aiming to control or change behavior through punishment and reward is ineffective and has negative implications (Kohn, 1999). For example, promoting monetary incentives linked to pay or valued-added methods in order to motivate and increase performance can "undermine the very process they are intended to enhance" (Kohn, 1993, p. 2; Scott, 2011). Kohn (1993) based the analogy on the following principles:

1. Pay is not a motivator, which negates other motivating factors.
2. Rewards punish because they start from a place of control, which creates a manipulative environment not conducive to intellectual growth.
3. Rewards rupture relationships by forcing allies to compete against one another. Under such a scenario, teachers with problems may conceal them to present themselves as competent.
4. Rewards ignore reason causing the underlying problems not to be addressed. Many studies on educational reform policies, such as NCLB and RTTT, indicated sanction- and reward-driven accountability practices are short-term remedies that lead to long-term consequences.
5. Rewards discourage risk-taking because when income is dependent on a rating, people focus on achieving the number to ensure their survival. In schools, numerical focus has developed hierarchical practices for how subjects are taught

and what is being learned. Consequently, creativity and exploration are hindered by a heavy reliance on externalized numerical demands.

6. Rewards undermine interest. Changes in self-directed behavior are relevant to choice and intrinsic motivation.

According to Ryan and Deci, "People must not only experience perceived competence (or self-efficacy), they must also experience their behavior to be self-determined if intrinsic motivation is to be maintained or enhanced" (2000, p. 58). Commitment is "deeply rooted in individuals' value systems" (Nonaka, 1994, p. 493) and can be adversely impacted if individuals feel their choices and actions are being controlled. These conditions are evident in the public school system under federal and state education mandates.

Business control perspective. Private sector management has dealt with environmental forces of change that influenced behavior or controlled organizations' operations much longer than public schools. Corporations have managed interdependencies with their environments by developing relationships through a variety of ways public sector organizations cannot emulate and ethical guidelines will not permit. Simply stated, business interest and its ability to control environments are more powerful than public interest.

Both businesses and public education function in open system environments, however, businesses produce and manage their own resources through interactions with the environment and the public's belief that businesses provide more benefits. Given these conditions, businesses achieve greater public acceptance of their interaction with the environment than public schools, which are more dependent on resources produced

through business. Consequently, organizational behavior in schools was more influenced by perception and external controls, due to its resource dependency, irrespective of a reciprocal resource relationship between business and education (Pfeffer & Salancik, 1978; Henry et al., 1999; Ravitch, 2010).

Impact of control on teachers' efficacy and identity. Bandura (1997) maintained when self-efficacy worked with other elements within social cognitive theory, it governed the human belief system, motivation, and action." Bandura argued observed self-efficacy was not concerned with skill level, but with what is believed, e.g., what teachers believe they can do with what they have. Teachers need cognitive consistency to alleviate anxieties (Schein, 2004). Environmental effects on organizations have shaped teachers' professional cultural values and beliefs to survive under circumstances that restructured basic assumptions in accordance to perceived self-efficacy (Pfeffer & Salancik, 1978; Evans, 1996, p. 65). Van Zomeren, Postmes, and Spears (2008) reinforced this view by stating efficacy relates to "sense of control, influence, strength, and effectiveness to change a group related problem" (p. 513). Teachers' self-efficacy beliefs are loss of control, questioning their own capabilities, and the belief that the task is too difficult, all of which are conditions found in the context of their environment. The federal government's unrealistic goal of achieving 100% proficiency in math and English by 2014 is an excellent example of circumstances outside of teachers' control for which they are held accountable. No country has ever achieved 100% literacy, but federal mandate states that it should be accomplishment by 2014. Rationalizing this goal was unattainable led to a lack of credibility of externalized objectives. Many experts

supported this idea, as attainable goals are a key component in achieving commitment to change (Kotter, 1996).

Federal controls pressure states and districts with external accountability controls to fulfill legal mandates of NCLB policy without taking into account local context and conditions. This strategy followed beliefs found in some accountability researchers, who thought external accountability could restructure schools' internal accountability. Fullan (2007) addressed the validity of external accountability when emphasis on compliance negated the diversity and culture of the community it was intended to serve. The inability of impoverished public schools to resolve resource dependencies with environment subjects public schools to social, political, technological, market, accountability, and regulatory controls. The complexity of these dynamics and the impact of a deprofessionalized teaching profession generated negative influences that could transfer to students. Eisner provided an excellent analogy of effects of the environment on its relation to teachers and students, "Teachers craft experience by shaping the environment that both students and teachers share. This environment, in turn, shapes how teachers and students interact" (2005, p. 201). The shaping the environment of impoverished public schools functions under centralized controls detached from context and conditions that render teachers' craft and experience void.

Loss of democratic ideas. Parameters of external controls through centralization and decentralization of education and the deregulation and regulation of education are prescriptive and performative (Ball, 2006). Studies have shown wealthy demographics and public school teachers who work in high-SES public schools enjoy freedoms provided through deregulation, decentralization, exploration, and experimentation

(Benton-Borghi, 2006; Smith & Bingman, 2007). As high-SES districts have the means to meet externalized requirements and the economic and political power to protect their interests, teachers' environments are not severely changed and they are able to buffer themselves from "periods of uncertainty or instability" (Pfeffer & Salancik, 1978, p. 108).

Impoverished demographic groups, however, are subjugated to external controls that are alienated from their context and environment. The effects of alienation are further expanded by the negative portrayal of socioeconomically disadvantaged communities. Marginalization dynamics blame victims for their victimhood and take root from surrounding communities. As a result, support for stripping economically distressed cities of local control over services and decisions becomes normalized, as evident by federal and state legislated powers that provide autonomy to some, while denying it to others (McDermott & Jensen, 2005). Teachers working under these conditions are no longer equal participants in decision-making as curriculum and practices are prescribed externally (Hew & Brush, 2007; Smith & Bingman, 2007). Educational freedoms to experiment and explore are restricted as curriculum is narrowed (Hew & Brush, 2007). Technology, which is critical for retooling teachers and instruction, becomes subject to inertia by the social-psychological conditions produced by the environment (Hew & Brush, 2007).

It is doubtful education reform intended to further segregate social classes and disempower communities by "restricting access to knowledge and eroding in childhood the skills needed to gain and use knowledge" (Brunner, 2006, p. 188). Ravitch (2010) stated, "I was known as a conservative advocate of many of these policies, but I've

looked at the evidence and I've concluded they're wrong. They have put us on the wrong track. I feel passionately about the improvement of public education and I don't think any of this is going to improve public education." The moral purpose of school is not served when inequity and inequality expand through policies aimed at rectifying those problems.

Public shaming through testing scores in order to push agendas and the subjugation of citizens' rights jeopardizes American ideals. Eisner stated it best: "The function of schooling is not to enable students to do better. The function of schooling is to enable students to do better in life" (2005, p. 186). Inequality in education and participation threatens democracy (Tilly, 2003). In our current hyperactive globalized environment, educational equality can strengthen democracy through the democratization of knowledge. According to Lemke and Press (2011), the democratization of knowledge provides: (1) "the opportunity for lifelong individual and group learning," (2) "tremendous opportunities for educators to begin transforming their schools into physical and virtual places of 21st century learning," and (3) a "solid foundation in inquiry learning that is student-centered and authentic" (p. 263). Democracy through the democratization of knowledge will support the concept that democratic ideas apply equally to everyone, and create a "global civil society" (Raza, Kausar, & Paul, 2007).

The Role of Technology

Dynamics surrounding educational practices preparing students for high-stakes tests are viewed as resembling industrial production of standard product through mechanized learning practices, more commonly known as "teaching to the test" (Freire, 2000). Sanctions and quota-style policies undermine education practices in economically disadvantaged elementary schools. Technology is a method for addressing learning

difficulties and language barriers; making technology integration most fitting in impoverished public elementary schools where empirical studies have indicated these demographics exist in disproportionately high numbers (Franklin & Bolick, 2007). Despite national goals, substantial increases in monetary spending, and academic potential, technology has not been effectively integrated into underprivileged public elementary school systems (Franklin & Bolick, 2007). The lack of integration further expanded the achievement gap, as tools essential for competing in the global economy and information age are unattained.

History and trends of technology. Researchers, teachers, and policymakers have scrutinized educational technology for many years. In the early 1960s, it was suggested that computers could substantially enhance student's learning (Skinner, 1961). Time usage was one of many factors for implementing technology, "What a teacher could do in 25 minutes per day, a computer could do as well in five to ten minutes per student session" (Suppes & Morningstar, 1969). Designed as a learning tool, Logo, a programming language dialect of Lisp, created various features of interactivity, modularity, extensibility, and flexibility of data.

This type of learning exchange between human and machine provided participants with immediate feedback and individual, student-centered instruction, as well as facilitating the development of learning processes. Higginson, Moore, and Pollard suggested it encouraged an environment of exploration and discovery that led to a wide range of social interactions among students, and promoted independence and original thinking (as cited in Clements & Nastasi, 1988). This resulted in the establishment of the movement towards the utilization of technology as an educational transformational instrument.

No Child Left Behind emphasizes a strong accountability for results, offers expanded options for parents of disadvantaged children, and supports teaching methods with solid scientific foundation (U.S. Department of Education (USDOE), 2002). The external pressures produced by federal sanctions to promote more equitable student experiences and outcomes have had unintended negative consequences. Mintrop and Sunderman (2009) concluded federal mandates punished English language learners and minority groups. In contrast to Mintrop and Sunderman's conclusion, Brown and Tevino (2006) regarded punishment as one of the tools to distinguish ethical leaders; although punishments were typically enforced alongside rewards when ensuring standards were followed. Federal education policies for closing achievement gaps focused on punishment alone, which actually created knowledge gaps in teaching and learning.

Technology integration is viewed by the federal government as a major component in reducing inequality in education opportunities. Title II, Part D of the NCLB states: "To assist every student in crossing the digital divide by ensuring that every student is technologically literate by the time the student finishes the eighth grade, regardless of the student's race, ethnicity, gender, family income, geographic location, or disability." However, narrow and arbitrary goals undermine the importance of exploration and discovery of technology as learning and teaching tools (Keller & Bichelmeyer, 2004). This has occurred because of heavy national and state reliance on test scores as the only indicators of successful knowledge attainment. The anxieties and uncertainties of external environment pressure and constraints caused by these policies in combination with the politicizing of public education by special interest groups have resulted in negative effects on socioeconomically disadvantaged urban elementary

schools (Pfeffer & Salancik, 1978). Teachers, as the focal point of condemnation, have focused on “teaching to the test” due to environmental pressures. Teachers’ actions reflect their environment, which modifies and shapes their beliefs and negatively changes urban elementary school culture.

According to Sacks (1999), “Relying on standardized tests to gauge academic quality has devastating consequences. It leads to dumbed-down curriculum that values rote memorization over in-depth thinking.” Test-driven schools have resulted from these effects. Popham (2001) emphasized this belief by stating the narrowing of curricular focus promoted unsound skill-and-drill instructional activities. Sacks (1999) and Popham (2001) claimed high-stakes testing created prejudiced judgments about schools, students, and teachers and promoted cheating by teachers and administrators.

Federal and state education policies have fundamental design problems that create assumptions about whether policies have been influenced and politicized for electoral gains, budgetary problems, or the promotion of individual or group agendas. Environmental conditions singled out urban public schools and their teachers as ill prepared, ineffective, and out of touch. In fact, federal and state education policies have created socio-psychological conditions where teachers became more concerned with surviving under unstable conditions that deprofessionalized teachers and led to “banking education” as remedy pedagogy. Freire (2000) stated, “Instead of communicating, the teacher issues communiqués and makes deposits, which the students patiently receive, memorize, and repeat. This is the ‘banking’ concept of education, in which the scope of action allowed to students extends only as far as receiving, filing, and storing the deposits” (p. 72). The banking of education anesthetizes, inhibits creative power, and

submerges consciousness. These consequences are contrary to the intent of federal and state policies, and question practices contrary to Dewey and Vygotsky's (1916) constructivist theories that elevated and transformed education.

Barriers in technology integration. Many have studied why teachers do not innovate when given computers (Carey, 1993; Quality Education Data & Malarkey-Taylor Associates, 1995; Zhao & Frank, 2003). Although external environmental factors of federal and state policies were not part of Zhao and Frank's (2003) study, they provided empirical evidence of factors effecting technology integration. Barriers to technology integration, in order of matching links from highest to lowest, were:

1. Insufficient training.
2. Insufficient vision or rationale for technology use/lack of relevance to the curriculum.
3. Insufficient of access to technologies.
4. Incompatible with current assessment practices.
5. Insufficient time to learn.
6. Insufficient class time.
7. Insufficient technical, administrative, and social support.
8. Insufficient motivation and social awareness.
9. Insufficient funding.
10. Insufficient control over inappropriate materials.
11. Incompatible with school culture. (Zhao & Frank, 2003, p. 832)

Similarly, Hew and Brush (2007) linked the impact of high-stakes testing and standardization to the development of technology, and claimed barriers to technology

integration into curriculum were based on resources, knowledge and skills, institution, attitudes and beliefs, assessments, and subject culture (p. 226).

Diamond (2004) found time to be a major factor in the hindrance of technology integration. Federal and state curricular-prescribed teaching focuses on and narrows instruction while consuming significant classroom time with only two subjects in urban elementary schools: reading and math (Diamond, 2004). Time dynamics intertwined with many of the component parts of learning, teaching, and assessment for all involved in pedagogy. Brophy (2010) observed, “Student achievement is maximized when teachers allocate most classroom time to activities designed to promote student achievement and use managerial and instructional that support such achievement” (p. 3). Time constraints in the classroom will reinforce this study, as teachers’ lack of sufficient time to explore technological pedagogical content knowledge is an effect of federal and state high-stakes testing policies in urban elementary schools. Given the need for quick results from mandated accountability measures, teachers’ time management behavior needed to focus on specific subjects in order to drill students on the instructional practices of hierarchical standards, diminishing time spent on other subjects.

Understanding time as a component of the education system requires breaking down correlations to instructional delivery. Brophy (1986) concluded learning and teaching technology are demonstrated through academic time assessments: available time, allocated time, engagement time, and academic learning time. Available time is approximately six hours a day for 180 days, including one hour of break time and divided between many school functions. Allocated time is the quantity of time allowed for content area instruction, which is estimated at around 79%. Engagement time is when the

student is occupied with learning, writing, responding to teachers' inquiries, and listening; it is estimated to be around 42%, with a range of 25% to 58%. Academic learning time (ALT) is time spent on task and is purposely interconnected and arranged between student learning activities and measurement tests, which averages 17% and a range of 10% to 25%.

Factors found in economically distressed urban elementary public schools that affected time processes were school attendance, poverty, language, and discipline. Furthermore, these urban schools are hampered by unfavorable labeling from federal and state governments reliance on high-stakes standardized testing indicators, which are alienated from context, contain unrealistic goals, and have yet to provide evidence of educational effectiveness.

External pressure derived from policy has driven teachers to spend most of their time "teaching to the test" because sanction- and punitive-driven external accountability demands on rapid improvements and results puts intense pressure on teachers' instructional and learning time. These conditions substantially narrow educational curriculum at elementary school levels and immobilize teachers from exploring technological pedagogy. According to Au (2007), external control conditions of high-stakes testing on curriculum apply: content control, in the form of narrowing and aligning content to tests; formal control, in the form of fragmentation of knowledge; and pedagogical control through increased "teacher-centered instruction associated with lecturing and the direct transmission of test related facts" (p. 263). Under redirection of professional concerns and values, beliefs become unaligned, not only from profession, but from obtainment of learning 21st technology literacy skills and competencies crucial

to professional retooling. The consequences taking place will result in widening inequity for disadvantaged students due to lack of teacher ICT development and the absence of skill transfer to students; decreased economic opportunities will result in long-lasting future ramifications. Development of technological competencies required consistent utilization educational technologies to elevate teachers' beliefs in using technology, which was essential to the development of technological self-efficacy (Ertmer, 2005).

The USDOE and the U.S. Office of the Under Secretary Planning and Evaluation Service (1999) conducted research on nine urban elementary schools, which raised minority academic achievement using Title I school programs; a key component was extended school time. Resources provided under Title I increased the amount of instructional time. The USDOE concluded after-school programs, an extended school year, and "Saturday school" produced positive outcomes. Extended school time is critical in merging pedagogy and technology for the reciprocal gains of teachers and students. Extended time is necessary for teachers to effectively go through stages of evolution of thought, and practice technology integration in a systematic process of entry, adoption, adaption, appropriation, and innovation, as described in Rein (2000). Empirical evidence demonstrated these changes could significantly affect teaching and learning; however, these changes failed to occur in other urban schools. The effectiveness of these programs heavily depends on leadership. Many people in charge of these programs lack leadership training. Additionally, the programs' designs function independently from the schools' educational curriculum designs. Therefore, other urban schools could not replicate the programs' effectiveness or results because of disconnected processes and objectives.

Technology impace and learning. Noeth and Volkov (2004) studied reviews of technology integration in schools and concluded:

1. Combined with customary instruction, computers enhanced student learning in the curriculum and basic skills area.
2. Integration of computers with established instruction generated higher academic achievement in an assortment of subject areas than customary instruction.
3. Students learned more rapidly and with better retention when learning with the assistance of computers.
4. Students liked learning with computers, as such behavior and learning improved.
5. Computers usage demonstrated potential for low achieving and at-risk students by providing interactive and engaging learning opportunities.
6. Effective and adequate teachers' professional development was an essential element to successful technology-based learning programs.

Studies demonstrated aligning content-area learning standards with technology increased test scores. In West Virginia, students achieved higher scores on the SAT-9 (950 fifth graders in 18 schools) after the curriculum was aligned with targeted standards utilizing supportive instructional software and teacher instruction (Mann, Shakeshaft, Becker, & Kottkamp, 1999). Numerous studies have indicated computer-assisted instruction increased math scores (Hillel, Kieran, & Gartner, 1989; Wenglinsky, 1998).

According to Wenglinsky (1998), technology made more of an impact on middle school students than on elementary. This raised the question of the proficiency of technology integration at the elementary school level and the context and conditions of the instruction. Federal education guidelines clearly make technology integration at the

elementary school level a priority by requiring students to be computer literate by eighth grade, which, according to policy, is a systematic process where proficiencies are built upon previous technology learning.

Fullan (2007) considered technology change a major innovation. Technology integration in elementary schools can help fit student learning styles by providing different learning modalities, which provide multiple methods of instruction specific to the learner (Jackson, Gaudet, McDaniel, & Brammer, 2009). For instance, Gardner's (1993) multiple intelligence theory allowed teachers to address students' unique learning styles of linguistic, logical-math, visual/spatial, musical, body-kinesthetic, and intrapersonal skills with the integration of technology effectively and efficiently. This enriched student opportunities in each area of intellect and provided a powerful agent for change (Gardner, 1993). Intelligence and learning is multidimensional; computers offer students multi-sensory experiences and allow teachers to take advantage of unique skills students bring into the classroom.

Teacher technology competency and digital inequality. The relative percentage of students to computers has dropped from 10.1% in 1995 to 5.4% in 2000 (Quality Education Data, 2001). NCES (2007) revealed 100% of schools have access to the Internet. However, the report included rooms beyond the classroom, such as media centers, resource rooms, computer labs, and libraries. Therefore, concluding classrooms have adequate access is not sufficient. Tierman (2002) described problems with equality of computer access as "the digital divide" (p. 1). Lenhart and Madden (2005) expressed that while schools may be wired for Internet, it does not imply students have access to computers.

Empirical studies on the digital divide labeled technology use as Internet access and use, which is narrow in scope. Digital inequality offers a more expanded view on differences related to unequal access and use of technology (DiMaggio et al., 2004). Computers in schools will not improve learning if teachers do not receive enough training and support for daily implementation of technology. No plan for change within schools can take place without a corresponding plan for teacher development (Hargreaves, 1992). Superficial usage of computers, where students use computers as a reward or to practice drill instruction, is not sufficient for the development of 21st century skills (Warschauer, 2007; Becker, 2000; Wenglinsky, 1998). Warschauer (2007) asserted, "Students who are black, Hispanic, or low-income are more likely to use computers for drill and practice, whereas students who are white or high-income are more likely to use computers for simulations or authentic applications" (p. 148). Warschauer's assertion only further represents the widening gap between low-SES and high-SES students in the United States' public school system.

In reviewing teachers' technology competencies and use of technology, low and high levels of technology skills and practices required differentiation. Becker and Riel (2000) attributed low-levels of technology use to teacher-centered practices, and high-level utilization with student-centered practices. Student-centered practices are often favored by scholars due to their active and cooperative learning environment. High-level technology skills in instruction are "multimedia presentations, database analysis, and the collection and interpretation of original data for a project" (Cuban, Kirkpatrick, & Peck, 2001, p. 823). When assessing the development of teachers' technology competencies, the focus is on a school's technical core; low-level technology uses for support of

administrative work, such as grades and attendance, are not its technical core (Hew & Brush, 2007). Moreover, utilizing SMART boards as projectors for lesson outlines or movies for entertainment without an instructional purpose are not forms that require much technology competency development. The use of desktop computers or tablets for rote learning should be considered a low-level use of technology, as they do not advance critical thinking skills.

The inequitable access and utilization of information and communication technologies is digital inequality (DiMaggio et al., 2004). The lack of technology integration and competency development in economically distressed cities increase inequalities among the disadvantaged (Hargittai, 2008). Therefore, differences in use and technology development in teachers can contribute to social inequality by diminishing access, participation, and opportunities to underprivileged (Hargittai, 2008). The United States cannot afford to overlook that social economics hinders access to and the use of technology, as well as the development of digital competencies, which creates a disadvantage for opportunities for civic engagement and academic and professional achievement (DiMaggio et al., 2004).

Shapley, Sheehan, Maloney, and Caranikas-Walker (2010) claimed teachers in schools with higher poverty rates demonstrated "significantly slower rates of growth for technology proficiency" (p. 17). Their pilot study on technology immersion revealed, "With each percentage point increase in poverty, teachers had a 0.002 decrease on technology proficiency—thus, a 20% increase in school poverty predicted a 0.12 point decrease in teacher growth over three years" (p. 26). Furthermore, poverty increases correlated with wider gaps in teachers' technology proficiency.

Technological innovations increased opportunities, but if teachers working in low socioeconomic settings were hindered by policy mechanisms from developing these competencies, the consequences of being under-technologized will pass onto the students and community (Bromley & Apple, 1998; Warnick, 2002). Given these conditions, instructional software and technology competencies must be developed in order to align tools and concepts with standards, curriculum, and subjects. Casual exposure will not intertwine and merge these tools. Technical support must not be undermined or discounted every time the word "budget" presents itself; the role of technical support should not be limited to repairs, but an integrated part of the educational instructional process. Lab schedules must be carefully scrutinized and computer usage seen as more than an activity or special event.

Conclusion

The analytical constructs of this review drew from the disciplines of education, politics, economics, psychology, sociology, and technology to present a comprehensive examination of conditions encompassing and impacting education reform from a systemic perspective of how individual parts influence and interact with the whole. As Patton (2002) stated, this process allows for exploration into how the system functions as a whole and why. Therefore, evaluating empirical data with this nonlinear approach will provide critical insights "because the effects of the behavior of the parts on the whole depend on what is happening to the other parts" (Patton, 2002, p. 120). The external operating environments surrounding teachers will be assessed to examine how they create internal influences. Dewey best described these dynamics, "The environment consists of

those conditions that promote or hinder, stimulate or inhibit, the characteristic activities of a living being" (1916, p. 11).

The framework for theoretical lenses into environmental sources that influenced, promoted, or hindered choice and actions, were examined and presented through the synthesis of the following perspectives: a) technological advances' global impact on competition for human resources, which created the commodification and marketization of education; b) the United States increased federal and state involvement to meet demands for human capital development and the reduction of educational gaps; and c) the effects of educational policies and control mechanisms on the technical core of schools and teachers' development of technology competencies in an economically disadvantaged setting. Furthermore, frameworks were viewed from macro and micro levels to provide a holistic assessment of the environment. Hindering structures were linked through empirical studies about the impact of government regulations on education reforms and on technology integration in schools and digital inequality. Understanding how individual parts influence and interact with the whole through a systems view provided a richer understanding via various perspectives of behavior pattern changes in a system to determine whether reform policies can or are unintentionally operating as technology immobilizing agents capable of creating digital inequality (Sterman, 1994).

Chapter 3

Methodology

The purpose of this study will be to examine whether mandates from government standard-based reforms and sanction-driven accountability unintentionally function as immobilizing agents in the development of teachers' technology competencies within an economically disadvantaged setting. The research justification and objective will be to interpret and make intelligible whether the impact of pressures and constraints produced by the market and externally-based government compliance measures hinder the technical core of schools and teachers' development of technology competencies, leading to the expansion of digital inequality (Pfeffer & Salancik, 1978; Hall & Ryan, 2011). If these conditions exist, the consequences will not only be for teachers who serve underprivileged students, but also for students themselves by diminishing their capacity to participate in the knowledge age. A quantitative methodology will provide the process by which to examine the phenomenon using a survey to elucidate and measure beliefs, opinions, and attitudes from this targeted population and setting (Gall et al., 2007).

Participants and Setting

Participants will be randomly selected elementary school teachers from a sample of approximately 100 responses. Elementary school teachers were chosen as the sample for this study because empirical data results from the NBETPP indicated external controls have the greatest impact on practitioners at this academic level (Pedulla et al., 2003). Within this study, the characteristics of the city's low-SES are focused on due to its connection to conditions found in empirical data on the digital divide and disadvantaged groups (Warschauer, 2007; Attewell, 2001; Bucy, 2000; DiMaggio & Hargittai, 2001;

Ekdahl & Trojer, 2002; Korupp & Szydlik, 2005; A. Luke, 2010; T. Luke, 2000). The research setting consists of elementary schools in an economically distressed urban city in the Mid-Atlantic region of the United States. This city received an A ranking, the lowest demographic grade given by the USDOE ranking system called District Factor Groups (DFG). This ranking system was developed for districts to compare students' performance on statewide assessments across demographically similar school districts and with approximate measurement of each community's relative socioeconomic status.

Instrument

The survey research instrument will be derived from pre-existing questions used in a national study (Pedulla et al., 2003). Pedulla granted permission to utilize and modify survey, provided credit would be given to those involved in the research. The survey design was formulated from other surveys used in Arizona, Maryland, Michigan, and Texas, as well as by the National Science Foundation (NSF) (Smith et al., 1997; Koretz, Barron, Mitchell, & Stecher, 1996; Urdan & Paris, 1994; Haney, 2000; Harmon, Madaus, & West, 1992; Kellaghan, Madaus, & Airasian, 1980).

The survey questionnaire will be modified to add technology-related questions within its original format. The survey will be comprised of 50 questions (see Appendix A) related to testing practices and technology to gather teachers' opinions regarding the influence of standard-based reforms' demands on classroom instructional strategies, content, improvement of student learning, morale, motivation, external accountability, and technology (Gall et al., 2003; Pedulla et al., 2003). The first section will consist of eight demographics questions to assist in identifying factors and attributes of the targeted population. The second section will comprise 42 questions adapted from Pedulla et al.

(2003). Four-point and 5-point Likert scales (1932) will be used to measure the strength of teachers' opinions and to maintain the integrity and reliability of the original survey.

The scale of measurement used a factor analysis to identify the following topics (see Appendix B) from the original survey from Pedulla et al. (2003): school climate, pressures on teachers, perceived value of the state test, alignment of classroom practices with the state test, impact of the state test on content and mode of instruction: effects on tested areas, non-core content, and classroom activities, impact of the state test on content and mode of instruction: effect on methods of instruction, impact on the content and modes of instruction, unintended consequences of the state test, use of test results: teachers' views on accountability. These topics will then be classified, ranked, and differences in the survey questionnaire will determine pattern correlation and item groups (Stevens, 1946; Pedulla et al., 2003). Adaptions will be made to the original survey questionnaire and topics created by Pedulla et al. (2003), such as the inclusion of testing and technology-based questions, as well as teachers' views on technology use.

Research Design

A quantitative method will serve as this study's research design. Application of this method will examine the phenomenon to explain relationships and aspect elements within the event (Patton, 2002). Quantitative research will provide an objective and empirical examination through the collection and dissemination of numerical data. Evaluation will be performed via survey research with weights or scores assigned to responses. Method selection adheres to the investigation into the beliefs, attitudes, and opinions of the identified population through structured questionnaire (Gall et al., 2007). The use of a survey-based quantitative study will provide the framework for research-

specific questions evaluating attitudes, beliefs, or judgments central to the research questions (Gall et al., 2007; Tashakkori & Teddlie, 2010). The survey will provide the study a means to statistically analyze responses in order to interpret and describe attitudes, trends, and opinions of a targeted population (Creswell, 2009).

Collection Procedures

The context of data collection follows Creswell's (2009) process of identifying setting and participants. For the purpose of this study, a school district will be identified according to its low-SES and elementary school teachers operating within these conditions will be targeted to answer research questions. The participant and setting selection will provide a purposeful sampling to generate new insights, depth of information, and perspective (Miles & Huberman, 1994). Survey distribution and collection will be performed electronically via a web-based service, Survey Monkey. The questionnaire will be dispersed districtwide to all elementary school teachers.

Data Analysis

A nominal scale will be used to label and categorize observations (Gravetter & Wallnau, 2007). Nominal scale of measurement will be applied by categorizing demographic variables into groups for comparison among groups within the study's population, e.g., teachers: gender, grade level, teaching experience, and aggregated responses. Interval measurement scales will be used to demonstrate population differences among data points achieved by applying a 5-point Likert-type scale (1932) to rate statements. Data examination will utilize the Likert categories of a 4-point scale and 5-point scale to maintain the integrity and reliability of the original survey. The 4-point Likert scale will consist of: strongly disagree, disagree, agree, or strongly agree; the

5-point Likert scale will consist of: decreased a great deal, moderately decreased, stayed about the same, moderately increased, and increased a great deal.

Descriptive statistics will be applied to analyzed data. Gravetter and Wallnau defined descriptive statistics as "statistical procedures that are used to simplify and summarize data" (2007), however they also describe characteristics and relationships between variables by converting large amounts of data into understandable formats. Inferential statistics "consist of techniques that allow us to study samples and then make generalizations about populations from which they were selected" (Gravetter & Wallnau, 2004). Acquired data will be converted into percent distributions, and transformed and organized via percent tables. The tables will consist of rating scales based on teacher experience, gender, grade levels, and aggregated survey data.

Ethical Statement

Participation in this study is voluntary. Participants and district superintendents will be provided with an abstract of the research proposal explaining the intent of the research (see Appendices E and C). Anonymity will be protected and ethical standards upheld through strict protective measures. Participants' names and email addresses, as well as all survey data will be encrypted and stored on a USB drive within a safe deposit box. The name of school, district, and state will be withheld and the name of the location will be described within the study as "a school district situated within the Mid-Atlantic Region of the United States." All data will be stored within a safe deposit box whether collection was conducted individually or electronically. Instrument validity will be reinforced through the permitted use of prior national survey questions and topics that have been thoroughly examined (see Appendices F and G).

Chapter 4

Results

Chapter 4 will present the findings of the study. Descriptive statistics were used to tabulate the respondents' level of agreement on the survey's themes, including: impact on school climate, pressures on teachers, perceived value of the state test, alignment of classroom practices with the state test, impact of the state test on content and mode of instruction, perceived unintended consequences, use of test results, and teachers' views on the use of technology. Background descriptors permitting further analysis of respondents' characteristics, such as gender, education, class size, experience, age, instructional level, and race, were also obtained and tabulated.

Summary of Table 1

As Table 1 below illustrates, survey data indicated participants were primarily female, with only 15% reporting as male. All participants held college degrees with 58% having a master's. Classroom size varied slightly as 45% of teachers having 21-30 students, 42% had 11-20 students, 9% had above 30 students, and 4% had 1-10 students. The majority of respondents had nine or more years of experience. The majority of teachers were aged 51-75 years with 34%, followed by those aged 31-40 years with 28% and 41-50 years with 27%. Most respondents (34%) taught grade 6 with between 11-15% teaching each of grades 1-5. Caucasian/White teachers were the majority with 50%, followed by African-American/Black teachers and those who declined to answer with 16% each. The majority of students were Hispanic with 51%, followed by 25% African-American/Black students, 22% of respondents declined to answer, and Caucasian/White and Asian/Pacific Islander were just 1% each.

Table 1

Background Information of the Study Participants

	Frequency	Percent	Central Tendency	Measure of dispersion
Gender			Mode	Standard deviation
Male	15	15.0	2	0.359
Female	85	85.0		
Total	100	100.0		
Education qualification			Mode	Standard deviation
Undergraduate degree	40	40.0	2	0.528
Master's degree	58	58.0		
Doctoral degree	2	2.0		
Total	100	100.0		
Number of students in classroom			Mode	Standard deviation
1-10 students	4	4.0	3	0.712
11-20 students	42	42.0		
21-30 students	45	45.0		
Above 30 students	9	9.0		
Total	100	100.0		
Years of teaching			Mode	Standard deviation
0-4 years	13	13.0	5	1.374
5-8 years	9	9.0		
9-12 years	26	26.0		
13-16 years	19	19.0		
Above 16 years	33	33.0		
Total	100	100.0		
Age of teachers			Mode	Standard deviation
21 to 30 years	11	11.0	2	1.022
31 to 40 years	28	28.0		
41 to 50 years	27	27.0		
51 to 75 years	34	34.0		
Total	100	100.0		
Grade level			Mode	Standard deviation
Grade 1	11	11.0	6	1.76
Grade 2	11	11.0		
Grade 3	15	15.0		
Grade 4	15	15.0		
Grade 5	14	14.0		
Grade 6	34	34.0		
Total	100	100.0		
Race of teachers			Mode	Standard deviation
African-American/Black	16	16.0	4	1.701
Asian/Pacific Islander	4	4.0		
Hispanic	14	14.0		
Caucasian/white	50	50.0		
I don't want to answer	16	16.0		
Total	100	100.0		

	Frequency	Percent	Central Tendency	Measure of dispersion
Race of students			Mode	Standard deviation
African-American/Black	25	25.0	3	1.741
Asian/Pacific Islander	1	1.0		
Hispanic	51	51.0		
Caucasian/white	1	1.0		
I don't want to answer	22	22.0		
Total	100	100.0		

Summary of Table 2

As Table 2 below shows, the majority of the teachers (85% in total) either agreed or strongly agreed their technology-related professional development environment was primarily for data management rather than integrating technology into the curriculum. Teachers strongly agreed or agreed (84%) state mandated testing affected school environment to the point where it hindered teacher's acquisition and integration of technologies in teaching and learning processes, while 15% disagreed, only 1% strongly disagreed. Most teacher's strongly agreed (33%) or agreed (47%) technologically proficient students are better prepared for college respectively, though 19% disagreed and 1% strongly disagreed. Most teachers agreed, whether strongly (41%) or in general agreement (39%), students are extremely anxious about taking the state-mandated test; 14% of participants disagreed and 6% disagreed strongly. Interestingly, most teachers disagreed (41%) their school had an atmosphere conducive to learning or integrating educational technology, and additional 12% strongly disagreed, though 39% agreed and 8% strongly agreed.

Table 2

Impact on School Climate

ITEMS		SA	A	D	SD	T	Mean	SD
Our school technology related professional development environment is more for data management than integrating technology into curriculum.	Percent	34%	51%	10%	5%	100%	1.86	0.792
	Number	34	51	10	5	100		
	Male	6	7	1	1	15	1.80	0.862
	Female	28	44	9	4	85	1.87	0.784
	Grades 1-2	6	13	3	0	22	1.86	0.640
	Grades 3-6	28	38	7	5	78	1.86	0.833
	Tenure	34	39	9	5	87	1.83	0.838
	Non-tenure	0	12	1	0	13	2.08	0.277
The schools environment because of state-mandated testing is hindering teacher's acquisition and integration of technologies in teaching and learning processes.	Percent	26%	58%	15%	1%	100%	1.91	0.668
	Number	26	58	15	1	100		
	Male	4	8	3	0	15	1.93	0.704
	Female	22	50	12	1	85	1.91	0.666
	Grades 1-2	7	11	4	0	22	1.86	0.710
	Grades 3-6	19	47	11	1	78	1.92	0.660
	Tenure	24	49	13	1	87	1.90	0.683
	Non-tenure	2	9	2	0	13	2.00	0.577
Students are extremely anxious about taking the state-mandated test.	Percent	41%	39%	14%	6%	100%	1.85	0.880
	Number	41	39	14	6	100		
	Male	6	6	1	2	15	1.93	1.033
	Female	35	33	13	4	85	1.84	0.857
	Grades 1-2	10	6	4	2	22	1.91	1.019
	Grades 3-6	31	33	10	4	78	1.83	0.844
	Tenure	36	35	11	5	87	1.83	0.865
	Non-tenure	5	4	3	1	13	2.00	1.000
My school has an atmosphere conducive to learning and integrating educational technology into teaching and learning.	Percent	8%	39%	41%	12%	100%	2.57	0.807
	Number	8	39	41	12	100		
	Male	1	7	6	1	15	2.47	0.743
	Female	7	32	35	11	85	2.59	0.821
	Grades 1-2	4	7	10	1	22	2.36	0.848
	Grades 3-6	4	32	31	11	78	2.63	0.791
	Tenure	6	34	36	11	87	2.60	0.799
	Non-tenure	2	5	5	1	13	2.38	0.870
Students who are technologically proficient are better prepared for college.	Percent	33%	47%	19%	1%	100%	1.88	0.742
	Number	33	47	19	1	100		
	Male	4	9	2	0	15	1.87	0.640
	Female	29	38	17	1	85	1.88	0.762
	Grades 1-2	6	12	4	0	22	1.91	0.684
	Grades 3-6	27	35	15	1	78	1.87	0.762
	Tenure	29	38	19	1	87	1.91	0.772
	Non-tenure	4	9	0	0	13	1.69	0.480

ITEMS		SA	A	D	SD	T	Mean	SD
Students are under intense	Percent	61%	34%	5%	0	100%	1.44	0.592
pressure to perform well on the	Number	61	34	5	0	100		
state-mandated tes.t	Male	11	4	0	0	15	1.27	0.458
	Female	50	30	5	0	85	1.47	0.609
	Grades 1-2	16	5	1	0	22	1.32	0.568
	Grades 3-6	45	29	4	0	78	1.47	0.597
	Tenure	51	32	4	0	87	1.46	0.587
	Non-tenure	10	2	1	0	13	1.31	0.630

Summary of Table 3

Table 3 below illustrates the vast majority of teachers either strongly agreed (52%) or agreed (43%) the state-mandated test was not an accurate measure of what English language learners knew or could do, just 4% disagreed and only 1% strongly disagreed. They also strongly agreed (49%) and agreed (36%) the pressure for high scores on the state-mandated test is so high teachers have little time to teach anything not on the test, just 11% disagreed with an additional 4% strongly disagreeing. Teachers were somewhat more evenly split when asked about instructional constraints hindering their ability to integrate technology for student-centered and inter-disciplinary learning: 24% strongly agreed, 44% agreed, 31% disagreed, and 1% strongly disagreed. When asked about the pressure from competing demands causing teachers to prefer to concentrate on test requirements than to integrate technology in lessons, 27% of teachers strongly agreed, 54% agreed, 16% disagreed, and 3% strongly disagreed. Many participants claimed agreed (63%) teachers in their school experienced pressure to integrate technology in lessons plans with 11% strongly agreeing, 23% disagreeing, and 3% who strongly disagreed. Teachers also strongly agreed (18%), agreed (46%), disagreed (32%), and strongly disagreed (4%) they wanted to transfer out of grades where the state-mandated test is administered. Teachers also strongly agreed (38%), agreed (49%),

disagreed with 12% and strongly disagreed with 1% that the state-mandated testing programs lead some teachers in my school to teach in ways that contradict their own ideas of good educational practice.

Table 3

Pressure on Teachers

ITEMS		SA	A	D	SD	T	Mean	SD
Instructional constraints hinder my ability to learn ways to integrate technology for student-centered and inter-disciplinary learning	Percent	24%	44%	31%	1%	100%	2.09	0.767
	Number	24	44	31	1	100		
	Male	3	5	7	0	15	2.27	0.799
	Female	21	39	24	1	85	2.06	0.761
	Grades 1-2	4	7	11	0	22	2.32	0.780
	Grades 3-6	20	37	20	1	78	2.03	0.755
	Tenure	22	39	25	1	87	2.06	0.768
	Non-tenure	2	5	6	0	13	2.31	0.751
Teacher's morale is high in my school	Percent	5%	15%	32%	48%	100%	3.23	0.886
	Number	5	15	32	48	100		
	Male	2	0	6	7	15	3.20	1.014
	Female	3	15	26	41	85	3.24	0.868
	Grades 1-2	2	4	9	7	22	2.95	0.950
	Grades 3-6	3	11	23	41	78	3.31	0.857
	Tenure	3	11	29	44	87	3.31	0.826
	Non-tenure	2	4	3	4	13	2.69	1.109
The state-mandated test is not an accurate measure of what students who are acquiring English as a second language know and can do	Percent	52%	43%	4%	1%	100%	1.54	0.626
	Number	52	43	4	1	100		
	Male	10	4	1	0	15	1.40	0.632
	Female	42	39	3	1	85	1.56	0.626
	Grades 1-2	10	11	1	0	22	1.59	0.590
	Grades 3-6	42	32	3	1	78	1.53	0.639
	Tenure	47	36	3	1	87	1.52	0.626
	Non-tenure	5	7	1	0	13	1.69	0.630
There is so pressure much from competing demands related to state testing in my school that since technology is not part of the state-mandated testing requirements teachers prefer to concentrate on requirements than to integrate technology in lessons	Percent	27%	54%	16%	3%	100%	1.95	0.744
	Number	27	54	16	3	100		
	Male	5	8	2	0	15	1.80	0.676
	Female	22	46	14	3	85	1.98	0.756
	Grades 1-2	7	9	5	1	22	2.00	0.873
	Grades 3-6	20	45	11	2	78	1.94	0.709
	Tenure	26	46	13	2	87	1.90	0.732
	Non-tenure	1	8	3	1	13	2.31	0.751

ITEMS		SA	A	D	SD	T	Mean	SD
Teachers in my school experience pressure to integrate technology in lessons plans	Percent	11%	63%	23%	3%	100%	2.18	0.657
	Number	11	63	23	3	100		
	Male	2	10	3	0	15	2.07	0.294
	Female	9	53	20	3	85	2.20	0.669
	Grades 1-2	3	11	7	1	22	2.27	0.767
	Grades 3-6	8	52	16	2	78	2.15	0.626
	Tenure	11	53	20	3	87	2.17	0.686
	Non-tenure	0	10	3	0	13	2.23	0.439
The state-mandated testing programs lead some teachers in my school to teach in ways that contradict their own ideas of good educational practice.	Percent	38%	49%	12%	1%	100%	1.76	0.698
	Number	38	49	12	1	100		
	Male	6	8	1	0	15	1.67	0.617
	Female	32	41	11	1	85	1.78	0.713
	Grade 1-2	8	11	3	0	22	1.77	0.685
	Grade 3-6	30	38	9	1	78	1.76	0.706
	Tenure	34	42	10	1	87	1.75	0.702
	Non-tenure	4	7	2	0	13	1.85	0.689
Teachers in my school want to transfer out of grades where the state-mandated test is administered	Percent	18%	46%	32%	4%	100%	2.22	0.786
	Number	18	46	32	4	100		
	Male	3	4	6	2	15	2.47	0.990
	Female	15	42	26	2	85	2.18	0.743
	Grades 1-2	4	10	7	1	22	2.23	0.813
	Grades 3-6	14	36	25	3	78	2.22	0.784
	Tenure	17	39	28	3	87	2.20	0.790
	Non-tenure	1	7	4	1	13	2.38	0.768
The state mandates testing programs lead some teachers in my school to teach in ways that contradict their own ideas of good educational practice.	Percent	38%	49%	12%	12%	100%	1.76	0.698
	Number	38	49	12	1	100		
	Male	6	8	1	0	15	1.67	0.617
	Female	32	41	11	1	85	1.78	0.713
	Grades 1-2	8	11	3	0	22	1.77	0.685
	Grades 3-6	30	38	9	1	78	1.76	0.706
	Tenure	34	42	10	1	87	1.75	0.702
	Non-tenure	4	7	2	0	13	1.85	0.689

Summary of Table 4

In Table 4 below, the majority of the participants strongly disagreed and disagreed on the variables about the teacher's perceptions of the state test value. Teachers strongly disagreed (27%) and disagreed (51%) the state-mandated test was as accurate a measure of student achievement, though 19% did agree and 3% did strongly agree. Teachers strongly disagreed (38%) and disagreed (50%) scores on the state-mandated test

accurately reflected the quality of education students received, with just 10% agreeing and 2% strongly agreeing. The majority of teachers strongly disagreed (21%) or disagreed (68%) that the media coverage of the state-mandated test accurately reflected the quality of education in their district, and only 8% agreed and 3% strongly agreed. When asked about whether media coverage of state-mandated testing issues adequately reflected the complexity of teaching, and whether teachers in their school found ways to raise state-mandated test scores without really improving student learning, 51% of teachers disagreed, strongly disagreed (25%), agreed (17%) and strongly agreed (7%). Teachers also strongly agreed (35%), agreed (52%), disagreed (11%), and strongly disagreed (2%) media coverage of state-mandated testing issues was unfair to teachers.

Table 4

Perceived Value of the State Test

ITEMS		**SA**	**A**	**D**	**SD**	**T**	**Mean**	**SD**
The state-mandated test is as	Percent	3%	19%	51%	27%	100%	3.02	0.765
accurate a measure of	Number	3	19	51	27	100		
student achievement as a	Male	2	2	6	5	15	2.93	1.033
teachers' judgment	Female	1	17	45	22	85	3.04	0.715
	Grades 1-2	1	5	10	6	22	2.95	0.844
	Grades 3-6	2	14	41	21	78	3.04	0.746
	Tenure	2	17	46	22	87	3.01	0.739
	Non-tenure	1	2	5	5	13	3.08	0.954
Scores on the state-	Percent	2%	10%	50%	38%	100%	3.24	0.712
mandated test accurately	Number	2	10	50	38	100		
reflect the quality of	Male	1	2	3	9	15	3.33	0.976
education students have	Female	1	8	47	29	85	3.22	0.661
received	Grades 1-2	0	2	13	7	22	3.23	0.612
	Grades 3-6	2	8	37	31	78	3.24	0.742
	Tenure	2	8	44	33	87	3.24	0.715
	Non-tenure	0	2	6	5	13	3.23	0.725

ITEMS		SA	A	D	SD	T	Mean	SD
The state-mandated testing program is just another fad	Percent	20%	35%	43%	2%	100%	2.27	0.802
	Number	20	35	43	2	100		
	Male	2	7	5	1	15	2.33	0.816
	Female	18	28	38	1	85	2.26	0.804
	Grades 1-2	5	11	6	0	22	2.05	0.722
	Grades 3-6	15	24	37	2	78	2.33	0.816
	Tenure	16	31	38	2	87	2.30	0.794
	Non-tenure	4	4	5	0	13	2.08	0.862
Media coverage of the state-mandated test accurately reflects the quality of education in my district	Percent	3%	8%	68%	21%	100%	3.07	0.640
	Number	3	8	68	21	100		
	Male	1	1	9	4	15	3.07	0.799
	Female	2	7	59	17	85	3.07	0.613
	Grades 1-2	1	1	15	5	22	3.09	0.684
	Grades 3-6	2	7	53	16	78	3.06	0.631
	Tenure	3	6	59	19	87	3.08	0.651
	Non-tenure	0	2	9	2	13	3.00	0.577
Media coverage of state-mandated testing issues has been unfair to teachers	Percent	35%	52%	11%	2%	100%	1.80	0.711
	Number	35	52	11	2	100		
	Male	6	6	3	0	15	1.80	0.775
	Female	29	46	8	2	85	1.80	0.704
	Grades 1-2	7	14	1	0	22	1.73	0.550
	Grades 3-6	28	38	10	2	78	1.82	0.752
	Tenure	32	44	9	2	87	1.78	0.722
	Non-tenure	3	8	2	0	13	1.92	0.641
The state-mandated test is not an accurate measure of what students who are acquiring English as a second language know and can do	Percent	52%	43%	4%	1%	100%	1.54	0.626
	Number	52	43	4	1	100		
	Male	10	4	1	0	15	1.40	0.632
	Female	42	39	3	1	85	1.56	0.626
	Grades 1-2	10	11	1	0	22	1.59	0.590
	Grades 3-6	42	32	3	1	78	1.53	0.639
	Tenure	47	36	3	1	87	1.52	0.626
	Non-tenure	5	7	1	0	13	1.69	0.630
Media coverage of state-mandated testing issues adequately reflects the complexity of teaching	Percent	7%	17%	51%	25%	100%	2.94	0.839
	Number	7	17	51	25	100		
	Male	2	2	6	5	15	2.93	1.033
	Female	5	15	45	20	85	2.94	0.807
	Grades 1-2	0	2	14	6	22	3.18	0.588
	Grades 3-6	7	15	37	19	78	2.87	0.888
	Tenure	7	13	45	22	87	2.94	0.854
	Non-tenure	0	4	6	3	13	2.92	0.760
Teachers in my school have found ways to raise state-mandated test scores without really improving student learning	Percent	12%	30%	51%	7%	100%	2.53	0.797
	Number	12	30	51	7	100		
	Male	3	4	7	1	15	2.40	0.910
	Female	9	26	44	6	85	2.55	0.779
	Grades 1-2	2	7	11	2	22	2.59	0.796
	Grades 3-6	10	23	40	5	78	2.51	0.802
	Tenure	12	26	44	5	87	2.48	0.805
	Non-tenure	0	4	7	2	13	2.85	0.689

Summary of Table 5

Table 5 below illustrates teacher perception of the alignment between classroom practice and the state test. Participants strongly agreed (8%), agreed (48%), disagreed (37%), and strongly disagreed (7%) the state-mandated test was compatible with daily instruction; strongly agreed (7%), agreed (52%), disagreed (34%), and strongly disagreed (7%) their district's curriculum was aligned with state-mandated test demands; and strongly agreed (9%), agreed (52%), disagreed (33%), and strongly disagreed (6%) their tests had the same content as the state-mandated test. Alternatively, teachers strongly disagreed (20%), disagreed (50%), agreed (26%), and strongly agreed (5%) the texts and materials required by the district are compatible with the state-mandated test.

Table 5

Alignment of Classroom Practices with the State Test

ITEMS		SA	A	D	SD	T	Mean	SD
The state-mandated test is compatible with my daily instruction	Percent	8%	48%	37%	7%	100%	2.43	0.742
	Number	8	48	37	7	100		
	Male	2	4	8	1	15	2.53	0.834
	Female	6	44	29	6	85	2.41	0.729
	Grades 1-2	3	10	8	1	22	2.32	0.780
	Grades 3-6	5	38	29	6	78	2.46	0.733
	Tenure	6	43	31	7	87	2.45	0.743
	Non-tenure	2	5	6	0	13	2.31	0.751
My district's curriculum is aligned with the state-mandated test demands.	Percent	7%	52%	34%	7%	100%	2.41	0.726
	Number	7	52	34	7	100		
	Male	2	6	6	1	15	2.40	0.828
	Female	5	46	28	6	85	2.41	0.712
	Grades 1-2	1	13	7	1	22	2.36	0.658
	Grades 3-6	6	39	27	6	78	2.42	0.748
	Tenure	6	44	30	7	87	2.44	0.742
	Non-tenure	1	8	4	0	13	2.23	0.599

ITEMS		SA	A	D	SD	T	Mean	SD
The instructional texts and material that the district requires me to use are compatible with the state-mandated test.	Percent	4%	26%	50%	20%	100%	2.86	0.779
	Number	4	26	50	20	100		
	Male	2	3	8	2	15	2.67	0.900
	Female	2	23	42	18	85	2.89	0.756
	Grades 1-2	1	6	12	3	22	2.77	0.752
	Grades 3-6	3	20	38	17	78	2.88	0.789
	Tenure	3	22	43	19	87	2.90	0.778
	Non-tenure	1	4	7	1	13	2.62	0.768
My tests have the same content as the state-mandated test	Percent	9%	52%	33%	6%	100%	2.36	0.732
	Number	9	52	33	6	100		
	Male	2	4	8	1	15	2.53	0.834
	Female	7	48	25	5	85	2.33	0.714
	Grades 1-2	1	7	13	1	22	2.64	0.658
	Grades 3-6	8	45	20	5	78	2.28	0.737
	Tenure	8	46	27	6	87	2.36	0.747
	Non-tenure	1	6	6	0	13	2.38	0.650

Summary of Table 6

As Table 6 displays below, when it came to the change of time spent on various activities teachers used to prepare students for state mandated testing, teachers perceived most schools had changed the amount of time. Teachers stated it was increased to a great deal (55%), moderately increased (26%), stayed at the same (16%), and moderately decreased (3%) regarding time spent on instructing in tested areas; and instruction in tested area with high stakes attached (e.g. promotion, graduation, teacher rewards) increased greatly (43%), moderately increased (28%), stayed about the same (24%), moderately decreased (3%), and decreased greatly (2%).

The time of spent on various activities stayed about the same with no improvements. Teachers stated the time spent on insuring all students were technologically literate stayed the same (37%), moderately decreased (22%), moderately increased (17%), and increased and decreased greatly with 12% each. Designing

activities that incorporated the use of ICT for problem-based learning mode stayed about the same length of time (33%), moderately decreased (28%), moderately increased (17%), and increased greatly and decreased greatly with 11% each. Teachers thought time spent developing competencies for instructing independent use of technology to advance learning autonomy stayed the same (35%), moderately decreased (27%), moderately increased (15%), decreased greatly (12%), and increased greatly (11%). Time spent on instruction for group computer projects stayed the same with 38%, moderately decreased and decreased greatly with 19% each, increased greatly (13%), and moderately increased (11%). Time spent contacting parents stayed about the same (52%), moderately increased (18%), moderately decreased (12%), increased greatly (10%), and decreased greatly (8%). Time spent on field trips (e.g. museum tour, hospital tour) stayed about the same for 38%, decreased greatly for 27%, moderately decreased for 20%, moderately increased for 10%, and greatly increased for 5%. Teachers claimed time spent on class trips (e.g. circus, amusement park) stayed about the same (38%), decreased greatly (30%), moderately decreased (18%), moderately increased (8%), and increased greatly (6%). Professional development related to technology integration in curriculum was said to have stayed the same for 36%, moderately decreased for 23%, decreased greatly for 17%, moderately increased for 15%, and increased greatly for 9% of participants. Enrichment school assemblies (e.g., professional choral group performances) were estimated to have stayed about the same for 34%, decreased greatly for 32%, moderately decreased for 18%, and moderately increased and greatly increased for 8% each.

Table 6

Impact of the State Test on Content and Mode of Instruction: Effects on Tested Areas, Non-Core Content, and Classroom Activities

ITEMS		DG	MD	SS	MI	IG	T	Mean	SD
Instruction in tested areas	Percent	0%	3%	16%	26%	55%	100%	4.33	0.853
	Number	0	3	16	26	55	100		
	Male	0	0	1	5	9	15	4.53	0.640
	Female	0	3	15	21	46	85	4.29	0.884
	Grades 1-2	0	1	2	5	11	22	4.45	0.858
	Grades 3-6	0	2	14	21	41	78	4.29	0.854
	Tenure	0	2	14	25	46	87	4.32	0.828
	Non-tenure	0	1	2	1	9	13	4.38	1.044
Instruction in areas not covered by the state-mandated test	Percent	34%	23%	22%	10%	11%	100%	2.41	1.342
	Number	34	23	22	10	11	100		
	Male	3	4	2	2	4	15	3.00	1.558
	Female	31	19	20	8	7	85	2.31	1.282
	Grades 1-2	8	5	4	3	3	22	2.36	1.364
	Grades 3-6	26	18	18	7	9	78	2.42	1.344
	Tenure	30	22	20	7	8	87	2.32	1.280
	Non-tenure	4	1	2	3	3	13	3.00	1.633
Instruction in tested area with high stakes attached (e.g., promotion, graduation, teacher rewards)	Percent	2%	3%	24%	28%	43%	100%	4.07	0.987
	Number	2	3	24	28	43	100		
	Male	0	0	3	5	7	15	4.27	0.799
	Female	2	3	21	23	36	85	4.04	1.017
	Grades 1-2	1	0	6	7	8	22	3.95	1.046
	Grades 3-6	1	3	18	21	35	78	4.10	0.975
	Tenure	2	3	21	24	37	87	4.05	1.011
	Non-tenure	0	0	3	4	6	13	4.23	0.832
Insuring that all students are technologically literate.	Percent	12%	22%	37%	17%	12%	100%	2.95	1.167
	Number	12	22	37	17	12	100		
	Male	1	3	5	2	4	15	3.33	1.291
	Female	11	19	32	15	8	85	2.88	1.138
	Grades 1-2	4	2	11	4	1	22	2.82	1.097
	Grades 3-6	8	20	26	13	11	78	2.99	1.190
	Tenure	9	20	34	15	9	87	2.94	1.114
	Non-tenure	3	2	3	2	3	13	3.00	1.528
Designing activities that incorporate the use of ICT for problem base learning	Percent	11%	28%	33%	17%	11%	100%	2.89	1.155
	Number	11	28	33	17	11	100		
	Male	1	3	5	3	3	15	3.27	1.223
	Female	10	25	28	14	8	85	2.82	1.136
	Grades 1-2	3	5	10	3	1	22	2.73	1.032
	Grades 3-6	8	23	23	14	10	78	2.94	1.188
	Tenure	10	24	30	15	8	87	2.85	1.126
	Non-tenure	1	4	3	2	3	13	3.15	1.345

ITEMS		DG	MD	SS	MI	IG	T	Mean	SD
Developing	Percent	12%	27%	35%	15%	11%	100%	2.86	1.155
competencies on	Number	12	27	35	15	11	100		
instructing	Male	1	3	6	2	3	15	3.20	1.207
independent use of	Female	11	24	29	13	8	85	2.80	1.142
technology to advance	Grades 1-2	3	5	10	3	1	22	2.73	1.032
autonomy in learning	Grades 3-6	9	22	25	12	10	78	2.90	1.191
	Tenure	9	26	30	14	8	87	2.84	1.109
	Non-tenure	3	1	5	1	3	13	3.00	1.472
Instruction on group	Percent	19%	19%	38%	11%	13%	100%	2.80	1.247
computer projects	Number	19	19	38	11	13	100		
	Male	2	0	9	1	3	15	3.20	1.207
	Female	17	19	29	10	10	85	2.73	1.248
	Grades 1-2	6	3	9	3	1	22	2.55	1.184
	Grades 3-6	13	16	29	8	12	78	2.87	1.262
	Tenure	16	18	35	8	10	87	2.75	1.203
	Non-tenure	3	1	3	3	3	13	3.15	1.519
Parental contact	Percent	8%	12%	52%	18%	10%	100%	3.10	1.01
	Number	8	12	52	18	10	100		
	Male	1	2	6	3	3	15	3.33	1.175
	Female	7	10	46	15	17	85	3.06	0.980
	Grades 1-2	3	1	13	3	2	22	3.00	1.069
	Grades 3-6	5	11	39	15	8	78	3.13	0.998
	Tenure	7	11	48	14	7	87	3.03	0.970
	Non-tenure	1	1	4	4	3	13	3.54	1.198
Field trips (e.g.,	Percent	27%	20%	38%	10%	5%	100%	2.46	1.141
museum tour, hospital	Number	27	20	38	10	5	100		
tour)	Male	3	3	4	2	3	15	2.93	1.438
	Female	24	17	34	8	2	85	2.38	1.069
	Grades 1-2	4	6	8	3	1	22	2.59	1.098
	Grades 3-6	23	14	30	7	4	78	2.42	1.157
	Tenure	25	20	32	7	3	87	2.34	1.087
	Non-tenure	2	0	6	3	2	13	3.23	1.235
Class trips (e.g.,	Percent	30%	18%	38%	8%	6%	100%	2.42	1.174
circus, amusement	Number	30	18	38	8	6	100		
park)	Male	4	2	3	2	4	15	3.00	1.604
	Female	26	16	35	6	2	85	2.32	1.060
	Grades 1-2	3	5	11	2	1	22	2.68	0.995
	Grades 3-6	27	13	27	6	5	78	2.35	1.215
	Tenure	28	18	31	6	4	87	2.31	1.134
	Non-tenure	2	0	7	2	2	13	3.15	1.214
Professional	Percent	17%	23%	36%	15%	9%	100%	2.76	1.173
development related to	Number	17	23	36	15	9	100		
technology integration	Male	2	3	5	1	4	15	3.13	1.407
in curriculum	Female	15	20	31	14	5	85	2.69	1.124
	Grades 1-2	3	6	6	6	1	22	2.82	1.140
	Grades 3-6	14	17	30	9	8	78	2.74	1.189
	Tenure	16	20	34	11	6	87	2.67	1.128
	Non-tenure	1	3	2	4	3	13	3.38	1.325

ITEMS		DG	MD	SS	MI	IG	T	Mean	SD
Enrichment school	Percent	32%	18%	34%	8%	8%	100%	2.42	1.241
assemblies (e.g.,	Number	32	18	34	8	8	100		
professional choral	Male	4	2	4	2	3	15	2.87	1.506
group performances	Female	28	16	30	6	5	85	2.34	1.181
	Grades 1-2	8	3	8	2	1	22	2.32	1.211
	Grades 3-6	24	15	26	6	7	78	2.45	1.255
	Tenure	30	16	30	6	5	87	2.31	1.184
	Non-tenure	2	2	4	2	3	13	3.15	1.405

Summary of Table 7

Table 7 below illustrates views on the effects of the state test on instruction. Many either strongly agreed (22%) or agreed (52%) that the state mandated testing program influenced the amount of time spent on the whole group discussion, and 19% disagreed and 8% strongly disagreed. The majority of participants either strongly agreed (28%) or agreed (49%), while some disagreed (17%) and strongly disagreed (6%) when it came to critical thinking skills. Cooperative learning was generally agreed with as participants strongly agreed (23%) and agreed (53%), though some did disagree (17%), and strongly disagree (7%). Developing competencies for using technology to instruct how to design presentations and electronic communication processes was strongly agreed (20%), agreed (40%), disagreed (30%), and strongly disagreed (10%). The idea that problems likely to appear on the test influenced general discussion was strongly agreed (34%), agreed (47%), disagreed (15%), and strongly disagreed (4%). Incorporating educational technology into curriculum standards was strongly agreed (19%), agreed (41%), disagreed (31%), and strongly agreed (9%). Developing competencies for teaching research and information literacy with technology was strongly agreed with by 19%; agreed with by 39%, disagreed with by 34%, and strongly disagreed with by 8% of participants. Developing competencies for accessing, integrating, and evaluating ICT in

instruction strongly agreed with 20%, agreed with 36%, disagreed with 35%, and strongly disagreed with 9%. Teachers strongly agreed with 9%, agreed with 46%, disagreed with 40%, and strongly disagreed with 5% that the teachers in my school utilize technology for skill drills related to state test.

Table 7

Impact of State Test on Content and Mode of Instruction: Effect on Instruction Methods

ITEMS		SA	A	D	SD	T	Mean	SD
Whole-group instruction	Percent	22%	51%	19%	8%	100%	2.13	0.849
	Number	22	51	19	8	100		
	Male	3	6	5	1	15	2.27	0.884
	Female	19	45	14	7	85	2.11	0.845
	Grades 1-2	5	11	3	3	22	2.18	0.958
	Grades 3-6	17	40	16	5	78	2.12	0.821
	Tenure	19	44	17	7	87	2.14	0.851
	Non-tenure	3	7	2	1	13	2.08	0.862
Critical thinking skills	Percent	28%	49%	17%	6%	100%	2.01	0.835
	Number	28	49	17	6	100		
	Male	1	8	5	1	15	2.40	0.737
	Female	27	41	12	5	85	1.94	0.836
	Grades 1-2	7	10	4	1	22	1.95	0.844
	Grades 3-6	21	39	13	5	78	2.03	0.837
	Tenure	25	41	15	6	87	2.02	0.862
	Non-tenure	3	8	2	0	13	1.92	0.641
Cooperative learning	Percent	23%	53%	17%	7%	100%	2.08	0.825
	Number	23	53	17	7	100		
	Male	1	6	7	1	15	2.53	0.743
	Female	22	47	10	6	85	2.00	0.816
	Grades 1-2	5	11	4	2	22	2.14	0.889
	Grades 3-6	18	42	13	5	78	2.06	0.811
	Tenure	21	46	13	7	87	2.07	0.846
	Non-tenure	2	7	4	0	13	2.15	0.689
Developing competencies for using technology to instruct on how to design presentations and electronic communication processes	Percent	20%	40%	30%	10%	100%	2.3	0.905
	Number	20	40	30	10	100		
	Male	2	3	9	1	15	2.60	0.828
	Female	18	37	21	9	85	2.25	0.912
	Grades 1-2	4	9	7	2	22	2.32	0.894
	Grades 3-6	16	31	23	8	78	2.29	0.913
	Tenure	18	34	26	9	87	2.30	0.916
	Non-tenure	2	6	4	1	13	2.31	0.855

ITEMS		SA	A	D	SD	T	Mean	SD
Problems likely to appear on test	Percent	34%	47%	15%	4%	100%	1.89	0.803
	Number	34	47	15	4	100		
	Male	5	6	3	1	15	2.00	0.926
	Female	29	41	12	3	85	1.87	0.784
	Grades 1-2	5	10	6	1	22	2.14	0.834
	Grades 3-6	29	37	9	3	78	1.82	0.785
	Tenure	33	39	11	4	87	1.84	0.819
	Non-tenure	1	8	4	0	13	2.23	0.599
Incorporating educational technology into curriculum standards	Percent	19%	41%	31%	9%	100%	2.3	0.882
	Number	19	41	31	9	100		
	Male	2	4	8	1	15	2.53	0.834
	Female	17	37	23	8	85	2.26	0.888
	Grades 1-2	4	10	6	2	22	2.27	0.883
	Grades 3-6	15	31	25	7	78	2.31	0.887
	Tenure	17	35	26	9	87	2.31	0.906
	Non-tenure	2	6	5	0	13	2.23	0.725
Developing competencies for teaching research and information literacy with technology	Percent	19%	39%	34%	8%	100%	2.31	0.873
	Number	19	39	34	8	100		
	Male	1	5	7	2	15	2.67	0.816
	Female	18	34	27	6	85	2.25	0.872
	Grades 1-2	5	8	7	2	22	2.27	0.935
	Grades 3-6	14	31	27	6	78	2.32	0.860
	Tenure	16	34	29	8	87	2.33	0.885
	Non-tenure	3	5	5	0	13	2.15	0.801
Developing competencies for accessing, integrating, and evaluating information and communication technologies (ICT) in instruction	Percent	20%	36%	35%	9%	100%	2.33	0.9
	Number	20	36	35	9	100		
	Male	2	3	9	1	15	2.60	0.828
	Female	18	33	26	8	85	2.28	0.908
	Grades 1-2	5	8	6	3	22	2.32	0.995
	Grades 3-6	15	28	29	6	78	2.33	0.878
	Tenure	17	31	30	9	87	2.36	0.915
	Non-tenure	3	5	5	0	13	2.15	0.801
Teachers in my school utilized technology for skill drills related to state test	Percent	9%	46%	40%	5%	100%	2.41	0.726
	Number	9	46	40	5	100		
	Male	2	8	5	0	15	2.20	0.676
	Female	7	38	35	5	85	2.45	0.732
	Grades 1-2	0	13	8	1	22	2.45	0.596
	Grades 3-6	9	33	32	4	78	2.40	0.762
	Tenure	9	38	35	5	87	2.41	0.756
	Non-tenure	0	8	5	0	13	2.38	0.506

Summary of Table 8

Below in Table 8, teachers strongly agreed (77%) were under extreme pressure to have students perform well on the state-mandated test, 19% agreed, 1% disagreed, and

3% strongly disagreed. Most of the teachers also strongly agreed (24%) and agreed (58%) teachers spend less time developing technical and ICT proficiencies necessary to integrate technology into curriculum because of state-mandated testing, though 17% disagreed, and 1% strongly disagreed. Teachers were fairly evenly split on whether test preparation materials were similar to the content of state-mandated test strongly agreed (4%), agreed (42%), disagreed (38%), and strongly disagreed (15%).

Table 8

Impact of the State Test on Content and Modes of Instruction

ITEMS		**SA**	**A**	**D**	**SD**	**T**	**Mean**	**SD**
Teachers are under extreme pressure to have students perform well on the state-mandated test.	Percent	77%	19%	1%	3%	100%	1.3	0.644
	Number	77	19	1	3	100		
	Male	13	2	0	0	15	1.13	0.352
	Female	64	17	1	3	85	1.33	0.679
	Grades 1-2	17	5	0	0	22	1.23	0.429
	Grades 3-6	60	14	1	3	78	1.32	0.693
	Tenure	66	17	1	3	87	1.32	0.673
	Non-tenure	11	2	0	0	13	1.15	0.376
Teachers spend less time developing technical and ICT proficiencies necessary to integrate technology into curriculum because of state-mandated testing	Percent	24%	58%	17%	1%	100%	1.95	0.672
	Number	24	58	17	1	100		
	Male	3	9	3	0	15	2.00	0.655
	Female	21	49	14	1	85	1.94	0.679
	Grades 1-2	4	12	6	0	22	2.09	0.684
	Grades 3-6	20	46	11	1	78	1.91	0.668
	Tenure	22	50	14	1	87	1.93	0.678
	Non-tenure	2	8	3	0	13	2.08	0.641
Test preparation materials are similar to the content of state-mandated test	Percent	4%	42%	38%	15%	100%	3.61	9.667
	Number	4	42	38	15	100		
	Male	1	4	8	2	15	2.73	0.799
	Female	3	38	30	14	85	3.76	10.482
	Grades 1-2	0	12	6	3	21	2.64	0.790
	Grades 3-6	4	30	32	12	78	3.88	10.938
	Tenure	4	34	36	13	87	2.67	0.787
	Non-tenure	0	8	2	3	13	9.92	26.775

Summary of Table 9

When viewing Table 9 below, it is clear most teachers strongly agreed and agreed on the variables related to the unintended consequences of the state test. Teachers strongly agreed (19%), agreed (55%), disagreed (18%), and strongly disagreed (8%) they were confident in meeting state-mandated demands and in their capacity to successfully work with educational technologies. Teachers strongly agreed (17%), agreed (54%), and disagreed (29%) the time spent in dealing with the environment produced by state-mandated testing has affected my confidence in integrating technology into the curricula and instruction. Teachers strongly agreed (27%), 54% agreed, 16% disagreed, and 3% strongly disagreed there was so pressure much from competing demands related to state testing in their school that since technology is not part of the state-mandated testing requirements, teachers prefer to concentrate on test requirements than to integrate technology in lessons. Teachers also felt competent in developing Excel spreadsheets and creating Power Point presentations strongly agreed (26%), agreed with 43%, disagreed (21%), and strongly disagreed (10%). Teachers strongly agreed (23%), agreed with 58%, disagreed (18%), and strongly disagreed (1%) documenting student's acquisition of technology competencies is set aside to focus more on state-mandated testing demands.

Table 9

Unintended Consequences of the State Test

ITEMS		SA	A	D	SD	T	Mean	SD
I am confident in meeting state-mandated demands and in my capacity to successfully work with educational technologies.	Percent	19%	55%	18%	8%	100%	2.15	0.821
	Number	19	55	18	8	100		
	Male	4	8	1	2	15	2.07	0.961
	Female	15	47	17	6	85	2.16	0.800
	Grades 1-2	4	11	5	2	22	2.23	0.869
	Grades 3-6	15	44	13	6	78	2.13	0.812
	Tenure	17	47	16	7	87	2.15	0.829
	Non-tenure	2	8	2	1	13	2.15	0.801
The time spent in dealing with the environment produced by state-mandated testing has affected my confidence in integrating technology into the curricula and instruction	Percent	17%	54%	29%	0	100%	2.12	0.671
	Number	17	54	29	0	100		
	Male	1	8	6	0	15	2.33	0.617
	Female	16	46	23	0	85	2.08	0.676
	Grades 1-2	7	8	7	0	22	2.00	0.816
	Grades 3-6	10	46	22	0	78	2.15	0.626
	Tenure	15	47	25	0	87	2.11	0.672
	Non-tenure	2	7	4	0	13	2.15	0.689
There is so much pressure from competing demands related to state testing in my school that since technology is not part of the state-mandated testing requirements teachers prefer to concentrate on test requirements than to integrate technology in lessons	Percent	27%	54%	16%	3%	100%	1.95	0.744
	Number	27	54	16	3	100		
	Male	5	8	2	0	15	1.80	0.676
	Female	22	46	14	3	85	1.98	0.756
	Grades 1-2	7	9	5	1	22	2.00	0.873
	Grades 3-6	20	45	11	2	78	1.94	0.709
	Tenure	26	46	13	2	87	1.90	0.732
	Non-tenure	1	8	3	1	13	2.31	0.751
I feel competent in developing Excel spreadsheets and creating Power Point presentations	Percent	26%	43%	21%	10%	100%	2.15	0.925
	Number	26	43	21	10	100		
	Male	3	7	5	0	15	2.13	0.743
	Female	23	36	16	10	85	2.15	0.958
	Grades 1-2	3	10	5	4	22	2.45	0.963
	Grades 3-6	23	33	16	6	78	2.06	0.902
	Tenure	22	36	19	10	87	2.20	0.950
	Non-tenure	4	7	2	0	13	1.85	0.689
Documenting student's acquisition of technology competencies is set aside to focus more on state-mandated testing demands	Percent	23%	58%	18%	1%	100%	1.97	0.674
	Number	23	58	18	1	100		
	Male	5	7	3	0	15	1.87	0.743
	Female	18	51	15	1	85	1.99	0.664
	Grades 1-2	6	11	4	1	22	2.00	0.816
	Grades 3-6	17	47	14	0	78	1.96	0.633
	Tenure	19	51	16	1	87	1.99	0.673
	Non-tenure	4	7	2	0	13	1.85	0.674

Summary of Table 10

Table 10 discusses teacher's accountability below. Most teachers (35%) stated it was very inappropriate to use the tests to place schools in receivership, moderately inappropriate (25%), moderately appropriate with (34%), and very appropriate (6%). Most teachers thought it is very inappropriate to use of tests to place students in special education (46%), moderately inappropriate (25%), moderately appropriate (20%), and very appropriate (9%). Teachers considered awarding teachers/administration financial bonuses as very inappropriate (59%), moderately inappropriate (24%), moderate appropriate (10%), and very appropriate (7%). Participants generally considered rewarding schools financially as being very inappropriate (52%), moderately inappropriate (28%), moderately appropriate (12%), and very appropriate (8%). Evaluating teacher/administration performance was thought to be very inappropriate with (55%), moderately inappropriate (21%), moderately appropriate (16%), and very appropriate (8%). Teachers considered firing faculty/staff as very inappropriate (75%), moderately inappropriate (17%), moderately appropriate (5%), and very appropriate (3%); and providing incentives for teachers who are technologically literate as very inappropriate (47%), moderately inappropriate (30%), moderately appropriate (19%), and very appropriate (4%).

Alternatively, teachers said using tests to award school accreditation was moderately appropriate (35%), moderately inappropriate (34%), very inappropriate (22%), and very appropriate (9%). Ranking schools publicly was considered very inappropriate (31%), moderately inappropriate (28%), moderately appropriate (34%), and very appropriate (7%). Remediating students was thought to be very inappropriate (19%),

moderately inappropriate (27%), moderately appropriate (38%), and very appropriate (16%); and 21% of teachers thought grouping students by ability was very inappropriate, 26% moderately inappropriate, 38% moderately appropriate, and 15% very appropriate.

Table 10

Use of Test Results: Teachers' Views on Accountability

ITEMS		VI	MI	MA	VA	T	Mean	SD
Evaluate charter schools	Percent	28%	33%	31%	8%	100%	2.19	0.94
	Number	28	33	31	8	100		
	Male	4	4	5	2	15	2.33	1.047
	Female	24	29	26	6	85	2.16	0.924
	Grades 1-2	6	8	8	0	22	2.09	0.811
	Grades 3-6	22	25	23	8	78	2.22	0.976
	Tenure	24	30	25	8	87	2.20	0.950
	Non-tenure	4	3	6	0	13	2.15	0.899
Evaluate voucher programs	Percent	29%	38%	27%	6%	100%	2.1	0.893
	Number	29	38	27	6	100		
	Male	4	5	5	1	15	2.20	0.941
	Female	25	33	22	5	85	2.08	0.889
	Grades 1-2	5	9	8	0	22	2.14	0.774
	Grades 3-6	24	29	19	6	78	2.09	0.928
	Tenure	25	35	21	6	87	2.09	0.897
	Non-tenure	4	3	6	0	13	2.15	0.899
Hold the district accountable	Percent	24%	39%	29%	8%	100%	2.21	0.902
	Number	24	39	29	8	100		
	Male	5	6	4	0	15	1.93	0.799
	Female	19	33	25	8	85	2.26	0.915
	Grades 1-2	5	9	8	0	22	2.14	0.774
	Grades 3-6	19	30	21	8	78	2.23	0.939
	Tenure	20	33	26	8	87	2.25	0.918
	Non-tenure	4	6	3	0	13	1.92	0.760
Hold schools accountable	Percent	27%	34%	31%	8%	100%	2.2	0.932
	Number	27	34	31	8	100		
	Male	6	5	3	1	15	1.93	0.961
	Female	21	29	28	7	85	2.25	0.925
	Grades 1-2	6	9	7	0	22	2.05	0.785
	Grades 3-6	21	25	24	8	78	2.24	0.969
	Tenure	23	27	29	8	87	2.25	0.955
	Non-tenure	4	7	2	0	13	1.85	0.689

ITEMS		VI	MI	MA	VA	T	Mean	SD
Award school accreditation	Percent	22%	34%	35%	9%	100%	2.31	0.918
	Number	22	34	35	9	100		
	Male	5	5	4	1	15	2.07	0.961
	Female	17	29	31	8	85	2.35	0.909
	Grades 1-2	5	9	7	1	22	2.18	0.853
	Grades 3-6	17	25	28	8	78	2.35	0.937
	Tenure	20	31	28	8	87	2.28	0.924
	Non-tenure	2	3	7	1	13	2.54	0.877
Place schools in receivership	Percent	35%	25%	34%	6%	100%	2.11	0.963
	Number	35	25	34	6	100		
	Male	6	4	4	1	15	2.00	1.000
	Female	29	21	30	5	85	2.13	0.961
	Grades 1-2	8	7	6	1	22	2.00	0.926
	Grades 3-6	27	18	28	5	78	2.14	0.977
	Tenure	32	22	28	5	87	2.07	0.962
	Non-tenure	3	3	6	1	13	2.38	0.961
Rank schools publicly	Percent	31%	28%	34%	7%	100%	2.17	0.954
	Number	31	28	34	7	100		
	Male	8	2	4	1	15	1.87	1.060
	Female	23	26	30	6	85	2.22	0.931
	Grades 1-2	8	5	9	0	22	2.05	0.899
	Grades 3-6	23	23	25	7	78	2.21	0.972
	Tenure	27	24	29	7	87	2.18	0.971
	Non-tenure	4	4	5	0	13	2.08	0.862
Place students in special education	Percent	46%	25%	20%	9%	100%	1.92	1.012
	Number	46	25	20	9	100		
	Male	8	3	2	2	15	1.87	1.125
	Female	38	22	18	7	85	1.93	0.997
	Grades 1-2	10	6	4	2	22	1.91	1.019
	Grades 3-6	36	19	16	7	78	1.92	1.016
	Tenure	42	21	17	7	87	1.87	0.998
	Non-tenure	4	4	3	2	13	2.23	1.092
Promote/retain students in grade	Percent	34%	29%	27%	10%	100%	2.13	1.002
	Number	34	29	27	10	100		
	Male	5	7	3	0	15	1.87	0.743
	Female	29	22	24	10	85	2.18	1.037
	Grades 1-2	6	8	6	2	22	2.18	0.958
	Grades 3-6	28	21	21	8	78	2.12	1.019
	Tenure	30	27	22	8	87	2.09	0.984
	Non-tenure	4	2	5	2	13	2.38	1.121
Remediate students	Percent	19%	27%	38%	16%	100%	2.51	0.98
	Number	19	27	38	16	100		
	Male	3	5	6	1	15	2.33	0.900
	Female	16	22	32	15	85	2.54	0.995
	Grades 1-2	3	5	9	5	22	2.73	0.985
	Grades 3-6	16	22	29	11	78	2.45	0.976
	Tenure	17	23	34	13	87	2.49	0.975
	Non-tenure	2	4	4	3	13	2.62	1.044

ITEMS		VI	MI	MA	VA	T	Mean	SD
Group students by ability in grade	Percent	21%	26%	38%	15%	100%	2.47	0.989
	Number	21	26	38	15	100		
	Male	3	5	6	1	15	2.33	0.900
	Female	18	21	32	14	85	2.49	1.007
	Grades 1-2	3	5	12	2	22	2.59	0.854
	Grades 3-6	18	21	26	13	78	2.44	1.027
	Tenure	17	24	33	13	87	2.48	0.975
	Non-tenure	4	2	5	2	13	2.38	1.121
Award teachers/administration financial bonuses	Percent	59%	24%	10%	7%	100%	1.65	0.925
	Number	59	24	10	7	100		
	Male	11	2	1	1	15	1.47	0.915
	Female	48	22	9	6	85	1.68	0.929
	Grades 1-2	14	2	4	2	22	1.73	1.077
	Grades 3-6	45	22	6	5	78	1.63	0.884
	Tenure	54	21	7	5	87	1.57	.871
	Non-tenure	5	3	3	2	13	2.15	1.144
Reward schools financially	Percent	52%	28%	12%	8%	100%	1.76	0.955
	Number	52	28	12	8	100		
	Male	12	1	1	1	15	1.40	0.910
	Female	40	27	11	7	85	1.82	0.953
	Grades 1-2	11	5	5	1	22	1.82	0.958
	Grades 3-6	41	23	7	7	78	1.74	0.959
	Tenure	49	24	7	7	87	1.68	0.934
	Non-tenure	3	4	5	1	13	2.31	0.947
Evaluate teacher/administration performance	Percent	55%	21%	16%	8%	100%	1.77	0.993
	Number	55	21	16	8	100		
	Male	10	3	1	1	15	1.53	0.915
	Female	45	18	15	7	85	1.81	1.006
	Grades 1-2	11	3	4	1	22	1.73	0.985
	Grades 3-6	44	18	11	7	78	1.78	1.002
	Tenure	50	17	13	7	87	1.74	0.994
	Non-tenure	5	4	3	1	13	2.00	1.000
Fire faculty/staff	Percent	75%	17%	5%	3%	100%	1.36	0.8
	Number	75	17	5	3	100		
	Male	12	2	1	0	15	1.27	0.594
	Female	63	15	4	3	85	1.38	0.740
	Grades 1-2	18	2	2	0	22	1.27	0.631
	Grades 3-6	57	15	3	3	78	1.38	0.743
	Tenure	66	15	3	3	87	1.34	0.712
	Non-tenure	9	2	2	0	13	1.46	0.776
Provide incentives for teachers who are technologically literate	Percent	47%	30%	19%	4%	100%	1.8	0.888
	Number	47	30	19	4	100		
	Male	6	6	2	1	15	1.87	0.915
	Female	41	24	17	3	85	1.79	0.888
	Grades 1-2	10	8	4	0	22	1.73	0.767
	Grades 3-6	37	22	15	4	78	1.82	0.922
	Tenure	42	25	16	4	87	1.79	0.904
	Non-tenure	5	5	3	0	13	1.85	0.888

Summary of Table 11

Within Table 11, as seen below, teachers strongly agreed (19%), agreed (55%), disagreed (18%), and strongly disagreed (8%) they were confident in meeting state-mandated demands and were able to successfully work with educational technologies. Teachers also strongly agreed (17%), agreed (54%), and disagreed (29%) the time spent dealing with the environment produced by state-mandated testing affected their confidence in integrating technology into the curricula and instruction. The school technology related professional development environment was thought to be more for data management than integrating technology into teaching; teachers strongly agreed (34%), agreed (51%), disagreed (10%), and strongly disagreed (5%). Teachers strongly agreed (27%), agreed (54%), disagreed (16%), and strongly disagreed (3%) there was so much pressure from competing demands related to state testing that because technology was not a part of the state-mandated testing requirements, teachers preferred to concentrate on requirements than to integrate technology in lesson plans.

Teachers strongly agreed (26%), agreed (58%), disagreed (15%), and strongly disagreed (1%) state-mandated testing hindered teacher's acquisition and integration of technologies in teaching and learning processes. The majority of teachers either strongly agreed (40%) or agreed (49%) their schools' technology related professional development environment was more for data management than technology integration with curriculum, though 8% disagreed (8%) and 3% strongly disagreed. Many thought students who were technologically proficient were better prepared for college: strongly agreed (33%), agreed (47%), disagreed (19%), and strongly disagreed (1%). Teachers also strongly agreed (8%), agreed (39%), disagreed (41%), and strongly disagreed (12%)

their school had an atmosphere conducive to learning and integrating educational technology into teaching and learning.

Table 11

Teachers' Views on Use of Technology

ITEMS		SA	A	D	SD	T	Mean	SD
I am confident in meeting state-mandated demands and in my capacity to successfully work with educational technologies	Percent	19%	55%	18%	8%	100%	2.15	0.821
	Number	19	55	18	8	100		
	Male	4	8	1	2	15	2.07	0.961
	Female	15	47	17	6	85	2.16	0.800
	Grades 1-2	4	11	5	2	22	2.23	0.869
	Grades 3-6	15	44	13	6	78	2.13	0.812
	Tenure	17	47	16	7	87	2.15	0.829
	Non-tenure	2	8	2	1	13	2.15	0.801
The time spent in dealing with the environment produced by state-mandated testing has affected my confidence in integrating technology into the curricula and instruction	Percent	17%	54%	29%	0	100%	2.12	0.671
	Number	17	54	29	0	100		
	Male	1	8	6	0	15	2.33	0.617
	Female	16	46	23	0	85	2.08	0.676
	Grades 1-2	7	8	7	0	22	2.00	0.816
	Grades 3-6	10	46	22	0	78	2.15	0.626
	Tenure	15	47	25	0	87	2.11	0.672
	Non-tenure	2	7	4	0	13	2.15	0.689
Our school technology related professional development environment is more for data management than integrating technology into curriculum.	Percent	34%	51%	10%	5%	100%	1.86	0.792
	Number	34	51	10	5	100		
	Male	6	7	1	1	15	1.80	0.862
	Female	28	44	9	4	85	1.87	0.784
	Grades 1-2	6	13	3	0	22	1.86	0.640
	Grades 3-6	28	38	7	5	78	1.86	0.833
	Tenure	34	39	9	5	87	1.83	0.838
	Non-tenure	0	12	1	0	13	2.08	0.277
There is so pressure much from competing demands related to state testing in my school that since technology is not part of the state-mandated testing requirements teachers prefer to concentrate on test requirement than to integrate technology in lessons plans	Percent	27%	54%	16%	3%	100%	1.95	0.744
	Number	27	54	16	3	100		
	Male	5	8	2	0	15	1.80	0.676
	Female	22	46	14	3	85	1.98	0.756
	Grades 1-2	7	9	5	1	22	2.00	0.873
	Grades 3-6	20	45	11	2	78	1.94	0.709
	Tenure	26	46	13	2	87	1.90	0.732
	Non-tenure	1	8	3	1	13	2.31	0.751

ITEMS		SA	A	D	SD	T	Mean	SD
The schools environment	Percent	26%	58%	15%	1%	100%	1.91	0.668
because of state-mandated	Number	26	58	15	1	100		
testing is hindering teacher's	Male	4	8	3	0	15	1.93	0.704
acquisition and integration of	Female	22	50	12	1	85	1.91	0.666
technologies in teaching and	Grades 1-2	7	11	4	0	22	1.86	0.710
learning processes	Grades 3-6	19	47	11	1	78	1.92	0.660
	Tenure	24	49	13	1	87	1.90	0.683
	Non-tenure	2	9	2	0	13	2.00	0.577
My schools technology related	Percent	40%	49%	8%	3%	100%	1.74	0.733
professional development	Number	40	49	8	3	100		
environment is more for data	Male	8	6	0	1	15	1.60	0.828
management than technology	Female	32	43	8	2	85	1.76	0.718
integration with curriculum	Grades 1-2	8	11	3	0	22	1.77	0.685
	Grades 3-6	32	38	5	3	78	1.73	0.750
	Tenure	39	39	6	3	87	1.69	0.752
	Non-tenure	1	10	2	0	13	2.08	0.494
Students who are	Percent	33%	47%	19%	1%	100%	1.88	0.742
technologically proficient are	Number	33	47	19	1	100		
better prepared for college	Male	4	9	2	0	15	1.87	0.640
	Female	29	38	17	1	85	1.88	0.762
	Grades 1-2	6	12	4	0	22	1.91	0.684
	Grades 3-6	27	35	15	1	78	1.87	0.762
	Tenure	29	38	19	1	87	1.91	0.772
	Non-tenure	4	9	0	0	13	1.69	0.480
My school has an atmosphere	Percent	8%	39%	41%	12%	100%	2.57	0.807
conducive to learning and	Number	8	39	41	12	100		
integrating educational	Male	1	7	6	1	15	2.47	0.743
technology into teaching and	Female	7	32	35	11	85	2.59	0.821
learning	Grades 1-2	4	7	10	1	22	2.36	0.848
	Grades 3-6	4	32	31	11	78	2.63	0.791
	Tenure	6	34	36	11	87	2.60	0.799
	Non-tenure	2	5	5	1	13	2.38	0.870

The data collected and summarized in this chapter will be discussed further in Chapter 5.

Chapter 5

Summary, Conclusions, and Recommendations

Summary

The purpose of this research was to examine the external controls imposed by government standard-based reforms and sanction-driven accountability mandates in order to establish whether they unintentionally function to prevent the development of teachers' competency skills in a socioeconomically disadvantaged school environment. In addition, this study sought to interpret and discern whether the impact of pressures, environment, and constraints from externalized government measures deterred the technical core of schools and expanded digital inequalities of learning and teaching.

The literature review was comprised of analytical constructs drawn from a multidisciplinary approach that incorporated economics, politics, sociology, psychology, and education with technology. By providing a comprehensive evaluation of the conditions affecting education from a systematic view, how individual parts influenced and interacted with the education system could be better understood.

The study utilized a survey to measure opinions, beliefs, and attitudes from a select group of elementary school teachers. A questionnaire was based on one created by Pedulla et al. (2003) and modified to include technology-related questions within its original format. Data obtained from the survey was analyzed using a nominal scale, the Likert scale, and descriptive statistics.

Discussion of findings. This study attempted to provide answers to two fundamental questions at the heart of the research.

Question 1. How do external policy controls transform teachers' culture of teaching and learning in socioeconomically disadvantaged elementary schools?

The environment surrounding elementary schools' technology-related professional development favored data management over technology integration. Professional development was consumed by administrative functions, not for integrating technology into curriculum.

School climate hindered teachers' acquisition and integration of technologies in learning and teaching due to state-mandated testing. The majority of teachers surveyed agreed their school environments were impacted by the significant amount of time spent on state-mandated tests, which hindered teachers from integrating and acquiring the necessary skills to apply technology in teaching and learning.

Teachers' views on the use of technology were positive; they supported the belief that technologically skilled students are better prepared for college. However, teachers expressed current state and federal practices did not entertain other programs outside the mandated testing. Teachers indicated other areas of instruction, such as group instruction, critical thinking skills, and cooperative learning, were affected by the focus on testing.

The school testing environment created pressures on and demands of students, which affected opportunities to learn how to use technology in creative ways free from the threat of a grade. Furthermore, students might not be motivated to use technology if it is heavily used for test-related drill instruction.

The pressure for high scores on state-mandated tests creates a situation where teachers feel they have little time to teach anything that is not on the tests. Federal and

state educational policy heavily relies on standardized testing scores to determine the education's effectiveness, with a narrowed emphasis on anything outside the test's focus.

Instructional constraints produced by testing pressures on teachers significantly hindered their ability to learn how to integrate technology for student-centered and interdisciplinary learning. Schools lacked the resources to add value to technology instruction because of the intense focus on testing mandates. Without curriculum integration and interdisciplinary planning, opportunities to engage other forms of teaching and learning, skills considered indispensable, are diminished.

Scores on the state-mandated testing affected modes of instruction. Many students from low-income cities performed poorly and were further affected by reforms that prevented their learning through the promotion of unsound skills, prejudiced judgments due to low tests scores, and drill instruction. The prospects for students to explore many other forms of knowledge and understanding not quantifiable in today's standardized tests are limited, producing inequality of opportunity.

Teachers' perceived values of state-mandated testing and its media coverage were negative. The testing practices do not adequately reflect the quality and complexities of teaching. Media attention is generally unfavorable towards educators and is increasingly representative of interest groups, which heightened pressures on teachers because of the marketization and politicization of test scores. Many teachers believed state mandates led some teachers to teach in ways contradicting their ideas of good educational practices.

Question 2. Do the driving sources behind externalized mechanisms of control unintentionally function as immobilizing agents in the development of teachers' technological competencies? If so, can these conditions produce digital inequality?

Participating elementary school teachers' believed competing demands related to state-mandated testing were unintentionally serving to immobilize teachers' development of technological competencies. Teachers emphasized that since technology is not part of the state-mandated testing requirements, teachers prefer to concentrate on test requirements rather than integrate technology in lessons. Furthermore, teachers believed technology in their school was utilized for skill drills related to testing. These conditions hinder both students and teachers from acquiring technological competencies and further expand digital inequality through its inequitable access and use. Signs of the effects of a high externally controlled education environment and its hindrance towards teachers' acquisition and integration of technology into teaching and learning practices are apparent.

The pressure to have students perform well on the state-mandated test was clear in teachers' responses. Since technology testing and development is outside the parameters of mandated testing, teachers' views indicated digital inequality, in terms of technology use in the curriculum, was a hindrance towards the development of competencies in professional practice, considering that development of technology competencies requires constant utilization of ICT.

Teachers working within the pressures of an academically underperforming district with high-externalized instructional constraints and competing demands related to mandated testing perceived the situation as an unintended consequence of federal and state policies. Their confidence and ability to learn to integrate technology into inter-disciplinary learning has been hindered. Applying information learned from one discipline into another enhances how we view, solve, and construct understandings; ICT

supports this type of learning, but pressures experienced by elementary school teachers have effected its development.

Non-core content and classroom activities are affected. For example, designing or advancing activities that incorporate the use of ICT for problem-based learning have remained the same with no improvement in the amount of time dedicated to the development of these competencies. With national and global demands increasing for technological skills, the lack of technology integration and development of competencies will increase educational gaps through digital inequalities.

Teachers viewed state testing as creating stagnation and decreasing instruction of independent use of technology to advance learning autonomy. The impact on this mode of instruction not only affected a teacher's ability to assess, integrate, and evaluate ICT, but also the motivational benefits students' received from self-regulation and control over their learning.

Teachers within the highly pressurized education environment indicated there was insufficient instructional time to develop technological proficiencies and merge these understandings with curriculum due to the impact and pressures of testing. Therefore, external policy acted as a control factor of time, which plays a critical role in the development of technological abilities. Time allotted to engage in the exploration of technology is critical towards technology self-efficacy because attitudes, beliefs, and perceptions of technology are influenced by its consistent use. These conditions produced an unequal hindrance towards the development of competencies because districts that are not subject to the same conditions develop these competencies.

The impact and pressure of testing affected teacher's development of competencies for teaching research and information literacy with technology. Having proficiencies in information literacy and research elevates student's self-directed engagement in learning beyond the parameters of school by expanding creativity, social responsibility, reasoning, and life-long learning. Hindrance to the advancement and support of these highly sought-after 21st century skills will have future detrimental effects on students. Therefore, it is reasonable to conclude education constraints of this nature within a socioeconomically disadvantaged setting can produce inequality.

Discussion

The survey results established a school's technology environment acted in favor of data management, as 51% the teachers agreed and 10% disagreed school technology environment was more for data management rather than for integrating technology into the teaching and learning process. The unintended consequence of this is the hindrance to teachers' development of technology skills and competencies. The results agree with those of Anderson and Dexter (2009), who found that education policies emphasized reading, mathematics, and science while de-emphasizing technology integration apart from only managing student-related data. Anderson and Dexter (2009) commented that despite various changes made to the United States' ICT sector, particularly in technologies that relate to schools, most changes were devoted to achieving federal and state goals and the management of student data.

The results also indicated the school environment prevented the acquisition of teachers' technology competencies and the integration of these technologies into learning and teaching because of the emphasis on state-mandated testing. Many of the teachers

surveyed agreed much of their school environments were fundamentally characterized by state-mandated testing, which does not generally allow teachers to integrate and acquire necessary technologies. The findings confirmed Schein's (2004) assertion on the impact of organizational climate and culture. State-mandated testing and test-driven standards and sanctions have altered the cultural norms and behavior patterns for most teachers in many urban elementary schools, which has contributed to less technology integration in school curricula and hindered teacher's acquirement of technological competencies.

Survey findings further revealed students are particularly nervous to take the state-mandated exams. Many students in socioeconomically disadvantaged settings within underperforming schools lack the necessary opportunities to utilize technologies in creative ways because of performance pressures. Studies indicated students who are allowed to use technology with regularity develop core competencies that allow them to compete with and comfortably use 21st century skills. Furthermore, technology can also help prepare students for college by equipping them with the necessary skills and competencies. Hew and Bush (2007) claimed technology serves to offer educational opportunities that help make available the social, economic, and educational resources that ensure equality and provide opportunities.

This study established the school atmosphere was not very conducive for either learning or integrating educational technologies into the curriculum. The external policy controls imposed heavy test-driven standards and sanctions, which significantly transformed teachers' core cultural values, norms, and behavior patterns. This transformation contributed to the negative shaping of instructional practices among teachers and students due to performance pressures.

The research also established excessive pressure for high scores on most state-mandated testing gives many of the teachers little time to teach anything outside the test curriculum. Many of the teachers surveyed agreed that educational policies heavily rely on standardized testing to determine the effectiveness of education. The teachers also agreed there is very little emphasis on content areas outside state-mandated testing. These factors hindered teachers and students from acquiring the benefits afforded by access and exposure to a balanced education, along with innovative frameworks for creating and acquiring new understandings through the utilization of ICT. The pressure has significantly grown in many of the district's schools where students require the ability to meet the goals and purposes of authorized acts, e.g., No Child Left Behind, Race to the Top, and other state policies. As pressures continue to limit economically disadvantaged schools, many students and teachers risk being left behind. Many schools, especially those in resource-limited areas, lacked the resources necessary to add value to technology instruction beyond federal and state mandates.

The study established excessive pressure from state-mandated testing competition, as well as other external demands due to state and federal requirements, can unintentionally immobilize the key technological and core development of teachers' competencies. The teachers surveyed claimed to face excessive pressure for high scores on state-mandated tests; the majority of teachers find little or no time to teach anything outside test requirements, and test programs were leading teachers to teach in ways that contradicted their own ideas of good educational practices. When these conditions persist over a long period without any form of policy intervention, the issue of inequality in

terms of technology adoption into the curriculum develops across schools, particularly those in limited resource environments.

Increasing levels of pressure from competing demands associated with state-mandated testing made the majority of teachers prefer to focus more on test requirements than integrating various technologies into learning and lesson plans. Moreover, the high levels of anxiety from external environment pressure and constraints have been caused by these policies in combination with the politicizing of public education by special interest groups; have contributed to negative effects for many socioeconomically disadvantaged urban elementary schools.

The lack of advancement in terms of activities incorporating ICT for problem-based learning was pointed out by the majority of the teachers as unintentionally functioning as immobilizing elements towards the development of teachers' technological skills. With the increased demands of the knowledge-based world, lacking the necessary technological skills and competencies in many economically distressed cities can contribute to a rise in inequality among already disadvantaged schools.

Relationship of findings with previous research. The present research findings confirmed the findings from previous research in this area of focus. When surveying how external policy controls transform public school teachers' culture of teaching and learning in socioeconomically disadvantaged elementary schools, the results were evident. Pfeffer and Salancik (1978) identified sources of external controls as the control of rules, regulations, access, ownership, and possession of resources. The federal and state government has used these sources of control when applying rules and regulations on states where financial aid is awarded.

External education controls have developed accountability measures in respect to wishes and standards of resource providers. The controls have the right to impose sanctions and demand answers for failing desired outcomes. Adopted accountability measures have power to shape the behavior of those in subordinate roles, may hamper the adoption and integration of other significant needs due to hierarchical demands of subjects and testing (Mulgan, 2000). Similarly, Keller and Bichelmeyer (2004) alluded that established academic standards assumed all students should acquire a certain degree of knowledge at a pre-determined level; educators are held responsible for ensuring that students attain this degree of knowledge.

The data collected and subsequently summarized indicated external controls derived from testing substantially influenced content, development of competencies, and modes of instruction. Teachers were under extreme pressure to have students perform well on state-mandated tests and were concerned how the test results would be utilized. Teachers indicated discontentment with accountability measures and the value of state-mandated testing of as an accurate measuring tool; they acknowledged technologically proficient students were better prepared for college, as well as that most of their daily instruction focused on testing. Assessing the use of external controls' formulation of pressures and constraints, the external environment therefore, is capable of affecting the internal behavior of an organization (Pfeffer & Salancik, 1978). The consequences of these conditions produce internal changes in teachers as they adapt to increasing test-related demands (Evans, 1996). Teachers' pedagogical beliefs took a step back in order to mediate anxiety and survival pressures (Mulgan, 2000; Pfeffer & Salancik, 1978). This

altered the culture of teaching and learning for public school teachers in socioeconomically disadvantaged elementary schools (Mintrop & Sunderman, 2009).

When analyzing and summarizing whether driving sources behind externalized mechanisms of control unintentionally function as immobilizing agents in the development of teachers' technological competencies and whether these conditions produce digital inequality, there were very strong connections between this study's findings and those of previous studies. The results of the study reported public school teachers in economically distressed elementary schools confirmed the technology-related professional development environment was more for data management than integrating technology into curriculum. Teachers' responses concurred with Anderson and Dexter (2009), who illustrated these dynamics when they stated that federal ICT funding "dedicated to technology was diverted to broader accountability movements" (p. 699), and for "data management and reporting software or to supply software for remedial learning in reading and mathematics" (p. 706). Donnelly, Dove, Tiffany-Morales, Adelman, and Zucker (2002) agreed teachers' professional development regarding technology integration has been minimal.

In addition, Anderson and Dexter (2009) supported that the pressures to meet achievement demands "reduced not only the impressive ICT infrastructure evident in American schools, but also the ICT-based teaching and learning activities that promote deep understanding, critical thinking, collaboration, and other activities that improve learning" (2009, p. 706). Increased pressures have driven teachers to focus their time on state-mandated test requirements, which, according to teachers' responses, hindered their acquisition and integration of technologies into teaching and learning, student-centered

and inter-disciplinary learning, and developing technology competencies for teaching research and information literacy. Keller and Bichelmeyer (2004) affirmed changes that resulted from the external environment, due to government policies, hindered the development of technology competencies because they are based on reconciling competing demands; therefore, teachers prioritized sanction-driven accountability mandates, which leave insufficient time to develop their technology competencies and incorporate technology into curriculum. Federal and state high-stakes sanction-driven testing policies have hindered teacher's development of technology competencies (Anderson & Dexter, 2009; Warschauer, 2007; Keller & Bichelmeyer, 2004; Lawton et al., 2000). Franklin and Bolick (2007) supported this view and remarked that policy initiatives have not only unintentionally hindered teachers, but limited opportunities to explore the benefits of technology integration in the classroom.

Warschauer (2007) also concluded federal and state high-stakes and sanction-driven policy hindered teacher's development of technology competencies, and further suggested it also impeded disadvantaged students from developing technological literacy skills. Time allocation and consumption has become a major factor among many scholars regarding the development of technology competencies. According to Ertmer (2005), development of technological competencies required consistent utilization of educational technologies in order to elevate teachers' beliefs in using technology, which is essential to the development of technological self-efficacy. External pressures derived from policy have driven teachers to spend most of their instructional time "teaching to the test" because of sanctions and punitive-driven external accountability demands for rapid improvements and results. This study's findings supported many previous researchers'

conclusions regarding the negative effects of externalized mechanisms of controls via federal and state demands, such as affecting the development of technology use, competencies, integration, technological progress, and technology self-efficacy—all of which enhance teachers and students 21st century learning skills. This means that externalized mechanisms of control unintentionally hinder the development of technology competencies in economically disadvantaged elementary schools. The effects of this environment will result in widening inequity for disadvantaged students due to a lack of teachers' professional technological development and the absence of the natural skill transfer from teacher to student. As such, students face decreased economic opportunities that further expand digital inequity, and result in long-lasting future social and human resource ramifications.

Implications of findings for policy. The practical implications of findings regarding policymakers and policy design decision-making are far-reaching and highly encompassing. Furthering the understanding of institutional decision-making structures is significant given decisions have the potential to shape organizational behavior to mobilize or immobilize actions aimed for the greater good. The findings and implications from this research provided a perspective of the influences behind educational governance and public education decision-making to inform educational stakeholders.

The study revealed externalized mechanisms of control unintentionally function as immobilizing agents in a teacher's development of technological competencies, which potentially produce opportunity limitations for underprivileged students through the formation of digital inequities. Educational policies were designed to improve or enhance learning outcomes for all students, particularly in socioeconomically distressed areas that

most often encounter disproportionate rates of underachievement. Institutional structures of decision-making must increasingly discuss the educational challenges of realigning a school's curricula and evaluation systems to consider the relationship between traditional forms of literacy and 21st century technological literacy demands, such as integrating ICT into content area teaching and learning practices. The educational relevance of integrating and adopting technology into learning and teaching practices has been greatly emphasized by researchers and presents significant possibilities and opportunities to reduce inequities.

Collectively, the research findings established a strong view of teachers' perceptions, attitudes, and beliefs about the effects of external controls on teaching, learning, and technological competency development. The cumulative effects supported several fundamental areas to attenuate policy in order to leverage equality in education. Policy mechanisms must acknowledge conditions exist that produce unequal effects on schooling by means of output-driven demands. The strategic process for formulating and implementing policy needs to acknowledge uneven access to physical and human resources within different demographic settings are a reality. Recognizing these dynamics provides the basis for open and objective interpretive lenses toward educational inquiry and policy formation. Policy processes aimed at causing behavior changes for collective good through external sanctions, or the threat of sanctions, must recognize variances in competing demands, which can overtake professional practices and decisions. Policy decision-making structures must realize technological equipment and access to technology alone will not overcome digital inequities. Differences in how, when, and where technology is accessed and used aligned with socioeconomic conditions. District

policies and procedures ought to ensure sufficient social and human resources exist to counteract the effects of external pressures in order to merge subjects and technology standards in schools, especially within resource-limited settings. Teachers need to use technology instruction effectively to provide students with equitable opportunities to become active participants in a knowledge-driven world.

Limitations of the Study

The study is limited to public elementary school teachers from first through sixth grade. The scope of the study focused on an urban, socioeconomically disadvantaged school district in the Mid-Atlantic region of the United States. Therefore, the sample group was limited to this socioeconomic level; other socioeconomic status levels are needed to permit results comparisons across variables. The research conducted did not measure these variations, but future inquiries should evaluate these criteria. Other limitations included sample size, time, teachers' understandings of questions, and the meaning of technology competency. These research constraints limit the generalizability of the study findings.

Recommendations

Some of areas of further study include conducting a study on how public elementary school ICT planning patterns are institutionally supported, to what degree they are essential to school culture, and how this pattern supports or suppresses teachers' and students' achievements. It would be beneficial to determine how building on leader's beliefs reconciled with competing demands of rewards and sanctions and the development of ICT competencies in teaching and learning. Studies regarding the access and use of ICT should be conducted on bilingual teachers to evaluate the development of

technological competencies. Further research is also needed concerning whether external controls formulated by federal and state policies hindered development of teachers ICT competencies in other socioeconomic settings and sample sizes.

Conclusions

Throughout human history, technological advances have been critically important for the development of human and social resources. This study intended to illustrate how to enhance educational opportunities and academic achievements within economically disadvantaged elementary schools. Examining how external control mechanisms generated by market and government-based educational reforms transformed teaching and learning, while hindering the acquisition of technology competencies, determined whether these conditions produced digital inequality. Public education principles and public school systems are underserved when equity and equality are expanded through policies aimed at providing rich educational experiences to all students.

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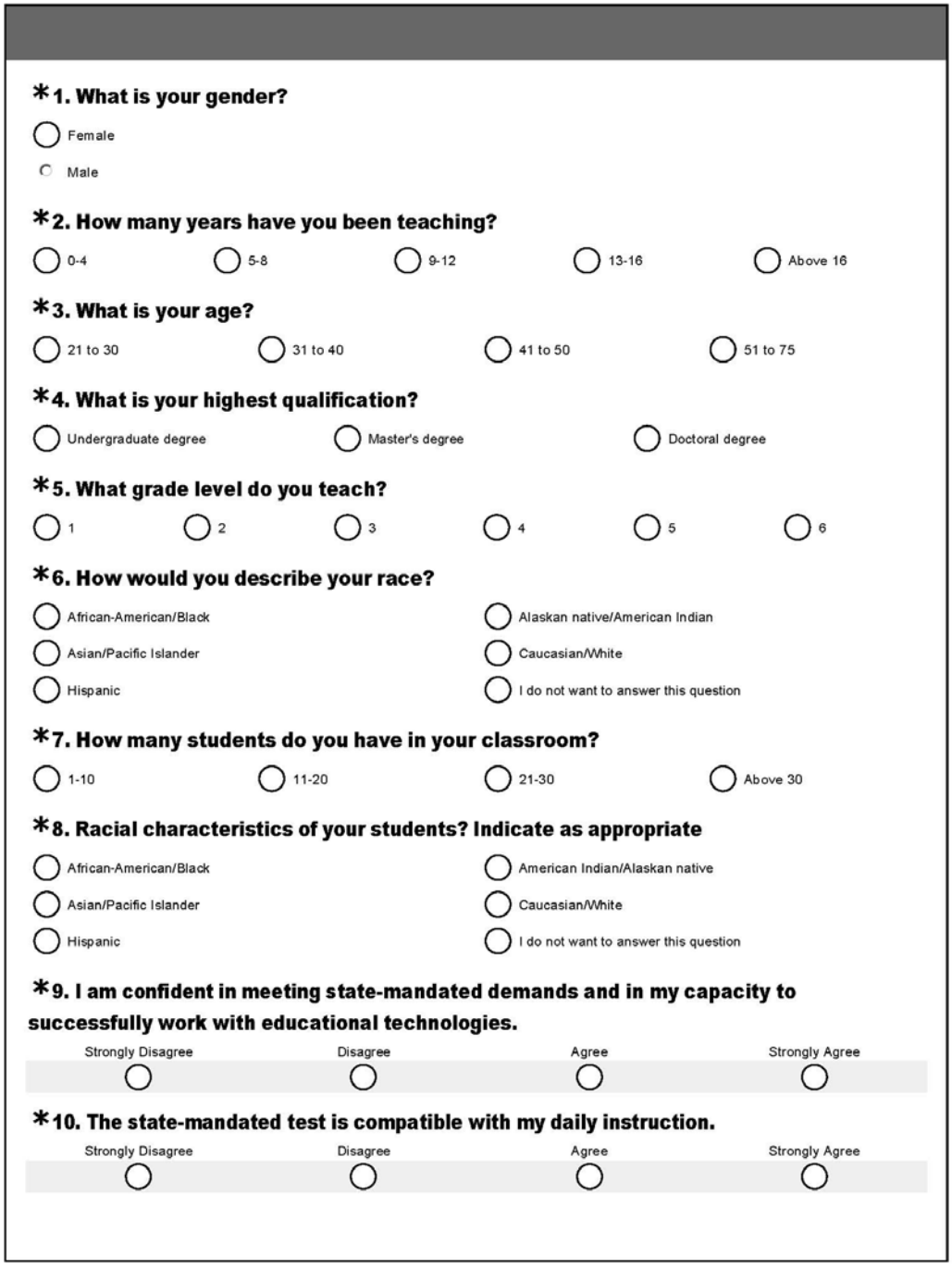
Appendix A

Survey



***1. What is your gender?**

- ◯ Female
- ◯ Male

***2. How many years have you been teaching?**

◯ 0-4 ◯ 5-8 ◯ 9-12 ◯ 13-16 ◯ Above 16

***3. What is your age?**

◯ 21 to 30 ◯ 31 to 40 ◯ 41 to 50 ◯ 51 to 75

***4. What is your highest qualification?**

◯ Undergraduate degree ◯ Master's degree ◯ Doctoral degree

***5. What grade level do you teach?**

◯ 1 ◯ 2 ◯ 3 ◯ 4 ◯ 5 ◯ 6

***6. How would you describe your race?**

- ◯ African-American/Black
- ◯ Alaskan native/American Indian
- ◯ Asian/Pacific Islander
- ◯ Caucasian/White
- ◯ Hispanic
- ◯ I do not want to answer this question

***7. How many students do you have in your classroom?**

◯ 1-10 ◯ 11-20 ◯ 21-30 ◯ Above 30

***8. Racial characteristics of your students? Indicate as appropriate**

- ◯ African-American/Black
- ◯ American Indian/Alaskan native
- ◯ Asian/Pacific Islander
- ◯ Caucasian/White
- ◯ Hispanic
- ◯ I do not want to answer this question

***9. I am confident in meeting state-mandated demands and in my capacity to successfully work with educational technologies.**

Strongly Disagree	Disagree	Agree	Strongly Agree
◯	◯	◯	◯

***10. The state-mandated test is compatible with my daily instruction.**

Strongly Disagree	Disagree	Agree	Strongly Agree
◯	◯	◯	◯

***11. The state-mandated test is as accurate a measure of student achievement as a teachers' judgment.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***12. My district's curriculum is aligned with the state-mandated test demands.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***13. The results from state-mandated test measures teacher's efforts and motivation.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***14. Teachers are under extreme pressure to have students perform well on the state-mandated test.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***15. Instructional constraints hinder my ability to learn ways to integrate technology for student-centered and inter-disciplinary learning.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***16. The instructional texts and material that the district requires me to use are compatible with the state-mandated test.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***17. Scores on the state-mandated test accurately reflect the quality of education students have received.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***18. The state-mandated testing program is just another fad.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***19. The time spent in dealing with the environment produced by state-mandated testing has affected my confidence in integrating technology into the curricula and instruction.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***20. Teachers spend less time developing technical and ICT proficiencies necessary to integrate technology into curriculum because of state-mandated testing.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***21. Teacher's morale is high in my school.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***22. Media coverage of the state-mandated test accurately reflects the quality of education in my district.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

23. Test preparation materials are similar to the content of state-mandated test.

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***24. Our school technology related professional development environment is more for data management than integrating technology into curriculum.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***25. There is so pressure much from competing demands related to state testing in my school that since technology is not part of the state-mandated testing requirements teachers prefer to concentrate on test requirements than to integrate technology in lessons plans.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***26. Teachers in my school utilize technology for skill drills related to state test.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***27. Media coverage of state-mandated testing issues has been unfair to teachers.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***28. The schools environment because of state-mandated testing is hindering teacher's acquisition and integration of technologies in teaching and learning processes.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***29. The state-mandated test is not an accurate measure of what students who are acquiring English as a second language know and can do.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***30. My schools technology related professional development environment is more for data management thantechnology integration with curriculum.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***31. Students are extremely anxious about taking state-mandated test.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***32. Students are extremely anxious about taking the state-mandated test.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***33. Students who are technologically proficient are better prepared for college.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***34. My school has an atmosphere conducive to learning and integrating educational technology into teachingand learning.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***35. There is so much pressure for high scores on the state-mandated test teachers have little time to develop competencies for utilizing technology for instruction.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***36. Media coverage of state-mandated testing issues adequately reflects the complexity of teaching.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***37. There is so much pressure for high scores on the state-mandated test teachers have little time to teach anything not on the test.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***38. I feel competent in developing Excel spreadsheets and creating Power Point presentations.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***39. Students are under intense pressure to perform well on the state-mandated test.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***40. My tests have the same content as the state-mandated test.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***41. Teachers in my school want to transfer out of grades where the state-mandated test is administered.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***42. The state-mandated testing programs lead some teachers in my school to teach in ways that contradict their own ideas of good educational practice.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***43. Teachers in my school have found ways to raise state-mandated test scores without really improving student learning.**

○ Strongly Disagree ○ Disagree ○ Agree ○ Strongly Agree

***44. Teachers in my school experience pressure to integrate technology in lessons plans.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***45. Documenting student's acquisition of technology competencies is set aside to focus more on state-mandated testing demands.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***46. Students need to be proficient in accessing, managing, integrating, evaluating, and creating information in order to become productive citizens for the 21st century.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***47. The use of information and communication technologies (ICT) support self-regulated, student centered, and lifelong learning.**

Strongly Disagree	Disagree	Agree	Strongly Agree
○	○	○	○

***48. The following is a list of ways in which state-mandated test results are used. For each item please indicate how appropiate you feel the specific use is. Please rate each use with the following scale.**

	Very Inappropriate	Moderately Inappropriately	Moderately Appropriately	Very Appropriately
A. Evaluate charter schools	◯	◯	◯	◯
B. Evaluate voucher programs	◯	◯	◯	◯
C. Hold the district accountable	◯	◯	◯	◯
D. Hold schools accountable	◯	◯	◯	◯
E. Award school accreditation	◯	◯	◯	◯
F. Place schools in receivership	◯	◯	◯	◯
G. Rank schools publicly	◯	◯	◯	◯
H. Place students in special education	◯	◯	◯	◯
I. Promote/retain students in grade	◯	◯	◯	◯
J. Remediate students	◯	◯	◯	◯
K. Group students by ability in grade	◯	◯	◯	◯
L. Award teachers/admin. financial bonuses	◯	◯	◯	◯
M. Reward schools financially	◯	◯	◯	◯
N. Evaluate teacher/admin. performance	◯	◯	◯	◯
O. Fire faculty/staff	◯	◯	◯	◯
P. Provide incentives for teachers who are technologically literate	◯	◯	◯	◯

***49. In what ways, if any, has the amount of time you spent on each of the following activities changed in your school in order to prepare students for the state-mandated testing program.**

	Increased a Great Deal	Moderately Increased	Stayed About the Same	Moderately Decreased	Decreased a Great Deal
A. Instruction in tested areas	◯	◯	◯	◯	◯
B. Instruction in areas not covered by the state-mandated test	◯	◯	◯	◯	◯
C. Instruction in tested area with high stakes attached (e.g., promotion, graduation, teacher rewards)	◯	◯	◯	◯	◯
D. Insuring that all students are technologically literate.	◯	◯	◯	◯	◯
E. Designing activities that incorporate the use of ICT for problem base learning.	◯	◯	◯	◯	◯
F. Developing competencies on instructing independent use of technology to advance autonomy in learning.	◯	◯	◯	◯	◯
G. Instruction on group computer projects	◯	◯	◯	◯	◯
H. Parental contact	◯	◯	◯	◯	◯
I. Field trips (e.g., museum tour, hospital tour)	◯	◯	◯	◯	◯
J. Class trips (e.g., circus, amusement park)	◯	◯	◯	◯	◯
K. Professional development related to technology integration in curriculum.	◯	◯	◯	◯	◯
L. Enrichment school assemblies (e.g., professional choral group performances	◯	◯	◯	◯	◯
M. Professional development related to technology integration in curriculum.	◯	◯	◯	◯	◯
N. Enrichment school assemblies (e.g., professional choral group performances)	◯	◯	◯	◯	◯

***50. Your state-mandated testing program influences the amount of time spent on...**

	Strongly Disagree	Disagree	Agree	Strongly Agree
A. Whole-group instruction	○	○	○	○
B. Critical thinking skills	○	○	○	○
C. Cooperative learning	○	○	○	○
D. Developing competencies for using technology to instruct on how to design presentations and electronic communication processes.	○	○	○	○
E. Problems likely to appear on test	○	○	○	○
F. Incorporating educational technology into curriculum standards	○	○	○	○
G. Developing competencies for teaching research and information literacy with technology.	○	○	○	○
H. Developing competencies for accessing, integrating, and evaluating information and communication technologies (ICT) in instruction.	○	○	○	○

***51. Please provide information requested in order to enter drawing for one of the three $100 gift card prizes. Information is needed to notify the winners of the prizes. One hundred questionnaires are the goal for the study; this makes the odds of winning favorable for participants. The survey is intended only for elementary school teachers from grades 1 to 6 within the district. Participation in the research is voluntary. In addition, anonymity and ethical standards will be adhered to through the following:**

1. Identity: names and emails of participants are protected by coding information and storing data in a safe deposit box.

2. Location: name of school, district, and state are withheld in the study. The description of location is that of a city within the Mid-Atlantic States Region of the United States.

3. Data:information gathered is converted into PDF file format and password protected.

Name:	
Elementary School:	
City/Town:	
State:	
Email Address:	

Appendix B

Survey Key

	Strongly Agree	Agree	Disagree	Strongly Disagree
I. IMPACT ON SCHOOL CLIMATE				
31. Students are extremely anxious about taking the state-mandated test.				
39. Students are under intense pressure to perform well on the state-mandated test.				
33. Teachers are under extreme pressure to have students perform well on the state-mandated test.				
34. My school has an atmosphere conducive to learning and integrating educational technology into teaching and learning				
28. The schools environment because of state mandated testing is hindering teacher's acquisition and integration of technologies in teaching and learning processes.				
24. Our school technology related professional development environment is more for data management than integrating technology into curriculum.				
II. PRESSURE ON TEACHERS				
42. The state-mandated testing programs lead some teachers in my school to teach in ways that contradict their own ideas of good educational practice.				
37. There is so much pressure for high scores on the state-mandated test teachers have little time to teach anything not on the test.				
21. Teachers morale is high in my school.				
15. Instructional constraints hinder my ability to learn ways to integrate technology for student-centered and inter-disciplinary learning.				
44. Teachers in my school experience pressure to integrate technology in lessons plans.				
35. There is so much pressure for high scores on the state-mandated test teachers have little time to develop competencies for utilizing technology for instruction.				
41. Teachers in my school want to transfer out of grades where the state-mandated test is administered.				

III. PERCEIVED VALUE OF THE STATE TEST

22. Media coverage of the state-mandated test accurately reflects the quality of education in my district.
17. Scores on the state-mandated test accurately reflect the quality of education students have received.
11. The state-mandated test is as accurate a measure of student achievement as a teachers' judgment.
27. Media coverage of state-mandated testing issues has been unfair to teachers.
36. Media coverage of state-mandated testing issues adequately reflects the complexity of teaching.
43. Teachers in my school have found ways to raise state-mandated test scores without really improving student learning.
29. The state-mandated test is not an accurate measure of what students who are acquiring English as a second language know and can do.
18. The state-mandated testing program is just another fad.

IV. ALIGNMENT OF CLASSROOM PRACTICES WITH THE STATE TEST	**Strongly Agree**	**Agree**	**Disagree**	**Strongly Disagree**
12. My district's curriculum is aligned with the state-mandated test demands.				
10. The state-mandated test is compatible with my daily instruction.				
40. My tests have the same content as the state-mandated test.				
16. The instructional texts and material that the district requires me to use are compatible with the state-mandated test.				

V. IMPACT OF THE STATE TEST ON CONTENT AND MODE OF INSTRUCTION: EFFECTS ON TESTED AREAS, NON-CORE CONTENT, AND CLASSROOM ACTIVITIES

49. In what ways, if any, has the amount of time you spent on each of the following activities changed in your school in order to prepare students for the state-mandated testing program?
    A. Instruction in tested areas
    B. Instruction in areas not covered by the state-mandated test.
    C. Instruction in tested areas with high stakes attached (e.g., promotion, graduation, teacher rewards)
    D. Insuring that all students are technologically literate.
    E. Designing activities that incorporate the use of

ICT for problem base learning.

F. Developing competencies on instructing independent use of technology to advance autonomy in learning.
G. Instruction on group computer projects.
H. Parental contact
I. Field trips (e.g., museum, hospital tour)
J. Class trips (e.g., circus, amusement park)
K. Professional development related to technology integration in curriculum.
L. Enrichment school assemblies (e.g., professional choral group performances)

VI. IMPACT OF THE STATE TEST ON CONTENT AND MODE OF INSTRUCTION: EFFECT ON METHODS OF INSTRUCTION

50. Your state-mandate testing program influences the amount of time spent on…
    A. Whole-group instruction
    B. Critical thinking skills
    C. Cooperative learning
    D. Developing competencies for using technology to instruct on how to design presentations and electronic communication processes
    E. Problems likely to appear on test
    F. Incorporating educational technology into curriculum standards
    G. Developing competencies for teaching research and information literacy with technology
    H. Developing competencies for accessing, integrating, and evaluating information and communication technologies (ICT) in instruction

VII. IMPACT OF THE STATE TEST ON CONTENT AND MODE OF INSTRUCTION: EFFECTS ON TESTED AREAS, NON-CORE CONTENT, AND CLASSROOM ACTIVITIES

	Decreased a Great Deal	**Moderately Decreased**	**Stayed About same**	**Moderately Increased**	**Increased a Great Deal**

49. In what ways, if any, has the amount of time you spent on each of the following activities changed in your school in order to prepare students for the state-mandated testing program?
    M. Instruction in tested areas
    N. Instruction in areas not covered by the state-mandated test.
    O. Instruction in tested areas with high stakes attached (e.g., promotion, graduation, teacher rewards)
    P. Insuring that all students are technologically literate.

Q. Designing activities that incorporate the use of ICT for problem base learning.
R. Developing competencies on instructing independent use of technology to advance autonomy in learning.
S. Instruction on group computer projects.
T. Parental contact
U. Field trips (e.g., museum, hospital tour)
V. Class trips (e.g., circus, amusement park)
W. Professional development related to technology integration in curriculum.
X. Enrichment school assemblies (e.g., professional choral group performances)

VII. THE IMPACT OF THE STATE TEST ON CONTENT AND MODES OF INSTRUCTION	**Strongly Agree**	**Agree**	**Disagree**	**Strongly Disagree**
14. Teachers are under extreme pressure to have students perform well on the state-mandated test.				
20. Teachers spend less time developing technical and ICT proficiencies necessary to integrate technology into curriculum because of state-mandated testing.				
23. Test preparation materials are similar to the content of state-mandated test.				
VIII. UNINTENDED CONSEQUENCES OF THE STATE TEST				
25. There is so pressure much from competing demands related to state testing in my school that since technology is not part of the state-mandated testing requirements teachers prefer to concentrate on test requirements than to integrate technology in lessons plans.				
19. The time spent in dealing with the environment produced by state-mandated testing has affected my confidence in integrating technology into the curricula and instruction.				
38. I feel competent in developing Excel spreadsheets and creating Power Point presentations.				
45. Documenting student's acquisition of technology skills is set aside to focus more on state-mandated testing requirements.				
09. I am confident in meeting state-mandated demands and in my capacity to successfully work with educational technologies.				
IX. USE OF TEST RESULTS: TEACHERS' VIEWS ON ACCOUNTABILITY	**Strongly Agree**	**Agree**	**Disagree**	**Strongly Disagree**
13. The results from state-mandated test measures teacher's efforts and motivation.				

48. Question comprises 16 sub-items representing ways in which test results are used to hold schools, teachers, and students accountable for performance on the state test.
    A. Evaluate charter schools
    B. Evaluate voucher programs
    C. Hold the district accountable
    D. Hold schools accountable
    E. Award school accreditation
    F. Place schools in receivership
    G. Rank schools publicly
    H. Place students in special education
    I. Promote/retain students in grade
    J. Remediate students
    K. Group students by ability in grade
    L. Award teachers/admin. financial bonuses
    M. Reward schools financially
    N. Evaluate teacher/admin. performance
    O. Fire faculty/staff
    P. Provide incentives for teachers who technologically literate

X. TEACHERS' VIEWS ON USE OF TECHNOLOGY	**Strongly Agree**	**Agree**	**Disagree**	**Strongly Disagree**
09. I have enough technical understanding to develop and design ICT activities that assesses student's digital literacies.				
19. The time spent in dealing with the environment produced by state-mandated testing has affected my confidence in integrating technology into the curricula and instruction.				
24. Our school technology related professional development environment is more for data management than integrating technology into curriculum.				
25. There is so pressure much from competing demands related to state testing in my school that since technology is not part of the state-mandated testing requirements teachers prefer to concentrate on test requirement than to integrate technology in lessons plans.				
28. The schools environment because of state-mandated testing is hindering teacher's acquisition and integration of technologies in teaching and learning processes.				
30. My schools technology related professional development environment is more for data management than technology integration with curriculum.				

32. Students who are technologically proficient are better prepared for college.
34. My school has an atmosphere conducive to learning and integrating educational technology into teaching and learning.
35. There is so much pressure for high scores on the state-mandated test teachers have little time to develop confidence in utilizing technology for instruction.
38. I feel competent in developing Excel spreadsheets and creating Power Point presentations.
44. Teachers in my school experience pressure to integrate technology in lessons plans.

	Strongly Agree	Agree	Disagree	Strongly Disagree
45. I feel competent in utilizing digital resources with students to solve understand real-world problems.				
46. Students need to be proficient in accessing, managing, integrating, evaluating, and creating information in order to become productive citizens for the 21st century.				
47. The use of information and communication technologies (ICT) support self-regulated, student centered, and lifelong learning.				

	Decreased a Great Deal	Moderately Decreased	Stayed About same	Moderately Increased	Increased a Great Deal
48. In what ways, if any, has the amount of time you spent on each of the following activities changed in your school in order to prepare students for the state-mandated testing program?					
D. Insuring that all students are technologically literate.					
E. Designing activities that incorporate the use of ICT for problem based learning.					
F. Developing competencies on instructing independent use of technology to advance autonomy in learning.					
50. Your state-mandated testing program influences the amount of time spent on...					
D. Developing competencies for using technology to instruct students on how to design presentations, and utilize electronic communication processes.					
F. Incorporating educational technology into curriculum standards					
G. Developing competencies for teaching technology based research and information literacy.					
H. Developing competencies for assessing, integrating, and evaluating information and communication technologies (ICT) in instruction.					

Appendix C

Request Permission to Conduct Research in Schools

[redacted]
State District Superintendent
[redacted]

March 18, 2014

Dear Dr. [redacted]

My name is Oscar Rodriguez and I am completing a doctoral dissertation at Rowan University's Educational Leadership program. The research titled is "The Effects of External Controls on Teacher's Development of Technology Competencies in an Economically Disadvantage District". I am requesting your permission to conduct research in your school district.

The study introduces assumptions of the effects of external controls on education that effect reform policies, teachers development of technology competencies, and the technical core schools "teaching and learning" at the elementary school level within a socio-economically disadvantage setting. The objective is to determine whether changes from the external environment created by federal and state policies are unintentionally hindering teacher's development of technology competencies because of their reconciliation with competing demands (Keller & Bichelmeyer, 2004; Lawton, McKevitt, & Millar, 2000).

Anonymity of teachers, schools, district, city, and state will be adhered to in the study. Research participants and their location are to be describe as elementary school teachers from grade levels 1 to 6 within a socioeconomically disadvantage city located in the Mid-Atlantic Region of the United States. Survey instrument in study is derived from pre-existing questions that were used by the National Board on Educational Testing and Public Policy, Chestnut Hill MA, for a national study titled "Perceived Effects of State-Mandated Testing Programs on Teaching and Learning: Findings from a National Survey of Teachers"(J.J. Pedulla et al., 2003).

Modifications to original survey were perfume for the purpose of inquiry. Distribution and collection of survey is performed electronically via internet utilizing a web-based service called survey monkey. Dispersal of questionnaire is district wide to all elementary schools teachers from grade levels 1 to 6 within the district. Participation in research is voluntary.

The study is significant because if the phenomenon exists, the consequences on teachers will reciprocate onto their students. Therefore, differences in use and development of technology competencies in teachers can contribute to digital inequality in students. Information obtain from inquiry will provide district with a base for assessing in context their conditions and strengthen its pursuit to develop students who regardless of their socio-economic conditions can compete in the knowledge and technology based world.

This letter will be submitting as part of the proposal packet to obtain Institutional Review Board (IRB) approval. If there are any questions or concerns, please contact me at 201-394-3651 or Email: okysdata@gmail.com or dissertation chair, Hector M. Rios, Ph.D., Associate Professor at 856-256-4711or Email: rios@rowan.edu.

Appendix D

Approval to Conduct Research in Schools

Rec: 3/19/14

[ ] PUBLIC SCHOOLS [ ]

Division of Assessment, Planning and Evaluation

[ ]

Office: [ ] Fax: [ ]

[ ]
Director of Assessment, Planning and Evaluation
Email: [ ]

[ ]
State District Superintendent

TO: [ ], Chief Reform and Innovations Office

FROM: [ ], Director of Assessment, Planning, & Evaluation

DATE: March 18, 2014

RE: Research Request

In accordance with district policy 9550, I have reviewed the research request application for the applicant/project referenced below and have determined that the request meets the criteria to conduct research within the [ ] Public School District.

The attached document is being provided for your signature and if you would like to view the request in more depth a copy of the application is being provided as well.

Researcher/Applicant Name: Oscar Rodriguez

Project Title: The Effects of External Controls on Teacher's Development of Technology Competencies in an Economically Disadvantage District.

Institutional Affiliation: Ro[ ]nal Program

X I hereby authorize Oscar Rodriguez, to use the Paterson Public School premises to conduct a study entitled.

X I hereby authorize Osc[ ]ruit subjects for participation in a study entitled.

[ ]
Chief Reform and Innovations Officer

Preparing All Children for College and Career

Appendix E

Consent to Participate in Web Based Survey

Research Study Project: Doctoral Dissertation Research
Consent to be a Research Participant

I am inviting you to participate in research that is being conducted by Oscar Rodriguez, a doctoral candidate in the Department of Educational Leadership and Foundations at Rowan University in New Jersey. The research title is "The Effects of External Controls on Teachers' Development of Technology Competencies in an Economically Disadvantaged District." The objective is to determine whether the environment created by federal and state policies are unintentionally hindering elementary school teachers' development of technology competencies as a result of their reconciliation with competing demands within a socioeconomically distressed city.

Dispersal of the questionnaire is districtwide and only for elementary school teachers from grades 1 to 6 within the district. Participation in the research is voluntary. In addition, anonymity and ethical standards will be adhered to through the following:

1. Identity: names and emails of participants are protected by coding information and storing data in a safe deposit box.
2. Location: name of school, district, and state are withheld in the study. The description of location is that of a city within the Mid-Atlantic States Region of the United States.
3. Survey Data: information gathered is converted into PDF file format, password protected, and saved on a flash drive stored in a safe deposit box.

This survey should take approximately 15 minutes. By filling out the survey and providing your email, you will enter into a drawing for a $100 gift card. There will be three gift cards of this amount awarded with 100 questionnaires as the goal.
Upon your agreement, I humbly expect you to be honest and forthright with your contributions. If you have any questions regarding this research, do not hesitate to contact persons below:

Hector M. Rios, Ph.D., Associate Professor
College of Education @ Rowan University
Office: Herman D. James Hall 3031
Phone number: 856-256-4711
E-mail: rios@rowan.edu

Oscar Rodriguez
Dissertation candidate @ Rowan University
Phone number: 201-394-3651
E-mail: okysdata@gmail.com

Sincerely,
Oscar Rodriguez

By clicking on this web link, you consent to participate in this study:
http://www.surveymonkey.com

Appendix F

Survey Utilization Permission Letter

January 2, 2012

Dear Dr. Joseph Pedulla
Director, The Center for the Study of Testing,
Evaluation and Educational Policy
Boston College
Lynch School of Education

Email: pedulla@bc.edu
Phone: 617-552-4521

I am a doctoral student from Rowan University in New Jersey writing my dissertation tentatively titled "External Controls: Immobilization of Teacher Integration of 21st Century Technology Literacy in Economically Disadvantage Elementary Schools," under the direction of Dr. Hector Rios. I would like your permission to reproduce to use survey from the report, "Perceived Effects of State Mandated Testing Programs on Teaching and Learning: Findings from National Survey of Teachers" (2003), in my research study. I would like to use and print your survey with the following conditions:

- I will use survey only for my dissertation research study and will not sell or use it with any compensated development activities.
- I will include the copyright statement on all copies of the instrument.

My intentions are too add a technology related component to examine if the impact of state mandated testing and policy controls are influencing the development of teacher's competencies in information and communication technologies (ICT) at the elementary school level. If these are acceptable terms and conditions, please indicate so by signing one copy of this letter and returning it to me through postal mail, fax, or e-mail.

Oscar Rodriguez
21 Feronia Way
Rutherford, New Jersey 07070
E-mail: okysdata@gmail.com
Phone: 201-394-3651
Fax: 973-470-5134

Sincerely,

Oscar Rodriguez
Doctoral Candidate

Appendix G

Survey Utilization Confirmation

Gmail by Google

Oscar Rodriguez <okysdata@gmail.com>

Re: 2003 National Survey

1 message

Joseph Pedulla <joseph.pedulla@bc.edu> Tue, Jan 10, 2012 at 3:07 PM
To: Oscar Rodriguez <okysdata@gmail.com>

Oscar,

You have permission to use the survey or portions of it from the report, "Perceived Effects of State Mandated Testing Programs on Teaching and Learning: Findings from National Survey of Teachers" (2003). Please give appropriate attribution when citing it and send me a copy of your abstract when the dissertation is complete. Good luck with your study.

Sincerely,
JP

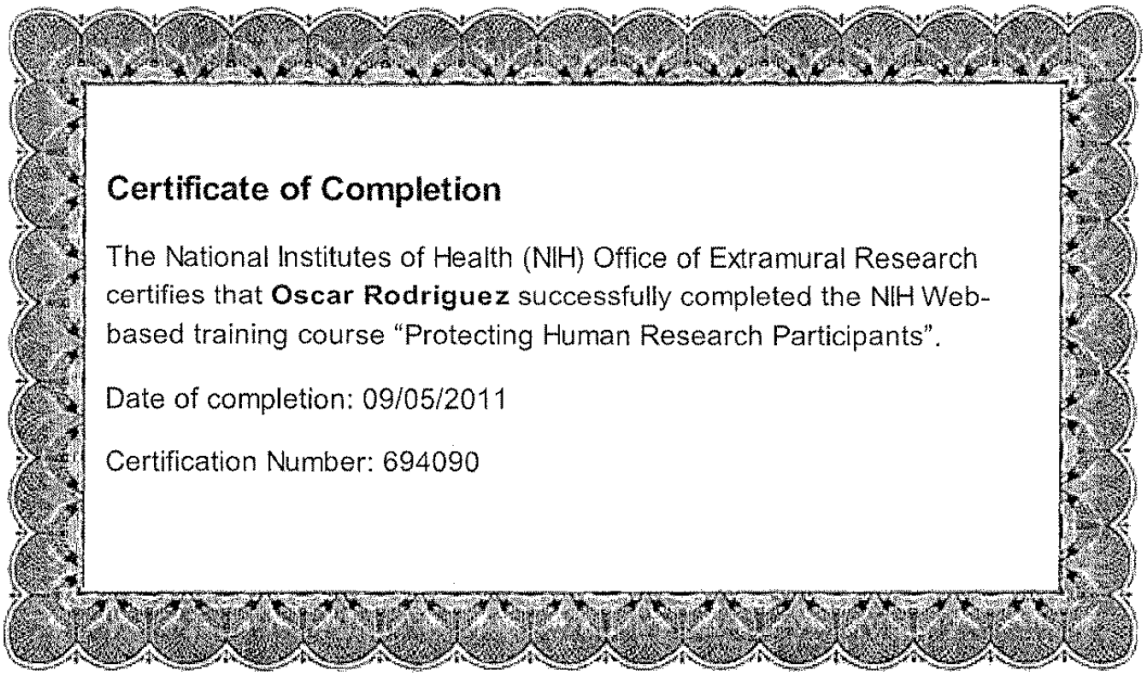
On Jan 3, 2012, at 3:19 PM, Oscar Rodriguez wrote:

> <Permission to use survey for dissertation.docx>

Joseph J. Pedulla, Ph.D.
Associate Professor
Department of Educational Research, Measurement and Evaluation
Lynch School of Education
Senior Research Associate
CSTEEP
Campion Hall, Room 336B
Chestnut Hill, MA 02467
e-mail: pedulla@bc.edu
Ph: (617) 552-0683
Fax: (617) 552-8419

Appendix H

Certificate for Protecting Research Participants



Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that **Oscar Rodriguez** successfully completed the NIH Web-based training course "Protecting Human Research Participants".

Date of completion: 09/05/2011

Certification Number: 694090