Standardized to Student-Centered: A Systemic Approach to Navigating the Transition, Finding Balance and Creating Equitable 21st Century Learning Environments

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STANDARDIZED TO STUDENT-CENTERED: A SYSTEMIC APPROACH TO NAVIGATING THE TRANSITION, FINDING BALANCE AND CREATING EQUITABLE 21ST CENTURY LEARNING ENVIRONMENTS

A Dissertation

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Doctor of Education

by

Betsy L. Fitch

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by

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ABSTRACT

STANDARDIZED TO STUDENT-CENTERED: A SYSTEMIC APPROACH TO NAVIGATING THE TRANSITION, FINDING BALANCE AND CREATING EQUITABLE 21ST CENTURY LEARNING ENVIRONMENTS

by Betsy Fitch

Components of what has been historically referred to as progressive education have been shown to increase both student achievement and motivation. These historically termed ‘progressive’ approaches are now being reintroduced as systemic and innovative practices in the post No Child Left Behind (NCLB) era of education reform. While progressive education has often been criticized for appealing primarily to the white-middle class, and for an apparent lack of rigor, current research is beginning to tell a different story. This dissertation will summarize the evolution of the Progressive Movement from the late 1800s until today, describe the impacts of a more standardized approach to education, and debunk some long-standing misconceptions about progressive education. This case study, conducted in a Northern California public elementary school district, includes publicly available secondary data, surveys and 1:1 interviews. Results show that educators are moving toward a more balanced pedagogical approach but implementation remains a challenge due to inadequate systems and structures. Educators and administrative personnel are encouraged to access resources that provide insight into systemic implementation so as to improve learning outcomes for all students.
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Chapter 1. An Unresolved Issue in Education

Components of what has historically been referred to as progressive education, now called 21st century and student-centered learning, have been shown to increase both student achievement and motivation (Holm, 2011). These components, including a more child-centered approach to teaching and learning, date back to Piaget, Dewey and Vygotsky (Rallis, 1995). Progressive approaches to teaching and learning can be messy and difficult to measure, creating a challenge when there is an interest in holding schools accountable for ensuring that all children meet a standard level of proficiency in learning. They have also been criticized for reflecting white-middle class values, and therefore ineffective as a means of instruction for low-income, minority students (Delpit, 1998).

On the other hand, there is a more standardized, factory-model, approach to public education that emerged after the Industrial Revolution and became the mainstay of public education via federal policy with the introduction of the Elementary and Secondary Education Act (ESEA) in 1965 (Little, 2013; Wirt & Kirst, 2009). This model however, along with external accountability measures, has been proven inadequate for achieving the equity standard in public education (Berliner & Biddle, 1995; Nichols & Berliner, 2007; Yinger, 2004).

Now, with the federal Every Student Succeeding Act (ESSA) and Common Core State Standards (CCSS), there is opportunity to find equity through balance, rather than repeat mistakes of the past. However, to be effective (that is to achieve positive learning outcomes for students) the practice needs to be well implemented. But just how systems, structures, and pedagogical approaches will be implemented and evaluated remains
unclear. At this juncture, it is unknown if this reform effort will benefit from uniting practice, policy and research to enhance learning outcomes for all students and achieve the goals of public education.

This case study will specifically address the following unanswered questions: (1) what supports have school administrators and coaches included in the implementation of Project-Based Learning (PBL) to increase academic achievement, (2) what supports are teachers using to scaffold PBL lessons so as to engage students and increase academic achievement; and (3) how is PBL being measured and assessed to show academic achievement?

To address these questions, the author will present a comprehensive review of relevant literature as well as findings from a case study designed to explore implementation of the student-centered practice of PBL and its impact on student engagement and academic achievement in low-income, public elementary schools.

Equity in Action: Achieving the Goal of Public Education

Broadly speaking, the purpose of this study is to understand how educators can implement student-centered, innovative and systemic practices to help all students be successful in school, prepare to participate in the workforce, and engage in democratic life (Labaree, 1997). After years of a standardized approach to education, schools are still leaving students behind, especially low-income, Native American, Latino/a, and African American students (nationsreportcard.gov, 1983). Although some studies point to a decrease in high-school drop-out rates (nces.ed.gov, 2016), there are still educational gaps in fourth and eighth grade reading and math, indicating that we have not yet reached
educational parity for all students in the United States (nationsreportcard.gov, 1983). This study explores how we can do so and if we are beginning to make progress toward this goal.

It is important to understand how educators are making this transition so that there is not a default return to a more standardized approach to education thereby recreating and perpetuating the inequities that persist in society (Anyon, 1980; Bowles & Gintis, 1976; Labaree, 2012). While there is a body of research and data on what does and does not work in education (Hattie, 2009), this level of depth is lacking in research on how to navigate change when the endpoint is, as of yet, not clearly defined or understood. Nor, is it clear how to leave behind the “pedagogy of poverty” (Haberman, 1991, p.290) and move toward student-centered systems and practices in a culturally responsive manner. Without, as Hattie (2009) describes, “signposts for excellence,” (p.238) there could be a push to return to high-stakes testing, and standardized teaching practices, which will thus leave students behind due in part to inadequate implementation of effective practices.

Current research paints a picture of inequity and states that the road to equity is hard. While studies often focuses on ‘what’ is and is not effective in education (Hattie, 2009), the descriptive research presented here can address ‘why’ equity is important and can provide detail on ‘how’ to move forward.

**Background and Role of the Researcher**

The researcher for this case study and dissertation is an employee of the school district that serves as the focus of the case study, but not in a supervisory role for any of the three participating school sites. The researcher’s role is to review and analyze
secondary data, conduct surveys and interviews, synthesize all data and information, find themes and patterns, draw conclusions and write the dissertation in an ethical, unbiased manner (Creswell, 2008).

To maintain the highest level of ethics and research, and report without bias, these areas were addressed: First was to acknowledge the researcher’s cultural background – white, middle-class, female. The researcher’s epistemology as an educator includes background and experiences in progressive, holistic and student-centered environments. These may ultimately impact the work, even if in an unconscious manner (Kezar, 2003; Milner, 2007). The researcher is therefore committed to engaging participants, establishing mutual trust, practicing empathy and exhibiting an ethic of caring with interviewees (Kezar, 2003). These considerations are intended to promote the credibility and trustworthiness of the case.

With regard to the researcher’s role as a district employee, this may have influenced the research in a positive way by giving depth to the background and context of the setting. On the other hand, prior knowledge, experience and relationships may have prevented the researcher from seeing the case study from an unbiased perspective. This was mitigated through continual checking of information, research and evidence against known biases to maintain a balanced and clear perspective.

**Chapter 2. Systems that Repeat Inequities in Public Education: A Review of the Literature**

The National Center for Education Statistics (NCES, 2016) indicates that almost 50 million students are attending United States public schools, with an additional five million attending private schools. Students attending public school will be part of a
system that lacks educational parity for all students. As reported in the Nation’s Report Card, NCES data indicate that of all fourth graders assessed in 2015, 57% of Asian students and 46% of white students attained proficiency (minimally acceptable level of understanding) in literacy, while this was true of only 18% of blacks, 21% of Hispanics and 21% of Native Americans. This trend continues as students move to eighth grade. Moreover, there is evidence to suggest that many of the mechanistic educational practices and policies leftover from the Industrial Revolution (e.g., standardized tests, inflexible bell schedules, and isolated teaching of subjects) will not help schools reach parity if reforms are not enacted (Berliner & Biddle, 1995; Berliner & Glass, 2014; Darling-Hammond, 1992; Nichols & Berliner, 2007).

This does not mean that progress has not been made. Since the 1970s, dropout rates have decreased. In 1972 dropout rates were 34.3%, 21.3% and 12.3% for Hispanic, Black, and White students respectively. Those numbers declined by 2014 to 11.7%, 7.9% and 5.1% for the same subgroups respectively. While Asian dropout rates were not recorded until 2002, their drop-out rates also decreased from 4.3% in 2002 to 3.4% in 2014.

Whereas many children go through a traditional public school system that adopts a mechanistic and standardized approach to education, other children attend progressive schools with a systems or student-centered approach – schools like the Lab School in Chicago. Below is a quote from a 2015 blog addressing this dichotomy:

Former Secretary of Education Arne Duncan’s children will attend the private University of Chicago Lab School, where his wife works. Of course, everyone is free to send their children wherever they wish. What’s interesting about Duncan choosing
this school is that it does not practice any of the policies that Duncan has promulgated. It is a progressive school, founded by John Dewey. No Common Core. No evaluation of teachers by test scores. No performance pay. Duncan attended the prestigious University of Chicago Lab School. The teachers are unionized. President Obama sent his daughters there. Mayor Rahm Emanuel sends his children there (Ravitch, July 11, 2015).

The Lab School’s website states:

…learning by doing has guided the efforts of the University of Chicago Laboratory Schools since Professor John Dewey first began testing his educational theories in 1896. Beginning with a handful of children and growing to over 1,770 students Lab has earned a well-deserved international reputation for excellence (University of Chicago, 2016, p.1).

Public education has become a system in which the President chose the Lab School, where current practices are more in line with historically progressive pedagogies, rather than a public school with a more traditional approach to teaching and learning. The following sections will more closely examine this issue.

Why These Inequities Persist: a Sociological Perspective

What is the purpose of public elementary school in the United States? According to Labaree (1997) the purpose is threefold:

- Democratic equality, which serves the public good and prepares students for life in society;
- Social efficiency, which serves the private good and prepares students to become part of a skilled workforce;
- Social mobility, which also serves the private good and prepares students to compete for social positions (Labaree, 1997).
Today, these are more commonly referred to through the rhetoric of Common Core State Standards (CCSS) and the federal Every Student Succeeds Act (ESSA) as ‘college, career and citizen ready’ (whitehouse.gov, 2015). Bowles and Gintis (1976) suggest that the current education system was established based on a contradiction: *capitalism*, with a need for workers, a focus on profit and few people in power, versus *democracy*, which focuses on civic engagement, and values more people in power. Depending upon what is happening in the world at large, the balance across these three interests shifts (Labaree, 1976).

For example, in the 19th century, the factory model approach led to standardization and the ‘common school’ movement. In the 20th century however, as the corporate economy focus grew, so did the progressive movement in education. Now, schools have morphed to mirror what is happening in society at large, or even within communities (Anyon, 1980; Bowles & Gintis, 1976). Ultimately schools recreate the power and economic structures that already exist in society and change is very difficult. While these interests continue to be in competition, conflict and cycles of reform are likely to continue. In fact, Labaree (2012) wrote that the “greatest threat to education is the growing dominance of the social mobility goal over the other two” (p. 73). Finding balance in such a complex system with so many competing voices and interests is a challenge worth exploring.

While this section looked at the underlying competing purposes of education, the following two sections of this review will describe how these interests have played out
historically in terms of two competing reform efforts: standardization through policy compared to student-centeredness through practice.

**A Cycle of Competing Education Reforms**

John Dewey, American philosopher, educator and author, has famously written that schools should mirror society not recreate it, in order to improve society (Dewey, 2012). Paulo Freire (2000) calls the process of education generative, also indicating that with each passing generation citizens should see improvements to society as large (Freire, 2000). Both Dewey and Freire promoted student-centered models for education, models that espoused the integration of content and skills, and believed in individual attention to student needs and celebrating student abilities and skills. This model is in contrast to the current, more standardized and isolated, public school model which originated post-Civil War and ultimately became the foundation of public education in the U.S.

Horace Mann was an American politician and educational reformer who, during the mid-1800s, advocated for universal, free and non-sectarian education for all students through what he termed ‘common schools’ as means for individuals to live longer, healthier and happier lives (Cremin, 1961). The term ‘common school’ derived from his belief that social tensions arise when a diverse group of individuals do not share common values. Common schools, he believed, would not only address the issue of teaching shared values, but also of eradicating poverty, reducing the division between rich and poor, preventing illness and decreasing crime. This revolution in education, the belief that education was a right for all children, created both opportunities and challenges which
would need to be addressed if the goals of universal education were to be met (Cremin, 1961).

Although a significant figure in U.S. history, it is important to acknowledge that there were international influences on Mann’s goals and ideas. Johann Heinrich Pestalozzi, the father of modern educational science, who had been a champion for education in Europe during the late 1770s (Cremin, 1961; Horlacher, 2011; Soetard, 1994) also sought to bring education to the masses and address pressing social issues. He did so by opening The Neuhof (elementary school) in Europe which sought to balance the need for children to understand economic realities while developing their own persons as part of the larger society. He also wrestled with his desire to provide individualized instruction to students with the need for efficiency through the use of textbooks in order to explain his teaching pedagogy called ‘The Method’. The Method, similar to progressive and student-centered models, focused on students working on authentic tasks as part of their learning experience (Horlacher, 2011; Soetard, 1994). Pestalozzi’s philosophy and his pedagogical ideal, attending to students as individuals, is still part of progressive education and continues to be practiced around the world (Cremin, 1961). However, this system came with challenges.

Mann and Pestalozzi discovered that their pedagogical visions would encounter challenges as they attempted to educate increasing numbers of pupils (Cremin, 1961; Horlacher, 2011; Soetard, 1994). Many of the challenges faced then by Mann, are still present today: hiring qualified teachers, finding materials, and securing classrooms are just a few of the issues that would need to be addressed to achieve universal education.
Further, in 1892, Joseph Mayer Rice, a pediatrician turned journalist, remarked on the “fatal dullness” (p. 3-4) in education. When he was asked to research his claim, he began a journey which included visits to 36 schools and conversations with 1,200 teachers (Cremin, 1961; Little & Ellison, 2015). These experiences served to confirm, if not expand his criticisms, as he found problems such as: buildings in disrepair, old materials and texts, untrained teachers, children’s recitation of basic facts in lessons, skyrocketing enrollment due in part to immigration from multiple countries and increased corruption in schools and political agencies. Superintendents he spoke with indicated that they were trying to reduce class sizes to 60:1 As Rice began to write about his findings in a publication of the time called, The Forum, pockets of protest emerged among disparate groups of interested parties creating a movement of social reform. From this reform, the Progressive Education Movement was born, thus changing the face of American education for almost two generations (Cremin, 1961).

Concurrently, perhaps in response to the challenges being faced by public education, another contrasting social reform was emerging. Beginning with the Philadelphia Centennial Exposition in 1876, there had been a global trend in education toward a skills based school curriculum aligning education with the needs of an industrialized economy (Cremin, 1961). Education as a means to lead a ‘cultured’ life (read: aristocracy and leisure) was no longer addressing the needs of the larger working community. When Calvin M. Woodward borrowed a Russian model of workshop-based education called the ‘Della Vas’ method, which was on display at the 1876 convention, he began his own reform movement criticizing public schools for adherence to the needs
for a cultured society when the world needed “men of skill” (Cremin, 1961, p. 28). This need for men of skill during the Industrial Revolution laid the groundwork for the mechanistic practices that still drive standardization within public education (Ackoff, 1993). While college and career readiness continues to be a purpose and value of public education, schools are also intended, as addressed earlier, to promote democratic equality (Labaree, 1997) and that is the strength and focus of progressive education.

**Reform Toward Progressive Education**

What is progressive education? In his landmark book, *The Transformation of the School; Progressivism in American Education*, Cremin (1961) writes of the definition for progressive education, “…none exists, and none ever will; for throughout its history progressive education meant different things to different people, and these differences were only compounded by the remarkable diversity of American education” (p. x). In 2015, Tom Little, after thirty years as a progressive educator, suggested that progressive education “prepares students for active participation in a democratic society, in the context of a child-centered environment, and with an enduring commitment to social justice” (Little & Ellison, 2015, p. 52). Although there may not be one agreed upon definition for progressive education, there are pedagogical and philosophical consistencies which align well to a systems model for education, see *Cybernetics - a Systems Approach to Change* below. A summary definition of progressive education was shared in the 2013 special edition of the *International Journal of Progressive Education*:

Progressive education is a pedagogical movement that emphasizes student-centered learning experiences and that incorporates aspects such as learning by doing, valuing diversity, integrated curriculum, problem solving, critical thinking, collaborative learning, social
responsibility, democracy, and lifelong learning. An important feature is the situation of learning within social, community, or political contexts, which more broadly links progressive education with efforts today by some educators who actively promote critical pedagogy and democratic education. Recently, core progressive ideas appear in the social justice youth development model. (p. 10)

Alphie Kohn (2008), Tom Little (2013, 2015), the Progressive Education Association (renamed as the Progressive Education Network (PEN)) and schools identifying as progressive have overlapping agreement on the principles, practices and pedagogies that are the foundation for progressive education setting. In a 2013 article, Little summarized the founding principles of progressive education as stated by the Progressive Education Association in 1919: “freedom to develop naturally, interest the motive of all work, cooperation between school and home to meet the needs of child-life and the progressive school as leader in educational movements” (p. 85). From its origins, progressive education focused on helping all children learn by finding their interests and working with the families to help them grow and develop (Dewey, 2012; Kohn, 2008, Little, 2013). By including applied skills, such as critical thinking, they were also preparing students to appreciate caring for the commons through responsible citizenship (Waters Foundation, 2012).

Throughout the early 1900s, however, progressive education school enrollment grew, as did the number of students moving through secondary schools, which grew from 26 million pupils in 1940 to 46 million by 1960 (NCES, 2016). By post World War II, however, progressive education had taken a downward turn due to many factors including general conservatism after the war, demands on teacher time for the pedagogical methods required, and distortion of what progressive education was and was
not, thus leading to negative portrayals in the media. Progressive education was referred to as “loosey-goosey” and “touchy-feely” (Kohn, 2008, p.3) with cartoons depicting children running amuck (Cremin, 1961; Kohn, 2008; Little & Ellison, 2015). These criticisms grew, despite research in a landmark longitudinal research project, “The Eight-Year Study” that took place from 1930 to 1940, demonstrating that students (N=1,475) from 30 progressive and innovative schools outperformed their peers on a number of measures including leadership, academics, and civic understanding (Aiken, 1942).

Education within the broader societal context and system was forced to change. The Progressive Era meant more progressive (student-centered) schools, standardization in manufacturing meant standardization in schools, and a post-war soberness resulted in a similar mood in schools. One could argue that this soberness was in stark contrast to the values upheld by the progressive education movement, where students are typically engaged, challenged, and having fun with learning. Regardless, evidence supports the fact that schools are not isolated from the events in the world. In fact, there is an ongoing ripple effect: As society changes, what is happening in schools changes, thus schools create a citizenry that mirrors that period in time. As the world changes however, the model often lags behind, which may be why schools today still follow a model that began during the Industrial Revolution. When the federal government became involved in public education this more standardized approach was accelerated through legislation and later impacted by judicial interpretations of state court cases (Little & Ellison, 2015; Wirt & Kirst, 2009).
The Standards Reform Movement

In 1965 as part of the War on Poverty, President Lyndon B. Johnson signed into law the Elementary and Secondary Education Act (ESEA). Through this measure, the federal government’s role in education was changed from one of supporting local and state education, to creating mandates for local and state education (Wirt & Kirst, 2009), a significant change to the educational system at large. Then in 1983, A Nation at Risk was published citing a “rising tide of mediocrity” in public education (National Commission on Excellence in Education, 1983). This widely publicized report was based on U.S. student scores on international assessments, and implied a link between economic decline and educational shortcomings (Mathias, 2010; Wirt & Kirst, 2009). Education became a leading issue among politicians and citizens (Wirt & Kirst, 2009). Even as there was more focus on education and increased incentives for school performance, there was little improvement in student achievement, so politicians concluded that systemic reform was necessary, beginning the standards-based reform movement (Wirt & Kirst, 2009; NCES, 2016).

In 1989, President George H.W. Bush invited America’s governors to an educational summit to continue the discussion of standards-based education reform and policy. The result of this summit was the agreement that the U.S. needed national educational standards and goals (Wirt & Kirst, 2009). President William Clinton continued the federal focus on education with the enactment of Goals 2000 which reinforced reform efforts that were taking place at the state level (Wirt & Kirst, 2009). The Bush and Clinton reform initiatives paved the way for the reauthorization of ESEA
as No Child Left Behind (NCLB), which was signed into law in January 2002 by President George W. Bush. NCLB compelled states to comply with the following: administering stricter assessments for accountability, developing performance requirements for students, publishing adequate yearly progress (AYP) objectives, hiring and training ‘highly qualified’ teachers, participating in the National Assessment of Education Progress (NAEP) test and disaggregating student data by demographic subgroup (Wirt & Kirst, 2009). These mandates were congruent with the results of similar practices being enacted through legislation in many states across the country (Yinger, 2004).

In fact, NCLB mandated initiatives were closely related to the reforms enacted in Texas after 30 years of litigation - litigation aimed at creating an educational finance system that would be deemed constitutional by the Texas citizens and court systems. The efforts in Texas led to less disparity in student funding across districts, but did not show improvement in student achievement data (Yinger, 2004). In fact, several other states had been involved in litigation resulting in state finance reform with an effort to provide an equitable and adequate education for students. The court cases pushed states toward a new focus on student performance and toward new programs to promote school district accountability. By 2001, 48 states had adopted state tests for mathematics and reading (Yinger, 2004). The pattern among states, however, was clear: Reforms were not as successful in reducing the disparities in student performance as they were reducing disparities in spending (Yinger, 2004).
After a decade of standards-based reform, accountability measures, and standardized tests, there is still inequity in the U.S. public school system. Although there is data to indicate that graduation rates are increasing, the gap between graduation rates for White and Asian students versus those for Black and Hispanic students still exists indicating there is more work to be done to reach equality in education and, ultimately, in society (National Center for Educational Statistics, 2016).

Progressive education alone, however, is not the answer. Although espousing equity through social justice as a value, progressive education has also faced criticism for not meeting the needs of all students. Research from Lisa Delpit (1988) and Angela Valenzuela (1999), while agreeing with some of the principals of progressive education, suggests that the values of progressive education represent values that are predominant in white, middle-class home not necessarily low-income, minority homes (Delpit, 1988). The systems and structures needed to support working-class and minority students are absent from the current model and therefore ineffective in achieving the desired outcomes (Delpit, 1998). Unfortunately, as Valenzuela (1999) and Freire (2000) point out, this often leads to deficit thinking with a focus on what students do not bring to school, rather than what they do bring. To help all students achieve their potential, the systems need to change so as to value what students do bring to school, rather than blaming one group of students for values that may not represent the structure of the current school system (Valenzuela, 1999).

Under ESSA and CCSS, there is an opportunity once again to strike a balance and achieve the goal of equity in public education (whitehouse.gov, 2016). Progressive
education practices are being reintroduced into public education under the new names of student-centered learning, 21st century skills, and project- (problem-, place-) based learning. Historically however these practices failed due to public perception that they were “loosey-goosey” (Kohn, 2008, p.3), time consuming, and lacking alignment to the needs of students from working-class and minority backgrounds.

What systems and structures are in place now to address these concerns and find balance and equity in public education? What research has been done to support a movement that returns to more progressive, student-centered practices? To explore how reform under ESSA may be different than reform efforts in the past, this review of relevant literature and the following case study will explore systemic leadership and the process of cybernetics as it may, or may not be, in practice at the case study schools. Specifically the next section will address why systems leadership is needed, how leaders can use systems thinking for change and how systems-thinking can be taught in schools to create the next generation of thinkers, teachers and leaders.

**Cybernetics: A Systems Approach to Change**

“The purpose of systemic change is to create a better educational system than that which currently exists” (Jenlick, Reigeluth, Carr & Nelson 1998, p. 219). Cybernetics and systems thinking can play a part in achieving this illusive and worthy goal.

According to William Reckmeyer (personal communication, 2015), cybernetics is the science of purposeful relationships and goal directed behavior. It is not linear, cause and effect or elemental analysis, rather it is complex, integrated, pattern synthesis that leads to understanding the interconnectedness of an issue as well as intended and
unintended consequences. Cybernetics provides a framework and common language to move systems forward to achieving a goal. In the process of reaching this goal there is a loop of acting, sensing and comparing that is an ongoing process of self-correction. Or, as Reckmeyer (2015) states, the system needs to select (a goal directed behavior), detect (get feedback on the implementation), effect (make a change/have an impact) and correct (make on-going adjustments to help achieve the desired goal) (Figure 1). Feedback loops within the system allow for sharing and understanding so that the system can move forward in a healthy manner. They also open communication channels for conversation and dialogue which are critical to effective leadership (see discussion below).

Figure 1. Cybernetic framework and the process of establishing, monitoring and adjusting goals and practices.

To achieve systemic improvement, there is a need for ongoing feedback about how effective or ineffective a practice is in achieving the desired effect or outcome. In contrast to a more static model, feedback loops allow systems to act more like living organisms that adapt and change over time. If the necessary feedback loops and systems are not in place then the system can begin to move away from, rather than toward, the
goal. The system can begin to morph in the way that a rogue cell within an organism can lead the entire body (figurative or metaphoric) to an unhealthy state. If the appropriate systems are in place however, then the rogue cell can be detected quickly and corrective measures can be taken to resume the desired goal-directed behavior and preserve the integrity of the system (Reckmeyer, 2015). In a series of “Complexity Science” (2014) videos, it is explained that systems are made of elements or nodes and through connections or relationships these elements become an interconnected system. Through the connections and relationships networks grow and systems develop; if the system appreciates the elements and self-correction becomes the norm then the system moves forward in a healthy and positive manner. How then can educational leaders begin to create structures and systems that allow healthy practices to thrive and move toward the goal of college, career and citizen readiness for all students?

**Leadership for Systems Change in Education**

If the goal of public education is threefold: democratic equality, social mobility and social efficiency for all public school children (Labaree, 1997) then where does change begin? Change starts with leadership, and the first step that leaders need to take is to move away from mechanistic and towards social system thinking (Ackoff, 1993). ‘Machine age’ thinking dates back to the Renaissance in 14th century Europe and aligned with three beliefs: the universe is understandable, analysis is inquiry and everything can be explained through cause and effect. In an article on the topic, Ackoff (1993) suggests that this type of thinking led to the Industrial Revolution building off Sir Isacc’s Newton declaration that the universe is a machine. Further, it was during the Industrial Revolution
that education began to change and become more standardized, as discussed earlier. By
the 1940s however, ‘systems thinking’ had replaced ‘machine age’ thinking due in large
part to two books; *Cybernetics* (1947) and *General Systems Theory* (1954).

Systems thinking highlights interactions among parts (interconnectedness) rather
than focusing on separate parts as though they were not related to one another. In
addition, systems thinking focuses on synthesis rather than analysis (looking at
connections and patterns rather than elements; looking at why something is the way it is).
Finally, systems thinking embraces expansionism versus reductionism; that is to say, to
understand anything, we must first understand the larger system. By expanding
awareness to the system, understanding rather than knowledge becomes focal and the
basis for redefining the whole system (e.g., school as part of society).

Importantly, leaders themselves are part of the system and not isolated from it.
Senge, Hamilton, and Kania (2015) wrote in *The Dawn of System Leadership* about the
powerful role model, Nelson Mandela, as they attempted to debunk the myth of the
“heroic individual leader” (p. 16) and advocate for systems leaders who can accelerate
change at the same rate by which problems are presenting themselves. These authors
identify three core capabilities that leaders need to develop to build shared leadership: (1)
the ability to see the larger system, (2) the ability to foster reflective practices to build
trust and creativity and (3) the ability to be proactive and “co-create the future” (versus
react to problems) (Senge et al., 2015, p.16).

These are not easy tasks, so Senge et al. (2015) provide leaders with guidelines
for developing these skills:
• Learn on the job (detect, select, effect, correct)
• Balance advocacy and inquiry (listen to the perspectives of others, this is a habit of a systems thinker)
• Engage people across boundaries (develop partnerships to see things from even more perspectives)
• Let go (this may mean setting aside the agenda to follow the group energy or be flexible with opportunities present themselves)
• Build one’s own toolkit (continue to read, learn and grow)
• Work with other systems leaders (work with partners who share the same vision and the same challenges, while building in time for personal reflection and development too)

By following these guidelines, leaders may be better equipped to progress toward systems leadership and away from a ‘heroic leader’ model of leadership.

As an example of systems leadership in education, Fullan, in his 2010 study and report, shares research conducted in Great Britain as part of reform efforts under then Prime Minister, Tony Blair. The goal of the study was to improve literacy and numeracy in Britain’s 20,000 primary schools. Reformers focused their efforts on “capacity building (professional development, leadership development, curriculum and instructional resources) and reintroduced the whole thing with interventionist accountability schemes” (Fullan, 2010, p. 24). As with NCLB, student achievement did rise, but the success came from measures that were top-down, target driven and punitive. Simply put, it was not a sustainable reform model. From this experience, Fullan defined
whole-system reform by broadening his framework and boundaries to consider the systems (e.g., districts, state government, parent groups, etc.) that surrounded the system (i.e., the school). Further, Fullan alluded to the need for feedback loops by suggesting that practice, rather than theory or research, should drive reform efforts.

In 2016, Fullan along with Lyle Kirtman wrote and published a more detailed book on whole-system change (Fullan & Kirtman, 2016). Reflecting specifically on work in Napa Unified School district, the authors found that students were engaged in real-world problem solving using technology to accelerate the learning; leaders were engaged in developing their own skills, the schools and their networks; and the organization was building partnerships with other districts to accelerate their own learning. Napa Unified School District also hosts an annual learning summit called the Napa Exchange where districts across California and the United States meet to share ideas that are transforming education (Napa Exchange Conference, 2015). Napa thus provides one example of whole-system reform which began with changing teacher classroom practice to PBL.

Fullan and Kirtman (2016) go on to provide a roadmap for education leaders on how to develop systems within systems so as to build sustainable and transformative whole-school reform. In essence, they advocate for a cybernetic approach to educational transformation; classrooms, schools, school districts are all micro-systems that comprise a global system of education. By developing relationships across the systems and becoming more interconnected through positive relationships and feedback loops the system evolves. The challenge now is to begin to drive change through practice, not policy.
To change systems and move educational reforms forward, systems thinkers and leaders are needed. There is overlap between Senge’s (2013) thoughts on systems leadership and the Ontario Leadership Strategy Bulletin (2009). The Ontario Bulletin begins with a cybernetics view by suggesting that leaders start by setting goals and, as Senge suggests, creating a shared vision. Leaders must create systems that align resources with priorities and both authors believe in the power of creating teams and learning cultures. The Ontario article goes on to suggest that leaders use data to drive decisions, again using cybernetics to build in feedback loops and monitor progress through data and finally, partaking in courageous conversations that may be needed to deal with any of the aforementioned ideas and ultimately help educators meet the goal of helping students prepare to become thoughtful citizens ready to make a positive difference in the world. Teaching students systems thinking through PBL may be one way to achieve this goal. The next section will begin to look at specific pedagogical changes leaders can make to promote equity and justice in schools (Leithwood & Riehl, 2003). These practices, including 21st century skills, PBL and systems thinking, are student-centered, meet the new demands of CCSS, and show promise for students in low-income, settings.

Teaching Students to Think in Systems

Part of being a systems leader and meeting the demands of Common Core State Standards (CCSS), is to allow for pedagogical approaches that teach students to think in an integrated rather than an isolated manner (Kirst, 2013). A study conducted by the Waters Foundation (n.d.) found that schools that used a systems based approach were better able to help students prepare to address the complex and unpredictable changes
that will allow them to make a positive difference in their worlds and in their communities ("The Impact of Systems," n.d.). The article defines ‘systems thinking’ as teaching both basic and applied schools (p.2) and refers to these as 21st century skills. Basic skills are those more content specific skills such as reading, writing and math, while applied skills are those more process oriented skills such as critical thinking, leadership and creativity.

As with the study mentioned earlier on process skills in groups, research suggests that integrating academic content with process skills enhances student learning (e.g., Cheng, et al 2008). Now, there is an emerging trend in education to integrate 21st century skills into public school curriculum. Although there is consensus among the research with regards to efficacy (Table 1), a common language has not yet been established.
Table 1

21st Century Skills

<table>
<thead>
<tr>
<th>Source</th>
<th>Definition of 21st Century Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arnie Duncan, former U.S. Secretary of Education</td>
<td>Skills that increasingly demand</td>
</tr>
<tr>
<td></td>
<td>creativity,</td>
</tr>
<tr>
<td></td>
<td>perseverance,</td>
</tr>
<tr>
<td></td>
<td><strong>problem solving</strong>,</td>
</tr>
<tr>
<td></td>
<td>combined with performing well as</td>
</tr>
<tr>
<td></td>
<td>part of a <strong>team</strong>.</td>
</tr>
<tr>
<td>The Partnership for 21st Century Learning (p21.org)</td>
<td>Learning and Innovation Skills:</td>
</tr>
<tr>
<td></td>
<td><strong>Creativity</strong> and Innovation,</td>
</tr>
<tr>
<td></td>
<td><strong>Critical Thinking</strong> and <strong>Problem</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Solving</strong>, Communication and</td>
</tr>
<tr>
<td></td>
<td><strong>Collaboration</strong></td>
</tr>
<tr>
<td></td>
<td>Information, Media and <strong>Technology</strong></td>
</tr>
<tr>
<td></td>
<td>Skills: Information Literacy,</td>
</tr>
<tr>
<td></td>
<td>Media Literacy, ICT Literacy</td>
</tr>
<tr>
<td></td>
<td>Life and Career Skills: Flexibility and Adaptability,</td>
</tr>
<tr>
<td></td>
<td>Initiative and Self-Direction,</td>
</tr>
<tr>
<td></td>
<td>Social and Cross-Cultural Skills,</td>
</tr>
<tr>
<td></td>
<td>Productivity and Accountability,</td>
</tr>
<tr>
<td></td>
<td>Leadership and Responsibility.</td>
</tr>
<tr>
<td>The International Society for Technology in Education (ISTE)</td>
<td><strong>Creativity</strong> and Innovation</td>
</tr>
<tr>
<td></td>
<td>Communication and <strong>Collaboration</strong></td>
</tr>
<tr>
<td></td>
<td>Research and Information Fluency</td>
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<tr>
<td></td>
<td><strong>Critical Thinking, Problem Solving</strong> and Decision Making</td>
</tr>
<tr>
<td></td>
<td>Digital Citizenship</td>
</tr>
<tr>
<td></td>
<td><strong>Technology</strong> Operations and Concepts</td>
</tr>
</tbody>
</table>

*Note*. Overlapping ideas are represented in bold. While there are slight differences in semantics and scope, there is some consistency with regards to a focus on creativity, problem solving, technology skills and collaboration. The shared sentiment across all definitions is that they emphasize what students can do with knowledge and how they apply what they learn in authentic contexts (Larson & Miller, 2011; Silva 2009).

It is worth noting again that the previously shared research and literature on PBL emphasized that knowledge of content, taught along with the development of associated
skills, produced more successful student outcomes extending beyond academic scores (e.g. learner engagement, perception of content, etc., Holm, 2011; Silva 2009).

Proponents of 21st century skills state that the next generation of students will need to be able to think critically and solve problems such that these skills should be integrated into the core curriculum. A 2008 study by U.S. Department of Education and the National Mathematics Advisory Panel found that skills and content are best learned together. On the other hand, critics state that the term ‘21st century skills’ is meaningless and distracts from teaching core content. Moreover they argue for methods that are scalable, reliable, and cost-effective (Silva, 2009). Yet, the teaching of skills alongside content has shown promise in addressing the equity concerns raised by Delpit (1998) and creates a setting where all students can be successful.

Further, in her 2002 study, Boaler found that equitable teaching must attend to particular practices of teaching. She found that when using more open-ended strategies so as to develop critical thinking skills, students from working-class backgrounds may lack the confidence needed to be successful in school. Therefore she recommended, citing Delpit (1988), that teachers teach the ‘culture of power,’ that is the values and language of white, middle-class America. Boaler goes on to cite the need to move away from practices that recreate the “pedagogies of poverty” (Haberman, 1991, p. 290; see also Anyon, 1980; Bowles & Gintis, 1976) and begin to shift to a pedagogy of power. While Boaler’s study focuses on math in middle and high schools, it does show that when open-ended approaches are balanced particular practices (introducing activities through discussion, teaching students to explain and justify, making real-world contexts
accessible), as she called them ‘reform approaches,’ do promote equity and high achievement within low-income communities (Boaler, 2002).

**Finding a Balance in Competing Reform Efforts: PBL**

Another open-ended approach that has shown promise for moving toward equity, when well implemented, is Project-Based Learning (PBL). In two separate meta-analyses covering a total of two-decades of research on PBL across a variety of school settings, Holm (2011) and Thomas (2000) have found that there are consistent elements of PBL, all with positive social and academic results. Thomas (2000) summarizes PBL as “a model that organizes learning around projects” (p.1). Citing four additional studies, Holm (2011) concludes the definition: “*is touted as superior to traditional teaching methods in improving problem solving and thinking skills, and engaging students in earning*” (p. 1, italics provided by the author). Holm (2011) also states that while PBL has been common in many scientific areas of study, it has only recently developed in elementary and secondary classrooms. Holm (2011) and Thomas (2000) agree on five criteria of PBL (Table 2).
Table 2

*Criteria for Project-Based Learning (PBL)*

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The project is central to the curriculum</td>
<td>The project does not stand along-side other parts of the curriculum, rather it integrates many subjects as once.</td>
</tr>
<tr>
<td>2. Projects are based on a driving question</td>
<td>A driving question may also be called an essential question. By either definition the question contains the <strong>theme or big idea</strong> and leads to many other questions that will need to be researched, discussed and debated among the students.</td>
</tr>
<tr>
<td>3. Projects involve students in constructive investigations</td>
<td>The students will need to do something to fully answer the driving question as well as subsequent questions that may arise.</td>
</tr>
<tr>
<td>4. Projects are student centered and have a degree of autonomy</td>
<td>Teachers need to know their students well so that they can build projects that engage the students and motivate them, but teachers also need to know the standards so that the projects challenging and not “loosey-goosey”.</td>
</tr>
<tr>
<td>5. The projects are realist and/or relevant to the student</td>
<td>Teachers need to make sure that the students have the materials and support they need in order to complete the project and well as make sure the project is relevant so that students can maintain motivation over the entire course of study.</td>
</tr>
</tbody>
</table>

Holm’s (2011) meta-analysis of studies on PBL, which initially included 768 articles, was culled to the most relevant 17 based on a point system. Overall, the findings
from these 17 schools were positive:

Project-based instruction in prekindergarten through 12th grade has yielded improved content learning, higher levels of engagement and more positive perceptions of the subject matter. With such a clear research base in support of its effectiveness, project-based methods appear to offer the possibility of success both overall and to a broader range of students than traditional lecture-based instruction (p.10).

Although there are limited studies to date that focus on inequities in project-based classrooms, the studies that have been cited in the meta-analysis suggest positive results (Holm, 2011). Further, Cheng, Lam, and Chan (2008) found that when teachers do engage students through project work it is important to explicitly teach group processes to students as well. This is consistent with the Boaler (2002) study and addresses Delpit’s (1998) concern that low-income students need access to explicit instruction to be successful in white, middle-class environments. Cheng, et al. (2008) cite four skills that need to be in place for the greatest success in heterogeneous students groups: positive interdependence, individual accountability, equal participation and social skills. If attention is given to teaching not only content, but skills as well, then both high-achieving and low-achieving students will have greater academic achievement (Cheng, et al., 2008). It is important to note that while Cheng, et al.’s (2008) study is promising, it was conducted among secondary students in Hong Kong which may or may not be generalized to primary grades students or students in the United States.

When considering the years of inequity in U.S. public education, much has been written about the need to address the institutionalized racism that is pervasive in schools due to the fact that schools were founded white-middle class values. The systems within
the system are created to recreate themselves, so when measuring success, it is not surprising to see the academic achievement gap between White students and their Black, Hispanic, English-language learning and Native American peers (Ladson-Billings, 2006; Yasso, 2015). The above section addressed how practices and systems are changing, but if the means by which students and schools are measured does not change too, then change will not be sustainable.

**Measurement and Assessment to Align with Student Practices**

“Change requires more than words on a page – it takes perseverance, creative ingenuity, and acts of love” (Anzaldua, 2002, p. 574). As stated above, school practices are changing and so is federal policy (Whitehouse Report, 2015). Not only are schools moving toward the integrated teaching of content and skills, assessment practices are also changing to consider multiple measures. ESSA requires states to use at least one other non-cognitive indicator to track school success (e.g. student engagement, school safety, academic mindset, etc.; Blad, 2016). While the research around high-stakes testing indicates that it had negative, unintended consequences for schools (Berliner & Biddle, 1995), there are those who suggest educators proceed with caution under any new system that, poorly implemented, could once again lead to negative and unintended consequences for schools and students (Blad, 2016).

What is needed are systems that promote assessment for learning in addition to assessment of learning (Stiggins, 2002). Student-centered assessment – assessment that values learning over accountability, is assessment that informs decision making and motivates learning (Stiggins, 2002). Once a ‘stake’ is assigned to a measure, it becomes
problematic (Blad, 2016) and moves in the direction of accountability and away from learning. In their landmark 1998 study, Black and Wiliam found, “improved formative assessment helps low achievers more than other students and also reduces the range of achievement while raising achievement overall” (p. 141). This focus on formative assessment was also addressed by John Hattie (2009) in his meta-analyses of 800 schools. For this analysis, he reviewed 138 different school practices that can impact student learning. Of those 138 school practices, feedback was ranked the tenth highest impact teaching strategy (with an effect size of $d=0.73$), based on achievement on standardized tests. Specifically, these strategies reflect student growth as measured by standardized assessments. It is worth noting that inquiry-based learning had a relatively low impact, with an effect size of $d=0.31$. If these two strategies were coupled however, feedback and PBL, perhaps educators could make progress toward addressing Delpit’s concerns and create more equitable, asset-based classrooms and schools.

This section is not intended to provide a full summary of the history of assessment nor define various terms, practices and moves within assessment. It is presented to share that policy introduced alongside CCSS has changed practice. To achieve equity in education, the system, including researchers, policy makers, and educators need to give thoughtful consideration to implementation and ensure that our systems and structures can support our policies and practices so as to avoid repeating lessons of the past.

Education needs leaders throughout the organization who can lead systemic, student-centered change. The following case study includes interviews of educational leaders who are navigating this work. The case study will explore how practices are
changing, and how student success is being redefined, measured and assessed. Finally, it will identify how leaders are setting the conditions that allow this work to thrive so that all students can have a chance to be successful in school and in life.

Chapter 3. Methodology

The purpose of this study is to (1) understand how leaders are supporting the creation of equitable, student-centered environments in K-8 public elementary schools, (2) explore how classroom instruction is balancing critical thinking skills (the application of relevant knowledge) and foundational skills (knowledge) to help all students achieve academic success; and (3) gauge how assessment practices are changing to include measures beyond end-of-year, state-mandated, standardized-tests.

Since change does not happen in isolation, the researcher explored how leaders are systemically navigating the transition from a more standardized era in education to a more student-centered era through the provision of various supports (professional development, coaching, collaboration time, common planning and assessment tools). While Chapters 1 and 2 provide a rationale for a student-centered approach, this case study will describe the transition in action as three public elementary schools enter their third year in PBL implementation. With narratives from principals, teachers and instructional coaches, this case study will present multiple perspectives of the transition to a more student-centered learning environment.

Methodological Rationale

The use of a case study aligns well to the descriptive nature of this dissertation. While there is ample quantitative data to suggest that current pedagogical practices do not
work, and there is a history of evidence to demonstrate that student-centered approaches are effective, there is a descriptive gap in the literature to help educators understand how to build student-centered sites and classrooms, especially in elementary school settings serving low-income and minority students. In other words, the “what” (i.e., the need) seems to be well documented, but there is room for more work around the “how” (i.e., how this transition is happening in schools).

This case study will include the personal experiences, intuitions and skepticisms of the participants; it will rely on human perception and understanding to tell a holistic story about their context (Creswell 2008; Stake, 2010). The strength of this case study is that it will provide a rich description of personal experiences in a complex, low-income environment; the complexity of the history and setting will be explored as well as the uniqueness of individuals; readers will understand the issues through these experiential stories or accounts (Stake, 2010).

When conducting a case study, Creswell (2013) suggests that data collection should represent multiple perspectives. The first step for data collection in this study was the survey. The survey was primarily a screener to reach a smaller sample of teachers, principals, and instructional coaches who could speak to the implementation of PBL at their sites. From the survey six interviewees representing different roles were selected for a more in-depth exploration of the PBL implementation. Finally, a review of publicly available secondary data was conducted.
Limitations

The limitations of this case study include its bounded nature – it was bounded in time by a two month data collection window, and bounded in resources to three sites, six interviews and survey data – all self-report. Looking within one district at demographically similar schools helped to mitigate some of these factors rather than comparing and contrasting experiences among multiple and diverse settings.

Furthermore, as is the case with qualitative research in general, the case study is a composite of subjective and personal experiences - perspectives from the researcher and the participants (Stakes, 2010). To provide balance however, a mixed methods approach was employed (Stakes, 2010). Secondary data was included in the literature review as well as quantitative data for the school district. The benefit of this mixed-methods approach is that it improved the overall quality and validity of the evidence and supported triangulation of the data. Although there are limitations, the study procedures maintained a focus on validity norms - as detailed in the next section.

Validity

Validity in a qualitative or mixed-methods study is different from the traditional definition of validity in a quantitative study. In this study, validity relates to the credibility and dependability of the data collected (Creswell, 2013). Data triangulation, time in the field and researcher credibility are all ways in which validity concerns were addressed.

Triangulation of data was addressed in three ways. First, three demographically similar elementary school sites served as the setting for the study. Second, the research
included perspectives from teachers, instructional coaches and principals to gain a better understanding of what is happening with regard to the PBL implementation. Finally, secondary site specific data was compared to district, county and state level data for standardized testing as well as demographic data to determine what else could be learned about the current status of these schools as well as future implications.

Although time in the field (approximately two months) is limited, using a survey, multiple interviews, and secondary data, allowed ample data collection as Creswell (2013) recommends no more than five sites for one study. Given that the schools were demographically similar and shared the same timeline for PBL implementation, this provided additional confidence for the validity of the data collected.

Finally, establishing researcher credibility further supports achieving valid results. The researcher is an employee of the district, but is not in a supervisory role for the sites. She is a principal within the district, and ensured participants of her role in the study as a researcher seeking to understand their context, experience, and perspectives. Trust was built by starting with more general and open-ended questions to build rapport, before moving into the content-oriented questions. Allowing participants to choose where they would like to be interviewed as well as how (phone, in-person, etc.) also helped them to feel more comfortable throughout the interview process. Consent was obtained both for the survey and interview. Participants were verbally reassured of the confidential nature of the study as well.
Procedures

This study included three distinct phases. In all phases, participation was voluntary and participants could opt-out or ask questions at any time throughout the process. Phase 1 consisted of a survey (see Appendix A) completed by teachers, instructional coaches and administrators at three Title I schools. The survey primarily served as a screener to determine participants for the follow-up interviews. The survey also provides a source of primary source data that was collected and analyzed as part of the overall case study findings. After completing the survey, respondents were invited to participate in a one-on-one follow up interview. These interviews (Phase 2) were conducted to better understand the supports that are currently in place for the implementation of PBL, how PBL is being implemented in the classrooms, and how PBL is being measured and assessed beyond state standardized tests. The interviews were semi-structured so as to allow for follow-up questions based on individual responses (see Appendices C and D for IRB documentation).

Phase 3 included a review and analysis of publicly available demographic and testing data for the three participating schools, with comparisons to district, county and state averages. Data was accessed through the California Department of Education so as to provide additional insight into traditional (quantifiable) methods of determining academic success for students and schools.

Setting

Compared to the nation as a whole, California schools and educators face many unique educational challenges with notable impact on academic achievement. Challenges
include a large school-age population, large percentage of high-needs students, unstable funding structure, low per pupil funding and high teacher-to-student classes.

California’s K-12 schools educate over 6.2 million students, and many of these students comprise high-needs populations. For example, the student population in CA includes 23% English Language Learners (the highest in the nation with the national average closer to 9%) and 54% low-income students (national average is just below 50%). Both ELL and low-income student populations are considered higher need populations but, with low per pupil funding, meeting the needs of all students is a challenge. California per pupil funding is currently a little over $9K, almost $2K less than most other states, which results in higher teacher-to-students ratios than most other states (25:1 vs 15:1) (Tatum, 2014).

Larger class sizes become a challenge for teachers who are trying to implement more student-centered practices, such as PBL. To better understand how educators are implementing and measuring student-centered practices amidst larger systems changes, this case study explores a mid-size school district located in Northern California.

The case study school district, like others in California, is experiencing declining pupil enrollment. This district had an average daily attendance of 11,200 students in 2010-11, and 10,921 students in 2014-15. Of students enrolled in this district, 54.9% are on free and reduced lunch while 29.2% are designated as English Language Learners (ELL) (California Department of Education, 2016). The languages spoken are varied and overall the student population represents the diverse population of California (California Department of Education, 2016).
This case study will focus on three Title I schools in this district. Title I schools, as designated by ESEA, must have a minimum of 40% of their student population from low-income families (California Department of Education, 2016). Low-income, as defined in California, is any student qualifying for free or reduced lunch. The percent of low income or low socio-economic status (SES) enrollment at the three sites is greater than that at the state, county or district level supporting their Title 1 designation.

**Data Collection**

All data collected was used to answer the research questions in the most valid, ethical and succinct manner possible (Crewsell, 2013; Stake, 1995). The schools were also chosen due to the fact they are in their third year of PLB implementation – three years is enough time such that all teachers will be in some phase of implementation, beyond initial pilot (Senge, 2012). Finally the data collection schools were selected because although the researcher is a principal in the district, she does not have any supervisory connection to these sites. It was an opportunity to truly enter as a learner and researcher – someone who could learn from the experts in their contexts and settings.

Of the survey participants (n=25) whose responses indicate they are regularly using PBL with fidelity, and that they were willing to continue to Phase 2, 6 were selected for 1:1 interviews. The interviews were semi-structured using an initial protocol, but also relied on the researcher to prompt, probe and clarify as needed (Creswell, 2013). There was an opportunity for the participants to ask questions of the researcher and learn more about the purpose and background of the study beyond what was initially shared. This reciprocity was a means of building trust and rapport (Stakes, 1995).
The interviews each took no more than one hour. Interviewees had the option of conducting the interview over the phone, in-person, on-line or via email. The interviews were recorded on a password protected iPhone then transcribed and stored in an on-line data storage, coding and analysis program. Interviewees were assigned codes based on their role and site and referred to simply as ‘educators’ in the findings sections to protect their anonymity. Schools are noted as school 1, school 2 and school 3 throughout data collection and also when reporting findings.

Data Analysis

Qualitative data analysis for this study included: organizing the data, coding and identifying themes, representing the data and interpreting the findings (Creswell, 2013). The process was based on a framework of initial themes from the literature review and was allowed to evolve throughout the process.

To organize the data, the researcher relied on the transcriptions and a matrix board to align data collected to research questions and initial themes. Once the matrix was completed, Phase 2 of the data collection began – data coding and theming (Creswell, 2013). The transcription files were uploaded to an on-line program for storing, coding, theming and analyzing the data. The researcher also used notecards and color-coding to support analysis and organization. The next section explores findings after the research study was completed and data was compiled and synthesized.

Chapter 4. Findings

What follows are case study findings describing how three Title I schools in one Northern, CA public elementary school district are addressing the challenges and
opportunities that are part of implementing the more student-centered, progressive practice of PBL. Findings also reveal how instructors and administrators are measuring and assessing results to determine impact on student learning. The data is presented as follows: Phase 3 (analysis of secondary data) followed by Phase 1 (survey data) then Phase 2 (interview data).

The secondary data was analyzed by comparing school and district enrollment by ELL and low-income status with earlier findings regarding state demographic information. Then state test scores for English Language Arts and Math were compared to county, district and school trends to detect notable patterns or inconsistencies.

From the overall population, 25 surveys were returned and this included 19 teachers, three instructional coaches and three administrators. Of the 19 teachers, seven were upper grade teachers (4th-6th grade) while 11 taught primary grades (TK-3rd grade), and one taught special education classes across multiple grades. Survey respondents also represented the three sites as follows: six respondents were from school 1; seven respondents were from school 2; ten respondents were from school 3; and two respondents declined to state. Six survey respondents volunteered to participate in the follow-up interviews.

**Enrollment Comparisons**

The percent of ELL enrollment at the three schools is greater than that at the state, county or district level thereby supporting their Title 1 designation (Figure 2). The percent of low-income students is also greater than at the county and district level (Figure 3).
**Figure 2:** Percent ELL students across county, district, and schools in 2010-11 and 2014-15.

**Figure 3:** Percent of total enrollment by low-income students across county, district, and schools in 2010-11 and 2014-15.

While enrollment at the county level has increased slightly, this district is experiencing a notable decline across all three school sites (Figure 4) (see Appendix E for
enrollment details). It is important to note that a declining enrollment also means declining revenue as schools are funded on a per pupil basis.

Figure 4: Change in enrollment for county, district and case study school sites.

While state test score results, also referred to as SBAC (Smarter Balanced Assessment Consortium) or CASSPP (CA Assessment of Student Performance and Progress), in English Language Arts (ELA) are trending up at the state, county and district level, they are flat or declining at the three designated school sites (Figure 5 (see also Appendix F for test score details).
Figure 5: (top) State test scores in English Language Arts (ELA) for students at or above standard (2016); (bottom) percent change in state test scores in ELA (2015-16).

Test scores in Math however are trending up at the state, county and district level as well as at the three designated school sites (Figure 6).
Figure 6: (top) State test scores in math for students at or above standard (2016); (bottom) percent change in state test scores in math (2015-16).

In summary, the secondary data analysis reveals that for the three school sites: enrollment is declining, percent of ELL and low SES students is stable, and test scores are increasing in Math, but not in ELA. To better understand the academic trends at the
three school sites, survey data was analyzed to better understand the current situation at these schools.

**Analysis of Survey Data**

Phase 1 survey data was compiled and analyzed to identify trends or patterns with regard to curriculum materials, teaching practices, elements of PBL, and assessment measures. Further, differences in roles (e.g., coach, administrator or teacher), site or grade-level were identified and probed in the final stage of data collection, the interviews, to identify consistencies and points of variation across roles or grade levels.

The surveys were distributed to 63 teachers, six instructional coaches and three administrators. From the overall population, 25 surveys were returned (19 teachers, three instructional coaches and three administrators). Of the 19 teachers, seven were upper grade teachers (4th-6th grade) while 11 taught primary grades (TK-3rd grade), and one taught special education classes across multiple grades. Survey respondents also represented the three sites as follows: six respondents were from school 1; seven respondents were from school 2; ten respondents were from school 3; and two respondents declined to state. Six survey respondents volunteered to participate in the follow-up interviews. The findings presented below convey these multiple perspectives and will address each of the three research questions identified above.

**Supports in implementation of PBL.** Survey responses indicate that schools are integrating a variety of curricular materials including those the teachers have developed themselves or with their colleagues. Teachers are not relying solely on PBL, rather they are using other materials to integrate and support PBL. Teacher-created units are used
frequently while the district-adopted math curriculum and on-line math and reading program, iReady, are also being used regularly. The district adopted language arts curriculum, Engage New York, is the least used curriculum. Primary grade respondents consistently report more frequent use than their upper grade colleagues for all curriculum materials reported (Figure 7).

![Curriculum in Use](chart)

**Figure 7:** Curriculum materials in use by grade levels (primary and upper). Primary grades refer to TK-3 and upper grades refer to 4-6.

In addition to using teacher-created materials, educators are incorporating a variety of pedagogical practices. Guided reading, a targeted small group reading practice, is being used almost daily at these sites. Writers’ Workshop, Readers’ Workshop, Math Talks and Cognitively Guided Instruction are also being used regularly. Although PBL was reported as the least frequently used overall, it is important to note that PBL, as reported in the interviews, is a 4th through 6th grade practice at these sites. The interviews uncovered another, similar practice (SEAL) that is being used in TK-3rd grade classes.
Figure 10 represents this data by comparing primary data to upper grade data. Interview data regarding the PBL implementation in upper grades, addressed later, also provides insight into potential reasons for the lower frequency of use as reported in Figure 8.

Figure 8: Teaching practices in use by grade levels (primary and upper).

Supports teachers are using to scaffold PBL. Those who indicated that they are using PBL, report regularly including the elements of PBL as identified in the literature review (Figure 9). Even primary grade teachers who reported not to use PBL, still engage in frequent use of the PBL elements (interview respondents later shared that these are also central to the SEAL practices). Survey respondents reported that they almost always include the central elements of PBL in their units and lessons.
Measuring and assessing PBL. The survey data reveal that respondents use a variety of formative, interim and summative assessment measures to determine which standards students have met and which ones need additional practice. Formative assessments are those cited earlier in the Hattie (2009) research and refer to ongoing, daily assessments conducted more informally by the teachers. Those in use for survey respondents are indicated in Figure 10. Interim assessments are given less often and generally are used to predict outcomes on a summative assessment such as the SBAC test (Stiggins, 2002) (Figure 10 and 11).
Figure 10: All assessments in use (primary and upper), identified by type. The left most section includes formative assessment, the middle includes interim assessment and the right most section includes summative assessment, as defined by the researcher based on common assessment practices.

Figure 11: Assessments in use (primary and upper), grouped by purpose.
In summary, survey data reveals that educators are blending a variety of curricular materials, pedagogical practices and assessment measures to support student learning. Findings also demonstrate that educators are implementing PBL with central components reflected in their units and lessons. The following section, in-depth interviews, better describes the systems that are in place to support the PBL implementation.

**Interview Findings**

**Analysis procedures.** The interviews with teachers, coaches and administrators across the three sites allowed for a deeper exploration and understanding, building on the survey responses summarized above. The interviews were transcribed by a third party then coded by the researcher both by hand and by using an on-line program. The data was coded using initial themes as highlighted in the literature review: implementation, equity, leadership, PBL and assessment or measurement (see Figure 12). Further, some statements were coded in-vivo when a specific interviewee seemed to summarize the broader findings in a succinct and clear phrase or sentence. These quotes were later extracted and used within the case study narrative. As mentioned earlier, within a mixed-method case study, self-reported data does present a challenge. To mitigate concerns with regard to overall study validity, findings were compared to the literature review and data was triangulated to enhance validity.

This section includes responses from six interviewees. The interviewees represent multiple perspectives as there are two interviewees from each school site as well as two teachers, two instructional coaches and two administrators. To maintain objectivity, the
researcher, although an employee of the school district, does not, nor has she worked, at any of these sites.

Figure 12: Themes and coding tallies from interviews, by role in district.

Supports in implementing PBL. With the introduction of Common Core State Standards (CCSS), this district, along with other public school districts, needed to determine what curriculum and materials would support the transition from the previously used state standards. This district began by adopting a new CCSS-based Math and English Language Arts curriculum. They had also simultaneously received a grant to begin implementing the Sobrato Early Academic Language (SEAL) program. SEAL, as described by one respondent, is “a cross-curricular, language-rich curriculum mapping and strategies (program) combined.” As stated on the Sobrato website: “SEAL is a preschool-third grade pilot program of the Sobrato Family Foundation. SEAL is designed to build the capacity of preschools and elementary schools to powerfully develop the
language and literacy skills of young Spanish-speaking English Learner children, and to close the academic achievement gap by fourth grade” (Sobrato Foundation, 2013). This program began in Title I schools in Kindergarten and 1st grades and eventually expanded through 3rd grade. As the respondents stated, part of the district Memorandum of Understanding (MOU) with the Sobrato Foundation was that there would be ten unit development days per year with release time for the teachers to engage in collaborative planning. There would also be ongoing coaching support and funds for material resources. While SEAL was being implemented in the primary grades, upper grade teachers at these sites were implementing the more traditional district curriculum. As one respondent stated, “those two things (SEAL and adopted curriculum) weren’t in complete harmony.” The upper grade teachers, 4th-6th graders were feeling “left out.”

In response to this curricular discrepancy, upper grade teachers at one site began to explore their options with regard to non-traditional pedagogies and practices. These teachers asked their principal if they could visit a local school that was already implementing PBL. The coach explained that this school represented the “gold standard” for PBL in elementary schools. The principal supported the teachers and coaches, so they scheduled a site visit to see PBL in action. The teacher who visited the PBL site indicated that although he liked his district’s curriculum, he was impressed by the high student engagement with PBL. He mused that as a former “rambunctious boy” he would have enjoyed PBL as a student. He went on to state that with PBL “everything’s integrated…you’re still getting social studies. You’re still getting math. You’re still getting your science...You’re getting presentation skills.” So he and his colleagues went
back to their site and began doing their best to implement PBL. Four months later, this teacher questioned, “Are we utterly failing? Are we doing anything right here?” He admitted that they did not have any training, so began advocating for training at the district level.

Once the decision was made at the district level to move forward with a PBL implementation, they hired an outside consulting group from a neighboring school district, experienced in PBL, to provide three days of professional development over the summer to teacher volunteers. As reported by interviewees, the tone was “give it a shot,” and “just jump in.” After the initial summer training, there were other three-day workshops, and these were reported to be mandates by the district for all upper grade teachers.

The respondents shared that, in their view, PBL was essentially the district response to CCSS in the upper grades. The new standards were significantly different in both “what” was being taught as well as “how” content was being taught. The traditional curriculum was being used to implement CCSS in upper grades, but SEAL was being using in primary classes. When those two implementation strategies did not align, then PBL was viewed as a response by the district to balance the pedagogical approaches of SEAL in the primary grades to the more traditional upper grade curriculum.

During the initial three-day PBL training, the attending teachers developed and designed a PBL unit with their grade level colleagues from other schools. They learned the basics of designing a unit, including the essential elements highlighted above in the survey responses. In addition to the systemic support of the three-day training, the
district had site instructional coaches for literacy attend the PBL training so they could later provide follow-up coaching support to teachers throughout the year. This was a challenge for the coaches who did not have prior experience in PBL. Although they were trained in coaching and could help find resources, prepare materials, or prompt with questions, they were not experts in PBL.

In addition to coaching support, individual school sites offered release time for PBL planning with the coaches, but quickly saw that more professional development was needed if they truly wanted to make the work more rigorous. So, the Title I sites collaborated and retained a PBL consultant to conduct additional training with the teachers and coaches at Title I sites. He met with the staff approximately five to six times throughout the school year, and specifically helped teachers across grade levels work on writing powerful essential questions and guided them through the process of unit design, development, and critique.

While implementing PBL did come with support, there were also challenges. First, PBL is not textbook driven, it requires material resources for research, projects and presentations. Since funds for PBL were not necessarily allocated to these sites, the teachers were on their own to find resources. One teacher joked that she was grateful for the teacher discount at Michael’s (a craft supply store). Second, although there was coaching support in place, the coaches did not have the expertise in PBL to be as effective as possible. Lastly, due to high turnover at these sites, training new staff members became a challenge. Many of the newer teachers at these sites were also new to teaching and still grappling with the basics of classroom management and teaching.
foundational skills, so implementing PBL was difficult. Interviewees did not express whether there were plans in place to deal with some of these challenges in the future.

**Supports teachers are using to scaffold PBL.** PBL implementation, as described by the respondents, is a work in progress with central elements included, but at various levels of consistency and rigor. As one teacher reflected, “I think the kids should be enjoying what they’re doing, but it can’t be just that…there’s got to be some real proof that there’s deep learning going on…I think we’re working on that.”

With regard to alignment with standards, respondents all agree that the PBL units are aligned to CCSS and integrate content areas with 21st century skills. When asked about integration of subject areas, one teacher responded, “that’s the whole point…it’s more bang for your buck teaching.” One teacher shared that at her site they were working toward more purposeful and focused instruction of ELA standards so that the content areas did not overshadow the work of learning to read and write. She also shared that they are working on developing specific milestones throughout the units to assess student progress (see Figure 13). Another respondent expressed concern about which standards were being covered in PBL and which standards were being covered during other parts of the instructional day. He was not sure there had been a clear articulation or mapping of exactly which standards were being covered and which methods were best for assessing different standards. He offered a firm “yes” that PBL is standards aligned, but believed more work was needed in this area.

Making the standards relevant and engaging for students was clearly a priority for teachers. One teacher shared how she capitalized on “the gross factor” to engage
students in learning about the Hammurabi Code with its “eye for an eye” philosophy. Another teacher extended the social studies standards into their local school context by working with students to develop committees to address school needs. For example, one student committee was working on a school wide Harvest Festival while another committee volunteered in their school library. He wanted them to see that they can be heroes in their own community every day and that school goes beyond college and career readiness, it also means being an engaged and productive member in your local community. Finally, the teachers shared that the interesting content in social studies and science is a great way to teach foundational literacy skills – “we teach reading through the content.” This suggests that they are working to find a balance by offering an engaging curriculum scaffolded with foundational skills.

Other areas of strength included developing the essential questions and providing opportunities for student collaboration. Most respondents stated that they had spent the prior year engaged in professional development with a PBL consultant focused on writing driving or essential questions. Due to this training, they reported these focus areas (writing driving or essential questions) as an instructional as well as implementation strength. Collaborative opportunities were also reported to be a strength of the PBL units. Teachers scaffolded the collaborative work by teaching social, process and 21st century skills. One teacher pointed out the configuration of her room: café style seating, moveable tables, open floor plan, all in place to support collaborative work. She also shared that she has teams assign points to one another to hold each other accountable, while another teacher has his teams complete daily work logs so they can report concerns
and progress to him, and he can intervene to keep the group on track as needed.

Collaborative work, teachers agreed, is not just part of their PBL time, it is present throughout their day in all content areas.

On the other hand, respondents did state that individual accountability is a work in progress. They are including writing samples for each student, setting the expectation for equal participation in presentations and assigning project roles (or jobs) so that all students contribute to the group project as well. One teacher even shared that she has the students divide 100 points among the team members based on much or how little they contributed to the work, embedding individual accountability into collaboration, as mentioned above. There is also an expectation that all students take part in the final presentation and be able to answer questions submitted by the audience members.

Finally, with regard to a hands-on component or investigation, respondents stated that this is happening and it has been enhanced by district implementation of one-to-one small laptop computers in 6th through 8th grades. Students can use technology to research their topics, collaborate with their peers and create projects and presentations. The teachers believed this integration of technology has improved student engagement. The ability to watch a YouTube video to learn about a topic, collaborate using Google Classroom or Edmodo, or create presentations using WeVideo, has made learning more engaging and relevant for their students.

As a side note, all interviewees, who were veteran educators with 10 or more years in education, were very positive about teaching PBL as demonstrated through their energetic and supportive interview responses, despite any perceived challenges of
implementing PBL. They compared it to the days of NCLB when they had to rely so heavily on the textbook and believed that PBL is far more enjoyable for students as well as educators. They also compared it to earlier “thematic” lessons that, while fun, had little rigor. As one long-time educator responded, “I liked the ocean, so I taught about the ocean – it was fun.” Respondents reported that they are noticing more balance between engagement and rigor than in the past and they are looking for time and resources so they can continue to refine their teaching practices and projects to ultimately improve learning outcomes for their students.

**Measuring and assessing PBL.** Teachers are using a variety of assessments to measure and understand what students have mastered and what they are still learning. Across this series of interviews, four ideas emerged: the need for assessments to be standards-based and integrated into daily instruction; writing as an emerging common assessment practice; a need for benchmark assessments to check for understanding during the process of learning; and rubrics as a measure that is being used and created at the site level (Figure 13).
Several respondents referred to the use of benchmarks as a means of assessment, however there was not a common definition of “benchmark.” Some referred to the district on-line interim assessment, iReady, which is administered to all students three times per year. While others referred to more in-class assessments, such as a reading passage or teacher-created assessment. One respondent stated that assessments should connect back to the standard that is being taught. A benchmark, regardless of definition, seemed to provide some evidence of whether or not a student was moving toward mastery of a standard.

Rubrics and presentations were also mentioned as more summative (non-traditional) assessments. For presentations and exhibitions, however there was a general expectation that students not only be able to deliver a speech, but answer questions about their topic “their explanation is clear, logical, well-reasoned, backed-up argument.” This was considered an assessment format that could be measured against a rubric.

Figure 13: Assessments in use by interviewees (with regard to PBL).
In addition to creating units, teachers and coaches were creating assessments, including integrated assessments, to better align to integrated PBL teaching styles. They were also looking at writing samples which could demonstrate individual understanding of content and standards. All respondents admitted that assessment is a work in progress, but that with each year they see growth in their PBL units (some element shows improvement) and growth in their students’ mastery not only of content but 21st century skills as well.

Overall, the interview data were consistent with survey responses, but also uncovered some of the challenges of implementation that might address the lower ELA test scores found in the secondary data analysis.

**Supports in Implementing PBL: Triangulation**

State, county and district test scores have trended up for the past two years, while ELA scores at the three research sites have stayed flat or trended downward. For math, the three sites do mirror an overall upward trend, but scores are still low (fewer than 30% of students meeting or exceeding standard) and below state, county and district levels of mastery.

Although survey data indicated that teachers and sites are using a variety of curriculum materials and pedagogical practices, interviews revealed potential causes for flat to decreasing scores in ELA. For example, it seems that implementation of PBL has not been supported systemically or consistently. Further, the district-adopted ELA curriculum is being used, but it is unclear as to how it has been used or what professional development is in place to support its implementation.
Math scores are trending up and the adopted math curriculum is being used more consistently than the ELA curriculum. This suggests that perhaps there is greater balance between foundational skills and progressive practices in the area of math. It seems that Math Talks, the district adopted curriculum, and PBL are finding balance, while there seems to be more competing practices and initiatives in ELA curriculum.

Supports teachers are using to scaffold PBL. Survey and interview data indicate that teachers, coaches and administrators do have an understanding of the essential elements of PBL and are integrating these into the units they are teaching. Interview data reveals that, while there is an understanding of the components, implementation and planning are time consuming and resources are limited. Where there has been more in-depth professional development, there is stronger implementation. For example, the consultant who worked with the sites after the initial training focused on writing strong essential questions. This is therefore something that they feel confident in executing. Further, where there has been strong district support, for example when providing one-to-one laptops in 6th grade, teachers observe that the level of research, collaboration and presentation is improving. However, the impact of this work has yet to yield gains on the state English Language Arts tests.

Measuring and assessing PBL. Survey data indicates that teachers are using a wide variety of formative and summative assessments to measure student learning. Interview data however revealed that they are using fewer assessments within the context of PBL and those mentioned are of a summative nature: writing samples, projects and presentations were most commonly used assessments. Rubrics were the most often
mentioned measurement tool for these assessments. All respondents however were grappling with how to effectively measure and assess learning in integrated projects such as PBL. They are trying different things, but still feel that this is an area for further development.

**Summary**

As this district seeks to find a balance between more progressive teaching approaches, such as PBL, and the need to teach foundational skills through more traditional methods, this study reveals areas of strength as well as opportunities for improvement. Strengths include the ways in which PBL is being implemented, with a balance between rigor and engagement as reported in both the surveys and the interviews. A challenge is that the systems in place to support implementation of initiatives are more reactive than strategic, thoughtful and research-based. There is an opportunity to clarify the assessments that are in place and define the purpose of the different assessments. The next chapter will provide conclusions and recommendations that align these findings to existing research in the field.

**Chapter 5. Conclusions**

In this K-8 district in Northern California educators are making progress toward achieving a balance between progressive practices and foundational skills. They appear positive, hopeful and resourceful. They have seen how PBL can engage their students and that there is a need to teach 21st century skills alongside the traditional content areas. Educators, however, are grappling with strategies to effectively teach and measure standards so as to ensure that all students are college, career and citizen ready. These
conclusions are based on self-report data in both the interviews and surveys. Although self-report data is dependent upon the perspective of the interviewee, the triangulation of the results lends validity to the overall study finding (as addressed in Chapter 3).

This district would benefit from leadership that uses a systems approach to implementing the variety of curriculum and initiatives. The literature review which addressed the history of progressive practices and systems leadership (Chapters 1 and 2) presents procedures to capitalize on what is already underway, with the goal of increasing learning outcomes and opportunities for all students, and especially the low-income, ELL students at these three case study school sites.

**Systemic Implementation: Progress Toward Equity in Education**

Findings from the case study indicate that some supports are in place for implementing PBL, but they are not systemic nor do they include opportunities for feedback and monitoring. The teachers are implementing the elements of PBL with little support for planning time, resources, feedback and materials. They are noticing academic and social improvements in class, but standardized test scores indicate achievement gains only in Math, not in ELA. There is a lack of clarity around assessments and purposes - although these educators are employing a variety of measures to understand what students know and what they still need to learn, there is an opportunity to create assessments that better align to what is being taught and find balance between the longstanding competing cycles in education.
Cycles of Competing Reform Initiatives

Educators are looking for balance by integrating standards-based lessons across multiple subject areas through their PBL lessons and units. They understand that engagement, “fun projects” done in a “loosey goosey” manner, is not enough. As the case study reveals, educators are working hard to balance PBL, a more progressive, student-centered, approach, with foundational skills to help all students achieve a level of mastery. Although they see this as a more balanced time in education, the standardized test results are not yet showing significant gains to student achievement in low-income, culturally diverse settings. This is problematic because, as reported in Chapter 2, progressive practices have failed in the past due to public perception that they were not rigorous enough and did not meet the needs of all students. While educators report changes to practice, traditional assessments are showing the disparities of the past. More purposeful, systems-focused, goal-directed behaviors with opportunities for clear feedback procedures for both students and teachers could be the answer.

Systems and Leadership

To change systems and move educational reforms forward, systems thinkers and leaders are needed. At this time, sites and teachers are working autonomously or finding their own opportunities for collaboration. Ongoing support, professional development, and instructional coaching are happening in a more reactive, isolated manner. As mentioned previously, Senge et al. (2015) offers specific steps that leaders can take to create a more systems-based approach: create a shared vision, align resources with priorities, create teams and a learning culture within the organization, make data-driven
decisions, and use feedback loops to monitor progress and have courageous conversations when needed.

Senge et al’s (2015) outline mirrors the cybernetic framework which comprises a cycle of selecting, detecting, effecting and correcting. To achieve the goal of systemic improvement, there is a need for ongoing feedback about how things are developing. Feedback loops seem to be missing within initiative implementations in this district. There is a lack of clarity in how student learning is being measured and assessed as well as how the organization, as a whole, is learning and growing. By adding this cycle into their implementation process, the district may be able to move forward in a more healthy, positive and interconnected manner and achieve the goal of improved learning outcomes and academic parity for students.

Implementing PBL and Teaching Students to Think in Systems

Consistent with existing literature, teachers are implementing PBL with fidelity: units are based on a driving question, content is integrated, there are opportunities for collaboration and individual accountability, units are relevant to students and include a real-world investigation or application. Further, teachers are including not only academic content but 21st century skills as well. In some instances the projects are more “placed-based” and positively impact their own local communities. These skills help students to develop not only college and career skills, but also global citizenship skills. While the students are learning to think in systems and apply their understanding in relevant and meaningful contexts, it is unclear as to how learning is measured and assessed in projects
that are more complex and integrated. The following section offers suggestions for how to change assessment practices within a more student-centered, systems-based, context.

**Assessment and Measurement**

To move further toward a balanced and equitable education, systems that promote assessment for learning in addition to assessment of learning (Stiggins, 2002) are required. Student-centered assessment that values learning over accountability, then informs decision-making and motivates learning (Stiggins, 2002). Hattie (2009) and Black and Wiliam (1998) all found that formative assessment is critical to student success. While there is a mixture of formative, interim and summative assessments taking place in this district, it is still unclear how to accurately assess student learning. As teaching has evolved to balance traditional and progressive practices, assessment and measurement is also beginning to evolve, but it is definitely a work in progress. The following and final section synthesizes recommendations for this district.

**Considerations for Moving Forward**

While there are some systems in place to support implementation of PBL, a research-based, strategic approach is needed if this district is to improve learning outcomes for all students and reach parity for low-income, ELL students. Although teachers and school sites are implementing PBL, they are doing so in a more isolated manner. The cybernetic framework, or Senge et al.’s. (2015) approach to systems leadership, would enhance the implementation of initiatives and ultimately improve student learning. Finally, there is a need to define assessments and measurements by addressing not only which assessments are being used but also how and why assessments
are being used. Considering the following suggestions will support this district in moving toward balance and achieving equity for all students.

First, provide school leaders opportunities or training to develop the ability to become systems thinkers. Specific skills that will help leaders develop as systems thinkers include developing the ability to see the larger system as well as the parts within the system. Leaders would benefit by developing the ability to foster reflective practices and build trust and creativity. Finally, as systems thinkers, leaders should develop the ability to be proactive and create opportunities rather than react to problems or concerns.

Second, adopt a research-based approach to implementation of new initiatives. Cybernetics is one such model and by using this model, leaders would have an opportunity to practice developing the skills of systems thinkers. This would include setting a specific goal, developing processes for measuring and monitoring progress and then making ongoing adjustments to stay the course and make continued progress to achieve the goal.

Third, create a research-based assessment plan or strategy that aligns to curriculum and practices. This would include defining the three different types of assessment and their purposes as well as how they align to standards. Although a significant undertaking, it could be supported by re-envisioning the role of the coaches who can perhaps specialize in aligning curriculum and assessment within the district.

Overall, by making small, yet purposeful changes within the processes and structures of the district, there could be positive impact to student learning by achieving balance in the learning environments. The district could make steady progress toward
finding balance between progressive practices with sound implementation which moves toward equity rather than recreating the structures that are in place and continue to fail so many of our students.
References


California Department of Education. Schoolwide Programs, Title I. Retrieved from http://www.cde.ca.gov/sp/sw/rt/


Appendices
Appendix A – Survey Instrument with Consent Form

1. Please state your primary work site. ______________
2. If a teacher, what grade(s) do you teach? ______________
3. What is your current position? ____Teacher ____Coach ____Administrator ____Other
4. Please indicate how often you use the following curriculum materials.

<table>
<thead>
<tr>
<th>Material</th>
<th>1 Never</th>
<th>2</th>
<th>3</th>
<th>4 Daily</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engage NY for Language Arts</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eureka Math</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher Created Units</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>iReady or other online technology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are there other curriculum materials you use? Please list and state how often you use the materials.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. Please indicate how often you use the following teaching practices.

<table>
<thead>
<tr>
<th>Practice</th>
<th>1 Never</th>
<th>2</th>
<th>3</th>
<th>4 Daily</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project-Based Learning (PBL)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Readers’ or Writers’ Workshop</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guided Reading</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math Talks or Cognitively Guided Instruction (CGI)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are there other practices you use? Please list and state how often you use the practice.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. How do you assess and measure student learning at your site or in your classroom? Circle all that apply.

Teacher Observation | Portfolios | Student Exhibitions | End of Unit Tests | iReady Tests | Running Records | Individual Student Conferences, “Conferring Time” | Quizzes | Exit Tickets | Journals | Writing Samples | SBAC Results | CELDT Scores | None of these | Other:_____ |

7. With regard to PBL, please rate your classroom or site on the following:

<table>
<thead>
<tr>
<th>Feature</th>
<th>1 Never</th>
<th>2</th>
<th>3</th>
<th>4 Daily</th>
</tr>
</thead>
<tbody>
<tr>
<td>Units are based on common core standards</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units include a driving or essential question</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units include collaborative work</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units are relevant to student interest</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units include opportunities for individual accountability</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Thank you! I appreciate your contribution to this research.

Would you be willing to be contacted to participate in a follow-up 1:1 interview or focus group? If so, please provide your name, contact information and circle your preference:

Name:____________ Email:____________ I would be willing to participate in: 1:1 interview | focus group

See http://goo.gl/forms/yj4anpCHgD6KuSQp2 for the on-line format.
Appendix B – Interview Protocol

Date: ___________ Participant ID: __________________
Site ID: __________________

1. How many years have you worked in Oak Grove?

2. How long have you worked at this site?

3. How has your practice changed during your time as an educator?

4. You indicated that you are using PBL in your classroom (at your school) – can you tell me how that got started?

5. What supports were in place to implement PBL (e.g. professional development, coaching, peer observation time, collaboration time, book studies, other)? (If admin, from the district?)

6. What were the challenges/barriers you faced in implementing PBL?

7. When designing your PBL units, which of these following included:
   (a) Alignment to CCSS?
   (b) A Driving or Essential Question?
   (c) Integration into other parts of your curriculum?
   (d) A constructive investigation around a hands-on activity or problem?
   (e) Relevance to the student?

8. When designing your PBL units and thinking about how to support all students, how are these included, if at all:
   (a) Opportunities for collaboration?
   (b) Individual accountability?
   (c) Processes to ensure equal participation?
   (d) Explicit teaching of social skills (communication, responsibility, etc.)?

9. How do you measure and assess success in a PBL unit (engagement, academic success/tests, portfolios, presentations, etc.)

10. What suggestions would you have for other teachers (leaders) who are thinking about moving to more student-centered practices like PBL?

11. Is there anything else you would like me to know?
Appendix C – Interview Consent Form

Request for your Participation in Research
Implementing Student-Centered Practices in 21st Century K-8 Classrooms and Schools
Betsy Fitch, Graduate Student & Emily Slusser, Faculty Advisor

PURPOSE
The purpose of this study is to understand how educators are navigating the transition from a standardized approach to a more student-centered approach to education. In a more student-centered environment, how is student success defined, assessed and measured?

PROCEDURES
In this voluntary interview, you will be asked to report on various practices in your classroom or at your school site. The interview should take no more than one hour to complete. You may “opt-out” of the interview at any time. All reported information will be confidential. No personally identifying information will be accessed or reported in the final study. Where data are reported, pseudonyms will be used to maintain confidentiality. The interview will be audiotaped for later transcription.

POTENTIAL RISKS
Some people may feel nervous about taking part in the research. However, no identifying information will be used in the final report. Responses will be completely confidential. When necessary, ID numbers and pseudonyms will be used when analyzing and disseminating our results in the final report.

POTENTIAL BENEFITS
While we do not anticipate any direct benefits to individual participants, these interviews will help us to better understand the successes, barriers, and challenges that educators are encountering as they transition to student-centered teaching practices. Further we will develop a better understanding of how to define, assess, and measure student success, beyond the scope of standardized tests.

CONFIDENTIALITY
Interview responses will remain confidential and those volunteering for the interviews may opt for off-site, over the phone, in-person, or on-line communication to maintain confidentiality. Pseudonyms and identification numbers will be used throughout the study.

COMPENSATION
No compensation will be given for participating in this study.

**PARTICIPANT RIGHTS**
Your participation in this study is completely voluntary. You can refuse to participate in the entire study or any part of the study without any negative effect on your relations with San Jose State University or Oak Grove School District. You also have the right to skip any question you do not wish to answer. This is a written explanation of what will happen during the study if you decide to participate. You will not waive any rights if you choose not to participate, and there is no penalty for stopping your participation in the study.

**QUESTIONS OR PROBLEMS**
You are encouraged to ask questions at any time during this study.
- For further information about the study, please contact Betsy Fitch at 408.828.9058 or betsyfitch2@gmail.com
- Complaints about the research may be presented to Dr. Arnold B. Danzig, Director, EdD Leadership Program at San Jose State University, 408-924-3722.
- For questions about participants’ rights or if you feel you have been harmed in any way by your participation in this study, please contact Dr. Pamela Stacks, Associate Vice President of the Office of Research, San Jose State University, at 408-924-2479.

**SIGNATURES**
Your signature indicates that you voluntarily agree to be a part of the study, that the details of the study have been explained to you, that you have been given time to read this document, and that your questions have been answered. You will receive a copy of this consent form for your records.

<table>
<thead>
<tr>
<th>Participant’s Name (printed)</th>
<th>Participant’s Signature</th>
<th>Date</th>
</tr>
</thead>
</table>

**Researcher Statement**
I certify that the participant has been given adequate time to learn about the study and ask questions. It is my opinion that the participant understands his/her rights and the purpose, risks, benefits, and procedures of the research and has voluntarily agreed to participate.

<table>
<thead>
<tr>
<th>Signature of Person Obtaining Informed Consent</th>
<th>Date</th>
</tr>
</thead>
</table>

**May we contact you regarding future and/or follow up studies?** Yes | No
Appendix D – IRB Protocol Narrative

SAN JOSE STATE UNIVERSITY
HUMAN SUBJECTS-INSTITUTIONAL REVIEW BOARD
PROTOCOL NARRATIVE

I. APPLICATION

II. PROJECT TITLE
Implementing Student-Centered Practices in 21st Century K-8 Classrooms and Schools

III. INVESTIGATORS AND STAFFING

<table>
<thead>
<tr>
<th>NAME</th>
<th>QUALIFICATIONS</th>
<th>RESPONSIBILITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emily Slusser</td>
<td>E. Slusser is a faculty member at SJSU and holds a PhD in Cognitive Development. She has been conducting research for over 10 years, and is the author of several articles in the fields of education and child development. E. Slusser has completed the CITI IRB Training.</td>
<td>E. Slusser will serve as the Faculty Advisor (FA) for this project and will oversee all phases, including project design, data collection and analysis, and dissemination.</td>
</tr>
<tr>
<td>Betsy Fitch</td>
<td>B. Fitch is a doctoral student at SJSU and holds Masters degrees in business and educational leadership plus an administrative credential and teaching credential from SJSU. She has worked in education for nearly 15 years as a teacher and site principal. B. Fitch has completed the CITI IRB Training.</td>
<td>B. Fitch will serve as the Principle Investigator (PI) for this project and will be involved in all phases, including project design, data collection and analysis, and dissemination. She will work closely with and under supervision of the FA throughout this project.</td>
</tr>
</tbody>
</table>

IV. INVOLVEMENT OF OTHER INSTITUTIONS

a. This research will be conducted in partnership with the Oak Grove School District (OGSD) in San Jose, CA. OGSD will serve as a source of participants (faculty and staff). See Letter of Cooperation attached.

b. The FA has no affiliation or financial interest within OGSD. The PI is currently employed by OGSD as a site principal. The PI was formerly a teacher, lead teacher and founding teacher of multiple sites in the district.

c. As site principal, the PI maintains a supervisory role within the district, but not at any of the participating schools. The PI has never worked at or been in a supervisory position at any of these sites. The study does not involve treating, assessing, or training participants but the PI may be perceived as an authority who may be in a position to coerce participation from faculty and staff. It will be made clear that participation is entirely voluntarily, there are no consequences or repercussions for non-participation, and participants may opt-out at any time during the study. Separate consent forms will be given for Phases 1 and 2 (see section VII. E. below).

V. ABSTRACT
After many years of standardized approaches to education, schools are still leaving students behind, especially African-American and Latino students (nationalreportcard.gov). Although some studies point to a recent decrease in high-school drop-out rates (nces.ed.gov), notable gaps in fourth and eighth grade reading and math
performance remain, indicating that we have not yet reached educational parity for all students in the United States (nationsreportcard.gov).

Educators, administrators, and researchers alike are advocating for changes. While a broad body of research has identified several student-centered, innovative, and systematic practices that can promote student learning, it is still unclear how and whether these practices are being implemented, measured, and assessed. Through a series of in-depth surveys, interviews, and focus groups with invested faculty and administrators, this case-study will explore how three Title 1 sites are navigating the transition from a standardized approach to a student-centered approach to teaching through PBL (PBL). Specifically, through a series of comprehensive surveys (Phase 1) and several in-depth interviews and focus groups (Phase 2), this study will explore teacher and administrators’ responses to the following questions:

1. What supports have school administrators and coaches included in the implementation of PBL (PBL) in low-income, public, elementary schools to increase academic achievement?
2. What supports are teachers using to scaffold PBL lessons to engage students in low-income, and public, elementary school to increase academic achievement?
3. How is PBL being measured and assessed in low-income, public elementary school settings to show academic achievement?

Phase 1: The PI will send teachers and administrators at the three sites in OGSD an email invitation to participate in the study, which will be accompanied by a survey. The brief (approximately 20 minute) survey has been designed to gather participants’ perspectives and experiences with student-centered learning strategies and act as a screener for Phase 2 of the study (see Section IV. D. below). At the end of the survey, participants will be asked if they are willing to voluntarily participate in Phase 2.

Phase 2: Consenting participants will be asked via email to meet (for interviews in person, over the phone, or on-line depending upon the preference of the participant) to discuss and elaborate upon their survey responses. Information collected from the interviews and focus groups will help to answer the above questions by providing a narrative for what student success looks like in a 21st century classroom, what practices are they now implementing, and how are they measuring and assessing student success and growth. Further, interview responses will be used to describe how leaders are supporting these changes in practice and assessment as well as how the school community is being engaged to understand and support changes from a more standardized classroom, to a student-centered, 21st century learning environment.

Phase 3: School test scores, demographic data, and discipline and attendance rates will be collected for those schools associated with Phase 2 participants. Data gathered will be publicly available and aggregated at the school, district, county, state and national level. This data will be used to explore the potential climate and cognitive impact of
student-centered practices and highlight trends or patterns, if any, between the district at large, the state and the nation, and these more student-centered classrooms. Research has shown that traditional, one-size-fits-all approaches to student learning do not work and are leaving many students behind (nationsreportcard.gov). However, it is unclear how educational leaders can best support teachers and administrators as they transition to a more flexible, student-centered model. Current, descriptive research on student-centered teaching, such as the study proposed here, is crucial so as to avoid a default return to a more standardized approach to education (Hattie, 2009).

VI. HUMAN SUBJECTS INVOLVEMENT
A. SUBJECT POPULATION
To explore teaching and leadership practices in K-8 classrooms and schools in OGSD, we will invite all teachers, coaches and school administrators at three of the Title 1 school sites (approximately 75 individuals) to participate in Phase 1 of the study, the online survey (see section VI. D. below).

The sample will comprise adults between the ages of 22 and 65, who are employed by the Oak Grove School District. No race, ethnicity or gender data will be collected. All participants will be voluntary and have the option to opt-out of any phase of the research at any time. No exclusionary criteria will be used.

Those who consent to participate in the survey will be asked if they would like to be considered for Phase 2 of the study. Of those who consent for the follow-up interviews, we will select approximately 4-6 participants across the three school sites looking for a balanced ratio of teachers, coaches and administrators. If more than 4-6 participants volunteer for the interviews, then we will select those participants who, based on their survey responses, are implementing the most student-centered teaching and assessment practices (sections 3 and 4 from the survey). We will seek to have a mix of teachers, coaches and administrators from the various sites in order to determine a better understanding through multiple perspectives.

Of those who consent for the follow-up focus groups, we will randomly select approximately 10-12 teachers across the three school sites. This group will be divided into two focus groups each consisting of 5-6 participants each.

For Phase 3, we will collect publicly available data to include: attendance rates, behavior and discipline reports, demographic data, language status, socio-economic status and state test scores. This data will be compared to an overall district, state and national averages for comparative purposes only. We will also review publically available data for other elementary school sites in various phases of implementing PBL based on information shared on their websites and other publicly available communication venues.

B. RECRUITMENT PLAN
All K-6th grade teachers at the three Title 1 school sites, as well as those site administrators and coaches currently employed by OGSD, will be invited to participate in Phase 1 of the study. The PI will collect email addresses of potential participants from the OGSD database. The FA will send an email with an invitation to participate, which will include access to the survey. The survey will begin with a Letter of Consent (see Section VII. E.). Only those participants who
indicate that they “agree” to the conditions outlined in the Letter of Consent will advance to the survey. Those who indicate that they would like to “opt out” will automatically exit the survey. At the end of the survey, participants will be asked to provide their email address if they wish to be contacted for a follow-up interview or they can contact us via email or phone. (Phase 2). No other individually identifying information will be collected.

Those individuals who provide contact information at the end of the survey will be contacted by the PI via email to schedule an in-person, phone, or online interview. Prior to the interview, these participants will be asked to complete a second Letter of Consent (see Section VII E, Consent Forms) which will ask for permission to conduct the interview or focus group. The consent form for the interviews can be sent and returned via email or postal service mail (to include a self-addressed, stamped, return envelope).

C. RESEARCH METHODS AND DESIGN / PROCEDURES
The purpose of this study is to describe the student-centered practices, such as PBL, that are being implemented in classrooms throughout OGSD as well as the leadership practices that align with systemic implementation of these practices. To meet this objective we will engage in three phases of research.

For Phase 1, we will invite OGSD teachers and administrators from three Title 1 schools to complete a survey that will be used to identify the types of programs and practices they are currently using in their classrooms and school (n= approximately 75). Title one schools, as designated by the Elementary and Secondary Education Act (ESEA), as part of the 1965 initiated War on Poverty, are schools with greater than 40% of students designated as low income. While there is research on student-centered practices, there is a gap in the literature examining student-centered practices with historically underserved populations. There is an opportunity to explore how to better implement student-centered practices to help enhance learning outcomes for these schools and their students.

From this survey sample, teachers and leaders who have volunteered (provided their contact information on the otherwise confidential survey), will be selected to participate in 1:1 interviews or focus groups so as to further describe the successes, barriers and challenges they have faced in implementing these new 21st century practices. If more than 4-6 volunteer to participate in the interview portion of this phase of the study, participants will be chosen based on survey feedback that reflects 21st century, student-centered practices (e.g. offering choice and voice to students, using PBL, conducting formative assessments to inform practice, using Writers’ or Readers’ Workshop or Cognitively Guided Instruction (CGI) or integrating technology into their classes and schools in an integrated and innovative manner (see section VI.D.). We will also seek to have a balance of teachers, coaches and administrators so as to collect data from multiple perspectives and have a better understanding of the context and PBL implementation. If more than 12 teachers volunteer to participate in the focus groups, we will randomly select participants.

For Phase 3, the PI will collect publicly available aggregated school data including: student attendance, office referrals/suspensions, state test scores and demographic information including socioeconomic and language status, and compare this data to district, comparable schools and district, state and national averages. This analysis will help determine if these practices are having an impact on enhancing student learning outcomes when compared to a more general population. The survey and interview data alongside this information will provide a more
balanced and holistic, perspective for this study. Secondary data will be compiled, analyzed and compared to findings on student-centered, 21st century classrooms, schools, and practices previously reported in the literature. Analyses will reveal how the practices in OGSD compare to findings in the literature review.

D. MATERIALS AND DEVICES
b. No cognitive or psychological tests will be employed.

c. The proposed study includes analyzing initial survey data (Phase 1) then coding, theming and analyzing interview data (Phase 2). Secondary data from publicly available sources will also be analyzed (Phase 3). The PI will record data on a master spreadsheet which will be kept on a password protected computer. Audio files will be permanently deleted once transcribed. Transcriptions will also be stored on a password protected computer (see Section VI. E).

E. CONFIDENTIALITY
a. To protect confidentiality, ID numbers will be assigned to individual participants and will be used throughout the study. Data and materials will be kept in a locked file cabinet in the PI’s home. Only the PI will have access to the documents. Electronic files will be stored on a password protected computer and iPhone. Please see the attached Letter of Cooperation from Superintendent’s agreement to participate in this study.

b. The information described above will be stored electronically on the PI’s laptop computer. The laptop will be password protected. As an Oak Grove district office employee, the PI will have access to the secondary data - this is acknowledged by Superintendent Manzo in the Letter of Cooperation.

F. COMPENSATION
No compensation will be offered to participants or students.

G. POTENTIAL BENEFITS
While there are no foreseeable benefits to individual participants, we anticipate that the findings will be generalizable and will be shared to support implementation of 21st century skills and practices across sites and classrooms throughout OGSD.

H. POTENTIAL RISKS
In general, this study involves no more risk than what participants would encounter in everyday life. Given the procedures described above, there is minimal risk of the release of personal information.

I. RISK REDUCTION
See Confidentiality (Section VI. E.) above.
<table>
<thead>
<tr>
<th></th>
<th>county</th>
<th>district</th>
<th>school 1</th>
<th>school 2</th>
<th>school 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Enrollment</strong></td>
<td>266,256</td>
<td>276,689</td>
<td>11,535</td>
<td>10921</td>
<td>615</td>
</tr>
<tr>
<td><strong>Change</strong></td>
<td>3.92%</td>
<td>-5.32%</td>
<td>-7.97%</td>
<td>-9.16%</td>
<td>-13.64%</td>
</tr>
<tr>
<td><strong>% ELL</strong></td>
<td>22.78%</td>
<td>24.14%</td>
<td>31.21%</td>
<td>29.21%</td>
<td>63.58%</td>
</tr>
<tr>
<td><strong>% Free/Red. Lunch</strong></td>
<td>37.45%</td>
<td>37.96%</td>
<td>48.66%</td>
<td>44.81%</td>
<td>87.48%</td>
</tr>
</tbody>
</table>
## Appendix F - State Test Comparisons

<table>
<thead>
<tr>
<th>% Meeting or Exceeding Standard</th>
<th>ELA</th>
<th>Math</th>
</tr>
</thead>
<tbody>
<tr>
<td>state</td>
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</tr>
<tr>
<td>county</td>
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<td>55</td>
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