

**Education Reform**

**Trenton Prevention Policy Board Education Subcommittee**

*A Personalized Learning Framework: Innovation and Reform for Today's Classroom*

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*Education is for improving the lives of others and for leaving your community and world better than you found it.*

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## Executive Summary

The modern educational environment has faced increased contention over the recent implementation of higher-stakes standardized testing and failing school performance. This report assesses three main methods of educational innovations, and how these issues can be combated in school districts. The specific school district in question is the Trenton School District in Trenton, NJ.

This report analyzes various educational innovations that can be evaluated and implemented in school districts. Educational reforms provide the opportunity to create lasting and beneficial change in our schools; however, it is important that these innovations be properly assessed to determine their effectiveness.

Factors to determine efficacy, apart from state-mandated testing and strict curriculum guideline, include both cognitive and noncognitive assessment metrics. The cognitive metrics are attendance, grade retention, course performance, and course rigor. Noncognitive factors address learning conditions, discipline rates and policies, social and emotional learning levels, and physical and mental health of students.

A recent educational innovation is the Personalized Learning Framework (PLF). PLF aims to reach each student at an individualized level through differentiation of lessons, instruction, and teaching philosophies. This report discusses three benchmarking studies that illustrate personalized learning in their models.

These models are:

### 1. Small Learning Communities

- Case Study in Sycamore High School in San Francisco, CA
- Case Study in Christina School District in Wilmington, DE

### 2. Blended Learning

- Case Study in Digital Learning at Middle East Technical University in Turkey

### 3. Pyramid of Intervention Approach

- Case Study in Greater St. Albert School District in Alberta, Canada

Each model has its own set of implementation guidelines and strengths and weaknesses that inhibit or promote its implementation within Trenton. All three models overlap in the aspects districts must address prior to adaption. These barriers to institutionalized change are:

- School and District Wide Change
- Availability of New Facilities and New Curriculum
- Technology Needs
- New Role of Teachers

While innovation in Trenton will be challenging, the recommended model for the district is the Blended learning model, because of its flexibility of curriculum and achievement from classroom to classroom.

In reality, implementing an educational innovation reform must balance the new innovations with state-mandated assessments. This reality calls for a shift from topics to concepts and a realization that not all concepts can be personalized; some are universal.

Educational innovations can provide the solution to providing America's disengaged youth with dynamic learning environments that will induce dramatic and beneficial change throughout the education field.

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## **The Power of Education**

Education serves as the impetus for a person to attain individual knowledge and to contribute to the intellectual, social and infrastructural continuation of society. The power of education rests in its transcendence beyond the individual, reaching and impacting other members of society both locally and globally.

In John I. Goodlad's book, *In Praise of Education*, Historian Donald Vandenberg contests that education is a multifaceted instrument used to serve society (1997). Historically, education provides for the succession of human heritage from generation to generation across all civilizations. On an anthropological level, education nourishes society's youth, ultimately enabling them to develop into adulthood and to find a role within adult society. Socially, education provides for the socialization of children into societal roles and the values associated with continued existence within society (Goodlad 1997). Education also serves an economic purpose, instilling knowledge and skills into the workforce that will aid the nation in development and prosperity. Overall, education enables an individual to discover the possibilities within the world, to formulate their own sense of values, and ultimately to develop a sensible yet inquisitive presence within society.

Education truly serves as one of the most dynamic and fulfilling concepts in the world; however, it also becomes a large source of controversy and dissent. Goodlad explains this concept when he writes, "there are words for which adjectives are a redundancy. Virtue, truth, beauty, and justice are of this genre. Education is another of these. Strangely, we do not speak of better virtue, truth, or beauty, or justice, but we do not hesitate to speak of better education" (1997). Because education plays such an integrative role in our society, it is the constant focus of reform and "betterment." Society continually aims to improve upon education, attaching

adjectives to the word “education” that aim to serve organizational, private, and political interests; these jumble of words mystify the meaning of education and muddle what the true understanding of the word and concept assert for a diplomatic, innovative, and enlightening agenda (Goodlad 1997).

Reforms addressing education are widespread and varied. While ideas surrounding education continue to vary and face extreme internal and external pressures from the public, government, and private entities, society must attempt to remain true to the ideals of education. The beauty of education cannot be lost amidst bureaucratic claims and governmental and public battles; it is society’s duty to ensure that any reforms created uphold the virtuous and transcendent power of education in its purest form.

### **Education in America**

Education is often cited as one of the most important and vital necessities for innovation. The state of education in America has continued to be a topic of heated debate and concern. There are many educators, administrators, and politicians who advocate for greater reform and still others who resist further government involvement. Whatever the majority opinion may be, truth remains in the fact that the disparity between educational prowess in different states and districts across the nation is astounding, often leading urban districts to fall further behind their counterparts in other regions, and necessitating a greater call to action.

### **The State of Public Education in America**

The United States has long considered education as a main issue of concern among its citizens. The U.S. has a long history of intertwining education and government at the local, state, and federal levels. (Haubenreich 2012). The last 50 years have seen a massive increase in the

federal role in public education and a marked increase in tension between federal and state governments with respect to control over education (Haubenreich 2012).

For several decades, concerns have been raised about the quality of education in the United States. In 1983 the U.S. Department of Education released a report, *A Nation at Risk*, which proclaimed that the quality of public education had deteriorated since the 1950s (Williams 2005).

15 years later, a research group decided to re-evaluate American education and in 1998 published a second reform booklet also titled *A Nation at Risk*. According to this booklet, the quality of U.S. public education in the 1990s remained poor. The report noted that since 1983, more than 10 million students had reached their senior year with no basic reading skills, and 20 million had been promoted to twelfth grade without having learned math fundamentals. During this same period, from 1983 to 1998, more than 6 million students had dropped out of school (Williams 2005).

Furthermore, while reform efforts were heavily advocated for during the 80s and 90s, the report noted that national and international test scores revealed a steady decline, since 1970, in American student performance (Bethell 2005). A plethora of causes are thought to be linked to the decline in America education, including inefficient bureaucracies, teachers' unions, lightweight curricula, and a lack of teacher preparedness (Bethell 2005).

Moreover, increased financing is being utilized in attempt to alleviate the disparity in education, but to no avail. Billions of dollars are spent on primary and high school education. Total expenditures for public elementary and secondary schools in the United States amounted to \$638 billion in 2009-10, or about \$12,743 per public school student (D.O.E. 2013). **See Appendix A for School Expenditure Rates per Student.**

In recent years, the federal government has passed billions of dollars of new education spending for programs such as Race to the Top, the Teacher Incentive Fund, and the Investing in Innovation Fund. These new programs come in addition to the reauthorization of the Elementary and Secondary Education Act, now referred to as No Child Left Behind, during the Bush administration, and more recently the Common Core, a state led initiative that affects 44 states in the nation (Haubenreich 2012). In recent decades teachers' salaries have risen and classroom size has decreased, but these changes have not resulted in improved teaching or student achievement; performance remains flat. Therefore, many are concluding that increased spending does not lead to improvement; there is no evidence that more money yields improvement in the classroom.

Players in the American educational arena believe that a new type of reform must take place in order for concrete achievements to arise.

### **Education in New Jersey**

Education in New Jersey is governed by the Legislature, the New Jersey State Board of Education and the Commissioner of Education. New Jersey's schools must be in session for at least 180 days and school attendance is compulsory between the ages of 6 and 16 (Vespucci 2001).

The public education system in New Jersey has greatly changed since its beginnings 300 years ago, when education was almost exclusively operated by religious institutions and reserved for only a privileged few. In the early 1800s local and religious schools became unable to serve the needs of an expanding population (Vespucci 2001). Support for the establishment of a public education system grew. In 1828, the state conducted a study to learn about the condition of



education. According to the study many children were still unable to attend school, one in every five voters was unable to read or write, and state residents wanted a free public school system.

Over the next 50 years, laws were enacted to provide for state and local funds for the operation of schools (Vespucci 2001). In 1875, the New Jersey Constitution was amended to address the subject of educational opportunity. The amendment read “Legislature shall provide for the maintenance and support of a thorough and efficient system of free public schools for the instruction of all children in the state between the ages of five and eighteen years” (Vespucci 2001).

During the 20<sup>th</sup> Century, education in New Jersey continued to change and expand. Public school became free for everyone between 5 and 20 (Vespucci 2001).

The 1990s saw dramatic transformation for education in New Jersey. The State Supreme Court made crucial decisions in a legal case determining the equity in school funding, *Abbott v. Burke* (Haubenreich 2012). The case illustrated how levels of resources in poor urban districts produced unequal educational opportunities on the form of worse facilities, less experienced teachers, and fewer support services. The court declared the funding formula unconstitutional. A new funding formula, the Comprehensive Educational Improvement and Financing Act (1996), was adopted that ensures that the most disadvantaged district in the state can spend at the same rate as the most affluent districts. (Haubenreich 2012).

During this decade Governor Christine Whitman expressed her desire for a shift from funding equity to curriculum standards, a shift from “focusing from dollars to focusing on what those dollars should be spent on” (Haubenreich 2012). These goals contributed to the creation and implementation of the Common Core; however, currently there is still concern over the

source of the funding needed to support the goals of the Common Core. The Common was implemented into the New Jersey curriculum starting in the 2013-2014 school year.

### **Recent Education Policies and Platforms**

In the past two decades the American education system has seen a complete overhaul of reforms and policies through the introduction of No Child Left Behind and the Common Core.

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

In 2002, No Child Left Behind (NCLB), a bi-partisan legislation that would force all kids attending public schools to attain proficiency in essential academic skills, was enacted. This law amended the 1965 Elementary and Secondary Education Act with reforms focusing on early childhood learning, increased accountability for states, school districts, and schools, enhanced resources, and more local flexibility in the use of federal education funding (Bush 2003).

The goal of NCLB was to change the culture of America's schools and by 2014 to have all American students performing at academically proficient levels (Bush 2003). It was presented as a way to close the widening gaps in academic performance across the nation. NCLB marked a dramatic change in federal education policy from focus on ease of access, to equity, to a less equitable set of standards and testing.

Under NCLB, all states must hold all elementary and secondary students to the same challenging academic content and standards (Williams 2005).

NCLB required states to test students annually to gauge student progress toward reaching the outlined standards (Karp 2013). The goal was to make sure every student was on grade level in math and language arts by requiring schools to reach 100% passing rates on state tests for every student in 10 subgroups, grades 3 through 8, and 10 through 12 (Karp 2013). Schools

were required to produce annual report cards that inform parents and communities about student and school progress.

Schools that failed to make measurable yearly progress toward statewide goals had to provide free supplemental services, such as tutoring or after-school assistance; they also were subject to corrective actions, such as restraining of teachers, staff replacement, and school closure and restructuring (Karp 2013).

Under threat of losing federal funds, all 50 states adopted or revised their standards and began testing every student every year. President Bush, a supporter of NCLB, stated, “accountability is an exercise in hope. When we raise academic standards, children raise their academic sights. When children are regularly tested, teachers know where and how to improve” (2003).

### **A Controversial Reform: Was NCLB Successful?**

After NCLB was officially rolled out, accountability measures regarding students’ test scores began to take place; much of the arising controversy surrounding NCLB stemmed from the act’s unclear accountability provisions.

By the time the first decade of NCLB was over, more than half of the schools in the nation were on the NCLB’s lists of “failing schools.” Thousands of schools that had failed to meet the NCLB standards were facing sanctions and interventions from the federal government. In Massachusetts, a state highly regarded for its quality educational standards and school systems, 80% of schools were facing NCLB sanctions (Karp 2013). These shocking numbers placed immense pressure on policymakers to revise the seemingly unworkable accountability system of NCLB.

In response, U.S. Education Secretary Arne Duncan created a process to grant NCLB waivers to states that agreed to certain conditions. In order to receive these waivers, states needed to agree to use test scores to evaluate their teachers, expand the reach of charter schools, and adopt “college and career” ready standards (Karp 2013). These same requirements were part of the federal government’s Race to the Top program, which turned federal education funds into competitive grants and promoted the same policies. 40 states were granted conditional waivers if they agreed to reassess their most struggling schools (Karp 2013).

Opponents of NCLB contend that NCLB measured test results against arbitrary benchmarks that no real schools have ever met. Overall, NCLB failed to raise academic performance and did not narrow the gaps in opportunity and outcomes for schools across America (Karp 2013). Opponents believe that effective preschool programs, smaller class sizes, quality teachers, parental involvement, and up-to-date textbooks and technology would boost student performance far more effectively than high-stakes testing would (Neill 2005).

### **The Common Core**

With the seemingly unsuccessful attempt of NCLB to increase the standards of American schools, the U.S. Department of Education began constructing a new education platform, the Common Core.

The state-led effort to develop the Common Core State Standards (CCSS) was launched in 2009 by state leaders, including governors and state commissioners of education from 48 states, two territories and the District of Columbia. It was spearheaded by the National Governors Association, the Council of Chief State School Officers, and Achieve, a private consulting firm. Additionally, the Gates Foundation provided more than \$160 million in funding, without which Common Core would not exist (Common Core 2014). State school chiefs and

governors launched this effort to ensure all students, regardless of where they live, graduate high school prepared for college, career, and life (Common Core 2014).

Once the development process concluded, states began voluntarily adopting the Common Core State Standards. In most states, the state school board members formally adopted the standards. In others, the decision was made or ratified by the state superintendent of education, State Legislature, or governor. Today, 44 states, the District of Columbia, four territories, and the Department of Defense Education Activity (DoDEA) have adopted the Common Core and are implementing the standards according to their own timelines. New Jersey adopted the Common Core in 2010, and aimed to have full implementation in the 2013-2014 academic year, with accountability testing beginning in the 2014-2015 academic year (Common Core 2014).

### **The Common Core Will be Successful**

Advocates of the Common Core see the standards as a way to unify education across the nation and prepare all of America's students to be prepared for higher-learning and careers.

#### ***Unified Standards and Increased Accountability***

The Common Core focuses on developing the critical-thinking, problem-solving, and analytical skills students will need to be successful. The new standards provide a way for teachers to measure student progress throughout the school year and to ensure that students are on the pathway to success. The Common Core standards are a set of mutually agreed-upon standards based on knowledge and skills that can lead to improved instruction and assessment (Rakow 2014). The standards represent a tighter set of smarter standards focused on developing critical learning skills instead of mastering disjointed pieces knowledge (Rakow 2014). The development of reliable national criterion-referenced assessments will help states target specific instructional needs and assess the roles of their teachers (Rakow 2014).

#### ***Leveraging Student Needs***

The standards outlined through the Common Core will enable both advanced and struggling students to receive help. The clear grade-level standards in specific content areas will make it easier for instructors to accelerate the gifted students. On the other hand, the unified standards will also make it easier to assess the skills that the struggling learners need more assistance with. The Common Core Response to Intervention (RTI) supportive approach will help these students (Rakow 2014).

In an increasingly competitive and globalized world, students must be able to compete in these demanding environments. The Common Core ensures that all students are ready for

success after high school through the consistent guidelines for what every student should know and be able to do in math and English language arts from kindergarten through grade 12. The standards were drafted by experts and teachers from across the country and are designed to ensure students are prepared for today's entry-level careers, freshman-level college courses, and workforce training programs (Common Core 2014).

The Common Core overall will help equalize the playing field across classrooms and districts by raising expectations for all children; the clear and defined standards will help teachers ensure that their students have the skills and knowledge necessary to succeed (Rakow 2014). Furthermore, from the perspective of higher education, university professors will have a clearer picture of what skills all high school graduates should have mastered (Rakow 2014).

### **The Common Core Will Not Be Successful**

Opponents believe that under the Common Core, the balance between promotion of social, emotional, character skills, and standardized tests cannot be achieved.

#### ***Stifling Creativity***

With such an emphasis on standardized testing and extremely detailed outlines of the information that must be mastered, implementation of the Common Core has many educators concerned about the real learning of their students. Many educators see the focus on standardized testing as a misguided priority (Elias 2014).

Many schools that are characterized as low-performing are bombarded with drills, numbing routines, pessimism, and a narrowing of the curriculum to maximize time spent in high-stakes test related areas; however, even schools that are not low-performing face the consequences of pressure to accelerate students' test performance and for teachers to deliver lessons that incorporate a large number of components for which they are held accountable. The resulting learning process adds considerable pressure on all involved (Elias 2014).

"Students and educators alike must be nurtured toward success and not equate success solely with test scores" (Elias 2014). When educators do not attend to the mindset of learners and create circumstances in which they are truly engaged in learning, "the lights of learning are switched off" (Elias 2014). The vast majority of students are not motivated by standardized tests, and what is taught for the purpose of tests quickly evaporates.

#### ***A Hidden Political Agenda***

"The trouble with the Common Core is not primarily what is in these standards or what's been left out, although that's certainly at issue. The bigger problem is the role the Common Core State Standards (CCSS) are playing in the larger dynamics of current school reform and education politics," writes Stan Karp, in his article "What's Wrong with the Common Core" (2013).

Opponents of the Common Core believe that the bureaucratic rollout of the Core has placed schools directly in the crossfire of corporate power and private wealth versus public institutions run democratically in the battle for control of education policy. The positive influence of the standards and how these standards can influence the conversation about what students should be learning is being undermined by bad process, suspect political agenda, and commercial interests.

While the standards themselves are a controversial policy, they represent a larger political project to remake public education. Opponents of the Core feel that advocates do not take into account how the larger forces of extreme budget cuts, increases in child poverty, adoption of test-based teacher evaluation frameworks, and the influence of private parties define the context in which the standards are being introduced, and how the standards may not be the solution to the nation's educational needs.

***Efficacy of the Common Core: Brookings Institution Study***

A study conducted by the Brookings Institution found that states with education standards most closely aligned to the Common Core fared worse on math tests than states with their own standards. The study compared standardized test scores from all 50 states over the last five years (Soave 2014). It found that states using education standards that are most dissimilar to Common Core tended to score the highest on math. States that followed a hybrid approach to standards, utilizing some aspects of the Common Core and some aspects of their own standards, fared worse than both full-Common Core states and non-Common Core states (Soave 2014).

Additionally, in 2013, select New York schools had their students participate in Common Core testing. Parents, students, and teachers in New York responded to new Common Core tests developed by Pearson with outcries against their length, difficulty, and inappropriate content. Approximately 30% of students were deemed “proficient” based on arbitrary scores. The number of students identified by the tests needing “academic intervention” skyrocketed to 70%, a percentage far beyond the capacity of the districts to meet (Karp 2013). While the Common Core standards aim to make every student “college and career ready,” opponents argue that there is no actual evidence connecting scores on any of the experimental tests from the Common Core with actual college success.

**The Partnership for Assessment of Readiness for College and Careers (PARCC)**

PARCC is a branch of testing stemming from the Common Core. PARCC is a collaboration of 23 states and Washington, DC working together to develop a set of assessments that measure whether students are on track to be successful in college and in their careers. New Jersey is one of 18 governing states in PARCC that are closely involved with the development of the assessments. PARCC is based on the core belief that assessment should work as a tool for enhancing teaching and learning. These assessments aim to more efficiently measure students' critical-thinking, problem-solving, and communication skills (PARCC 2014).

These computer-based K-12 assessments focus on skills regarding mathematics and English language arts, and they will replace state tests currently used to meet the requirements of

the federal Elementary and Secondary Education Act (PARCC 2014). The PARCC assessments will be ready for states to administer during the 2014-2015 school year (PARCC 2014).

### **What Reforms are Effective?**

#### **Standardized Testing**

The role of standardized tests in the classroom has long been a controversial issue. According to a University of Wisconsin study, teachers in higher-achieving first-grade classrooms emphasized basic skills and processes through modeling, drill, and practice. They preferred highly structured, goal-directed classrooms with established routines (Williams 2005). Teachers in lower-achieving classrooms tended to believe that basic skills were secondary to the pleasure of learning. They preferred “child-centered experiential learning,” in which the teacher serves as a facilitator (Williams 2005).

The reality is that many states are monitoring student performance by administering standardized tests. Tests have created a renewed emphasis on traditional teaching methods in many schools. Traditional forms of instruction, also referred to as “back to basics” teaching, emphasize memorization, recitation, drills, and structured, fact-based learning (Williams 2005). Some educators contend that these techniques especially benefit economically disadvantaged students with serious academic deficiencies (Williams 2005). There are various opinions on the role of standardized testing.

#### **Tests Are a Measure of Accountability**

Many educators and administrators believe that strong accountability systems will create greater challenges for students, ultimately incentivizing them and their teachers to achieve higher standards. These achievement levels will only be raised through tests; through this thought process, “to realize success, you must measure it” (Hooper 2005). Proponents of standardized



tests believe that even though some students will pass and some will fail, both outcomes should be used to calibrate the system of teaching and learning to further student's learning through insights provided by these tests. It is the responsibility of public school leadership to design and implement a system to promote maximum learning.

Standardized tests are seen as a way to promote maximum learning and they achieve these goals by “monitoring progress systematically against predetermined standards” (Hooper 2005). Many experienced administrators in the American Association of School Administrators support state-level accountability systems designed, developed, measured, and reported in order to improve the academic achievement of each student; however, these tests must be properly designed systems that will lead to successful outcomes for students, and this goal often takes time to achieve (Hooper 2005).

### **Assessments Result in Frustrated Teachers and Unenthused Students**

While many educators support the implementation of more frequent and rigorous standardized tests, many oppose the practice. Stephanie Fanjul, Student Achievement director of the National Education Association said, “every teacher knows tests have a role to play. Teachers use tests all the time, including standardized tests. We want to be sure our students are learning and growing. But there are lots of ways to collect that information, not just tests” (Williams 2005).

Educators across the United States disagree that assessment should assume a priority role in education. To them, measurement is no substitute to nourishment. Advocates for assessment claim to focusing on learning communities and nurturing, but the tests end focusing on measurement, data, and quantification. Opponents of standardized tests believe that true learning

is a deeply personal and enriching experience that ultimately cannot be measured through standardized evaluation.

According to a comprehensive study conducted by scientists at Arizona State University, high-stakes testing does not boost student achievement. Researchers examined the results of several well regarded national tests, including the National Assessment of Education Progress, the SAT, and the ACT. They found that states that had implemented their own high-stakes tests showed no improvement on the national tests. Although scores on the state tests did improve over time, scores on the national tests did not. As National Education Association spokesman Alain Jehlen explained, “higher state tests scores were apparently due to the enormous amounts of time and effort that schools poured into teaching the content and exact wording patterns that students would see on these particular tests. The improvement did not carry over into better performance on the other tests of the same general content; it did not reflect real gains in learning.” The role of standardized tests in the classroom continues to be a large area of controversy in the education arena (Williams 2005).

### **American Innovativeness**

While the tests and assessments have shown a decline in standardized American education, the creative spirit of American culture has endured. Gerald Bracey posits that American competitiveness, innovation, and creativity are not linked to test scores but to a generally good educational system that encourages questioning and critical thinking (2005).

In the implementation of recent reforms, many policymakers and educators have overlooked the importance of innovative thinking. The United States has the highest scores on what the WEF calls “National Innovation Capacity,” stemming from America’s competitive nature. This competitive advantage must come from the ability to create and commercialize new

products and processes, shifting the technology frontier as fast as rivals can catch up (Bracey 2005). An overload of testing can contribute students becoming desensitized to innovative thinking.

Moreover, Bracey believes that this innovativeness cannot be linked to test scores, or at least to the scores that American policymakers want to see. The Third International Mathematics and Science Study (TIMSS) provides test scores for 41 nations, including the US. 38 of those countries are ranked on the World Economic Forum's Current Competitiveness Index (CCI). It's a simple statistical matter to correlate the test scores with the CCI; however, there is little correlation. The US is ranked twenty-ninth in math, but second in competitiveness, whereas Korea is third in math, but twenty-seventh in competitiveness (Bracey 2005). If the two lists had matched, place for place, that would produce a perfect correlation of +1.0, but because some countries are high on competitiveness and low on test scores, the actual correlation is +.23, which is rather small in the world of stats; therefore, explaining that performance on tests does not significantly result in actual real-world performance (Bracey 2005).

### **How to Reform: What Students Need**

The transformation of American education policy throughout recent decades has shown that while the assessment movement promises to streamline instruction, assessment has failed to capture the imagination of most teachers. The basic truth still persists: students will always need good instruction and good teachers. Instruction will improve when administrators can make careers in education more attractive and provide better support and greater access to professional development to their educators. Quality education will arise through a combination of a comprehensive programs, smaller class sizes, highly qualified teachers, appropriate instructional materials, and adequate school facilities (Williams 2005).

The means implemented to reach this goal of a finer educational platform will vary, but progress of the nation's education system is vital to America's future generations.

As the state of education policy continues to develop, the standards and resources for all school districts in New Jersey and America will fluctuate. Whether the changes come from the state or federal level, the most important elements to student success and to overall educational improvement remain within the classroom.

### **A Personalized Learning Framework: Innovation and Reform for Today's Classroom**

#### **Focal Point of Research and Goals**

*“Effective teachers recognize the tension between effective and efficient practice but understand that no practice is efficient if it is not also effective.” MP Boyd*

Various programs and after-school tutoring sessions can attempt to deepen a child's understanding of a topic, yet even after the implementation of these programs the willingness and desire of a child to continue to learn that subject often remains unchanged. With an increased focus on standardized testing in public schools, it is more important than ever to provide students with ways to connect with material and concepts being taught. Creating an engaging platform to implement in classrooms can offset state-mandated assessments, and provide a way for struggling students and schools to enhance learning capabilities and to increase student engagement.

This work seeks to explore the various factors that contribute to the success or failure of an educational innovation within a classroom or school district. With dozens of elements

involved, there are certain criteria that can serve as a benchmark for the evaluation of an educational platform or program.

Furthermore, it is important to note that the various factors may hold different weights in different school environments, rural, suburban, and urban. As this research focuses on educational reforms in Trenton, New Jersey, it is crucial to consider the factors and resources, or lack thereof, that will influence the potential for replicability of an educational innovation within the Trenton School District.

Therefore, we will identify factors that can lead to success and evaluate specific programs that may or may not be beneficial and effective in the educational environment of Trenton. The classification of effective can be measured through student and teacher reports on educational and content development, and whether the program or platform addresses the following indicators for educational success.

### **Achieving Efficacy: Setting Indicators**

The concept of effectiveness can be measured through the feedback received from students, teachers and administrators. When evaluating the effectiveness of a program, we must identify factors and metrics for assessment. There are a variety of performance metrics that serve to provide a baseline for program evaluation and that are different than standardized assessments.

Two of the main segments of these metrics are cognitive and noncognitive measures. While these measures are rather unfamiliar, they have been established in determining school and career outcomes and have been shown to be related to attendance, discipline, dropout, and achievement (Osher and Kendziora 2010).

## **Cognitive Indicators**

### ***Attendance***

Attendance is often cited as a metric used to determine the effectiveness of a particular program; attendance can be used as a proxy for student and family engagement in schooling, and serves as a robust predictor of the high school dropout rate. Research suggests that missing more than 10% of instructional time is cause for concern (Johnson, Kendziora, and Osher 2012). This percentage translates roughly to about 2 weeks of school per semester in most schools.

Moreover, research suggests that the combination of excused and unexcused absences in elementary school predicts subsequent academic results. In a sample of students from a large urban district, elementary attendance for students who later graduated averaged 94.7%, whereas those who later dropped out averaged 91.9% (Johnson, Kendziora, and Osher 2012). Furthermore, low attendance during the first 30 days of ninth grade was found to be a more powerful predictor of dropout rates than eighth-grade test scores, academic achievement, and age. Throughout high school attendance continues to be significantly associated with the likelihood that a student will graduate (Johnson, Kendziora, and Osher 2012).

### ***Grade Retention***

Data recently released by the U.S. Department of Education showed that roughly one percent of student in grades K-12 were retained in grade, with the largest numbers repeating kindergarten or first grade (Johnson, Kendziora, and Osher 2012). Grade retention is widely regarded as a powerful predictor of dropping out of high school. Repeating a grade between first and eighth was found to be a significant risk factor for dropping out of high school, even after controlling for demographic characteristics that generally correlate with school failure (Johnson, Kendziora, and Osher 2012).

### ***Course Performance***

Course performance both predicts college completion and high school dropout rate. Students who have grades C or lower throughout middle school have increased odds of dropping out of high school, even after demographic variables generally associated with school failure are controlled for (Johnson, Kendziora, and Osher 2012).

Research from Chicago indicates that students who fail one or more courses in the fall semester of their first year of high school are less likely to graduate than students who do not. In Chicago public schools, 85% of students with zero semester course failures in their freshmen year graduated four years later. The study illustrated that students with three or more semester F's were not likely to graduate high school (Johnson, Kendziora, and Osher 2012).

### ***Rigorous Coursework***

The completion of a rigorous high school curriculum was more strongly correlated with college completion than high school test scores, GPAs, or race. One study showed that an intensive academic curriculum in high school had the strongest positive effect for African American and Latino students, a positive factor for Trenton where the majority of the students are African American or Latino. Additionally, students who enroll in higher level, more challenging coursework in middle school are more likely to be successful in both high school and to attend college (Johnson, Kendziora, and Osher 2012).

## **Noncognitive Indicators**

### ***Conditions for Learning***

“Conditions for learning” refers to aspects of school climate that are proximally related to learning and development. A National Research Council report pointed out that “one of the most consistent findings in early childhood literature is that an emotionally warm and positive approach in learning situations leads to constructive behavior in children” (Johnson, Kendziora, and Osher 2012).

In addition, researchers have shown that improving school climate is associated with increases in student performance in reading, writing, and mathematics (Johnson, Kendziora, and Osher 2012). A positive and welcoming learning environment will provide students with the best setting to academically challenge themselves and succeed while doing so.

### ***Discipline***

Data collected by the U.S. Department of Education’s Office of Civil Rights reported that approximately 839 districts out of 6,779 in the sample suspended more than 10% of their enrolled student body at least once, and more than 300 districts suspended more than 25% of the African American children enrolled (D.O.E. 2012). The consequences of penalizing, “push-out” discipline policies can be calamitous; expulsion from school significantly increases the likelihood that a student will repeat a grade, not graduate, or be adjudicated into the juvenile justice system (Johnson, Kendziora, and Osher 2012).

### ***Social and Emotional Learning***

Social and Emotional Learning (SEL) is a term used to describe the processes through which children and adults acquire and effectively apply the knowledge and skills that the Collaborative for Academic, Social, and Emotional Learning (CASEL) has identified as 5 key SEL domains:

- Self-awareness
- Self-management
- Social awareness
- Relationship skills
- Responsible decision making

A growing body of research has demonstrated that programs teaching SEL promote positive development among children, reduce problem behaviors, and improve academic performance (Johnson, Kendziora, and Osher 2012). It is important for school districts to implement strategies that promote student wellbeing and positively encourage students to achieve their best.

### ***Physical and Mental Health***

Students with chronic conditions like asthma and obesity have poorer attendance than healthy students, and improving student health also improves student attendance. There is evidence that when schools increase health conditions for students, such as by facilitating student access to health services and increasing physical activity, student absences decrease (Johnson, Kendziora, and Osher 2012).

For children with mental health needs, schools are the primary providers of services. Nevertheless, schools have not been very successful in meeting the needs of children with

emotional disturbances. Compared with other students with disabilities, students with emotional disturbances are more likely to drop out of school (D.O.E. 2011).

Schools are in a crucial position to identify mental health problems early and to provide a link to appropriate services. In order to create the optimal learning environment, schools must work to offer support services and physical activities to their students.

The above mentioned cognitive indicators include the collection of formative and benchmark assessment data on the academic side as well as discipline, learning environment, and other measures of teacher and student engagement on the noncognitive side. These indicators are used to track ongoing execution and results of an educational platform. The overall goals of the performance metrics aim to emphasize the need to find a balance between the factors that will provide a base for program evaluation.

### **Benchmarking Studies**

*“Teaching and learning are personal, individual, and unique.” M. Miltich*

The American education system was built on a foundation of a singular and standardized method of teaching: there was a standardized way to teach and test to evaluate specific skills. This method worked well when students would grow up to work in an industrial job; however, in today’s globalized and modern world, this pattern proves inefficient. Every student learns at a difference pace, and school districts needs to implement a system that will emphasize the customization of learning (Evans 2012).

In recent educational platforms, innovation has been cited as the key to creating dynamic and effective learning environments. One of these innovations is known as the “personalized learning framework.”



The United States Department of Education has addressed their plans to assess the potential for educational growth hidden within the personalized learning framework. Their goals include, “to create learning environments that are designed to significantly improve learning and teaching through the personalization of strategies, tools, and supports for student and educators” (Evans 2012).

The precise environment needed to implement this type of platform depends on the setting of the district in question. It will prove constructive to review this innovation and determine whether it could be implemented in the Trenton School District.

### **Personalized Learning: What is it?**

In many school districts, the disparity between the academic levels and competency of students in a classroom results in an extremely disproportionate learning environment. Students who are behind or ahead become disengaged and disinterested because they are not receiving the needed academic support. To meet future educational needs policymakers must look for new alternatives that enhance learning capabilities among all learners.

One alternative to combat this ineffective learning is personalized learning; personalized learning is a process innovation for education. According to a 211 Horizon Report, “personalized learning is not simply a technology but an approach or process that is individualized by design and thus different from person to person” (Johnson, Kendziora, and Osher 2012). In 1977 Cranach and Snow defined personalization of learning as, “adaption of the learning process and its content adapted to the personal characteristics and preferences of the learner, as much as possible” (Johnson, Kendziora, and Osher 2012).

In practice, personalized learning means leveraging technology to meet student needs in real-time (Project Tomorrow 2012). This dynamic environment aims to cater to personal student

needs. Under this innovation, a student who has mastered a concept will not have to wait to move on, and a student who is struggling with a concept without the proper time will not be forced to move on. The need for addressing the different skills of students can be fulfilled as a personalized learning framework will emphasize this differentiation and enable students to receive the specific help they require (Evans 2012).

One of the main shortcomings of mandatory education is that it requires a top-down policy which poses serious challenge to its implementation. Personalized learning combats the increase of mandated standardized testing as it directly involves the students and teachers, working together to create change from the core of the education arena.

Personalized learning is a process of change, and its ideas may seem foreign or overly complicated to many school districts; however, its implementation can result in beneficial changes in the educational attainment of students across various school districts.

**See Case Study on the Personalized Learning Framework in Appendix B**

### **Pathways to Personalized Learning**

The following sections will address three different models for approaching and enacting a personalized framework within a classroom and within a school district. These models include, Small Learning Communities, a Blended Learning model, and a Pyramid of Intervention Approach.

#### **Small Learning Communities**

One recent development in education is the creation of Small Learning Communities (SLC). These communities aim to break up large schools, typically schools of 1,000 or more students, into a group of more manageable smaller schools to promote academic achievement. It is not physically possible for many of these schools to divide, so SLC's focus on creating smaller

communities within the schools that reach out and individualize materials as students are grouped with other students who have similar interests or career aspirations (Ruggerio 2011).

Through downsizing larger schools, SLC's aim to address many goals: meet the needs of at-risk students, solve the problem of failing schools, model the process of school restructuring, personalize education for all students, empower teachers and extend their roles, prevent dropping out, and find an equitable substitute for tracking student achievement (Sullivan and Shaw 2010). SLC theory posits that dividing schools in smaller educational environments will help build a more collaborative community of teachers, providing them with the autonomy and motivation to make better curricular and pedagogical decisions in the interest of their students (Supovitz 2002).

SLC appeal has grown; in the late 1990s the U.S. Department of Education presented research stating that schools of 1,000 or more students experience 825% more violent crime, 270% more vandalism, and 1000% more incidents involving weapons than smaller schools (D.O.E. 2010). The U.S. Department of Education acted on this statistic in 2010 when the Department allocated \$52.2 million to twenty-eight school districts across the U.S. to implement Small Learning Communities (D.O.E. 2010). The cost of the average SLC grant from the Department of Education for a school district was about \$1.8 million for a five-year grant. Currently, twenty-eight school districts in the United States receive SLC grants (D.O.E. 2010).

The idea behind SLCs is that students share experiences among classes, including hands on projects that connect concepts. The belief is that students will make a longer, deeper connection to the material through having a relationship with it (Ruggerio 2011). **See Appendix C for a graphic depiction of a Small Learning Community layout.**

#### **Case Study: Sycamore High School in San Francisco, California**

Small Learning Communities were implemented in Sycamore High School in San Francisco in the 2006-2007 school year. The school consists of about 90 teachers and runs on a schedule of three block periods a day of 100 minutes each.

Having significant breaks between each period allowed for collaboration, informal study sessions within the SLCs and a chance for teachers to set up for lessons specific to their assigned SLC.

In schools in which SLCs have been implemented, students were more likely to report feeling held to high academic standards than students in traditional settings. Schools that have implemented SLCs report that they “significantly improved students’ intentions, awareness, understanding and plans related to careers and college. The number of students that planned on attending some sort of schooling after high school increased by 26%” (Ruggerio 2011).

The research derived from this case study indicates that SLCs positively affect students’ attitudes towards their academic success, most notably: graduating high school. Sycamore High School had a graduating class of 461, the highest number since the school opened. Because this school is representative of other schools in the nation, this success can be recreated in schools of similar make-up.

### **Case Study: Christina School District in Wilmington, Delaware**

In 2004, the Christina School District (CSD) in Wilmington, Delaware, was awarded a three-year federal grant to implement secondary school reform as outlined in the district’s Transformation Plan, which called for the implementation of small learning communities in district high schools. The SLC grant was designed to “substantially improve the academic achievement, climate and potential for success for CSD’s high school students” (Sullivan and Shaw 2010). The plans were implemented at three schools, Newark High School, GHS, and CHS (Sullivan and Shaw 2010). The three goals agreed upon by the schools were to increase academic achievement, create a positive school climate, and increase parent and community involvement and engagement (Sullivan and Shaw 2010).

### ***Procedures of the Study***

The study enlisted primarily qualitative research methods particularly focused on school and district specific goals, a best practices framework, and the question of long-term project sustainability (Sullivan and Shaw 2010). A variety of data collection activities, such as interviews, observations, and document review, were conducted over 3 years, from 2007 to 2010. All interview and observation data were analyzed for recurring themes and trends related to the SLC domains of research-based practice and characteristics of school and district implementation. Quantitative data, collected by the state and district, were also analyzed (Sullivan and Shaw 2010).

### ***Results***

Results of the data indicated that while the schools in CSD made many positive gains, the district suffered due to lack of attention to pre-implementation principles to ensure the success of the SLCs. The results noted a lack of support among the district educational stakeholders. Analysis of the district and its struggles highlighted five key elements of successful Small Learning Communities.

#### ***1. Interdisciplinary Teaching and Learning Teams***

CSD teams struggled to collaborate on creating instructional innovation and planning. Much of the curriculum discussion focused on scheduling and logistics than on the challenges of creating opportunities for in-depth, active learning (Sullivan and Shaw 2010). Other schools have benefited from a shared vision for teaching and learning; the availability of professional development opportunities for teacher to develop lessons, discuss student progress, and receive

feedback improves this process (Sullivan and Shaw 2010). Furthermore, school learning and teaching themes were developed, but support for these improvements lagged. Support for these themes is crucial, and the focus on these themes must be emphasized during curriculum creation.

### *2. Rigorous, Relevant Curriculum and Instruction*

The three schools in CSD did make a significant investment in various curriculum and instructional models; however, there was not a cohesive district curriculum. The lack of this curriculum made it more challenging to clearly identify learning objectives across courses, and complicated the balance between a rigorous curriculum and high student expectations.

### *3. Inclusive Programs and Practices*

The three high schools took a variety of steps to ensure that the SLC design and implementation effort actively engaged the broader school and district community and that all students were included in the effort (Sullivan and Shaw 2010). Despite this initiative, the implementation of the plans slightly foundered, and some practices were more inclusive of students and staff than other practices. To ensure all students are included in the programs, improved student progress monitoring at the school level will assist teachers with providing the necessary instruction (Sullivan and Shaw 2010).

### *4. Continuous Program Improvement*

Much work had been done to create system of data and information to support continuous improvement both at the individual school and district levels. Nonetheless, progress had been much slower at the grade, team, and classroom levels, which could benefit from a planned cycle inquiry approach where evaluations are completed according to pre-determined intervals.

### *5. Building and District Support*

CSD struggled with garnering support from parents, community members, educators, and administrators. The district failed to implement a district-wide strategy to inform parents and community members about the impending reforms, and therefore lost support to sustain the program before it had even began. For successful implementation of SLCs a clear and consistent vision for reform must be reinforced across all organizational levels (Sullivan and Shaw 2010).

## ***Study Recommendations***

CSD had some successes in the implementation of SLCs but also experienced some of the typical challenges seen among district and schools attempting to implement SLCs. Districts and schools implementing SLCs should focus on laying a good foundation for the SLC work by working toward full buy-in from stakeholders, establishing a clear and consistent vision for reform, and ensuring early and ongoing community involvement. Throughout the implementation process, parent involvement, progress monitoring, instructional innovation, interdisciplinary teaching and learning, and a focus on teaching and learning leading to empowered educators are essential. In order to be successful and sustainable, SLC implementation efforts must keep a commitment to improving teaching and learning at the center of the work; it is a continuous and ongoing improvement process.

## ***Overview of Small Learning Communities***

Small Learning Communities have been implemented in a few districts across the United States. They provide a comprehensive learning environment among small groups, increasing student-teacher interaction and providing instruction directly related to student interests. While the educational engagement benefits are clear, the implementation of Small Learning Communities requires an ample amount of capital and resources. Administrators must be willing

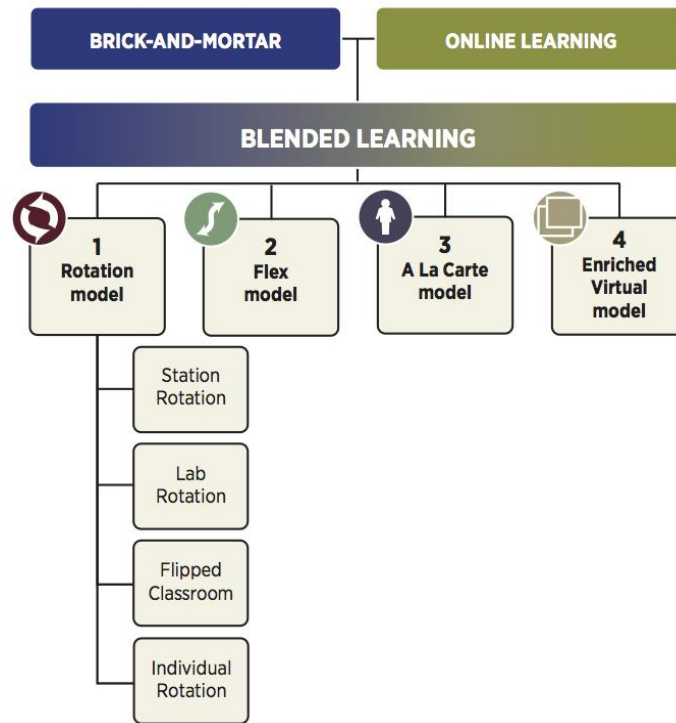
to “divide” up schools into smaller sections, and work with teachers to create new schedules and tailored curriculums. Small Learning Communities represent a marriage of personalization of education and working with already existing structures and resources.

### **Blended Learning**

One of the main innovations of personalized learning is the adaptation of blended learning into the classroom. Blended learning, or hybrid learning, is a formal education program in which students learn at least in part through online delivery of content and instruction, with some element of student control over time, place, path and pace, and at least in part at a supervised brick-and-mortar location away from home (Evans 2012). Blended learning environments aim to combine attributes of online instruction, like efficiency, sufficiency, and freedom to access information anytime, with attributes of traditional classroom instruction, like enabling students to work with new information presented, as well as interact with peers and the teacher in the classroom (Delialioglu and Yildirim 2007).

The systematic and strategic integration of these tools into courses to meet didactic goals introduces a new way of approaching instruction (Delialioglu and Yildirim 2007). There are four basic blended learning models that can be implemented in classrooms depending on the size and grade of the classroom. These models are as follows: Rotation model, Flex model, A La Carte model (formerly Self-blend), and the Enriched Virtual model (Delialioglu and Yildirim 2007).

## The 4 Models of Blended Learning



### See Appendix D for more in-depth information on the Blended Learning Models

Blended learning is often used in the context of personalized learning because it provides flexibility within the classroom. For example, in a math setting, students work on their learning objectives using adaptive software to work at their own pace while teacher roams around acting as a learning coach and tutor. Using blended learning as a key component in the personalized framework enables students to take ownership of their own learning as they can choose where to devote their time when working to complete weekly learning goals (Evans 2012).

### Technology in Blended Learning: Intelligent Adaptive Learning

Many instructors have begun to supplement their courses with simulation, online exercises and immediate online feedback, creating richer learning environments through multimedia (Delialioğlu and Yildirim 2007). A 2011 Speak Up national report on K-12 student

and parent findings found that students, parents, and educators are increasingly interested in leveraging emerging technologies to create more personalized learning environments where instruction is individualized to students' unique needs (Project Tomorrow 2012). The traditional classroom model does not adequately address individual students' strengths and weaknesses.

A relatively new concept within personalized learning is called "intelligent adaptive learning." Intelligent adaptive learning is a new class of education technology that captures every decision a student makes and adjusts the student's learning path both within lessons and between lessons, thereby providing millions of individualized learning paths, each tailored to a student's unique needs in real time (Project Tomorrow 2012).

Intelligent adaptive learning directly addresses personalizing instruction by leveraging technological advancements to provide a systematic way for students to master skills at a pace tailored to their strengths and weaknesses, and for teachers to have unprecedented visibility into data on student achievement to inform their daily practice.

Though only 6% of teachers say that they are using this new kind of software in their classroom, interest by parents, teachers, and administrators in the potential of this new class of education technology to transform learning is very high. The Speak Up surveys asked parents and educators what technologies would improve student achievement in their school, and both parents and educators ranked intelligent adaptive learning in the top three (Project Tomorrow 2012).

Intelligent adaptive learning has the potential to increase efficient technology use with creating individualized education plans for every student. These emerging technologies can be partnered with the classroom curriculum to create a dynamic and engaging learning environment for each and every student.



### **Case Study: Middle East Technical University in Turkey**

A case study conducted at a university in Turkey examined the role and efficacy of a blended learning environment through the instruction of a course. This study examined whether the blended learning model is more effective than traditional courses. In an earlier study, Marques, Woodbury, Hsu, and Charitos (1998) investigated how well a blended learning environment in another university worked for students' learning with respect to students' experiences. The study indicated that the hybrid model of instruction worked well in spite of the strong dependence on text-based resources. The mixture of electronic and traditional classroom was encouraged and was called "well suited" to the progressive development and implementation of a learning-centered model of instruction (Delialioglu and Yildirim 2007).

This study aimed to broaden the current research in this area of educational innovation.

#### ***The Study***

25 students enrolled in "Computer Networks and Communication," a course at Middle East Technical University, a public university in Turkey, formed the sample of this study. The study lasted for 14 weeks. Prior to the study, all students were required to take the course "Introduction to Information Technologies and Applications," which covers computer-literacy topics. During the semester the students met once a week for one hour in class, but essential parts of the course were done online. At the end of the study, interviews were conducted to gather data on the "effective dimensions of interactive learning." Additionally, computer logs of the students were kept and analyzed.

#### ***Procedures of the Study***

The "Computer Networks and Communications" course was designed and developed as a hybrid course for the purpose of this study. The hybrid course required self-paced learning since the course content was online, creating a significant reduction in classroom lecture time. When students met for one hour, no lecturing was done; instead, under guidance of the instructor, class time was used for group and individual activities, educational games, and discussion of homework and assignments (Delialioglu and Yildirim 2007).

After the course, both qualitative and quantitative data analyses were performed. Interview guides collected data on student perceptions of the effective dimensions of interactive learning in regard to the course, and a content analysis of the interview data was performed to find out meaningful insights regarding students' perceptions of "effective dimensions of interactive learning" (Delialioglu and Yildirim 2007).

#### ***Results***

The results of the study were categorized based on a model addressing the most important dimensions of learning in a blended learning environment. This model, developed by Reeves in 1997 and later re-vamped in 2002, provides guidelines evaluating computer-based education. The old model evaluates ten dimensions, and the new model has 14. This study used the old model, and the top nine dimensions are as follows: pedagogical philosophy, learning theory, goal orientation, task orientation, source of motivation, teacher role, metacognitive support, collaborative learning strategies and structural flexibility (Delialioglu and Yildirim 2007). Many of the major findings correlated with these dimensions.

#### ***Goal and Task Orientation***

The findings of the study showed that majority of the students found the goal orientation of the hybrid course more sharply focused than regular courses. Students were satisfied with these pre-determined goals and objectives. Most of them stated that by knowing the goals and objectives they could answer the metacognition related question: “What information do I need to know?” (Delialioğlu and Yildirim 2007).

Furthermore, the majority of the students mentioned that they could integrate the focused and general goal orientation strategies while learning. The classroom meetings were based on unfocused goal orientation, and some students indicated that the general goal orientation strategies in the projects, assignments, and group work helped them acquire the real-life skills of what they read on the course website.

#### *Source of Motivation*

The findings of the study showed that motivation and reward were very important for students’ learning in the hybrid course. The analysis of the interview data showed that students had both intrinsic and extrinsic motivation. Intrinsic motivation is a key element for the success in the hybrid course (Delialioğlu and Yildirim 2007).

#### *Teacher Role*

Students perceived the role of the instructor as a guide in their learning, and a facilitator of classroom activities. Students indicated that they could communicate with the instructor in a friendly manner. The students perceived their role as “active” and the course was student-centered. Overall the student interviews showed that the instructor was an important source of motivation for them, and that he provided learning environments open to interaction and communication (Delialioğlu and Yildirim 2007).

#### *Metacognitive Support*

Students’ perceptions of metacognitive support of the hybrid course showed that the course was integrated rather than unsupported. The integration of the cognitive tools to support the students in monitoring, visualizing, and accessing information provided metacognitive support for the students in the hybrid course (Delialioğlu and Yildirim 2007). The cognitive tools enabled students to customize the course website according to their own learning habits.

#### *Collaborative Learning*

The face-to-face component of the hybrid course was where most of the collaborative learning strategies were integrated. Students worked in groups, played educational games, and participated in classroom discussions. Students showed a preference for collaboration, especially in classroom meetings (Delialioğlu and Yildirim 2007).

#### *Structural Flexibility*

Most of the students mentioned that they found the cognitive tools provided in the course website beneficial. One of the students said, “I didn’t need anything else than the website of the course to study for this course. I could take notes and underline things that I needed to remember. It was very helpful for me to customize the web pages according to my way of learning” ((Delialioğlu and Yildirim 2007). Students appreciated that they were able to customize the material and focus on the areas where they needed additional support.

#### ***Study Recommendations***

The design and implementation processes for a blended learning environment are different from those in a traditional classroom. From this study, the following suggestions for future work are made:

- Don't hybridize only the technologies; hybridize the pedagogical philosophies, theories, and instructional design methodologies
- Give special attention to student motivation in hybrid courses
- Provide tools for metacognitive support
- Use multimedia in the web component to enhance learning
- Encourage and provide facilities for student-student and student-instructor communication
- Provide students with online self-assessment tools

The results of the study gave valuable insight into the role of blended learning in the classroom and how it can be implemented most effectively; however, educators must be cautious in generalizing these findings to other models (Delialioglu and Yildirim 2007). This study focused on teaching computer skills and the teaching of other subjects may require a different design in a blended learning environment. Moreover, the creation of a blended learning environment will vary extensively from district to district.

### ***Overview of Blending Learning***

The Blended learning model of innovation heavily relies on classroom support and in-classroom models. This innovation grants more freedom to the teacher with how and when different educational materials and platforms will be utilized. One of the main components to this model is the technological aspect. The application of this model will require substantial investment in technological infrastructure, and will require students and teachers to become familiar with these platforms. In a district of varying student abilities and need curriculum advancements, this model can provide classrooms with the tools needed to balance a comprehensive curriculum and an engaging learning environment.

### **A Pyramid of Intervention Approach**

The Pyramid of Intervention approach is another innovative education model that recently has been implemented in various school districts. The tools used in this model follow the Pyramid of Supports model. The Pyramid of Supports model is built on four crucial elements: a belief in social justice and the value of every child, a commitment to inclusive education, an understanding of the power of teams, and flexible funding support (Howery, McCleen, and Pedersen-Bayus 2013). Three key areas of support are needed: supports for positive behavior, differentiation of learning, and access to technologies and digital media (Howery, McCleen, and Pedersen-Bayus 2013).

The pyramid model enacts an approach that seeks to connect many initiatives currently discussed in education literature and suggests an innovative approach towards supporting

meaningful, active participation by all students in the context of inclusive 21<sup>st</sup> century learning environments (Howery, McCleen, and Pedersen-Bayus 2013).

The Pyramid of Intervention approach is modeled through a hierarchical pyramid structure. The base of the pyramid represents strategies, interventions, and supports beneficial for the vast majority of students in a district. This resource presents an integrated, tiered approach that describes supports and strategies at the universal (school-wide), classroom (focused) and individual (intensive) level that are intended to improve behavioral outcomes (Howery, McCleen, and Pedersen-Bayus 2013). The supports provided to students include access to differentiated instruction and assessment, use of emerging and assistive technology, and supports for positive behavior. This model posits that these universal supports and interventions will meet the needs of most learning. Smaller groups of students will require a more targeted approach which may include flexible grouping, supplemental instruction, additional practice opportunities and behavioral support plans (Howery, McCleen, and Pedersen-Bayus 2013).

### Pyramid of Intervention Model



The Pyramid of Intervention approach also utilizes the “Response to Intervention” (RTI) framework based from the standards of the Common Core. RTI is a continuum-based process that focuses on access to high quality, evidence-based instruction, data-driven decision making, a tiered model of supports and a systems level approach to improving academic and behavioral outcomes for all (Howery, McCleen, and Pedersen-Bayus 2013). RTI emphasizes the collective responsibility for the learning of all students.

### **Case Study: Greater St. Albert Catholic School Division in St. Albert, Canada**

The Pyramid of Intervention model is illustrated through a Canadian school district that is currently engaged in the process of building pyramids of supports and interventions to actively create responsive learning environments designed to support educators in reaching every student.

#### ***The Study***

The Greater St. Albert Catholic School Division (GSACRD) is a publicly funded Catholic school division located in and around St. Albert, Alberta. St. Albert is a city of 60,138 located on the outskirts of the provincial capital of Edmonton, Alberta (Howery, McCleen, and Pedersen-Bayus 2013). GSACRD is the third largest Catholic school district in Alberta with 17 schools and an enrollment of approximately 6,000 students in the 2010-11 school year (Howery, McCleen, and Pedersen-Bayus, 2013). The district is in a suburban community, with the outskirts of the town tending to be a bit rural. The socio-economic status of the area is slightly above the Canadian average (Howery, McCleen, and Pedersen-Bayus 2013). The implementation and maintenance of the pyramids approach is an ongoing process currently occurring within the GSACRD district.

#### ***Procedures of the Study***

##### ***Accountability of Staff Members***

In GSACRD, the pyramid of intervention is implemented through the accountability of all staff members. All staff are responsible for developing and maintaining a safe and respectful school climate. The district works to develop evidence-based classroom management practices; these developments are emphasized and worked on across the district through professional development activities (Howery, McCleen, and Pedersen-Bayus 2013).

##### ***Professional Staff Development: Changing the Role of Teachers***

Teachers must plan for all students to have access to the same essential understandings of a lesson. In order to develop a class profile of the strengths, needs, interests, and readiness of the students in the class, teachers are expected to gain knowledge about each learner. By developing a class profile and individual student profiles the teacher is able to select effective teaching and learning strategies to maximize all students’ achievement (Howery, McCleen, and Pedersen-Bayus 2013).

##### ***Available Resources for all Students***

The pyramid model in GSACRD aims to provide students with any and all resources needed. Targeted supports and individualized interventions for select students are provided in addition to the universal supports provided to all students.

At the “top” of the pyramid is Supports for Positive Behavior, supports for students with more complex needs manifested in disruptive behavior, and those who need more intensive counseling (Howery, McCleen, and Pedersen-Bayus 2013). Teachers plan for variation in student ability and background by adjusting instruction. Designing lessons and activities that are engaging for each student and that address varying levels of ability and needs requires thoughtful planning at the outset of the lesson design process (Howery, McCleen, and Pedersen-Bayus 2013).

#### *School and District Collaboration*

Each school in the district chooses themes around which to develop a plan for school-wide effective behavior supports. Administrators must develop a set of strategies to implement district-wide. These plans must support pro-social classroom behavior as well as create a comprehensive learning environment (Howery, McCleen, and Pedersen-Bayus 2013). Success of a pyramid approach hinges on the communication and strategizing done between schools, districts, and administrators.

#### ***Study Results and Recommendations***

Over the past twenty years, GSACRD has looked to the research on innovative and inclusive education and actively worked to put this research into practice. Most recently, in the past five years, the opportunities and challenges presented in 21<sup>st</sup> century learning environments have been the catalyst for supporting the formation of new types of teams and new models of funding (Howery, McCleen, and Pedersen-Bayus 2013). The implementation of the Pyramids of Intervention is still occurring in the GSACRD district and evaluation is ongoing, but there are recommendations and strengths that have arisen from the model.

GSACRD has found that professional development of teachers, specifically focused on the development of school learning teams, is crucial to the efficacy of the model. Professional development enables teachers to efficiently implement learning goals and outcomes into their instruction. Furthermore, the core of this model’s success, as emphasized by the GSACRD district, is the formulation, design, and implementation of the curriculum. The district requires the support of the state, just as the work in the classroom requires support of the district (Howery, McCleen, and Pedersen-Bayus 2013). The key element to a pyramid approach rests in the collaboration between school, district, and state.

#### ***Overview of Pyramid of Intervention***

The Pyramid of Intervention approach utilizes a comprehensive framework that views each student individually, but sees the school as a collaborative unit. This approach requires extensive skill development on the part of the teacher, and places more responsibility on the teacher to know and develop plans specific to each student. Beyond the specificity required for each student, this model requires an overall dedication and knowledge of the goals of the school-wide strategies related to assessment, discipline, behavior, and curriculum. This model serves as the more integrative model as it encompasses all aspects of a school environment and requires diligent collaboration from all stakeholders.

## **Conclusion**

*“The task of the modern educator is not to cut down jungles, but to irrigate deserts.”* **C. S. Lewis**

### **Would a Personalized Learning Framework Work in Trenton? Barriers to Institutional Change**

Small learning communities, blended learning, and pyramid of intervention are all valid educational innovations. While all three have established cases in various school districts around the globe, these innovations all have particular strength and weaknesses. The small learning communities rely heavily on district support and the ability to alter school structure, while blended learning focuses more on small-scale classroom change. The pyramid approach is more of a combination of the previous two models, but it requires immense support from the district and local community. The implementation of any of these innovations will require extensive research into the resources, support platforms, and methodologies of the schools, districts, and states that plan to adopt any of these models; however, these innovations all provide bright potential for the future of education reform in America and in Trenton.

#### ***School and District Wide Change***

To embark upon such an extensive innovation involving a personalized framework, districts should adopt a mindset in which they see themselves as overseeing a portfolio of different types of schools, rather than running a set of similar “one-size-fits-all” schools (Evans 2012). Moving to this mindset requires significant business model innovation for both the district and individual schools, as it requires the district to shift from running schools to instead seeing itself as an authorizer of schools and purveyor of supporting services to schools (Evans 2012).

Research on school improvement consistently finds that district leadership plays a significant role in the success and sustainability of school-based reform efforts (Sullivan and Shaw 2010). A critical function in this new model is that the district move beyond input-based standards that seek to dictate how schools teach students, and instead create outcome-based student growth standards to give educational innovators a common target toward which to improve. Trenton would have to evaluate the goals for its students and determine which concepts would be most beneficial to its students.

### ***The Availability of New Facilities and New Curriculums***

Critical findings from research on education innovation show that new organizations have a far easier time engaging in transformational innovation than do existing organizations because new organizations do not have existing models that constrain them (Evans 2012). This finding could be implemented in Trenton as the construction of the new Trenton Central High School will provide students with state-of-the-art facilities and will enable new platforms, like the personalized learning framework, to be tested and eventually implemented. Findings from test classrooms in TCHS can be adapted into other classrooms and in other schools in the district.

### ***Technology Needs***

Enacting a personalized learning framework will often require a decent amount of digital learning capabilities. School districts must be aware of the capabilities of their district in terms of establishing cohesive digital learning programs within their schools. The necessity for a digital component will also hold true for the Trenton School District; however, there are online databases that provide free and open education resources, online courses, and supplemental software tools that teachers can utilize. These resources will save the Trenton School District thousands of dollars in curriculum planning.

Despite the availability of online resources, realistically, a personalized environment will require strong Internet access, and may even require students to have Internet access at home. The availability of Internet at home for many Trenton students may not be a reality, so this could limit the reach of digital personalized learning, at least in terms of homework and additional projects outside of school. If possible, it would be extremely beneficial for the Trenton District to procure good contracts that enable schools to receive aid in the implementation and maintenance of their digital infrastructure (Evans 2012).

### ***New Role of Teachers***

Personalized learning changes the role and responsibilities of teachers. Some of these potential changes include team-teaching models, new and differentiated teaching roles, and models that extend the impact of great teachers (Evans 2012).

The support of teachers is crucial because the main factor that influences the effectiveness of these innovations is teacher involvement. Research findings reveal that many educational innovations have failed because they did not influence the beliefs of the practices of the teachers. The Concerns-Based Adoption Model (CBAM) studies the process of implementing educational change by teachers. CBAM focuses on bottom-up strategies and on introducing teachers to new teaching-learning in terms of stages of development (Karmeshu, Raman, and Nedungadi 2012).

Because of the strong influence of teachers, additional training and development of teachers plays a large role in innovation adoption. The McKinsey Report on Education highlights the findings of several studies that show teacher training (TT) as a dominant success factor in the implementation of the personalized learning framework (2007). The creation of teacher training programs has resulted in successful personalized learning models.

Teachers must be prepared to enact innovative leadership that will encourage personalized learning and create an engaged student body. The intertwining of new ways of teaching and the overall creation of a new learning environment implemented by trained teachers can lead to the success of a personalized learning framework (Karmeshu, Raman, and Nedungadi



2012). Implementing teacher training models may be a large investment, but the output will be an increased and motivated student body.

### **The Future of Trenton**

In reality, implementing an educational innovation in Trenton will require immense communication between all administrators, teachers, and faculty. Trenton does not have this ease of accessibility and sense of cohesion between all academic sectors. A sense of collaboration must occur, as well as the monetary backing needed to implement new concepts and training programs. In the long term, as these innovations garner support, change can occur, but patience and dedication are crucial to success. These reforms will represent a complete overhaul in the current education practices, and all members of the district must be capable and willing to implement, support, and sustain these changes.

### **Innovation in Trenton: Choosing a Model**

Although the bureaucracy and availability of resources limit Trenton School District's freedom in terms of education innovation, the district should not be dissuaded from enacting educational change. The Blended learning model would work best in Trenton because of its relative flexibility in comparison to the other two models. Blended learning will enable teachers to take charge of the academic progress in their classrooms and provide teachers the skills and resources needed to effectively manage and assist children of all skill levels. The blended learning model relies less on district-wide collaboration, an element that is challenging to garner and sustain in Trenton. Blended learning, starting on a small scale in various classrooms throughout the district can eventually spread to all classrooms, creating a dynamic learning environment for all students, engaging them with the material and challenging them to grow as a student and as an individual. No matter the type of innovation Trenton aims to adopt, the implementation of a personalized learning framework will necessitate a large overhaul of the

current system; however, the state of education in 2014 has shown that the recent educational reforms have not improved the state of schools. The standardized testing reforms of the past 15 years have not improved Trenton Schools so it may be time for districts to dedicate themselves to a serious overhaul in order to enact a transformative reform that could very well result in tangible improvement in Trenton School District.

### **Planning for Effective Personalization in Trenton: Assessment in a Standards Based State**

In today's educational environment, standardized tests and assessments are heavily emphasized; the reality of the state of education will not enable schools to discontinue standardized tests in favor of other assessment options. If Trenton chooses to implement a personalized approach, they must be able to implement methods for evaluation. Fortunately, there are methods with which to intertwine a personalized learning framework and a standards-based curriculum. Without a personalized approach, a standards based curriculum will focus too much on high-stakes testing. Learning is diminished when the engagement of the student is disregarded (Powell and Kusuma-Powell 2012).

Personalized learning would also be adversely affected if there were no clearly defined standards for achievement. For example, the overly individualized learning programs characteristic of the 1960s, with 25 lessons for 25 students and no sense of a learning community, resulted in a lack of a clear learning outcome (Powell and Kusuma-Powell 2012). At this point in time in education, a balance of the two facets will ensure the most beneficial learning environment for students.

The models illustrated can all be evaluated and assessed through the aforementioned methods in the *Achieving Efficacy: Setting Indicators* section. Course performance, course rigor, grade retention, attendance, and noncognitive elements of learning conditions, discipline, social

and emotional learning, and mental and physical health, can all be monitored and assessed to provide teachers and districts with an indication of student, class, and school progress. These indicators can be measured through feedback received from students, teachers, and administrators.

These non-standardized assessment tools are concrete options that still grant districts flexibility with how to monitor student success while ensuring students are receiving a quality education. Moreover, these methods of assessment can be used in conjunction with the state-mandated assessments. Until the prevalence of standardized testing diminishes, teachers will have to integrate learning and assessment, both creative and didactic, into their classrooms.

### ***The Shift from Topics to Concepts***

Standards-based curriculums can only be personalized when the learning outcomes are framed as robust, primary concepts (Powell and Kusuma-Powell 2012). In order to create a more innovative environment, teachers must make a crucial shift from teaching topics to teaching concepts. When teachers translate topics into teachable concepts, they embed the rationale for engaging students in learning about that concept.

Teachers must find a balance between personalized learning and the mandated engagement in reliable common assessments. If students are being assessed on a conceptual idea, these ideas can be illustrated differently. For example, a student's understanding of the causes of World War I could be demonstrated through an essay, a model, a graphic illustration, or a skit. While the demonstrations vary, students are held to the same standard of conceptual mastery (Powell and Kusuma-Powell 2012).

The key to personalized learning is to identify clear and robust learning outcomes that are conceptually based, not stated in terms of specific content or facts, and to personalize the assessment process, but not the evaluation criteria (Powell and Kusuma-Powell 2012). This approach will still hold a curriculum to high standards but will also make it more accessible and engaging for students.

### ***Not Every Concept Can Be Personalized***

Some aspects of every curriculum are nonnegotiable, especially skills involving literacy and mathematics that will be tested under the Common Core. It would not be wise to ignore these standards or required content if it jeopardizes a teacher's future or necessary student requirements.

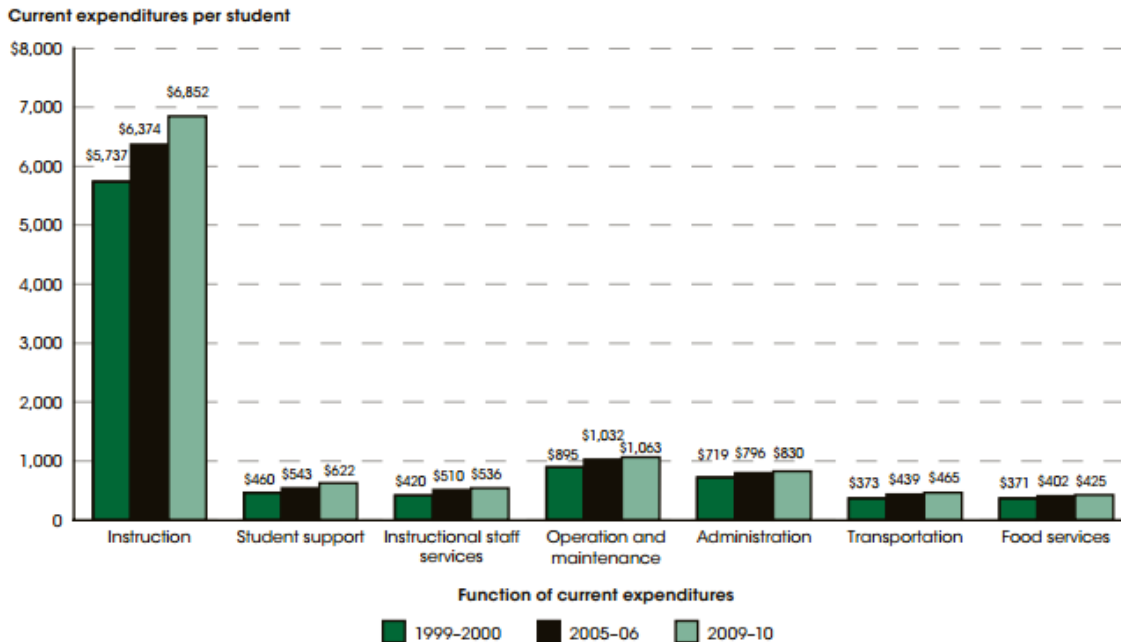
In today's educational environment, a step towards a marriage between a personalized learning framework and state-mandated standards will result in the most engaging environment possible for students and will also give school districts more time to test and determine the best way to implement a personalized learning model.

**Final Remarks**

The concept of a Personalized Learning Framework provides countless implications for future innovations within today's classroom, and within the Trenton School District. The three models mentioned in this work, Small Learning Communities, Blending Learning and Pyramid of Intervention approach all have inherent strengths and weaknesses in their program design and implementation. The idea of reform can often cause backlash; however, in today's society the reform in education is vital to the future of America's youth. The reforms adapted up to this point illustrate changes in learning and assessment format, but complete structural changes and overhauls must occur in order for real change to take place. Implementing an educational innovation on a large scale will take dedication, resources, and time, but it has the potential to provide a gateway to success for all students in all districts, and not just serve as a temporary, procedural switch in how schools teach children. We can accomplish this goal if we create and implement an educational innovation that will enable students to succeed in the 21<sup>st</sup> century, under a platform that creates the most viable opportunities for success.

## Appendix A

### Current Expenditures per Student in Fall Enrollment in Public Elementary and Secondary Schools, in constant 2011-2012 dollars, by function of current expenditures: 1999-2000, 2005-2006, and 2009-2010.



## Appendix B

### Summary of a Personalized Learning Framework Case Study

#### The Study: Central Board of Secondary Education in India

In the Central Board of Secondary Education in India a unique personalized learning framework called Continuous and Comprehensive Evaluation (CCE) was established for 11,500 K-12 schools. It included continuous means of evaluation of a learner's growth and development; it viewed learning as an ongoing process rather than a series of discrete events. The program included assessment in the beginning and at the end of instruction, as well as evaluation spread over the entire academic session.

The CCE program personalized learning; both the teacher and the learners are required to participate actively and continuously. CCE framework is a new evaluation paradigm which is not only diagnostic in nature but also provides personalized feedback to each learner for his/her growth and development. The key components to this program were the regularity of assessment, frequency of unit testing, diagnosis of learning gaps, use of corrective measures, and retesting. Teachers were required to evaluate the personal learning styles of learners.

The study of the CCE program identified 8 significant factors: teacher incentives, teacher workload, peer influence, school support, perceived usefulness, perceived ease of use, compatibility, and teacher training. The study included 295 teachers from 3 school districts, including 18 secondary schools in India (Karmeshu, Raman, and Nedungadi 2012). Respondents were asked to comment on the CCE factors, and results were produced.

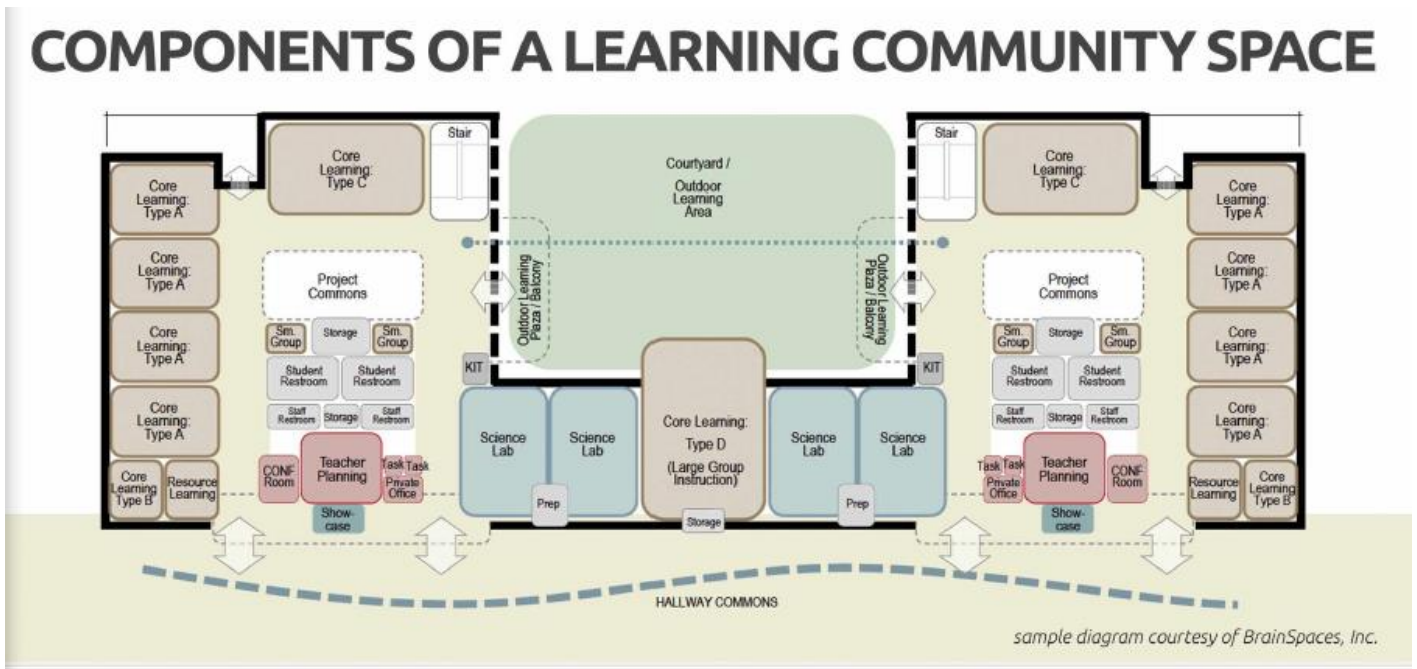
**Results**

The teachers training program emerged as the dominant factor influencing innovation adoption. Thus, the study concluded that the success of personalized learning framework is in the service training programs for the existing teachers. These teacher programs are various training programs equipping teachers with new pedagogical methods and technology supported teaching skills to motivate the teacher to adopt new innovation.

Furthermore, the results founds that the spread and speed of diffusion of education innovation, the rate at which teacher adopts the personalized learning framework, will also determine the likelihood of the success of the personalized learning framework. The study recommends for districts and schools to have proposed a modeling framework for the study of diffusion of educational innovation among the population of potential adopter-teachers. It concludes that multidimensional programs that would have a good strategy and speed up the process of training would ensure a successful adoption of this innovation (Karmeshu, Raman, and Nedungadi 2012).

**Appendix C**

**Graphic Depiction of the Layout of a Small Learning Community in a Pennsylvania High School**



**Appendix D**

**Summary of the Blended Learning Models outlined by the Clayton Christensen Institute**

- 1. Rotation Model:** A program in which within a given course or subject students rotate between learning modalities, at least one of which is online learning. Other modalities might include activities such as small-group or full-class instruction, group projects, individual tutoring, and pencil-and-paper assignments (Clayton Christensen Institute 2012). The Rotation model has 4 subdivisions:

<b>Station Rotation</b>	In Station Rotation students rotate on a fixed schedule. The rotation includes at least one station for online learning. Other stations might include activities such as full-class instruction, group project, individual tutoring, and pencil-and-paper assignments (Clayton Christensen Institute 2012). The Station Rotation model differs from the Individual Rotation model because students rotate through all of the stations, not only those on their custom schedules.
<b>Lab Rotation</b>	Students rotate on a fixed schedule among different locations in the brick-and-mortar campus. One station emphasizes predominantly online learning, and the others are classrooms for other learning modalities (Clayton Christensen Institute 2012).
<b>Flipped Classroom</b>	Students rotate on a fixed schedule between face-to-face teacher-guided practice during the school day and online delivery of content from a remote location, usually home, after school (Clayton Christensen Institute 2012). The primary delivery of content and instruction is online, which differentiates a Flipped Classroom from students who are merely doing homework practice online at night. The Flipped Classroom model accords with the idea that blended learning includes some element of student control over time, place, path, and pace because the model allows students to choose the location where they receive content and instruction online (Clayton Christensen Institute 2012).
<b>Individual Rotation</b>	Students rotate on an individually customized, fixed schedule among learning modalities. A teacher sets individual student schedules. The Individual Rotation model differs from the other Rotation models because all students do not rotate to each station (Clayton Christensen Institute 2012).

- 2. Flex Model:** Online learning is the main element of learning. Students move on an individually customized, fluid schedule among learning modalities, with teacher supervision (Clayton Christensen Institute 2012). The teacher provides face-to-face support on a flexible and adaptive as-needed basis through activities such as small-group instruction, group projects, and individual tutoring (Clayton Christensen Institute 2012).
- 3. A La Carte Model (formerly Self-Blend Model):** Students take one or more courses entirely online with an online teacher while simultaneously continue to have brick-and-mortar educational experiences. Students may take the online courses either on the brick-and-mortar campus or off-site (Clayton Christensen Institute 2012).
- 4. Enriched Virtual Model:** A school-wide model where for each course students divide their time between attending a brick-and-mortar campus and learning remotely using

online delivery of content and instruction (Clayton Christensen Institute 2012). This model differs from the Flipped Classroom because in Enriched Virtual programs, students rarely attend the brick-and-mortar campus every weekday. It differs from the A La Carte model because it is a whole-school experience, not a course-by-course model (Clayton Christensen Institute 2012).



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