THE CONFLUENCE OF PEOPLE, POLICY, AND PRACTICE:
AN EXAMINATION OF THE SCHOOL IMPROVEMENT JOURNEYS OF
RESTRUCTURED SCHOOLS UNDER THE NO CHILD LEFT BEHIND ACT OF 2001

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Better the hopeful journey, than to arrive. –Lao Tzu

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ABSTRACT

The purpose of this study was to examine the extent to which the restructuring feature of the No Child Left Behind Act of 2001 (NCLB) was successful in changing schools’ practices in ways that led to their exit from restructuring status. More specifically, this study investigated how changes in schools’ educational process factors over time differentiated (a) schools that entered and exited restructuring status and (b) schools that entered but did not exit from a reference group of schools that did not enter restructuring status. The results highlight how strategic improvements in schools’ educational processes, when accompanied by shared leadership, contribute to growth in student achievement over time.

At least three contributions to research on school improvement were made in this study. First, the results supported the hypothesis that differences in teachers’ perceptions of school processes (e.g., improving curriculum, improving student support, improving staff collaboration skills) were related to changes in NCLB-related sanction status; that is, a decrease in perceptions of key educational processes occurred when schools entered restructuring and subsequently, an increase in those indicators occurred as schools began to exit. Second, schools that exited restructuring showed significant improvement over time in their key educational processes and in shared leadership. Third, using piecewise growth modeling to differentiate schools’ improvement journeys and multinomial logistic regression to classify schools according to process, staffing, and context factors added to previous studies that primarily used cross-sectional analyses of school variables to measure differences in achievement and/or qualitative case studies of a limited number of schools.
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CHAPTER 1

OVERVIEW OF THE RESEARCH QUESTION

Educational policymakers have initiated decades of federal and state reforms aimed at “correcting perceived social and educational problems” (Tyack & Cuban, 1995, p. 4). Federal-level reforms, which embody the values and aspirations of our society, include far-reaching policies that attempt to govern the practice of education at the state, school, and classroom level. In order for policy to serve the needs of all students, educational reform must bridge the distance between the educational policymakers in Congress and practitioners in the classroom. Critics have long cautioned that simply putting programs in place does not amount to “getting the job done” (McDonnell & Elmore, 1987, p. 1).

In response, policymakers continue to intensify their efforts. Most recently, the No Child Left Behind Act of 2001 (NCLB) was enacted. Two key features included holding schools responsible for student outcomes and imposing sanctions on schools that failed to comply. The goal of NCLB was for all students to achieve 100% proficiency in reading and mathematics by 2014. As the end of 2014 approaches, results are mixed, and many states have been granted waivers from NCLB’s accountability requirements in exchange for modifications to their accountability systems that include adoption of college- and career-ready standards for students, evaluations for teachers and principals, and differentiated performance targets. Looking back at NCLB’s results, it is apparent that one of the federal policy’s greatest challenges, “how to incorporate local preferences for desired changes with those mandated by higher-level decision makers into an integrated vision of change and improvement” (Hord, 1995, p. 88), continues to be a challenge today. The purpose of this study was to examine the journeys of schools that were
restructured under the provisions of NCLB in order to learn more about the relationship between sanctions, improvement, and how change unfolds over time.

**Background of the Problem**

The practice of using public policy to influence the quality of education can be traced back to the 1950s and ‘60s, when events such as the Soviet Union’s successful launch of the Sputnik satellite and the public’s interest in civil rights put pressure on the government to take a more active role in public education. The passage of the Elementary and Secondary Education Act in 1965 (ESEA) established a comprehensive set of programs that evolved over time to address educational inequalities, especially gaps in achievement among students who were economically disadvantaged, students with disabilities, and students of different racial/ethnic backgrounds. Early forms of ESEA included federal aid and funding for educational programs. Over time, however, ESEA became more complex in response to public demands for tangible results and shifted its focus from making opportunities available to all students to holding schools accountable for student outcomes.

In its current form, NCLB’s high-stakes testing and system of accountability make it one of the most far-reaching and controversial policies in American educational history. This incentive-based policy instrument (Hannaway & Woodroffe, 2003) is grounded in the theory that incentives and sanctions will drive schools to close achievement gaps between student subgroups. Under NCLB, states were required to develop accountability systems that would identify annual performance targets for schools, with the goal of reaching 100% proficiency in reading and mathematics by 2014. States determined the rate at which their annual targets would increase and determined what was required in order for a student to be counted as proficient.
Schools that failed to meet the adequate yearly progress (AYP) targets were subject to sanctions. There are several possible levels of NCLB sanction status. The level that requires the greatest transformation is when a school enters restructuring status after failing to meet performance targets for six consecutive years.

By definition, restructuring means “a major reorganization of a school’s governance structure arrangement” (USDOE, 2006, p. 24). NCLB provided a number of options for restructured schools. These included: converting to a charter school, turning the school over to a state or outside provider, replacing the staff, or reconstituting the school in some manner. The assumption was that failing schools would somehow improve by employing one of NCLB’s strategies. Most states, however, chose not to use NCLB’s restructuring strategies. They preferred instead to use traditional reform strategies such as instructional coaching, collaboration, and tutoring (Mintrop & Sunderman, 2009). One study concluded that none of NCLB’s restructuring options provided concrete evidence of significantly improving educational outcomes (Mathis, 2009). Mathis examined evidence of increased test scores under the different restructuring options but concluded, “there is no clear body of evidence that any of them will result in significantly improved education” (p. 15). Case studies of school restructuring in five states reported by the Center on Education Policy (2008) yielded similar results, suggesting none of the restructuring options were more effective than others in helping schools to meet their targets. Case studies revealed that some failing schools did make the dramatic improvements that were necessary to exit restructuring and, more importantly, that the strategies that “worked” were supported by evidence. One of the limitations of case studies, however, is that each school site tends to be an example of a unique context; therefore, each school’s improvement strategies and
unforeseen problems encountered on the road to improvement make it difficult to abstract any common improvement axioms.

After more than a decade since NCLB was implemented, it is widely accepted that NCLB expanded federal oversight of public education through its emphasis on annual testing, annual academic progress, report cards, teacher qualifications, and funding changes (Education Week Research Center, 2011). What is not yet clear is whether NCLB’s accountability system resulted in significant improvements in educational processes and performance in schools that demonstrated the greatest need.

**Significance of the Study**

Fullan, Hill, and Crevola (2006) point out that “external performance-based accountability is largely silent on how to achieve change in classroom practice” (p. 6). Likewise, NCLB provided very little guidance regarding the types of actions that were required in order for restructured schools to get out of sanctions. This challenge fell squarely on states, districts, and the schools themselves. As one school official expressed,

> Nobody’s figured it out . . . What I would say however . . . [is that] I think we’re building a repertoire of things that seem to work [but] we certainly can’t say to the state legislature or governor, ‘Look, we know exactly what to do, just give us the money.’ I don’t think anybody’s there yet. (Center for Education Policy, 2007, p. 24)

To date, there have been few studies that have followed schools on their individual paths to improvement over time. Nor have there been many studies that identified key differences in school level practices (e.g., improving teacher quality, enhancing the instructional environment, implementing a more rigorous curriculum) that might lead to improvements, especially in low performing schools (Balfanz, Legters, West, & Weber, 2007).
Improving schools’ educational practices is central to strategic efforts to increase student learning outcomes and has been the subject of considerable research and review over the last several decades (Firestone & Corbett, 1988; Louis, Toole, & Hargreaves, 1999; Rowan, Camburn, & Barnes, 2004). Less is known, however, about the specific types of resources and strategic actions required for schools that are under sanctions to improve. As such, exploring the relationship between sanctions and schools’ academic improvement has substantial value for policymakers, leaders, and practitioners. It is very likely that accountability will continue to be a driving force for change in the arena of educational policy; as policymakers consider modifications to ESEA, there is a compelling interest in finding practical and theoretically sound solutions that will contribute significantly to the process of school improvement.

**Rationale for Approach to the Problem**

Policies should be assessed on both their features and effects. Regarding NCLB, there is a need to assess whether the sanctions feature of the policy represented a viable mechanism to generate school improvement. One way to accomplish this is to study the extent to which the sanction feature of NCLB related to school improvement. That is, by investigating the differences between (a) schools that are not sanctioned, (b) schools that are sanctioned and exited, and (c) schools that are sanctioned but did not exit, it would be possible to observe whether the sanctions were associated with different types of changes. This could be done by studying the “improvement journeys” of the three groups of schools over a period of time to see if there were any patterns that differentiated the groups. Further inquiry could also highlight how educational practices and context might also differentiate the three groups of schools. This
approach would provide insight into the ways that NCLB was implemented in schools that had different improvement outcomes.

Hawaii’s data provided an opportunity to examine a set of schools over a ten-year period of NCLB policy implementation. One of the unique features of the data is the existence of stakeholder surveys (i.e., teachers, students, parents) of educational practices conducted at regular intervals at each of the state’s schools. The individual items are used to define distinct dimensions of school processes and practices (e.g., curriculum and instructional practices, student support, leadership, and focus on improvement) that have been found to be associated with differences in school academic outcomes over time.

Of the 48 elementary schools that were restructured in Hawaii, over half exited. Their remarkable accomplishment might be described metaphorically as swimming against an increasingly strong ocean current where great effort must be exerted just to stay in the same place, let alone make progress to the desired destination. As such, it is unlikely that “getting out” of restructuring represented a random occurrence. Identifying a range of school practices that were effective in raising school achievement outcomes in restructured schools is therefore a needed focus for research.

Purpose of the Study

Given the lack of clear evidence about how schools respond to policy sanctions over time, I expand on existing research by examining school process and context factors that differentiated schools that entered restructuring and those that did not. My research covered a ten-year period using publicly-available school performance and process data from the Hawaii’s educational accountability system. More specifically, the research focused on (a) schools that did
not enter restructuring versus those that (b) entered restructuring but exited later in time, and those that (c) entered restructuring but did not exit. It was assumed that differences in schools’ key educational practices over the decade after NCLB was introduced would help to differentiate these three groups of schools after controlling for their educational contexts. After key differences in schools’ educational processes were identified over time, I developed a model that would classify schools into these three groups with a high degree of accuracy. This type of study is especially relevant today, as policymakers grapple with reauthorization and redesign of NCLB’s accountability system and schools seek practical, high-leverage strategies that are most likely to improve the quality of education for all students.

Research Questions

The study addressed the following research questions:

1. Are there differences in school process trajectories (patterns of growth in achievement over time) between elementary schools that do not enter restructuring and those that do?

2. What pattern of process and context variables best accounts for differences in schools that are not restructured, restructured without exiting, and restructured then exited?

Hypotheses

It was assumed that relative to the reference group of schools that did not enter restructuring, there would be noticeable discontinuities in the identified educational process indicators when schools’ improvement journeys were followed over time. First, it was hypothesized that when schools entered restructuring, teachers’ perceptions of their school’s
educational processes would decline over time. Second, it was hypothesized that schools that exited restructuring would show an upward turn in teacher perceptions of their educational process indicators prior to exiting sanctions. Third, it was hypothesized that there are patterns of changes in educational process and context variables that separate restructured schools that exit from those that do not.

This study focused on the difficult improvement journeys that restructured schools undertake. By studying the changes that schools made to their processes over time in response to externally imposed NCLB sanctions, it was hoped that this study would reveal whether educational processes contributed substantially to school improvement and under what contextual conditions. Moreover, it was hoped the study would identify some process indicators that were more critical in particular situations. This type of knowledge can be useful to policymakers, leaders, and practitioners as they reflect on their work and develop strategies to continuously improve the quality of schools.
CHAPTER 2
LITERATURE REVIEW

In this chapter, I examine four key domains relevant to this study of NCLB’s sanction strategy for generating school improvement. I begin by describing Hawaii’s educational and policy context, including its public school system, the surrounding policy context, and its accountability system. Next, I discuss the landscape of NCLB and the documented implementation challenges faced by many states, including Hawaii. Then, I discuss two policy-related theories that form the conceptual framework for the study: punctuated equilibrium theory and institutional rational choice theory. Finally, I provide a synthesis of prior research that helps situate this study’s focus on school quality and improvement processes. These components provide a backdrop from which to understand the key educational processes that constitute school quality, how these processes interact within and external to their context, and how to measure these changes in such a way that sound conclusions and predictions might be drawn from them.

Hawaii’s Educational Context

Educational System

Hawaii is the only state in the United States with a centralized, or unitary, school system. The system is designed to promote equity across the state’s urban and rural areas. As of fall 2010, Hawaii was the ninth largest school district in the United States (Snyder & Dillow, 2013). In 2011-12, there were 286 public schools in Hawaii’s school system, consisting of 254 regular schools and 32 charter schools. The Hawaii Department of Education (HDOE) is the only system in the United States where schools are spread out over several islands. Public schools are located...
on seven of the eight Hawaiian islands (Oahu, Maui, Hawaii, Molokai, Lanai, Niihau, and Kauai), with 68.8% of students residing on Oahu (HDOE, 2013a). The state is divided into seven subdistricts and 15 complex areas: Oahu (nine complex areas), Hawaii (three complex areas), Maui (two complex areas), and Kauai (one complex area). The size of each district varies; the largest is Leeward Oahu (approximately 40,000 students) and the smallest is Kauai (approximately 9,300 students). Each complex area includes up to four school complexes, which consist of one high school and all of its middle and elementary feeder schools. One district, Maui, encompasses three islands (Maui, Lanai, and Molokai) and is commonly referred to as a “canoe” district, because a canoe was once the only means of travel from one part of the area to another. A complex area superintendent oversees each complex area. Each complex area has its own administrative staff. The seven subdistricts and their complex areas are:

- Honolulu--Kaimuki/McKinley/Roosevelt, and Farrington/Kaiser/Kalani
- Central Oahu--Leilehua/Mililani/Waialua, and Aiea/Moanalua/Radford
- Leeward Oahu--Nanakuli/Waianae, Pearl City/Waipahu, and Campbell/Kapolei
- Windward Oahu--Castle/Kahuku, and Kailua/Kalaeo
- Hawaii--Hilo/Waiakea, Kau/Keaau/Pahoa, and Honokaa/Kealakehe/Kohala/KonaWaena
- Maui--Baldwin/Kekaulike/Maui and Hana/Lahainaluna/Lanai/Molokai
- Kauai--Kapa'a/Kauai/Waimea

The HDOE served 172,104 students (in non-charter schools) in 2012, the last year of this study; of this total, 103,336 students were at the elementary (K-6) level. The student population is very ethnically diverse. According to HDOE statistics on race/ethnicity the largest group was
students of native Hawaiian or part-native Hawaiian ethnicity. There are also substantial populations of students of Asian ancestry (Chinese, Japanese, Filipino, Korean), Pacific Island ancestry (Micronesian, Samoan, Tongan, and other Pacific Islanders), and Caucasian ancestry. Black and Hispanic students combined comprise only about 6% of the total student population (HDOE, 2013a).

_Hawaii’s Policy Context_

The main policymaking bodies for the department are the Hawaii State Legislature and Board of Education (BOE). The BOE consists of nine members who are appointed by the governor, with the advice and consent of the Hawaii State Senate (HRS §302A-121). Article X of the Constitution of the State of Hawaii gives the BOE the authority to formulate educational policy and appoint the superintendent of education. It does not have any power to levy local taxes or appropriate state money. Hawaii has a statewide funding system. All state funds for the operation of the public school system are appropriated by the Hawaii State Legislature on a biennial basis and come from the state’s general fund. The general fund is the source from which all non-earmarked taxes are disbursed. The role of the BOE is to present an advisory budget to the governor, which then becomes part of the governor’s proposed biennium budget. The final budget is passed by the Hawaii State Legislature and allows the governor to make line-item vetoes.

In 2012, the State of Hawaii’s operating budget for public education was $2.5 billion. Over eighty-two percent (82.5%) came from the state’s general fund, 12.6% from federal funds, and 4.9% from other sources (HDOE, 2013c). In 2011, the HDOE received over $117 million in federal funds, which included $47 million to provide assistance to qualified Title I schools where
at least 40% of their students were from low income families (Hanabusa, 2011).

According to the HDOE (2009), it cost approximately $350,000 annually to fully support a restructured school. This was in addition to a school’s existing operating budget (HDOE, 2009). Expenditures included leadership training, instructional and technical support, monitoring of student achievement, and professional development for teachers. External support for restructured schools was provided primarily by external service providers (consultants). They were tasked with improving student performance as well as building capacity within schools to sustain growth. For example, in 2008-09, the HDOE contracted three service providers (America’s Choice, Edison Learning, and Educational Testing Service) to work with 43 restructured schools. The amount of the contracts varied from $820 at an intermediate school to $456,000 at five different high schools. The cost for additional support for restructured schools that was requested from the Hawaii State Legislature totaled $5 million (HDOE, 2009).

The state’s unitary education system provides a somewhat unique context for school improvement, especially when coupled with Hawaii’s geographic isolation, commitment to equitable funding for all schools, and a diverse student population. There are factors within the system and external to the system that differentiate Hawaii from other state contexts in the U.S. Not only does the Pacific Ocean separate Hawaii from the rest of the continental United States, but it also separates the islands from each other, making it costly and challenging for complex areas and schools to implement and monitor statewide initiatives.

Whether or not greater local control would be an advantage or disadvantage to the state system is the source of ongoing debate in Hawaii’s policy circles (Hawaii Educational Policy Center, 2003; Roth, 2009; Woltman, 1989). Opponents of the centralized system argue that a
decentralized system would offer greater efficiency and local control. Advocates of the
centralized system argue that a decentralized system would result in an inequitable distribution
of resources, especially to “neighbor island” (i.e., islands other than Oahu) and rural schools.

The Hawaii State Legislature has played an active role in shaping Hawaii’s education
policy landscape. In 1991, noting that Hawaii’s educational system lacked a way to determine
whether the state’s educational goals were being met, the Hawaii State Legislature established
the Hawaii Commission on Performance Standards. The role of the commission was to “set the
performance standards of achievement expected of students in public schools and the means to
assess educational achievement” (Hawaii State Legislature, 1991, p. 1045). Hawaii was one of
the first states to initiate standards-based reform and after extensive statewide stakeholder input,
adopted its first set of standards in 1994 (Brown, 2009).

In 2000, the Hawaii State Legislature enacted Act 238, which mandated that the HDOE
implement an accountability system that would measure and report on student achievement of
the Hawaii Content and Performance Standards (HCPS), safety and well-being, and civic
responsibility. In 2004, the Hawaii State Legislature passed the Reinventing Education Act, also
known as Act 51, which aimed to shift accountability and decision-making to the school level
while preserving the unitary state system. Act 51 gave principals greater control over their school
budgets and at the same time, imposed a greater level of accountability at the school level. To
increase stakeholder participation and accountability in school level decisions, Act 51 established
School Community Councils (SCC), made up of the principal, teachers, student representatives,
support staff, parents, and a community representative. The SCC’s responsibilities included
reviewing the school’s Academic and Financial Plan, evaluating school progress, and providing
input on school level policies and procedures. Another key feature of Act 51 included a weighted student formula, which determined school funding on the basis of the number and types of students attending the school. (State of Hawaii, 2004).

Hawaii’s context is similar to that of other states in that there are unique challenges from both within and outside the system that influenced the school improvement process under NCLB. These internal and external challenges would appear to have greater uniformity and consistency within a unitary system because, while every school’s relationship to its context is rather unique, all schools in a unitary system operate within a similar context. This is in contrast to non-unitary systems where there could be wide variations in the way local boards provide funding, governance, and support to schools. It would also seem that a unitary system would be able to utilize its resources more efficiently around common challenges, such as those required by NCLB.

The Landscape of NCLB and Implementation Across the United States

Policy often results from shifting demographic, social, economic, and political trends (Iannaccone, 1977). These forces can exert pressure on states and school districts to make educational changes. Tyack (1991) concluded that eras of economic, social and political change bring much talk about educational change but do not necessarily lead to subsequent institutional changes in educational practices.

Prior to 1950, the federal government had a limited role in education. Starting in the 1950s, however, politicians at the federal level began to associate education with national policy concerns (Spring, 2002). The first piece of major federal legislation was the National Defense Education Act in 1958 (NDEA), which followed the Soviet Union’s successful launch of the
Sputnik satellite in 1957. Through the NDEA, the federal government hoped to increase the number of scientists and engineers in the United States as the nation engaged in the Cold War against the Soviet Union.

The federal role in education further expanded in the 1960s in response to the economic, social and political shifts that accompanied the Civil Rights movement. National concern shifted to civil rights and poverty, and education was then seen as a vehicle to win the War on Poverty and to protect minority groups from discrimination (Spring, 1990). The passage of the Elementary and Secondary Education Act (ESEA) of 1965 represented President Lyndon Johnson’s attempt to ameliorate the negative effects of poverty by using federal funding to close the achievement gap and increase equal educational opportunity (Weaver, 2006). The ESEA represented an early federal attempt to link accountability for outcomes with resources, in hopes that it would lead to changes in institutional practices at the state and local level. Accordingly, Spring noted “a major consequence [of ESEA] was increased involvement and power of the federal government over local school systems” (1990, p. 322). Through the following decades, ESEA retained favored status in Congress, and has been reauthorized several times.

During the 1980s, federal policy leaned toward returning educational accountability to the states. For example, the report, *A Nation At Risk* (National Commission on Excellence in Education, 1983), presented the argument that federal “over-involvement” in education during the 1960s and 1970s led to lower quality in academic outcomes. In the 1990s, the focus of federal policy in education shifted to standards-based reform. This was in response to criticism that existing reforms, lacking clear expectations for student learning, had failed to produce improvement (Goodlad, 1984). Consequently, the Improve America’s Schools Act of 1994
IASA), under the Clinton Administration, required that states establish rigorous content and performance standards, measure student performance against the standards, and be accountable for the achievement of all students.

As a result of this type of external pressure, many states began to establish standards-based reforms, but with uneven policy responses in terms of defining success and consequences for failure to succeed. Importantly, the next reauthorization of the ESEA took place under the George W. Bush administration, which was known as the No Child Left Behind (NCLB) Act of 2001. In many ways, NCLB was designed to address the flaws in the IASA by requiring high-stakes testing, setting uniform goals, and establishing sanctions for failure to meet targets (Goertz, 2005).

NCLB stirred much attention during the first decade of this century by requiring a number of more stringent external requirements that states had to contend with during its implementation years. The incentive for states in terms of their compliance with this system of accountability was receiving federal funding, something states had been accustomed to, but with significantly fewer rules and sanctions (Fuller, Wright, Gesicki, & Kang, 2007). With the passage of NCLB, states were responsible for enacting policies and procedures to comply with the law in order to receive federal funding associated with ESEA. The mandate brought several key new requirements for receiving federal money including the development of statewide content standards in reading and mathematics, development of high-stakes tests to measure student proficiency of the standards, and annual measurable objectives (AMOs) that culminate with 100% of students in all subgroups attaining proficiency by 2014 school year (NCLB, 2002). In addition, states were required to administer the National Assessment of Educational Progress
(NAEP) in reading and mathematics to students in Grades 4 and 8 every two years (Linn, 2002). These new accountability requirements transferred greater control over federal funds to the state level (Sunderman, 2010) and consequently, increased their authority over local districts (Mintrop & Sunderman, 2009).

Lessons Learned

Studies of educational reform during the years leading up to and through NCLB have offered many insights into the complexities of policy formation and implementation. In a synthesis of 30 years of educational change, Sashkin and Egermeier (1993) examined school change models and their results in order to learn whether improvement strategies were successful in producing better results for students. They identified four operational strategies that dominated studies of school change. These included strategies to “fix the parts” (e.g., adopt proven innovations), “fix the people” (e.g., provide training and development), “fix the school” (e.g., build capacity within schools to solve internal problems), and “fix the system” (e.g., reform the different layers of the system, from the state level to the school level).

Early approaches to reform, which mainly focused on fixing ineffective practices, assumed that if schools adopted proven educational innovations, they would produce better results for students. Most of the studies that were based on this rational-scientific perspective reported disappointing results. From these studies, including the well-known RAND Studies, researchers learned that successful program adoption is complex and costly and “even when transferring innovations works it does not seem useful as a lever for dramatic, sustainable, school-wide improvement” (Sashkin & Egermeier, 1993, p. 9). The RAND Studies, in particular, highlighted how challenging it was for policy to change practice, especially where local
implementation, not money, outside consultants, and/or packaged trainings dominates program outcomes (McLaughlin, 1989).

The failures of early attempts at reform were followed by a political approach that aimed to “fix” schools through mandates and monitoring (McLaughlin, 1987). Generally, this political approach to change also failed, leaving researchers to conclude that, “you can’t mandate what matters” (Fullan, 1993, p. 21) and shifted attention to how schools’ technical and cultural needs might be better linked with policies through systemic reform.

The third wave of reform, influenced by a cultural perspective (e.g., shared values and beliefs) toward organizational development, began in the 1990s and focused on systemic reform. During this period, policies to decentralize school governance through site-based management (SBM) raised expectations that providing schools with greater autonomy would improve performance. While SBM policies successfully broadened stakeholder participation in school decisions, results were not readily apparent (e.g., Heck, Brandon, & Wang, 2001).

Although the reforms generally failed to produce policymakers’ intended results, the strategies had some success in schools, especially when they were combined. The complexities of reform required a blend of pressure and support if change was aimed at shifts in attitudes, values, and routinized practices (Fullan, 1993; Hord, 1995; McLaughlin, 1987). Importantly, most change was observed to be incremental and gradual. According to Hall (1995), large-scale changes required five to seven years to implement.

Today, policymakers continue to struggle with implementation and have greatly expanded upon the policy instruments and innovations that dominated reform in the past. It appears that many of the lessons learned over the past 40 years have been incorporated into
NCLB. Its features blend all three operational strategies as well as the different approaches (rational-scientific, political, and cultural) enumerated by the school change research. Whereas past policies aimed at mostly school-level actors, today’s systemic reform policies include actors at the federal, state, and district levels as well. The policy tools have significantly expanded to include capacity building and systems change through data use, high-stakes testing, learning communities, technology integration and large scale transformation of curriculum, instruction and assessment (Honig, 2006), to highlight a few. For many teachers, whose engagement in school level improvement is a vital part of the school’s overall well being, this was often seen as conflicting with their existing classroom level responsibilities. The influx of new tools, layered on top of existing demands and initiatives, have led to concerns about how to coherently manage the multitude of internal priorities and external demands (Honig & Hatch, 2004).

Implementation Challenges

The challenges of educational reform were readily apparent in the implementation challenges facing the states and in the ways that states responded. The challenges affirm McLaughlin’s assertion that “policy success depends critically on two broad factors: local capacity and will” (1987, p. 172). In a recent study of state-level challenges posed by NCLB, Goertz (2005) found that most states lacked fiscal and human resources in four big areas: assessment, accountability, students with special needs, and capacity to provide support.

NCLB substantially expanded the number of tested grade levels in reading and mathematics, which required that states fund the development and administration of many new tests. In addition to the financial burden, the added tests created a “test burden” on students (Goertz, 2005, p. 75) and potentially drew attention away from other core subjects as many states
opted to suspend or cancel planned assessments (e.g., science and/or social studies).

One major challenge for states was to develop and adopt an accountability system, which would meet the more stringent requirements of NCLB, specifically the development of standards and a system to assess them. Under the previous IASA, many states already had accountability systems in place. While NCLB attempted to address some of the variability in state policy that had emerged under the IASA, it also led to conflicting messages about the meaning of school and student success when the stringent federal requirements were imposed along with existing state-level requirements. Additionally, NCLB presented fiscal challenges, as states were responsible for absorbing most of the costs associated with the new assessments, often resulting in cuts in other areas. National estimates put the cost of developing and administering statewide assessments in reading and mathematics at anywhere from $1.9 billion to $7 billion (US GAO, 2003).

Another big challenge was unique to states with high special-needs student populations. Under NCLB, all subgroups, including students with disabilities and/or limited proficiency in English (ELL), were required to meet proficiency. While reasonable adaptations and accommodations were allowed, states were no longer allowed to exempt students as had been done in the past. Most students with disabilities and all ELL students were held to the same proficiency targets as other students (Goertz, 2005).

Noting that the design of NCLB assumed that states have the capacity to facilitate school improvement efforts to raise student proficiency and to pay for it, Goertz (2005) pointed out the “considerable variation” (p. 84) in the capacity of districts to help their failing schools, especially in smaller districts. Under NCLB, responsibility for supporting low performing schools fell on
states and local districts. In contrast with previous school improvement legislation, NCLB was very specific about the types of technical assistance that the local educational agency (LEA) should provide to schools that were identified for improvement. For schools in corrective action, these included: (a) technical assistance in reviewing data and student work to identify and correct problems in instruction, (b) assistance in identifying and providing professional development, instructional strategies, and instructional methods that are supported by scientifically based research, and (c) analyzing and revising the school’s budget to target resources that were most likely to improve student achievement and school performance (U.S. Department of Education, 2006).

Support to schools that continued to fail was also specified in the law. LEAs were also responsible for replacing the school staff, instituting and fully implementing new curricula, decreasing management authority, appointing consultants, extending the school year or school day for the school, and/or restructuring the internal organizational structure of the school. For schools in restructuring, LEAs were responsible for reopening the school as a charter school, replacing the staff, contracting private management companies to operate the school, and/or taking over the school (NCLB, 2002).

A national study conducted by the Center for Education Policy (2007) found that state education agencies played a major role in assisting districts to implement the requirements of NCLB. State officials reported using a variety of intervention strategies at the district and school level. These strategies included: (a) fiscal support for turnaround efforts, (b) skilled professional support through distinguished educators, school improvement specialists, coaches, school assistance teams, and/or technical assistance coordinators, (c) web-based support such as
networking schools, providing access to resources and professional development opportunities, and access to school data, (d) external support through outside consultants and experts and/or education laboratories, and (e) broad-based support in which partnerships were formed with other agencies and departments to support initiatives like early childhood education, nutrition, or programs to support the needs of families.

Despite these efforts, however, the general perception from the district level was that the state-level agencies lacked sufficient expertise or capacity to support them, mainly in terms of money and staffing. Officials at both the state and district levels struggled to implement NCLB’s school improvement requirements with fidelity; for example, while NCLB required that failing schools employ methods that were research-based and offered a “substantial promise of improving educational achievement for low-achieving students and enabling the school to make adequate yearly progress” (NCLB, 2002, p. 859), the Center’s report found that a significant challenge reported by state officials is an alarming “lack of proven techniques and strategies to turn around schools” (Center for Education Policy, 2007, p. 24). This was a serious concern, especially as the number of schools in corrective action and restructuring status continued to escalate. Despite the expectation from the federal government that “only high-quality research” be used when making instructional decisions, “much of the existing research did not meet the legal standard of quality” (Towne, 2013).

While NCLB considerably expanded federal and state governments’ role in public education by “devolving responsibility for service delivery to state and local governments” (Sunderman, 2010, p. 232), an unintended consequence was that, like the IASA, it also allowed for substantial variability between states. As Linn (2002) cautioned during NCLB’s initial
implementation,

Given the diversity in state content standards, the rigor of state tests, and the stringency of the cut scores that determine whether students have met the state standard, states will be starting at quite different positions and will vary greatly in how stringent the AYP objectives are unless the law is implemented in a way that makes allowances for the great variability among states in their current testing programs and performance standards (p. 24).

Three years later, when evidence of state-to-state variation was clearly observed, Linn (2005) reported,

Saying that all students must be at the proficient level or above by 2014, but leaving the definition of proficient achievement to the states has resulted in so much state-to-state variability in the level of achievement required to meet the proficient standard that “proficient” has become a meaningless designation. Certainly, reporting results in terms of percent proficient or above on state assessments lacks comparability from state to state (p. 15).

Along with criticism that NCLB’s state-to-state variability had rendered comparisons highly questionable, Nichols and Berliner (2008) pointed out that high-stakes testing encouraged states to engage in corrupt practices. Citing Campbell’s law, which said that as “undue weight and emphasis on a single indicator for monitoring complex social phenomena” (p. 27) is increased, the likelihood that it will be subject to corruption pressure also increases, they provided numerous examples of states “gaming” the system by cheating, manipulating and misrepresenting data, or employing deceptive and dishonest reporting practices. The most “reprehensible acts” (p. 57) were marginalization of low performing and disadvantaged students by means of exclusion (i.e., expelling or suspending students prior to test taking, punishing students who do not perform well on the tests, encouraging and/or being complacent toward low performing students who wished to drop out of school). As such, they questioned the validity of NCLB’s results and concluded that its high-stakes testing environment undermined the education
system it intended to improve.

**NCLB Landscape and Implementation in Hawaii**

*Hawaii’s Accountability System*

In developing its accountability system under NCLB in 2002, Hawaii faced similar challenges. Like states that already had content standards and testing in place (e.g., Massachusetts, Oregon, Maryland, and Texas), the HDOE was confronted with mixed messages about performance by the converging requirements of the federal and state systems (Linn, 2005). Some states, like Kentucky, opted to layer NCLB on top of its existing state system, resulting in almost one-fourth of schools (23%) meeting state goals but falling short of AYP, with a very small percentage (2.6%) making AYP but not the state goal (Linn, 2005). Hawaii also faced two sets of demands for accountability: Act 238, a state-level law, which passed in 2000, and the federally mandated NCLB, which began implementation in 2002.

The state responded adeptly by developing an integrated Accountability Framework that aimed to “coordinate and bring coherence to those diverse directions” (HDOE, 2003, p. 33). An accountability workgroup, comprised of leaders from state-level HDOE departments, principals, teachers, and union representatives was convened to collaboratively formulate the framework’s purpose, guiding concepts, and key measures, based on Act 238’s and NCLB’s common goal of ensuring “that students reach challenging standards by learning in effective schools” (HDOE, 2003, p. iii). Special attention was given to integrating the expectations of both the state and federal requirements into a framework that was congruent with existing state planning, budgeting and evaluation requirements as well.

Supporting the Accountability Framework was the HDOE’s Strategic Implementation...
Plan (HDOE, 2003a), which mapped out a pathway to standards-based education in all Hawaii’s classrooms. The plan consisted of four goals: (a) a standards-based education for every child, (b) comprehensive support for all students, (c) coordinated, systemic support for staff and schools, and (d) continuous improvement of student performance, professional, school, and system quality. Embedded within this plan were NCLB requirements alongside state priorities.

The Accountability Framework required all students in Grades 3, 4, 5, 6, 7, 8, and 10 to take the Hawaii State Assessment (HSA) in reading and mathematics. The assessment was based on the Hawaii Content and Performance Standards. In order to meet AYP, a school was required to meet 37 criteria related to academic performance. There were 18 measures for reading and 18 measures for mathematics. The 37th measure was based on graduation or retention rates (HDOE, 2003).

Required subgroups included students who were identified as follows:

- Economically disadvantaged (determined by qualifying for free or reduced cost lunch or families receiving public assistance)
- Major racial and ethnic groups - American Indian/Alaskan Native, Asian/Pacific Islander, Black, White, Hispanic,
- Students with disabilities, and
- Students with limited English proficiency.

Under the plan (HDOE, 2003a), special education students who were enrolled in tested grade levels were required to take the HSA or the Hawaii State Alternate Assessment (HSAA). The student’s Individualized Education Plan allowed the student to take the HSA with accommodations in presentation format, response format, setting, and use of assistive technology
and/or timing. Students with severe cognitive disabilities who were unable to participate in the HSA with accommodations were given the HSAA, a modified version of the HSA. Similarly, accommodations were made for qualifying students with limited English proficiency (SLEP).

The following components of the Accountability Framework (2003a) formed the basis from which AYP, for purposes of NCLB, was determined:

**Percent of proficient students by subgroup and aggregate group.** Subgroups and aggregate groups (all students) were required to meet the state’s annual proficiency targets in reading and math. The targets were based on a methodology prescribed by NCLB, which used data from the previous school year to establish common starting points across all grade levels in reading and mathematics. This calculation was based on the percentage of proficient students at the 20\(^{th}\) percentile of the state’s total enrollment. Proficiency was computed by dividing the number of proficient students by the \(n\)-count for the group/subgroup. If the percent met or exceeded the state’s annual target, the group met proficiency. If the \(n\)-count of the subgroup was too small, the subgroup did not count toward AYP; however, these students still counted toward the school’s overall school proficiency. If a student subgroup did not meet the annual objective, the school could still meet AYP under the “safe harbor” provision of NCLB, which required 1) that the percentage of students that did not meet the proficiency level decrease by 10\% from the preceding school year, 2) that the group made progress on at least one of the state’s academic indicators, and 3) that the group had at least 95\% participation (HDOE, 2003a).

**Annual measurable outcomes.** Another major state requirement was to establish annual measurable outcomes (AMO) toward the goal of all students, including those with
special needs, reaching 100% proficiency in reading and mathematics by 2014.

Figure 2.1 provides the AMO targets for proficiency adopted by the state during the years of NCLB implementation. One important trend was the relatively low targets during the initial years of implementation; for example, in reading the target reaches only 58 percent proficiency by 2009-10, with rapidly increasing targets at the end of the period (rising to 72% in 2011-12, 86% in 2012-13, and the required 100% by 2013-14). Math targets were considerably lower (reaching only 46% proficiency by 2009-10). As researchers have observed, one of the unintended negative consequences of the law was that it created an incentive for states to adopt less challenging content standards and to aim tests at minimal levels of proficiency (Linn, 2005) in order to avoid sanctions. Others have pointed out that setting low targets was a way to minimize costs (Heck, 2007).

![Reading AMO and Math AMO targets](image)

**Figure 2.1** Hawaii’s Annual Measureable Outcomes for Reading and Math (HDOE, 2003)

*Assessment participation rate.* The third component that formed the basis for AYP was participation rates. Under NCLB, at least 95% of students enrolled at the time of testing were required to take the state assessment. The participation rate was calculated for qualifying subgroups and aggregate groups. Groups that did not meet the minimum
criterion of 40 students were not counted toward participation rate. To meet the participation rate, each subgroup and aggregate group’s rate had to meet or exceed 95%. If a group or subgroup did not meet the 95% requirement for a particular year, a two-year or three-year average of 95% would also be acceptable participation (HDOE, 2003a).

Other required indicators. High schools were required to meet additional requirements such as graduation rate requirements. Graduation rate was calculated as the percentage of first-time Grade 9 students who graduated within four years. Students who transferred out of the school were not counted; a student who dropped out was not counted as a transfer. Once again, Figure 2.2 indicates that targets were lower over the first two thirds of the timeframe and rose more rapidly from 2010 to 2013.

![Figure 2.2 Hawaii’s Graduation Rate Targets (HDOE, 2003)](image)

When a subgroup or aggregate group failed to meet AYP for two consecutive years on the same indicator (i.e., reading, mathematics, graduation or retention rate), the school was identified for improvement. If the school failed to improve from year to year, an increasingly severe sanction status was applied (corrective action or restructuring). If a school did not make AYP for six consecutive years, the school was designated as restructuring. To exit from any sanction level
and be “in good standing,” the school needed to meet AYP for two consecutive years. In order to “make AYP,” all of the applicable requirements had to be met.

_Hawaii’s Implementation Challenges_

Like many states, Hawaii faced major challenges in its NCLB implementation journey. As noted previously by Goertz (2005), the areas that posed the greatest challenge to fiscal and human resources were assessment, accountability, students with special needs, and capacity to provide support. All of these applied to Hawaii. To exacerbate the challenges, after NCLB had been in place for about four years, Hawaii experienced one of the worst fiscal crises in the state’s history due to the nationwide economic recession, which began in 2007. Twenty million dollars was cut from the HDOE budget, resulting in major program cutbacks, hiring freezes, and administrative cuts (Moreno, 2008). When the recession struck, the HDOE was in the midst of refining its accountability system. The refinements were in response to feedback from testing experts and educators who criticized HCPS II for lacking specificity, having too many standards to teach, and lacking quality (HDOE, 2006). The revisions to the accountability system included the development of HCPS III and revisions to the HSA in reading and mathematics to align with the updated standards. The state also changed the test administration from a pencil/paper test to an online adaptive version to provide a more precise estimate of a student’s proficiency as well as more useful instructional information that teachers could use to guide instruction in a timely manner (HDOE, 2011a). There were substantial costs associated with the revisions, including time, consultant fees, training, and teacher stipends. What the process highlights is that a high quality accountability system requires human and fiscal resources to develop, and that the development process evolves over time.
Another big challenge for implementation was meeting the subgroup accountability provisions because of Hawaii’s high special needs populations. In 2011, a National Center for Education Statistics Report (2013) indicated that 10.6% of Hawaii students were designated as ELL, making Hawaii one of eight states with 10 percent or more ELL students in their public schools. Other states included Oregon (10.5%), Alaska (11.3%), Colorado (11.8%), Texas (15%), New Mexico (15.7%), Nevada (19.4%), and California (28.9%). This percentage has been growing steadily every year (National Center for Education Statistics, 2013). Hawaii’s percentage of students with disabilities (11%), in comparison with the national average (13%) and with other states, was on the low end.

During this period, 48 of Hawaii’s regular public elementary schools were restructured (HDOE, 2013b). In the midst of this unstable and financially troubled State context, it is remarkable that 27 elementary schools were able to exit from restructuring sanctions.

Hawaii’s Efforts to Monitor Changes in School Quality

The HDOE has administered a survey to gather perceptual data on school quality since the 1990s. The purpose of the survey is to provide schools with data for school improvement planning. Over the years, the survey has been revised to keep it closely aligned with processes that contribute to student growth and achievement. In the 1990s, an existing school climate survey was revised to align it with effective school processes. The survey was titled the Effective Schools Survey. In 2000, the survey was renamed the School Quality Survey (SQS) and in 2001, the survey was further refined to align with measures from the state’s Comprehensive Needs Assessment (2000) and the new Western Association of Schools and Colleges (WASC) accreditation requirements using Focus on Learning/Standards Implementation Design

30
dimensions. The survey was administered statewide in 2003 and 2005 and annually from 2007. In 2007, the format was changed from paper to an online format (HDOE, 2011b; Malone & Kekahio, 2011).

The validity of the SQS is well established. In 2011, the HDOE contracted McREL (Mid-continent Research for Education and Learning) to conduct an external review of the survey. Researchers affirmed that the survey constructs "adhere(d) to survey design principles of appropriate language, face validity, response variability, and scalability/comparability" and were aligned with literature in the areas of school quality, school climate, school effectiveness, and school culture (Malone & Kekahio, 2011). The validity of the constructs was also supported by the effective schools research (Creemers, 1994; Edmonds, 1979; Hallinger & Heck, 1996; Hill & Rowe, 1996; Mortimore, 1993; Reynolds & Packer, 1992) and consistent with Creemers and Kyriakides’ (2008) volume identifying school and classroom indicators of educational effectiveness. In that volume, the authors made the point that improving educational effectiveness primarily involves intervening directly with teachers in the classroom and in improving the school instructional environment that surrounds classrooms.

In addition to school level improvement, another purpose of the SQS was to provide information for policy analysis and planning. The publicly available data have been of great interest to policy researchers, who have used the data to examine school improvement, teacher quality, leadership, and student growth (Hallinger & Heck, 2009, 2010a, 2011; Heck & Hallinger, 2010, 2014; Heck & Moriyama, 2010; Heck, 2006, 2007; Klassen, 2009). In 2000, Heck reported that high stakeholder perceptions of school quality were positively associated with higher academic outcomes and “better than expected learning improvement” (p. 536) after
adjustments were made for context variables. As a result, the survey data provide an accurate approximation of the quality of the schools’ processes and can, therefore, be used as a measure.

The use of process data to support continuous school improvement has been a key strategy in many reform efforts. As Victoria Bernhardt candidly observed, “Schools are perfectly designed to get the results they are getting now. If schools want different results, they must measure and then change the processes to create the results they really want” (2004, p. 80).

School processes, when measured, represent what schools, as learning organizations, are doing to educate students. They include the learning processes that take place within classrooms as well as programs (e.g., curriculum, instruction, assessment), instructional strategies, interventions, staff collaboration, learning environment, and leadership (Bernhardt, 2004).

The six dimensions used in this study are described in more detail in the next section, with example citations from research establishing the relevance of each dimension. The SQS has measured the same dimensions since it was revised in 2001. While changes to the individual items occurred during the refinement of the survey, the constructs at the dimension level remained the same (HDOE, 2011b).

Standards-Based Learning measures what is taught, how it is taught, and how assessment is used. This dimension measures the extent to which the school provides a challenging and coherent curriculum that is aligned to state standards. Teachers regularly use assessment to provide students with a variety of opportunities to demonstrate their learning and provide constructive feedback to help students grow. Assessment results are used to monitor and refine instruction (HDOE, 2012).

The indicators regarding curriculum and assessment are consistent with research on the
use of data to guide curriculum, instruction, and assessment. This practice was reported as a common practice in low performing schools that make substantial academic gains (Herman et al., 2008). Research has found that in schools where achievement gaps were narrowed, teachers used data to pinpoint students’ skill gaps, received professional development on analyzing data and linking data to strategies, and collaborated with colleagues (Symonds, 2004).

Quality Student Support refers to a learning climate that promotes high expectations for student learning and behavior. The school is a learning environment where open communication and respect is present among students, teachers, staff, and administrators. The school has an array of student support services including programs for children with unique needs and counseling (HDOE, 2012).

Studies of school climate consistently associate a safe and orderly environment and a culture focused on learning with increases in student achievement (Hoy & Hannum, 1997; MacNeil, Prater, & Busch, 2009; Mosenthal, Lipson, Torncello, Russ, & Mekkelsen, 2004; Stringfield & Teddlie, 1991; Uline & Tschannen-Moran, 2008). Chen and Weikart (2008) found that school disorder has both a direct and indirect effect (mediated by attendance) on student achievement and suggested that school culture has great potential for improving attendance rates and achievement in urban schools. Additionally, academic and non-academic student supports like tutoring and after-school programs have been linked with improved student learning, especially for at-risk students (Lauer et al., 2006).

Professionalism and Capacity of the System is a measure of whether staff development at the school is relevant to standards-based education, and whether teachers are actively engaged in implementing professional development plans to improve student achievement (HDOE, 2012).
These indicators are consistent with research on the instructional capacity of the school, described by Corcoran and Goertz (1995) as “the ability of the system to help all students reach standards” (p. 1). According to Bryk’s (2010) longitudinal study of hundreds of elementary schools in Chicago, one condition that distinguishes improving schools from those that do not improve is that they leverage high-quality professional development within a supportive environment that is driven by a coherent, aligned instructional system.

*Coordinated Teamwork/Leadership* has two components--leadership and resource management. It measures whether teachers can freely express their concerns to leadership, parent participation, teacher involvement in school improvement planning, teacher involvement in the development of the school curriculum, and the extent to which administrators teachers and staff work together to achieve the school’s goals. It also measures how effectively resources are used to meet student needs (HDOE, 2012).

Instructional leadership focuses on the school’s efforts to provide high quality teaching and learning for all students. The role of the principal as the leader who guides and monitors instruction and manages the instructional program has dominated early literature (Bossert & Dwyer, 1982; Hallinger, 2003; Leithwood, 1994). More recently, however, studies have also explored the impact of collaborative leadership (Hallinger & Heck, 2010a), distributed leadership (Spillane, Halverson, & Diamond, 2001), shared leadership (Printy & Marks, 2006), and teacher leadership (Harris & Muijs, 2003; Taylor, Yates, Meyer, & Kinsella, 2011; Thoonen, Sleegers, Oort, & Peetsma, 2012) on student performance. Consistent with findings that there is a positive association between leadership and school quality, coordinated teamwork emphasizes the role of teachers and parents working collaboratively with the principal in shaping and
implementing the school’s goals.

*Responsiveness of the System* relates to the school’s strategies to communicate with parents and the community. Parents have a variety of ways to become involved at the school and are encouraged to communicate with teachers and visit the classroom (HDOE, 2012).

The importance of parent involvement is well established in the literature (Dauber & Epstein, 1989; Jeynes, 2005, 2007). The effects of parent involvement include higher grades and test scores, enrollment in higher-level programs, passing classes, and earning credit (Henderson & Mapp, 2002).

*Focused and Sustained Action* is a measure of program coherence and shared goals. The school clearly communicates its goals to parents and students, involves teachers in the school improvement process, has high standards-based expectations for all students, and coordinates decisions on curricular and instructional practices school wide (HDOE, 2012).

Schools with clearly defined and shared goals (Purkey & Smith, 1983) direct resources toward those goals and continually monitor student and classroom performance to determine whether their goals are being met. In schools where programmatic coherence is high, strategies to support achievement of goals are evident and strategies to buffer and/or bridge external demands with the school’s goals are employed (Honig & Hatch, 2004). Researchers found that a clear and shared mission that focuses on student learning was a factor that all “world class schools” had in common (Jenkins, 1994). This was especially evident in a meta-analysis of socio-economically challenged schools that showed significant improvement (Muijs, Harris, & Chapman, 2004).
Conceptual Framework

The aim of policy research is to bring understanding to complex problems and processes; that is, by helping us order the facts around a coherent explanation that helps us make sense out of the “confusion of reality” (Easton, 1953). Conceptual models help bound inquiries into complex problems and processes by directing our attention to critical features including contextual conditions, institutional arrangements, and strategic actions that influence policy activity and corresponding change (Schlager, 2007). Broadly speaking, policies have been studied from diverse conceptual lenses including rational, structural, and cultural perspectives (Lichbach, 1997). Each perspective tends to focus on different aspects of the policy process.

This study focused on the interaction between the federal policy level, where sanctions are used to drive improvement, and the school level response where changes in quality over time have produced varied effects. It was clear that a lens emphasizing a longitudinal focus was useful, since schools’ NCLB status could change over an extended period of time following its initial implementation. Sabatier (2007) points out that the policy process involves a dynamic set of components that interact over time. As such, understanding the policy process requires an approach that simplifies the complexity of the situation, while honoring the integrity of the relationships that account for the phenomena. Scientific theory requires that the approach articulate propositions that are clear and logically consistent in addition to specifying how relationships vary in accordance with critical variables.

Although there are a number of theories of organizational change that could fit this study, two theories best describe how schools, as organizations, respond to changes in their external environment by making strategic changes to their internal practices: punctuated equilibrium.
theory and institutional rational choice theory.

Punctuated Equilibrium Theory

Punctuated equilibrium theory (Baumgartner & Jones, 1993) draws attention to how temporal conditions can influence policy implementation and impact at a macro level. The focus of punctuated equilibrium theory is on periods of change that can produce considerable departures from the past (True, Jones, & Baumgartner, 2007). It highlights events that prompt disorientation and subsequent reorientation within a system and offers a method of modeling how patterns of change can lead to improved outcomes over time as well as a means of predicting how the departure from past practice may unfold.

The theory draws a distinction between change that is either “episodic” or “continuous” and allows the researcher to model observable patterns of change over time. Episodic change refers to changes that are “infrequent, discontinuous, and intentional” (Weick & Quinn, 1999). This type of change is described as episodic because it occurs in response to external events during distinct periods of time, like a policy sanction. In contrast, continuous change describes changes that are “ongoing, evolving, and cumulative” (Weick & Quinn, 1999, p. 375). Organizations that experience continuous change are more adept at adapting to incremental shifts in context by making smaller organizational corrections or shifts in procedures in response to changing external conditions.

Punctuated equilibrium theory is well suited to the examination of episodic change. Gersick (1991) describes three key components in this paradigm: (1) existence of a deep structure, (2) long periods of equilibrium, and (3) discrete periods of change (revolution). A deep structure is a network of interdependent choices that form the configuration into which a system
is organized. It includes implicit activities that maintain the organization’s existence.

Equilibrium periods are characterized by stability in the system, a period in which the organization carries out its operations and may make incremental changes without altering its deep structure. The third component of punctuated equilibrium theory, the revolutionary period, dismantles the deep structure of the organization for a brief period and comes to a close if and when the organization, recognizing the need for change, finds a basis for a new deep structure.

Several propositions that were derived from the theory were useful in understanding the implementation of NCLB (Heck, 2004). First, it provided an explanation for examining changes resulting from NCLB at the macro level—that is, examining how a large set of schools within the state responded to externally imposed school restructuring. The theory proposed that major policy changes may take longer than a decade to unfold in order for problems and issues to emerge, debates to ensue, policy to be implemented, and its effects to be observed. Second, the theory contended that features of the surrounding environment, the policy itself, and the extent to which policy stakeholders (e.g., teachers) decided to implement planned changes affect the degree to which improvements were realized at the micro (i.e., school) level.

Importantly, for this study, punctuated equilibrium theory drew attention to the assumption that sanctions would interrupt normal conditions, which would then create a strong impetus for failing schools to take strategic actions to address deep-rooted problems that had persisted over time. Punctuated equilibrium, therefore, provided a useful lens for understanding how the complex process of change unfolds in a school by providing a way to observe how a period of equilibrium was disrupted and to examine how schools responded to the discontinuity. The theory emphasizes the volatile and unpredictable nature of the improvement process that is
amplified when a school is under sanctions, a transition period that is often dominated by “cognitive confusion and emotional distress” (Gersick, 1991, p. 28) and a sharp decline in organizational cohesiveness (Klassen, 2009). These patterns of change over time and the factors that resulted in some schools turning from “confusion toward clarity” (Gersick, 1991, p. 28) were the focus of this study.

**Institutional Rational Choice Framework**

Whereas punctuated equilibrium theory illuminates change at the organizational level, institutional rational choice theory (IRC) emphasizes how individuals make choices based on the social structures in which they operate (Elster, 1986). IRC is useful in understanding how actors at the micro level (i.e., within individual complexes and schools) responded to the changing policy context that surrounded them. It can be used to examine how institutional norms, rules, and strategies interact to influence the rational behavior of self-interested individuals (Heck, 2004). More specifically, the framework establishes relationships between concepts, values, and behavior in a way that can help explain how institutional events unfold over time as a result of policy implementation (Heck & Takahashi, 2006). It is also consistent with the notion that schools can engage in strategic action to bring about change even if problems are ill-structured and that local contextual factors can interact with planned strategies in known and unknown ways (Firestone & Corbett, 1988; Louis et al., 1999).

The IRC framework identifies fundamental elements that can be used to explain how processes and decisions within or among levels interact (Polski & Ostrom, 1999). Once a conceptual unit or action arena is defined, it can be used to analyze and explain behavior within these institutional arrangements. The framework, therefore, represents a systematic method for
organizing complex social situations into manageable and measurable activities.

Often the interest in an IRC analysis is to explain how individuals at the micro level respond to policies that are implemented at levels above their normal operating arena. An IRC analysis identifies four types of structural variables that exist in all institutions: a) the action arena, b) variables that affect the action arena such as physical and material conditions in the environment, c) patterns of interaction and outcome, and d) criteria used to evaluate the effectiveness of interactions and outcomes (Ostrom, 2007).

Changes in the environment (such as externally imposed sanctions) are proposed to affect action arenas where individuals are making operational decisions. Action arenas are defined as “spaces” where individuals normally interact with each other.

In this study, the action arena was represented by strategic interactions that took place between stakeholders (e.g., state policymakers, complex administrators, school administrators, teachers, parents) in response to the requirements of NCLB. Their decisions shaped the school level strategies that were used to comply with the demands of the accountability system. This type of action was assumed to be especially relevant for schools in sanctions. For purposes of this study, it was assumed that under NCLB, schools were confronted with policy sanctions intended to drive improvement in school quality. Moreover, this external set of sanctions was assumed to affect discussions and decisions in the school’s action arena regarding variables that could be leveraged for achieving expected academic improvement (e.g., needed curricular changes, teacher professional skills and needed development, strategic actions needed to improve educational processes), patterns in which professionals interact (e.g., whether to engage in school-led improvement, invest in external reform programs, invest in the capacity of the school
to manage multiple external demands coherently and productively), changes in staffing (e.g., replacing the principal, hiring instructional coaches) and the criteria used to monitor and evaluate subsequent changes.

The IRC framework therefore implied that complex organizations (i.e., schools) undertake strategic actions in hopes of avoiding punitive sanctions and/or make improvements that will get them out of sanctions. Of course, it can be challenging to study strategic decisions and actions, since they often take place at different levels within the organization and, as such, these variables are often nested and can interact simultaneously or sequentially (Polski & Ostrom, 1999). Further, institutional decisions are affected by the application of different types of shared understandings, or rules, which govern the actions of the actors (Ostrom, 2007). In schools, many of these rules are not readily accessible or explicit.

Although the focus of this study was not on the discussions and negotiations that took place in the action arena, it was assumed that the quality of the choices stakeholders made can be indirectly monitored by examining the reported changes in school processes provided by their stakeholders (e.g., teachers, parents, and/or students) and any resulting changes in their sanction status. The framework posited that organizations made strategic responses based on available resources, the value assigned to various interventions, the manner in which they used knowledge and information, and the process they used to make decisions (Heck, 2004). The IRC approach, therefore, provided a coherent way to understand the results generated from school-level meetings and discussions about how to structure and implement school-wide educational process changes. Rather than studying the negotiations and decisions directly, the changes in stakeholder perceptions about the quality of key educational processes were used as a means for indirectly
studying how school-level changes over time corresponded with exiting NCLB sanctions. Using IRC as a frame, we may gain insight on how schools strategically leveraged their resources and educational processes to achieve improved outcomes.

This study, informed by punctuated equilibrium theory and institutional rational choice theory, investigated the assumptions that individuals respond to external mandates by engaging in strategic actions and that by measuring these changes over a substantial period of time, we might gain a better understanding of what it takes for policies to be successfully implemented at the local level.

**Research on School Improvement and School Effectiveness**

In this study, it was assumed that some strategic choices represented greater leverage for school improvement than others. Research on school quality provides policymakers, researchers, and educators with resources that can be used to guide school improvement efforts. Two distinct bodies of literature, school effectiveness research and school improvement research, provided sources of empirical results that helped to explain schools’ relative success or failure in response to NCLB sanction status. Creemers and Kyriakides describe school effectiveness research as research that “attempts to establish and test theories that explain why and how some schools and teachers are more effective than others” (Creemers & Kyriakides, 2008, p. 3, location 223). School improvement research, on the other hand, is less concerned about the characteristics that account for the relative differences in effectiveness and, instead, is more concerned with the process of achieving student academic improvement over time. Recently, scholars have been interested in “linking” the two approaches (Teddlie & Reynolds, 2000) to identify the variables that provide leverage in achieving school effectiveness and the pathways that lead to improved
academic outcomes.

School effectiveness and school improvement literature emerged in response to the Coleman Report, which was commissioned by Congress in 1966 to study the lack of equal educational opportunities among racial groups in the United States. One of the report’s major findings was that school factors accounted for relatively little variation in student achievement on standardized tests, after statistically controlling for background characteristics (Coleman, Campbell, Hobson, McPartland, Mood et al., 1966). These controversial findings set in motion an interest in studying schools both from the “features of effective schools” (Ouston, 1999) perspective as well as the “school change” perspective.

Early studies of school effectiveness mainly measured school resources and material inputs, followed by another wave of research (Edmonds, 1979; Gigliotti & Brookover, 1975; Hallinger & Murphy, 1985; Hallinger, 2003; Lezotte, Edmonds, & Ratner, 1974; Maughan, Pickles, Rutter, & Ouston, 1960; Rutter & Maughan, 2002; Weber, 1971) that included school process variables such as school organization, culture, and educational technology (Scheerens, 1991). These studies confirmed the importance of school effects, both at the classroom and school level, and consistently associated school characteristics with positive achievement. From early research on effective schools, five factors or correlates of effective schools emerged. These included strong educational leadership, an emphasis on the acquisition of basic skills, an orderly and secure environment, high expectations of pupil attainment, and frequent assessment of pupil progress (Scheerens, 2004). These correlates formed a strong basis for subsequent research that established the association between school quality and school outcomes (e.g., Teddlie & Reynolds, 2000).
While school effectiveness research was primarily focused on identifying school quality indicators that influence school effectiveness, another research literature emerged that focused on changes in organizational processes that can lead to school improvement. Building upon earlier findings that organizational change was a complex undertaking which involved leadership support, involving stakeholders in decision-making, and the role of the social and organizational context of the school (Firestone & Corbett, 1988), a new line of research began to focus on case studies of improvement beginning in the 1980s. Case studies were useful in uncovering qualities that characterized the work of successful schools (Hopkins & Ainscow, 1993; Houtveen & Osinga, 1995; Maughan & Mortimore, 1980; Mulford & Silins, 2003; Stoll & Fink, 1992; Stringfield, 1995; Visscher & Witziers, 2005) and highlighted the need for researchers to consider links to context (Hallinger & Heck, 2011; Teddlie & Reynolds, 2000) when developing school improvement models. These included the socioeconomic background of the school community, the extent to which the school is effective for all students, the school’s geographic context, historical and sociological factors, and how the school is organized (Teddlie & Stringfield, 1993). The studies provided an “up close” glimpse of changes that fostered school improvement. The highly contextualized nature of the case studies, however, limited their generalizability, making it difficult to find qualities that would work under an assortment of conditions. According to Heck and Hallinger (2014), although case studies and cross sectional research designs have comprised most of the research on school improvement, they “cannot, by themselves, build a sound knowledge base in school improvement research, policy, and practice” (p. 655). This requires longitudinal designs. As such, more recent school improvement literature has refined the inquiry to take a more “development” oriented (Mulford & Silins, 2003, p. 6),

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“improvement journey” (Hallinger & Heck, 2011, p. 1) or “path” (Heck & Hallinger, 2014, p. 1) approach to measuring change at different levels (e.g., school, leadership, teacher, student). Using more sophisticated modeling to capture the complex nature of school improvement, these studies attempt to integrate longitudinal, multi-level, contextualized approaches (Hallinger & Heck, 2010a, 2011; Heck & Hallinger, 2014).

The longitudinal approach makes slightly different assumptions about how one defines and measures schools’ progress; specifically, instead of making observations at one point in time and attempting to make statements about the school’s quality or effectiveness, repeated observations are made over a long period of time and the changes in the school’s processes and outcomes are monitored. For studying improvement among a large set of schools, a longitudinal design is preferable over other types of designs, since it is consistent with the view that it can take years for patterns of change to emerge (Heck & Hallinger, 2014). The notion of school improvement as a journey is more consistent with the longitudinal approach used in this study to monitor schools’ efforts to emerge from NCLB-imposed sanctions.

**Summary**

The theoretical and empirical literature that frames this study provides a way for researchers to study how national educational policy influences the work of states and their public schools. Understanding the extent to which policy reaches its intended targets is of utmost importance to policymakers, educators and taxpayers, given the $14 billion of public funds being targeted at improving school quality under NCLB each year (U.S. Department of Education, 2014).

Hawaii’s policy environment and unitary system provided a favorable context for
examining NCLB. Unlike states where developing NCLB’s state-level accountability system required extensive coordination over multiple school district systems, Hawaii already had a single, coordinated system in place that was accustomed to executing statewide policies. In fact, by the time NCLB was adopted, statewide standards had been in place for several years and had undergone a review by the state’s Performance Standards Review Commission (Brown, 2009). While geographic proximity was a challenge for the state, its relatively small size made it manageable for this study to include all of the state’s 48 restructured elementary schools.

Within this context of examining the relative worth of the restructuring provision in NCLB, the IRC framework along with punctuated equilibrium theory provided a way to frame the complex problems and processes associated with policy implementation by focusing on the interactions that occurred when the intent of federal policy was to drive school improvement. Punctuated equilibrium theory provided an explanation of how periods of equilibrium and stability were disrupted by an external event such as policy-driven sanctions. It also highlighted the journey that ensued when schools made strategic changes over time in order to improve performance. These strategic process changes could then be examined through an IRC lens, which focused attention on the hypothesized patterns of interactions that took place within a school over time in response to external events and the resulting outcomes.

Finally, from research on school effectiveness and improvement, different approaches for measuring school quality have emerged ranging from early studies of indicators and processes associated with school effectiveness to more recent longitudinal studies that approach improvement as a journey. This research was useful in providing a conceptual background for the measures used in this study.
CHAPTER 3

METHOD

This chapter summarizes the design and conduct of the study. The overall research goal was to examine whether the restructuring provision in NCLB had an impact on its intended targets—schools that repeatedly failed to meet annual performance targets. The first part of the chapter summarizes the study’s design. The second part details the set of schools and sources of data included in the sample data. The third part discusses the variables included in the analyses. The last part of the chapter presents the mathematical models used to test the propositions proposed in Chapter 1.

Design

To answer the first question, "Are there differences in school process trajectories (patterns of growth in achievement over time) between elementary schools that do not enter restructuring and those that do?" I examined how changes in schools’ educational process indicators related to schools’ entering and/or exiting restructuring status. A time-series design was developed to examine whether individual school process indicators (e.g., Standards-Based Learning, Quality Student Support, Coordinated Teamwork) were disrupted in hypothesized ways by entering NCLB-imposed restructuring sanction status. The working hypothesis was that entering restructuring likely accompanied lower teacher perceptions about the quality of key school educational indicators. Perceptions of process indicators of a subset of restructured schools were then proposed to change again if planned interventions were positively associated with exiting sanction status. The second question, "What pattern of process and context variables best accounts for differences in schools that are not restructured, restructured without exiting,
and restructured then exited?" examined whether observed changes in process indicators were useful in classifying schools according to their restructuring status, after controlling for their staffing and contextual indicators.

*Time-Series Design*

The first part of the analysis examined changes in schools’ educational process indicators resulting from entering versus not entering restructuring status. One type of design useful in examining repeated observations is a longitudinal, time-series design. The essence of a time-series design is the presence of periodic measurements and the introduction of a treatment condition into this time series (Cook & Campbell, 1979). The introduction of the treatment, in this case, NCLB restructuring status, was expected to produce a discontinuity in the series of measurements on key school educational quality indicators at some hypothesized time interval after its introduction. In this case, the treatment condition was whether or not a school entered restructuring status. Because there were three possible groups of schools (i.e., those that did not enter restructuring, those that entered restructuring and did not exit, those that entered restructuring and exited), there were three possible types of school trajectories. The dependent variable in each case was the change in teacher perceptions of school-level process indicators over the length of the study (e.g., the implementation of professional development). For example, the restructuring status of three groups of schools over time can be summarized as follows:

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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Restructured</td>
<td>0</td>
<td>0</td>
<td>X₁</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Exit Restructuring</td>
<td>0</td>
<td>0</td>
<td>X₁</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>X₂</td>
<td>0</td>
</tr>
</tbody>
</table>

48
The first group of schools (Control) was randomly selected from elementary schools that were not restructured during the course of the study. The second group (Restructured) included all elementary schools that entered restructuring at some point during the study but did not exit. The point where each school entered (X₁) can be at any year during the study. The third group (Exit Restructuring) included all elementary schools that entered restructuring (X₁) at some point in time, but then also exited (X₂) at some later time point during the study. The year when each school entered restructuring as well as the year when a subset of schools exited restructuring was coded directly into the dataset to reflect the timing of these different events. This coding system provided a means of examining how entering (and possibly exiting) sanctions affected key school educational processes (e.g., leadership, curriculum, focused and sustained action). As would be expected, each school’s improvement trajectory for each educational process indicator, was somewhat different from other schools in the group, as well as other groups of schools, depending on when it entered restructuring, how long it was in restructuring, and whether it was able to emerge from restructuring at some later point in time.

Threats to Internal Validity

The time-series design is a sound quasi-experimental design, provided that threats to internal validity can be successfully argued away (Campbell & Stanley, 1966). As Campbell and Stanley note, the problem of internal validity concerns whether plausible alternative explanations can be argued away. Primary threats to time-series designs include instrumentation, testing, and history. In this case, instrumentation and testing effects can be argued away more easily, since the data collection utilized the same variables from teacher surveys, and there was no repeated testing on individuals (e.g., as in the case where individuals in treatment and reference groups
might receive the same math test on repeated occasions to measure their achievement progress).

Threats due to history are a potential problem in most time series designs. This might include changes in norms or values, or some other external event, that may correspond with the policy’s introduction, especially if there is only one treatment group being examined in the time series. This potential problem, however, is minimized by having three groups of schools in the study (i.e., a reference group that did not enter restructuring, a group that entered but did not exit restructuring and a group that entered and exited restructuring) and taking into account both the (a) changes in individual school’s processes over time, and (b) differences in patterns of change between the groups. Moreover, the unique timing of each event differs for the individual schools within each group, which reduces the chance that an alternative event of some type would be exactly timed with the pattern of sanction events in each individual school. As Campbell and Stanley (1966) suggest, to reduce the threat of history as a rival explanation, it is important for the researcher to explain in advance the expected relationship between the implementation of the policy treatment and the manifestation of an effect. In this case, first, it is assumed that entering sanctions will produce negative regression coefficients for each indicator, which suggests that teacher perceptions will fall in response to the restructuring event. Second, it is assumed that for schools that exit restructuring, teacher perceptions will reach a “turning point,” that is, a second regression coded into the group of schools that exited sanctions will be positive, indicating teacher perceptions of each process begin to rise as the school undertakes strategic action to improve its educational processes in ways that lead to improved outcomes and exiting restructuring status.
Data Sources

Schools Selected for the Study

In Hawaii, the comprehensive set of publicly-available school process, performance, and context data provided an opportunity to study school improvement under NCLB over a ten-year period. From 2002, when NCLB was enacted, 106 public schools entered into restructuring in Hawaii. Of the 177 schools serving elementary students, 48 entered restructuring (27.1%), and of those schools that entered restructuring, 27 (56.3%) exited. Due to the high number of high schools and middle schools entering restructuring but not exiting, secondary schools were excluded from this study. Elementary schools, therefore, were the only schools that provided adequate group sample sizes and variation to define three sizable groups consisting of approximately equal numbers of schools.

The sample was drawn from all regular public schools that serviced elementary level (kindergarten to Grade 6) students in Hawaii. Although charter schools are considered public schools, they were not included in the study because the majority of charter schools do not administer the school quality survey. One restructured school, the Hawaii School for the Deaf and Blind (HSDB) was also excluded from the study because of the specialized nature of this K-12 school’s instructional program. More specifically, nearly 99% of the students at HSDB receive special education services.

Seventy-four elementary schools were included in the final sample. Forty-eight of the schools were identified as entering restructuring under NCLB from the 2002-2003 school year to the 2011-2012 school year. To enter restructuring, a school failed to make AYP for six consecutive years. The 41 restructured schools that received Title I funding prior to NCLB were
required to carry over the previous year’s AYP status that had been calculated under a prior accountability system (HDOE, 2003b). For the 24 non-Title I schools in the study, NCLB status was first determined by AYP results from the 2003 school year. The first year that a non-Title I school could enter restructuring was 2009. From 2003 to 2008, all of the schools entering restructuring were Title I schools. To exit restructuring, a school was required to meet AYP for two consecutive years. Table 3.1 shows the number of schools that entered restructuring by year and the total number of schools that were in restructuring each year.

### Table 3.1. Schools Entering and Exiting Restructuring by Year (HDOE, 2013b)

<table>
<thead>
<tr>
<th>Year</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schools entered</td>
<td>0</td>
<td>16</td>
<td>11</td>
<td>8</td>
<td>0</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Schools exited</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>8</td>
<td>1</td>
<td>2</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>Total in restructuring</td>
<td>0</td>
<td>16</td>
<td>27</td>
<td>33</td>
<td>29</td>
<td>26</td>
<td>28</td>
<td>27</td>
<td>21</td>
<td>21</td>
</tr>
</tbody>
</table>

A reference group of 26 elementary schools was randomly selected from a total group of 129 schools which were not restructured from 2003-2012. The restructured schools included in the sample included all those schools that went into restructuring during the same 2003-2012 period. Preliminary tests of the power to detect mean differences in the changes in SQS indicators over time were performed using SPSS across the 74 schools (power = 1.0). With an anticipated small effect size of approximately 0.25 due to group membership on the ten repeated measures of each school indicator over time (power = 0.89), the sample size of schools exceeds the recommended power threshold (i.e., power = .80) to provide adequate power to detect relevant effects should they exist in the population (Stevens, 2009).

**School Performance, Process and Context Data**

Three sets of measures were used in the study: NCLB sanction data, school process data,
and school context data. All school data used in the study were collected from the Hawaii DOE website. The Department is required to publish annual school “report cards” as well as a statewide summary report on each school’s status and improvement. In addition to these reports, the HDOE publishes the results of the annual School Quality Survey. These data are publicly available from the Accountability Resource Center Hawaii website (HDOE, 2013b).

Table 3.2. Publicly Available HDOE Data Used in the Study 2003-2012

<table>
<thead>
<tr>
<th>Measure</th>
<th>Dataset</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Performance</td>
<td>No Child Left Behind Report by School</td>
<td>NCLB Status, AYP Status,</td>
</tr>
<tr>
<td>School Processes</td>
<td>School Quality Survey Teacher Responses</td>
<td>SQS Dimension A: Standards-Based Learning</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SQS Dimension B: Quality Student Support</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SQS Dimension C: Professionalism and Capacity of the System</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SQS Dimension D: Coordinated Team Work</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SQS Dimension E: Responsiveness of the System</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SQS Dimension F: Focused and Sustained Action</td>
</tr>
<tr>
<td>School Context</td>
<td>Trend Report: Educational and Fiscal</td>
<td>10 year average of free/reduced lunch, percent licensed teachers,</td>
</tr>
<tr>
<td></td>
<td>Responsibility</td>
<td>average years teacher experience, percent of teachers with 5+ years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>at school, percent of SPED students, percent of ELL students, school</td>
</tr>
<tr>
<td>School Context</td>
<td>DOE Directory</td>
<td>Principal name by year</td>
</tr>
</tbody>
</table>

**Variables in the Model**

The variables in the conceptual model recognized that policy interactions take place at different levels and that analyses can include policy processes and decisions within a particular level or among several levels at the same time (Heck, 2004). The model included fundamental elements (e.g., context variables, processes indicators and actions undertaken to help the school exit restructuring status) that can be used to analyze outcomes (Ostrom, 2007).
Independent Variables

The independent variables were the structural variables that affect the actions that take place in the school. These major structural variables are present in all institutions (Ostrom, 2007). There were two primary sets of variables considered in the model.

Contextual variables and school characteristics. Key individuals influence or are influenced by the actions that take place in the school, regardless of whether they participate in the action. The IRC framework recognizes that individual action within institutions takes place within a social context; that is, interactions within a school take place between administrators, teachers, and students (Aligica & Boettke, 2009). For the purposes of this study, school context

Figure 3.1. Conceptual Model of Hawaii’s Policy and School Context
(number of students enrolled for the full year, Title I status), student composition (percentage of students receiving free and reduced lunch, students receiving English language services, students receiving special education services), staff composition (percentage of licensed teachers, average years of teaching experience, percentage of teachers with five or more years at the school), and principal turnover (number of changes in school’s principal) were selected based on existing evidence that these factors influence student learning (Hallinger & Heck, 2011).

*Educational process variables.* Within schools, patterns of interactions between administrators, teachers, and students produce outcomes. I measured these patterns of interactions by examining changes in teacher responses over time on six dimensions of school quality that comprise the nine dimensions of the Hawaii School Quality Survey (SQS). The survey was administered by the Hawaii Department of Education in 2003 and 2005 and annually from 2007. All items are measured on a Likert-type scale (1=strongly agree to 5=strongly disagree) and contain items from the Hawaii HDOE’s comprehensive needs assessment and accreditation requirements. The six dimensions used in this study are Standards-Based Learning (e.g., curriculum, instruction, assessment), Quality Student Support (e.g., environment, student support services), Professionalism and Capacity of the System (e.g., staff, professional development), Coordinated Teamwork/Leadership (e.g., leadership, resource management), Responsiveness of the System (e.g., parent/community engagement, public responsibility and accountability), and Focused and Sustained Action (e.g., vision/mission, culture of continuous improvement). The process variables were reverse coded to indicate the percentage of respondents who agreed or strongly agreed with each item that comprised each process indicator.

From Hallinger and Heck (2011), the subscale alphas (a measure of the reliability of each
scale, with alphas of 0.80 or above generally indicating adequate reliability) and items comprising each of the SQS dimensions used in this study were as follows: Standards-Based Learning ($\alpha = 0.91$), Quality Student Support ($\alpha = 0.85$), Professionalism and Capacity of the System ($\alpha = 0.80$), Coordinated Teamwork/Leadership ($\alpha = 0.82$), Responsiveness of the System ($\alpha = 0.88$), and Focused and Sustained Action ($\alpha = 0.83$). See Appendix A for a summary table of SQS means and standard deviations.

**Research Question #1: Are there differences in school process trajectories between elementary schools that do not enter restructuring and those that do?**

The first research question examined whether there were differences in school process trajectories between elementary schools that do not enter restructuring and those that do. The independent variable was the school restructuring status and the dependent variable was the school process trajectories.

*Schools’ Restructuring Status (Independent Variable)*

There were three categories that were proposed to affect changes in schools’ individual process trajectories over time: schools that did not enter restructuring status were coded as 0; schools that entered restructuring status but did not exit restructuring status were coded as 1; and schools that entered and later exited restructuring status were coded as 2.

*School Process Trajectories (Dependent Variable)*

In the first part of the analysis, each indicator was examined with respect to changes occurring as a result of schools’ restructuring status. The dependent variable in each SQS model consisted of the repeated measures of each of the six school process indicators over the ten years of the study ($Y_1$-$Y_{10}$). The outcome that was represented by these changes over time formed a
trajectory that was used to examine differences between schools that do not enter restructuring and those that do. This provided a means to examine how entering sanctions (and possibly exiting) affected schools’ processes.

**Research Question #2: What pattern of process and context variables best accounts for differences in schools that are not restructured, restructured without exiting, and restructured then exited?**

The second research question examined patterns of process and context variables that best accounted for differences in schools that 1) did not enter restructuring, 2) entered restructuring and did not exit, and 3) entered restructuring and did exit. In this part of the study, the independent variables were patterns of school process and context variables.

**Change in School Processes and Context (Independent Variables)**

*Change in school processes.* Since the data suggested there were strong correlations between the individual process variables, the second part of this analysis necessitated creating a variable that incorporated the contribution of each school’s six process indicators. The “weighted” Process Change score (Mean = 0, Standard Deviation = 1) represented a weighted combination of predicted change, developed through principal components analysis of each indicator estimated from the first analysis. This provided a means of assessing which indicators contributed more (or less) to defining the Process Change factor by examining the strength of their factor loadings (with loadings of 0.9 indicating a strong relationship between the individual indicator and the Process Change factor). It was expected that the weighted process factor would contribute to separating schools into their respective groups with respect to sanction status, after controlling for the effects of several context and staffing variables.
Context and staffing variables. Context and staffing variables refer to the environmental and organizational properties that affect a school’s capacity for improvement (Hallinger & Heck, 2011). In this analysis, these variables included student enrollment (i.e., number of students enrolled for the full year), student composition (i.e., percentages of students receiving free and reduced lunch, students receiving English language services, and students receiving special education services), Title I school status (defined as Title I school coded 1, else coded 0) staff composition (i.e., percentage of licensed teachers, percentage of teachers with five or more years at the school, average years of staff teaching experience, and principal turnover (number of changes in school’s principal). All indicators (except Title I school and principal turnover) were standardized (mean = 0; standard deviation =1).

Restructuring Category (Dependent Variable)

The dependent variable was the restructuring category. In this analysis, multinomial logistic regression was used to examine the differences between the three groups according to changes in their educational processes over time, after controlling for their context and staffing controls.

Analyses

The analyses were conducted in two steps, corresponding with the two research questions. The first step examined how schools’ educational processes might change over time due to entering restructuring status. This first analysis was conducted using multilevel growth modeling. The second step was to classify schools according to the changes in their educational processes, staffing, and contextual variables using multinomial logistic regression.
Examining Schools’ Process Trajectories

A two-level piecewise growth model was used to examine schools’ process trajectories. One can formulate a piecewise growth model to test hypotheses about how schools’ key educational processes may change as a result of entering (or not entering) restructuring. This type of model can specify the timing of events of interest such as when schools entered restructuring and, subsequently, whether those schools that entered restructuring managed to exit. For the initial analysis, the assumption was made that the effects would be seen immediately after a school’s change in status; however, it is possible to also investigate lagged (or delayed) effects (Heck, Thomas, & Tabata, 2013). At Level 1, which described changes within schools, educational processes were examined by defining a school’s individual growth trajectory and random error. The repeated measurements of the process indicators (Y) were considered to be nested within each school. At Level 2, which examined changes between schools, the set of predictors was added to explain variability in the model’s growth parameters.

Following Raudenbush and Bryk’s notation (2002), two subscripts were used to describe individual schools (i) and occasions of measurement (t). It was assumed that the observed status of the school process indicator \( Y_{it} \), at time \( t \) for individual school \( i \) was a function of a systematic growth trajectory plus random error. The basic model included one intercept describing the school’s initial status at the beginning of the study, and up to three time-related growth trends. The first trend (Time) described changes in each indicator before schools entered restructuring. In the reference group that did not enter restructuring, this trend (Time) described the 10-year period spanning this study. All 74 schools were included in this growth trend (i.e., both the reference group and the schools that eventually entered restructuring during the time before they
entered restructuring status). The second growth trend described the changes that took place for the 48 schools that entered restructuring (Restructuring). The third trend (Turning Point) described the period of time when the group of 26 schools began to meet AYP targets and eventually exited. The outcome at time \( t \) for school \( i \) was then predicted as:

\[
Y_{it} = \beta_{0i} + \beta_1 \text{time}_{it} + \beta_2 \text{restructuring}_{it} + \beta_3 \text{turningpoint}_{it} + \epsilon_{it}
\]  

(3.1)

where \( \beta_{0i} \) was the initial status intercept, \( \beta_1 \) described the rate of yearly change in the outcome for schools that were not in restructuring and for schools that eventually entered restructuring before they did so, \( \beta_2 \) described the rate of yearly after the school entered restructuring, \( \beta_3 \) described the rate of yearly change after schools exited restructuring, and \( \epsilon_{it} \) represented variation in estimating growth within schools. Because the first observation was coded as 0, the intercept parameter \( \beta_{0i} \) was interpreted as the school’s true score at initial status (or the beginning) of the study. A quadratic effect (Time\(^2\)) was also tested in Equation 3.1 but found to be not significant. This examined whether there was a change in the rate of change (i.e., slowing or speeding up). Hence, the final models are linear piecewise growth models.

At Level 2, variability in schools’ educational process trajectories was examined by adding random coefficients. The variability in schools’ initial status intercept was specified as randomly varying in size (Eq. 3.2). The between-school model for initial status intercepts was specified as follows:

\[
\beta_{0i} = \gamma_{00} + u_{0i},
\]

(3.2)

where \( \gamma_{00} \) was the average initial status intercept for the sample of schools in the study and \( u_{0i} \) represented variability in initial status intercepts. The variability in the average change rates for
schools that did not go into restructuring status \( u_{1i} \), and after they entered \( u_{2i} \), may also be specified as random effects at Level 2 of the model as summarized in Eq. 3.3 and Eq. 3.4.

\[
\beta_{1i} = \gamma_{01} + u_{1i} \\
\beta_{2i} = \gamma_{02} + u_{2i},
\]

where \( \beta_1 \) and \( \beta_2 \) represent the average slope coefficients describing change over time for schools not in restructuring and the possible change experienced for schools entering restructuring. It turned out, however, that the size of the average growth rates did not vary randomly across schools, so the growth variance parameters were fixed between schools (i.e., the \( u \) terms in Eqs. 3.3 and 3.4 were fixed to 0 by removing from the models). Similarly, the last growth parameter (\( \beta_3 \)) was also treated as fixed between schools (not randomly varying) since it was found to not vary between schools:

\[
B_{3i} = \gamma_{03}.
\]

Equations 3.3-3.5 implied that changes in schools’ processes over time may be explained by their restructuring status at a given point in time. The predicted changes in each school process indicator were saved in the dataset. These estimates were then used in the second set of analyses to examine which school process and contextual indicators best separated the three groups of schools according to their restructuring status. The first part of this analysis necessitated creating a school process factor score (Process Change) that would incorporate the contribution of each school’s six process indicators to create the average “weighted” Process Change score (Mean = 0, Standard Deviation = 1). A factor score was needed since when the dimensions were added separately into the model, an output-warning message suggested the
separate indicators were multi-collinear (i.e., indicating redundancy due to strong correlations) when used separately.

Identifying Schools’ NCLB Restructuring Status by Their Processes and Context Variables

Multinomial logistic regression was then performed to examine the differences between the three groups of schools according to changes in their educational processes over time and taking into consideration their context and staffing controls. This type of analysis is used to investigate an outcome with multiple, unordered categories. For this analysis, a Process Change factor score was used to estimate the weighted contribution of each individual process indicator to each school’s average change over time. The weighted process factor and the context and staffing variables were then used to identify differences in the three groups of schools. Comparisons were then made between the reference group (schools that did not enter restructuring) and: a) schools that exited restructuring, and b) schools that did not exit restructuring. The model was then tested to see how well it was able to classify schools into their correct groups.

Following Heck et al. (2013), for a multinomial distribution, the total number of outcome categories can be denoted as $C$, and each individual category can be indexed by $c$ such that the probability of being in the $c^{th}$ outcome category $P(Y = c)$ is $\pi_c$ ($c = 1, 2, \ldots, C$). The cumulative probabilities of each possible outcome ($\pi_1, \pi_2, \ldots, \pi_C$) can be expressed such that their sum is one (1.0). The last category is usually the reference, so there will actually be $C-1$ equations to be estimated. In this case there were two sets of estimates since there were three categories of schools. The subscript $c$ is needed, however, because it is likely the model parameters would differ dependent on the outcome category being modeled. The probability of membership in one
of the other categories is compared against the probability of being in the reference category. The basic multinomial regression model can be specified as follows:

\[ \eta_c = \ln(\pi_c / \pi_C) = \beta_{0c} + \beta_{1c} \text{process} + \beta_{2c} X_2 + \cdots + \beta_{pc} X_p \]  

(3.6)

where \( \eta_c \) is the log odds obtained by taking the natural log of the ratio of the probability of the school being in category \( c \) (i.e., either the group of schools entering restructuring or the group exiting restructuring) versus the reference category \( C \) (i.e., the group of schools that did not enter restructuring), \( \beta_{0(c)} \) are the intercepts for each set of estimates, \( \beta_{1c} \) are the Process Change coefficients for each set of estimates, and \( \beta_{2c} \) through \( \beta_{pc} \) represent the coefficients for the set of context and staffing controls in the final model.

The suitability of the model in identifying schools in each category was assessed by examining the proportion of schools correctly classified into their appropriate restructuring categories. For comparative purposes, if there were the same number of schools in the three groups, the proportion of correctly classified schools would be expected to be about 33% (i.e., one out of three) by chance alone. A correct classification rate of 67%, therefore, would represent a 50% increase over chance alone. In this case, the numbers in each category are slightly different, with 35% of the sample schools in the non-sanction category, 28% in the non-exit category, and 36% that exited. Roughly speaking, however, a classification rate of approximately 67% still would provide considerable evidence of the predictive model’s usefulness. Schools’ context, school characteristics and changes in their educational processes will be used to classify schools into their appropriate restructuring categories.
CHAPTER 4

RESULTS

This chapter describes the results from the analytical procedures used to answer the research questions. First, a predictive model was developed to examine the growth trajectories on each of the six SQS indicators for the three groups of schools over time. Second, multinomial logistic regression was used to identify a set of process and context indicators that best describes differences between the three groups of schools regarding their school improvement journeys.

First Research Question

The first part of the analysis focused on developing a predictive model that described the change in each school process indicator over a ten-year period. More specifically, the purpose was to determine whether changes in the trajectories of schools’ educational process indicators could be tracked over time and whether they diverged in expected ways. This first set of analyses utilized a multiple-group “time series” design, where groups were measured before and after a type of intervention took place. The essence of a time series design is the presence of periodic measurements and the introduction of a change into the time series of measurements (Heck et al., 2013). The introduction of the treatment was expected to produce a discontinuity in the measurements after its introduction.

Table 4.1 presents the results of the six individual analyses of the educational process indicators. As specified in Chapter 3, four fixed-effect parameters were used to represent change in each process indicator associated with the three groups in the study. The first parameter was schools’ true Initial Status, or mean level of each indicator at the beginning of the study prior to the restructuring sanction event taking place in 2003 (i.e., referred to as Time 0). The metric in
the table was the percentage of teachers in the school who strongly agreed or agreed with the quality of each indicator as implemented in their school. The second parameter was referred to in the table as Time, which summarized the change in the percentage of each indicator per measurement occasion in schools that either did not enter restructuring or before they entered restructuring. This can be described as the normal, or untreated, change in educational processes that teachers perceived over time. The third parameter is the length of time schools were in restructuring (Years Restructuring). This variable indicated the change in percentage for each process indicator occurring for schools that entered restructuring at some point during the study. The fourth parameter (Turning Point) captured any possible change in trajectory (e.g., anticipated to be a turn from negative to positive) for schools that eventually exited restructuring status.

Table 4.1. Estimates of Piecewise Growth Trajectories for Each SQS Indicator

<table>
<thead>
<tr>
<th></th>
<th>SQS-A</th>
<th>SQS-B</th>
<th>SQS-C</th>
<th>SQS-D</th>
<th>SQS-E</th>
<th>SQS-F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Initial status</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>1.14*</td>
<td>0.58*</td>
<td>2.03*</td>
<td>0.02</td>
<td>1.80*</td>
<td>0.94*</td>
</tr>
<tr>
<td>Years Restructuring</td>
<td>-0.49*</td>
<td>-0.87*</td>
<td>-0.74*</td>
<td>-0.91*</td>
<td>-0.63*</td>
<td>-0.62*</td>
</tr>
<tr>
<td>Turning point</td>
<td>0.57*</td>
<td>1.10*</td>
<td>0.94*</td>
<td>1.38*</td>
<td>0.31</td>
<td>1.27*</td>
</tr>
</tbody>
</table>

|                      |         |         |         |         |         |         |
| **Covariance Parameters** |         |         |         |         |         |         |
| Year1                | 43.83*  | 97.44*  | 119.91* | 127.33* | 148.23* | 98.10*  |
| Year2                | 33.93*  | 88.00*  | 164.57* | 149.06* | 171.70* | 51.57   |
| Year3                | 23.94*  | 81.21*  | 121.67* | 141.92* | 224.29* | 84.13*  |
| Year4                | 12.41*  | 74.69*  | 88.17*  | 131.17* | 127.93* | 52.19*  |
| Year5                | 11.94*  | 40.63*  | 89.70*  | 91.87*  | 138.53* | 73.08*  |
| Year6                | 12.39*  | 52.95*  | 106.15* | 73.95   | 237.70* | 56.15*  |
| Year7                | 27.69*  | 90.76*  | 174.70* | 233.61  | 234.14* | 94.40*  |
| Year8                | 31.63*  | 186.72* | 56.77*  | 308.89* | 15.28*  | 122.39* |
| Rho                  | 0.24*   | 0.35*   | 0.41*   | 0.30*   | 0.60*   | 0.24*   |
| Level 2              | 17.07*  | 63.42*  | 24.53*  | 61.81*  | 15.92*  | 58.66*  |

*p < .05
The results in Table 4.1 (and the accompanying predicted values in the following set of figures) suggest that the specified models were useful in capturing process changes in schools in expected ways. First, the initial status mean for each indicator represents the average level of each indicator in the set of schools before they entered restructuring. The highest mean was the percentage of teachers who agreed or strongly agreed that their schools were implementing standards-based learning (SQS-A Mean = 83.05). This implies that, on average, teachers believed their schools were doing quite well regarding implementing standards. The lowest mean (71.71) was for SQS-C (Professionalism and Capacity of the System). Other means were between 74.10 and 77.99, indicating that teachers on average believed their schools had relatively high quality educational processes prior to entering restructuring.¹

Second, the Time parameter describes the predicted change from initial status in the reference group of schools that did not enter restructuring, as well as the predicted change in the two groups of schools that entered restructuring prior to entry. The table suggests schools on average made small gains on each indicator, ranging from 0.02 Coordinated Teamwork/Leadership (SQS-D), which was not statistically significant ($p > .05$), to 0.58 on Quality Student Support (SQS-B), 0.94 on Focused and Sustained Action (SQS-F), 1.14 on Standards-Based Learning (SQS-A), 1.80 on Responsiveness of the System (SQS-E), all of which were statistically significant ($p < .05$). These results imply that schools that did not enter

¹ These means are consistent with other studies using Hawaii SQS data from teachers (e.g., Heck & Hallinger, 2009; Hallinger & Heck, 2011). The reported alpha coefficients for the items comprising the SQS indicators were 0.91(SQS-A), 0.85(SQS-B), 0.80(SQS-C), 0.82(SQS-D), 0.88(SQS-E), and 0.83(SQS-F). Heck and Hallinger reported strong stability of the indicators over measurement occasions. Questionnaire return rates for teachers during the period studied ranged from 73% to 79%.
Restructuring were perceived by their teachers as making slight improvements over time on all indicators but one (Coordinated Teamwork/Leadership). Similarly, the results also imply that schools that entered restructuring were perceived as improving by their teachers prior to entering restructuring.

The third parameter in Table 4.1 refers to the change in each SQS trajectory for schools that entered restructuring. More specifically, Years Restructuring captures the average change in each indicator from the year when each school entered restructuring. The table suggests that once schools entered restructuring, they showed a statistically significant ($p < .05$) decline in every SQS indicator ranging from -0.49 (Standards-Based Learning, SQS-A) to -0.91 (Coordinated Teamwork/Leadership, SQS-D). For schools entering restructuring, the largest perceived change was a declining perception of the school’s leadership processes. One possible explanation is that restructured schools were required to implement an alternative governance model. In some cases, restructuring may have led to a transfer of leadership to external providers or to the complex area staff. According to a HDOE report to the Hawaii State Legislature on NCLB-restructured schools, part of the department’s $5 million appropriation was used to provide “intensive leadership training” to restructured schools (HDOE, 2010). Strengthening leadership in restructuring schools was a state priority.

Finally, the fourth parameter in Table 4.1, Turning Point, indicates that schools that exited restructuring experienced a rise in teachers’ perceptions of every process indicator when the school met AYP for the first of two consecutive years. This rise, which ranged from 0.57 on Standards-Based Learning (SQS-A) to 1.38 on Coordinated Teamwork/Leadership (SQS-D), was statistically significant ($p < .05$) for all indicators except Responsiveness of the System.
(SQS-E). This suggests that positive perceptions of process changes were associated with schools’ improved performance as they met AYP for the first and second consecutive years prior to exiting restructuring. The most dramatic increases were in Quality Student Support (SQS-B), Coordinated Teamwork/Leadership (SQS-D), and Focused and Sustained Action (SQS-F), suggesting that these processes experienced the greatest gains once schools started to show growth in student achievement.

In Table 4.1, the variance components provide the relative variance in each measure for each repeated measurement occasion within schools, as well as the variance in the initial status of each indicator at the school level. For some indicators, the variances were relatively similar across all time points, while others had somewhat different trends. For example, with Standards-Based Learning (SQS-A), the occasion variance was larger at the beginning (Year 1 and Year 2), then as more schools went into restructuring, there seemed to be less variation present (Years 4, 5, and 6). Then toward the end of the study, there was more variation present again (i.e., in Year 7 and Year 8). The level-2 variance estimate for each indicator suggests that the level of initial status implementation for each indicator, as perceived by teachers in the schools, was significantly different, as might be expected. Finally, rho summarizes the average correlation between year-to-year measures. For Standards-Based Learning, it was 0.24, which was relatively weak. In contrast, there was a much stronger correlation on Responsiveness of the System of 0.60 across time and a moderate correlation (0.41) for Professionalism/Capacity of the System.

The pattern of results in Table 4.1 provides preliminary evidence of the model’s validity in capturing changes in teacher perceptions of the set of educational indicators in explaining schools’ status relative to school restructuring over time. More specifically, the results indicated
that schools that did not enter restructuring experienced less growth and greater stability in each indicator over time. In contrast, schools that entered restructuring but did not exit experienced steadily declining (negative) trends in each indicator over time. As expected, schools that exited restructuring showed a statistically significant upward trend for each indicator (except SQS-E, p > .05) as they met the requirements necessary for exiting restructuring. Schools that did not exit restructuring status also showed a slight upward trend, but their trajectories remained lower than both the schools that exited and the schools that were not restructured.

*Examination of Predicted Change Over Time For Three Groups of Schools*

In the next section, the changes in each indicator over time are displayed in graphical form for each group of schools. The figures showed the average predicted values over time for each group of schools for each SQS indicator. In general, the figures reiterate the findings in Table 4.1 that schools that exited restructuring (Group 2) changed the most over time on each SQS indicator relative to the schools that did not enter restructuring (Group 0) or those that entered but did not exit (Group 1). This is shown by the steeper positive (upward) curve for the Group 2 schools, especially in the final years of the trend.

*Standards-Based Learning (SQS-A).* Figure 4.1 summarizes the predicted change over time for SQS-A, which measured how teachers perceived the implementation of standards-based curriculum, instruction, and assessment at the school. Initially, the three groups began as one trajectory; that is, the first year of data collection (2003) was before any schools entered restructuring. Until restructuring began (2005), the predicted slopes of the three groups of schools were similar. By about 2008, the Group 2 schools began to have the steepest predicted ascent among the three groups of schools in Figure 4.1. Given the results in Table 4.1, as might
be expected, the reference group changed second most in term of perceptions of the implementation of learning standards. Finally, the group that did not exit restructuring changed the least; that is, it had the lowest predicted level for standards implementation at the end of the study (2012).

Figure 4.1. Predicted Values for the Three Groups of Schools: Standards-Based Learning

*Quality Student Support (SQS-B).* Figure 4.2 presents the predicted values for SQS-B, which examined the extent that teachers perceived an environment of high expectations and student support in the school. Table 4.1 suggests teachers’ perceptions were much lower initially (74.24%) than their perceptions about the implementation of Standards-Based Learning (83.05%). The figure suggests considerably more variability in teachers’ perceptions of student support systems after schools entered restructuring. In the reference group, the average
perceptions rose approximately five percent over the course of the study. In terms of student support, schools that did not exit restructuring appeared to be curvilinear but remained relatively the same over the 10-year period of the study. In contrast, schools that exited restructuring appeared to change considerably with predicted scores rising nearly 10 percent over the 10-year period.

Figure 4.2. Predicted Values for the Three Groups of Schools: Quality Student Support

Professionalism/Capacity of the System (SQS-C). Figure 4.3 presents the trends across the three groups in terms of SQS dimension C, which measured the implementation of ongoing professional learning that is linked to student achievement. Similar to Quality Student Support, teachers’ perceptions of the implementation of this indicator were relatively low at initial status (about 72%). Initially, schools entering restructuring were relatively similar in growth in this
domain. By the latter years of the study (2009), however, although all groups showed a steady increase in professional capacity, the predicted scores of the three groups became more differentiated, with schools that did not exit restructuring having lower predicted scores than the other two groups and schools that exited restructuring showing an increasingly steep trajectory.

Figure 4.3. Predicted Values for the Three Groups of Schools: Professionalism and Capacity of the System

*Coordinated Teamwork/Leadership (SQS-D).* Figure 4.4 presents the trends for perceptions of Coordinated Teamwork/Leadership, or school leadership, which measures the extent that decisions are coordinated and adequately resourced. This figure provides evidence of considerable variability between the groups in terms of changes in perceptions of team-oriented leadership after schools entered restructuring. Clearly, leadership was perceived very differently
in each of the three groups of schools. In the reference group, perceptions of leadership remained remarkably stable over the 10-year period of the study. In contrast, the two groups of schools entering restructuring showed a very similar and noticeable decline during the first few years. Very quickly, however, the trajectories diverged, with schools that exited restructuring becoming increasingly higher over time, while schools that did not exit restructuring continued to descend. At the end of the 10-year period, the gap in perceptions of leadership was approximately 11 percent on average between schools that exited and those that did not.

Figure 4.4. Predicted Values for the Three Groups of Schools: Coordinated Teamwork/Leadership

*Responsiveness of the System (SQS-E).* Figure 4.5 presents the predicted values for the groups of schools on SQS dimension E, which measures teachers’ perceptions of parent and
community engagement and accountability to the public. Once again, the graph suggests the predicted values were relatively similar for the three groups of schools until the latter period of the study, where the schools that exited restructuring were predicted to be a little stronger in terms of perceptions of school communication processes than the other two groups of schools. While the overall average predicted values were high (80-95%), schools that did not exit restructuring remained the lowest.

Figure 4.5. Predicted Values for the Three Groups of Schools: Responsiveness of the System

*Focused and Sustained Action (SQS-F).* Finally, Figure 4.6 summarizes the predicted values that measured how teachers perceive the implementation of a clear and shared vision and a long term focus on school improvement. This figure also highlights considerable variability in the three groups of schools that developed over time. By the end of the study, the gap in
predicted perceptions of the school’s focus on improving academic processes and outcomes between schools that exited and schools that did not exit was considerable (roughly 12%). Schools that exited restructuring showed a steep ascent starting around 2008. This predicted indicator was similar to SQS-B and SQS-D in that teachers’ initial perceptions were predicted in the 74% level, nearly 10% below SQS-A.

Figure 4.6. Predicted Values for the Three Groups of Schools: Focused and Sustained Action

Second Research Question

The next part of the study focused on determining whether differences in the educational process trajectories helped to classify schools into their “correct” groupings (i.e., schools that did not enter restructuring, schools that entered restructuring and did not exit, and schools that entered restructuring and eventually exited). Multinomial logistic regression was used to examine
the differences between the three groups according to changes in their educational processes over time, after controlling for their context and staffing.

**Component Matrix for Process Change Factor**

Table 4.2 summarizes the weighted loadings of the predicted change in each SQS indicator. Each of the change trajectories loaded substantively on the weighted Process Change factor, with a low loading of 0.65 (for Coordinated Teamwork/Leadership) to a high loading of just under 1.0 (Focused and Sustained Action). Overall, the set of indicators (with the possible exception of Coordinated Teamwork/Leadership, which was significant but slightly lower than the other factors) contributed equally well in differentiating schools according to predicted changes in their processes.

<table>
<thead>
<tr>
<th>Table 4.2. SQS Loadings on Process Change Factor</th>
<th>Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Standards-Based Learning</td>
<td>0.973</td>
</tr>
<tr>
<td>B. Quality Student Support</td>
<td>0.947</td>
</tr>
<tr>
<td>C. Professionalism/Capacity of the System</td>
<td>0.962</td>
</tr>
<tr>
<td>D. Coordinated Teamwork/Leadership</td>
<td>0.648</td>
</tr>
<tr>
<td>E. Responsiveness of the System</td>
<td>0.928</td>
</tr>
<tr>
<td>F. Focused and Sustained Action</td>
<td>0.995</td>
</tr>
</tbody>
</table>

**Explaining Differences in Schools’ Restructuring Status**

After creating a weighted Process Change indicator, this new variable and the other predictors were used to estimate the probability of each individual school falling into three possible outcome categories according to their sanction status. Group 1, or restructured schools, entered but did not exit restructuring status. Group 2 schools entered and exited restructuring, while Group 0 schools (the reference group) did not enter restructuring. It was expected that the weighted Process Change factor would be significantly related to classifying individual schools
into their correct sanction status groups. This type of analysis is, therefore, useful in testing the validity of the educational process indicators in leading to differentiating schools based on their improvement journeys.

First, the model was tested with the Process Change factor alone in Table 4.3. Second, a set of context predictors was used to build a model that would classify the schools according to their process and context variables. The variables measured changes in schools’ processes, large school size, the school’s Title I status at the beginning of NCLB, the average percentage of staff years of experience, the average percentage of teachers at the school for five or more years, average percentage of students participating in the federal free/reduced lunch program (an indicator for high poverty), the average percentage of English language learners, and the average percentage of students receiving special education services. Several models were tested in order to identify a set of statistically significant variables that could best differentiate the groups. Two models are presented in the final analysis: (a) the initial model treats Process Change as a single predictor which included all six SQS variables (Table 4.6), and (b) the follow-up model (Table 4.12) treated Coordinated Teamwork/Leadership as a separate predictor in order to further investigate how leadership might separately impact group classification.

*Model 1A: Examining the Effects of Changes in School Processes*

Because the outcome is multinomial (i.e., consisting of three unordered categories) there are \( C - 1 \) sets of coefficients, where \( C \) is the number of categories (3). The reference group (coded 0) is the set of schools that did not enter sanctions over the years of the study. The first set of coefficients in Table 4.3 summarizes the effects of the Process Change factor on increasing or decreasing the log odds of being in Group 1 (i.e., entered restructuring but did not exit) versus
the reference group of schools that were not restructured. The second set of coefficients summarizes the effects of being in Group 2 (entered restructuring and exited) versus being in the reference group of schools.

Table 4.3. Log Odds and Odds Ratio Coefficients for Process-Only Model

<table>
<thead>
<tr>
<th>STUDY&lt;sup&gt;a&lt;/sup&gt;</th>
<th>B</th>
<th>Std. Error</th>
<th>Wald</th>
<th>Df</th>
<th>Sig.</th>
<th>Exp(B)</th>
<th>95% Confidence Interval for Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower Bound</td>
</tr>
<tr>
<td>1</td>
<td>Intercept</td>
<td>- .286</td>
<td>.097</td>
<td>8.673</td>
<td>1</td>
<td>.003</td>
<td>.642</td>
</tr>
<tr>
<td></td>
<td>Process Change</td>
<td>- .443</td>
<td>.110</td>
<td>16.196</td>
<td>1</td>
<td>.000</td>
<td>1.211</td>
</tr>
<tr>
<td>2</td>
<td>Intercept</td>
<td>.014</td>
<td>.088</td>
<td>.026</td>
<td>1</td>
<td>.871</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Process Change</td>
<td>.191</td>
<td>.085</td>
<td>5.102</td>
<td>1</td>
<td>.024</td>
<td>1.211</td>
</tr>
</tbody>
</table>

<sup>a.</sup> The reference category is: 0.

Estimates in Table 4.3 are presented in a log odds metric (B) and as odds ratios Exp(B). Log odds coefficients describe the increase or decrease in the underlying, transformed dependent variable for a one-unit increase in the predictor. Because the log odds metric is somewhat more difficult to interpret, odds ratios are often interpreted instead. Parameter estimates that were statistically significant at p < .05 were assumed to have a substantive effect in explaining group membership.

The first set of estimates in Table 4.3 compares Group 1 schools (those entering restructuring that did not exit) to the reference group of schools (i.e., those that did not enter restructuring). The negative coefficient for Process Change in the table suggests Process Change was significantly lower in Group 1 schools than in the reference group of schools (B = -0.443, p < .05). The corresponding odds ratio of 0.642 suggests that a one standard deviation increase in
Process Change would reduce the odds of being in the reference group of schools by about 35.8% [calculated as $1.0 - 0.642 = 0.358 (100\%)$].

Similarly, in comparing Group 2 schools (schools that exited restructuring) to the reference group of schools (Group 0), the log odds coefficient is positive and statistically significant ($0.191, p < .05$). The associated odds ratio (1.21) suggested that a one standard deviation increase in Process Change would increase the odds of being in Group 2 by about 21% ($[(1.21 - 1.0 = 0.21(100\%)]$).

*Pseudo R-Square.* With only one predictor in the model, it was unlikely the predictive model would be very useful in explaining differences between the three groups of schools. To estimate how much of the variability in group membership was accounted for by the model, Pseudo R-Square was examined. For models with categorical outcomes, Pseudo R-Square measures provide a way of thinking about how well the set of predictors account for the correct classification of individual schools into their intended groups. These types of measures are based on the model log likelihood by comparing the log likelihood of a model with no predictors against the final model with predictors added. Although they are of some use in describing the worth of models, they are not the same as explained variance (i.e., R-Square) in multiple regression models (Tabachnick & Fidell, 2007). They are best interpreted in terms of a set of models that are being built such that the last model has a higher coefficient than intermediate models, which are better than a “no-predictors” model. The Pseudo R-Square estimates for the process-only model are provided in Table 4.4. In this case, the Pseudo R-Square statistics are modest (ranging from 0.024 to 0.058, depending on the particular index used).
Table 4.4. Pseudo R-Square Measures for Process-Only Model

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cox and Snell</td>
<td>.052</td>
</tr>
<tr>
<td>Nagelkerke</td>
<td>.058</td>
</tr>
<tr>
<td>McFadden</td>
<td>.024</td>
</tr>
</tbody>
</table>

Classification. The worth of a particular model can also be judged by its ability to classify individual schools in the sample into their correct groups. The process only model failed to accurately classify schools at a rate that is better than chance. More specifically, if the groups were exactly the same size, we would expect about 1/3 correct classification (33.3%) by chance alone.

Table 4.5. Classification Rate for Process Only Model

<table>
<thead>
<tr>
<th>Observed</th>
<th>Predicted</th>
<th>Percent Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>0</td>
<td>52</td>
<td>78</td>
</tr>
<tr>
<td>1</td>
<td>68</td>
<td>81</td>
</tr>
<tr>
<td>2</td>
<td>62</td>
<td>94</td>
</tr>
<tr>
<td>Overall Percentage</td>
<td>24.6%</td>
<td>34.2%</td>
</tr>
</tbody>
</table>

Model 1B: Investigating the Full Process and Context Model

Table 4.6 presents the results of the full model with context and process indicators explaining differences between the three groups of schools. In Table 4.6, the continuous predictor variables were standardized (Mean = 0 and SD = 1) to facilitate interpretation. This means the continuous predictors were all centered on the standardized sample means (0), so the interpretation would be the increase (or decrease) in odds associated with a one standard deviation increase in the predictor. The Title I variable was dichotomous (1 = Title I school
Comparing Group 1 to Group 0. Importantly, Table 4.6 suggests that schools in Group 1, which did not exit restructuring, were lower on Process Change (OR = 0.507, \( p < .01 \)) than schools that did not go into restructuring (Group 0). In other words, the odds of being in Group 1 were reduced by about 49\% \([(1.0 - 0.507) \times 100\% = 49.3\%] for a 1-SD increase in Process Change. Regarding the other context indicators, first, being a large school (enrollment of 800 students or greater) made it 79.8 times more likely to be a Group 1 school (OR = 79.892, \( p < .001 \)) versus Group 0 school, holding other variables constant. This suggests that a school entering and not exiting restructuring was quite likely to be large school compared to schools not

Table 4.6. Log Odds and Odds Ratio Coefficients for Process and Context Model

<table>
<thead>
<tr>
<th>STUDY(^a)</th>
<th>B</th>
<th>Std. Error</th>
<th>Wald</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Intercept</td>
<td>-0.948</td>
<td>0.386</td>
<td>6.027</td>
<td>1</td>
<td>0.014</td>
<td></td>
</tr>
<tr>
<td>Process Change</td>
<td>-0.679</td>
<td>0.204</td>
<td>11.121</td>
<td>1</td>
<td>0.001</td>
<td>0.507</td>
</tr>
<tr>
<td>ZFreeLunch</td>
<td>0.820</td>
<td>0.287</td>
<td>8.179</td>
<td>1</td>
<td>0.004</td>
<td>2.270</td>
</tr>
<tr>
<td>ZAverageTeachEXP</td>
<td>-3.008</td>
<td>0.446</td>
<td>45.447</td>
<td>1</td>
<td>0.000</td>
<td>0.049</td>
</tr>
<tr>
<td>ZTeacher5YRS</td>
<td>0.888</td>
<td>0.307</td>
<td>8.369</td>
<td>1</td>
<td>0.004</td>
<td>2.431</td>
</tr>
<tr>
<td>ZStudentSPED</td>
<td>2.072</td>
<td>0.283</td>
<td>53.679</td>
<td>1</td>
<td>0.000</td>
<td>7.939</td>
</tr>
<tr>
<td>ZStudentELL</td>
<td>0.579</td>
<td>0.161</td>
<td>13.009</td>
<td>1</td>
<td>0.000</td>
<td>1.785</td>
</tr>
<tr>
<td>Title1</td>
<td>-0.296</td>
<td>0.513</td>
<td>1.333</td>
<td>1</td>
<td>0.564</td>
<td>0.744</td>
</tr>
<tr>
<td>Largeschool</td>
<td>4.381</td>
<td>0.437</td>
<td>100.496</td>
<td>1</td>
<td>0.000</td>
<td>79.892</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STUDY(^a)</th>
<th>B</th>
<th>Std. Error</th>
<th>Wald</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Intercept</td>
<td>-2.308</td>
<td>0.463</td>
<td>24.886</td>
<td>1</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>ProcessChange</td>
<td>0.403</td>
<td>0.162</td>
<td>6.190</td>
<td>1</td>
<td>0.013</td>
<td>1.496</td>
</tr>
<tr>
<td>ZFreeLunch</td>
<td>0.809</td>
<td>0.273</td>
<td>8.758</td>
<td>1</td>
<td>0.003</td>
<td>2.246</td>
</tr>
<tr>
<td>ZAverageTeachEXP</td>
<td>0.016</td>
<td>0.167</td>
<td>0.009</td>
<td>1</td>
<td>0.923</td>
<td>1.016</td>
</tr>
<tr>
<td>ZTeacher5YRS</td>
<td>-0.284</td>
<td>0.228</td>
<td>1.558</td>
<td>1</td>
<td>0.212</td>
<td>0.752</td>
</tr>
<tr>
<td>ZStudentSPED</td>
<td>1.963</td>
<td>0.277</td>
<td>50.081</td>
<td>1</td>
<td>0.000</td>
<td>7.118</td>
</tr>
<tr>
<td>ZStudentELL</td>
<td>-0.886</td>
<td>0.159</td>
<td>31.158</td>
<td>1</td>
<td>0.000</td>
<td>0.412</td>
</tr>
<tr>
<td>Title1</td>
<td>2.968</td>
<td>0.548</td>
<td>29.368</td>
<td>1</td>
<td>0.000</td>
<td>19.450</td>
</tr>
<tr>
<td>Largeschool</td>
<td>1.834</td>
<td>0.464</td>
<td>15.625</td>
<td>1</td>
<td>0.000</td>
<td>6.261</td>
</tr>
</tbody>
</table>

\( a \) The reference category is 0.
entering restructuring. Second, teachers with fewer years of teaching experience (ZAverageTeachEXP) were more likely to be found in a Group 1 school (OR = .049, \( p < .001 \)) as opposed to a Group 0 school, holding other variables constant. Surprisingly, teachers with over five years of teaching experience (ZTeachers5YRS) were about 2.4 times more likely to be in a Group 1 school (OR = 2.431, \( p < .01 \)) than a Group 0 school.

Other staff and context predictors that were significantly related to group membership were percentages of students on free/reduced lunch (ZFreeLunch), percent SPED students (ZstudentsSPED), and percent ELL students (ZstudentELL).

Comparing Group 2 to Group 0. This portion of the model also produced some anticipated results. First, schools in Group 2, which exited restructuring, were found to be higher on educational Process Change (OR = 1.496, \( p < .05 \)) than Group 0, holding other variables constant. This is consistent with the steep growth trajectories noted in the figures for almost every indicator in the initial models that were developed to capture change in the process indicators. This result suggests the odds of being in Group 2 versus Group 0 were increased by about 50\% \(((1.496-1.0) \times 100\% = 50\%)\) for a 1-SD increase in Process Change, holding other variables constant. None of the teacher variables (percentage of fully licensed teachers, average years’ experience, teachers with five years or more at the school) significantly differentiated these groups of schools \( (p > .05) \). Second, large school size (OR = 6.261, \( p < .001 \)) predicted membership in Group 2. This suggests the odds of being in Group 2 versus Group 0 increased by about 6.3 times for a one standard-deviation increase in school size. Third, regarding student composition, Group 2 schools were significantly higher in SPED and free/reduced lunch composition than Group 0 schools but significantly lower in ELL \( (p < .001) \). Fourth, initial Title
I status strongly differentiated the schools, with Group 2 schools more likely to be Title I schools than Group 0 schools (OR = 19.450, \( p < .001 \)), holding other variables constant. This suggests that schools that were initially designated as Title I in 2003 were about 19.45 times more likely to be Group 2 than Group 0 schools, holding other variables constant.

*Pseudo R-Square.* For the full model presented in Table 4.6, the corresponding Pseudo R-Square estimates were relatively high (ranging from about 0.45 to 0.71, depending on the particular index).

<table>
<thead>
<tr>
<th>Table 4.7. Pseudo R-Square Measures for Full Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cox and Snell</td>
</tr>
<tr>
<td>Nagelkerke</td>
</tr>
<tr>
<td>McFadden</td>
</tr>
</tbody>
</table>

*Classification Results.* The model classified schools much better than chance, with an overall 76% accuracy. Group 2 schools had a higher percentage (79.8%) than the Group 1 schools 60.3%. This suggests that schools do not exit restructuring are more difficult to classify correctly relative to the other groups. The differences in the contextual indicators further suggest that schools that exit restructuring find ways to overcome some of their contextual challenges.

<table>
<thead>
<tr>
<th>Table 4.8. Final Classification Rate for Full Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observed</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>Overall Percentage</td>
</tr>
</tbody>
</table>
Investigating Leadership

A second model was built to further investigate the Coordinated Teamwork/Leadership indicator. When comparing the predicted values in the visual models for the three groups of schools in the first analysis, the growth trajectories for Coordinated Teamwork/Leadership across the three groups (see Figure 4.4) were noticeably different compared with the other five indicators. Coordinated Teamwork/Leadership in the non-restructured schools showed little or no growth over time. Both groups of restructured schools began with a downward trend but beginning in 2007, their paths diverged dramatically. The schools that exited ascended rapidly while the schools that did not exit showed a steep decline. Another observation was that the loadings on the component matrix (see Table 4.3) also showed a noticeable difference for Coordinated Teamwork/Leadership compared with the other indicators. While the other indicators loaded above 0.92, Coordinated Teamwork/Leadership was quite lower (0.648), suggesting this indicator could be treated as a separate indicator. To explore these further, a follow-up model was built to better understand how leadership might differentiate schools that exit restructuring from those that do not.

A new variable to measure changes in process for all factors except Coordinated Teamwork/Leadership was created (ProcessChange1). A separate standardized variable (Zleadership) was added as a measure of Coordinated Teamwork/Leadership as well as a variable that captured the number of times the school principal was changed during the study (ChangeCount). As was done previously, the classification rate and the effects of the Coordinated Teamwork/Leadership factor in differentiating the two groups were tested. Two models were built to allow for comparisons. The first model tested process change
(ProcessChange1) and leadership change (Zleadership) only. The second model included process change, leadership, and significant context and staffing variables.

Model 2A: Examining the Effects of Process Change and Leadership Only

Table 4.9 summarizes the effects of the ProcessChange1 factor and Leadership factors. The first set of coefficients summarizes the odds ratios of being in Group 1 (i.e., entered restructuring but did not exit) versus Group 0 (schools not entering restructuring). The second set of coefficients summarizes the effects of being in Group 2 (entered restructuring and exited) versus being in the reference group of schools. The odds ratio for Zleadership in the table for Group 1 versus Group 0 (OR = 0.328, p < .001) shows that a standard deviation increase in reference group over time was associated with about a 67.2% decrease in odds of being in Group 1 schools versus the reference group. In contrast, in comparing Group 2 schools (schools that exited restructuring) to the reference group of schools (Group 0), the odds ratio for Zleadership was 1.997 (p < .001), suggesting that for a standard deviation increase in reference group, the odds of being in Group 2 would increase about two times versus being in Group 0.

Table 4.9. Process Change and Leadership Only Model

<table>
<thead>
<tr>
<th>STUDY</th>
<th>ProcessChange1</th>
<th>Std. Error</th>
<th>Wald</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Intercept</td>
<td>-.590</td>
<td>.115</td>
<td>26.416</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Processchange1</td>
<td>-.326</td>
<td>.130</td>
<td>6.248</td>
<td>1</td>
<td>.012</td>
</tr>
<tr>
<td></td>
<td>Zleadership</td>
<td>-1.114</td>
<td>.163</td>
<td>46.460</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>2</td>
<td>Intercept</td>
<td>-.080</td>
<td>.092</td>
<td>.770</td>
<td>1</td>
<td>.380</td>
</tr>
<tr>
<td></td>
<td>Processchange1</td>
<td>-.259</td>
<td>.112</td>
<td>5.378</td>
<td>1</td>
<td>.020</td>
</tr>
<tr>
<td></td>
<td>Zleadership</td>
<td>.691</td>
<td>.133</td>
<td>26.866</td>
<td>1</td>
<td>.000</td>
</tr>
</tbody>
</table>

a. The reference category is: 0.

Interestingly, when Zleadership was included in the model, the odds ratios for ProcessChange1 decreased below 1.0 in both comparisons against Group 0 (Group 1 OR =
0.722, \( p < .05 \); Group 2 OR = 0.772, \( p < .05 \), suggesting that process changes were stronger in
the reference schools (Group 0) than in either Group 1 or Group 2 schools. For Group 2 schools,
this implied the ProcessChange1 factor in Model 1B (when leadership was included) masked the
worth of the separate leadership indicator in classifying schools that emerged from sanction
status.

*Pseudo R-Square and Classification Rate.* The Pseudo R-Square estimates in Table 4.10
are higher than the modest process-only model (Table 4.4), suggesting that when leadership was
treated as a separate variable, more of the variability in group membership was accounted for by
the model. The ability to classify schools into their correct groups also improved when the
process-only model was compared with the process and leadership model. Whereas the
classification rate of the process-only model was close to chance (33.4%), the process and
leadership model increased to 54.7%, which was considerably better than chance.

<table>
<thead>
<tr>
<th>Table 4.10. Pseudo R-Square for Process and Leadership Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cox and Snell</td>
</tr>
<tr>
<td>Nagelkerke</td>
</tr>
<tr>
<td>McFadden</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 4.11. Classification for the Process and Leadership Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observed</td>
</tr>
<tr>
<td>----------</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>Overall Percentage</td>
</tr>
</tbody>
</table>
Model 2B: Investigating the Process, Leadership, and Context Model

The final model presents the reference group, \( Z_{\text{leadership}} \) and \( \text{ProcessChange1} \) variables with the set of staffing and contextual indicators. First, Table 4.12 suggests that a one standard deviation increase in leadership \( (Z_{\text{Leadership}}) \) reduced the odds of being in Group 1 versus the reference group by about 67.1\% (\( \text{OR} = 0.329, p < .001 \)), holding other variables constant. In contrast, a one-SD increase in leadership \( (Z_{\text{Leadership}}) \) increased the odds of being in Group 2 versus the reference group by about 1.7 times (\( \text{OR} = 1.672, p < .001 \)), or about 67\%, holding other variables in the model constant. Second, the odds ratios for the ProcessChange1 indicators were both below 1.0 for Group 1 (\( \text{OR} = 0.557, p = .001 \)) and Group 2 (\( \text{OR} = 0.732, p < .05 \)), which implies stronger process changes characterized schools in the reference group than schools in restructuring status, even if they eventually exited, holding other variables constant.
Table 4.12. Log Odds and Odds Ratio Coefficients for Leadership and Context Model

<table>
<thead>
<tr>
<th>STUDY</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Wald</td>
<td>df</td>
<td>Sig.</td>
<td>Exp(B)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>-1.143</td>
<td>.353</td>
<td>10.467</td>
<td>1</td>
<td>.001</td>
<td>2.224</td>
<td></td>
</tr>
<tr>
<td>ZFreeLunch</td>
<td>.799</td>
<td>.238</td>
<td>11.282</td>
<td>1</td>
<td>.001</td>
<td>.101</td>
<td></td>
</tr>
<tr>
<td>ZAverageTeachEXP</td>
<td>-2.291</td>
<td>.444</td>
<td>26.602</td>
<td>1</td>
<td>.000</td>
<td>2.218</td>
<td></td>
</tr>
<tr>
<td>ZTeacher5YRS</td>
<td>.797</td>
<td>.277</td>
<td>8.248</td>
<td>1</td>
<td>.004</td>
<td>.770</td>
<td></td>
</tr>
<tr>
<td>Title1</td>
<td>-.261</td>
<td>.468</td>
<td>.311</td>
<td>1</td>
<td>.577</td>
<td>.770</td>
<td></td>
</tr>
<tr>
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<td>75.483</td>
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<td>1</td>
<td>.047</td>
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a. The reference category is: 0.

When a third variable was added to describe the number of times schools changed principals during the study period, the variable was not significant in differentiating Group 1 from the reference group of schools ($p > .05$). However, in comparing Group 2 to the reference group, this variable was significant (OR = 0.838, $p < .05$), which suggests for every added principal turnover event, the odds of being in Group 2 versus the reference group decreased by about 16.2%, holding other variables constant. This suggests that low turnover in principals characterized schools that exited restructuring compared to the reference group of schools.
When the two leadership variables were added to the model, most of the context variables (i.e., free lunch, teacher experience, teachers at school for over five years, large school) that differentiated Group 2 schools compared with the reference group schools became non-significant. Title I was the only context variable that was significant and predicted membership in Group 2 schools.

*Pseudo R-Square and Classification Rate.* The Pseudo R-Square (Table 4.13) was slightly lower than the Pseudo R-Square in the process and context model (see Table 4.7). In this final model with the reference group and turnover indicators added, the resulting classification (see Table 4.14) was reduced slightly (70.5%) compared with the previous process and context model; however, this model was considerably better in predicting membership within the group of schools that exited restructuring (84.8%).

<table>
<thead>
<tr>
<th>Table 4.13. Pseudo R-Square for Leadership and Context Model</th>
</tr>
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<tr>
<td>Cox and Snell</td>
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<td>Nagelkerke</td>
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<td>McFadden</td>
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<table>
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<th>Table 4.14. Final Classification for Leadership and Context Model</th>
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<tr>
<td>Observed</td>
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<tr>
<td>2</td>
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<tr>
<td>Overall Percentage</td>
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Summary of Results

School Process Trajectories

The first part of the analysis, which focused on the different trajectories of the three groups of schools in the study, provided considerable evidence of differences in perceptions of schools’ key educational processes over the 10-year period of the study. Trajectories that showed greater dispersion from initial status indicated greater variability across the three groups of schools. Schools had less variability in the early years of NCLB and increased in variability over time. The indicator with the greatest variability was Coordinated Teamwork/Leadership, which strongly suggested that teachers in the three groups of schools perceived leadership very differently once schools entered and then exited restructuring. The least variability was in Standards-Based Learning, Quality Student Support, and Responsiveness of the System, suggesting that improvement in these key areas occurred gradually and consistently among the three groups over time.

Investigating Process Change and Context

The model with Process Change only did not classify the schools as well as the model with both Process Change and context variables, suggesting that context was helpful in more accurately classifying the schools. When Process Change and context were included in the model, schools that experienced high process changes were more likely to have exited restructuring than schools that were not restructured. Schools that experienced low process changes were more likely to have stayed in restructuring.

Four context variables (i.e., percentage of SPED students, percentage of ELL students, free lunch, and large school size) were significant in predicting group membership in both sets of
comparisons. High percentage of SPED students predicted membership in both Group 1 and Group 2 over the reference group. High percentage of ELL students predicted membership in Group 1, whereas low ELL predicted membership in Group 2. Title I status in 2003 was also strong predictor of group membership in restructured schools that exited.

Teacher staffing variables (i.e., average years teaching, percent of teachers with five or more years at the school) showed mixed results in terms of differentiating the groups. A high percentage of teachers with five or more years at the school predicted membership in Group 1. At the same time however, a high number of years teaching predicted membership in the reference group. In this model, when Group 2 schools were compared against the reference group, none of the teacher variables were significant, which implied that the impact of teachers in schools that exit restructuring is not measured by a teaching credential and/or teaching experience.

*Examining Leadership as a Separate Process*

To examine how leadership interacted with the other predictors, two leadership measures were introduced: Coordinated Teamwork/Leadership and the number of times the principal changed at each school. Coordinated Teamwork/Leadership (also referred to as leadership) was first tested as its own predictor, initially with Process Change only, then with context added. The model with Process Change and leadership only was less accurate in classifying schools than the model that included the context variables. Comparisons of the two models showed that leadership, when combined with context variables, added to the accuracy of the model in classifying schools, especially in schools that exited restructuring.
When school context variables and principal change were added to the model, several interesting changes in the model were observed. First, leadership strongly differentiated the two groups of schools entering and exiting restructuring from the reference group of schools. Second, the five process changes continued to be significant in predicting group membership in both groups of restructured schools; however, without leadership included in the Process Change variable, high Process Change no longer predicted membership in the group of schools that exited. Third, having a stable principal in place (fewer changes) also became a predictor of exiting schools versus schools not in restructuring. And fourth, when the leadership variables were added, only one context variable (Title I) was significant in predicting schools that exited versus the reference group of schools. In schools that did not exit, context variables (i.e., free lunch, teacher experience, teachers at the school for more than five years, size of school) remained significant and the number of changes in principal was not significant.

Results show that the leadership and context model was not only very accurate in classifying schools that exited restructuring, but also provided evidence that leadership processes and principal stability were the key factors that carried the improvement journey forward for schools that exited restructuring.
CHAPTER 5
DISCUSSION OF FINDINGS, LIMITATIONS, AND IMPLICATIONS

The purpose of this study of school improvement under the No Child Left Behind Act of 2001 was to examine how changes in educational practices, as measured by several key indicators, contributed to differentiating schools that a) were not restructured, b) were restructured and exited and c) were restructured but did not exit. This chapter begins with a description of the purpose and context of the study. Next, the study’s hypotheses and research questions are enumerated, followed by a discussion and interpretation of the study’s key findings. Finally, several limitations, implications for further research and practice, and conclusions are considered.

Purpose and Context of the Study

NCLB represents a recent attempt by Congress to introduce greater accountability for outcomes in schools that receive federal financial support for educational programs through reauthorization of the Elementary and Secondary Education Act (1965). The primary goal of NCLB was to reduce gaps in student achievement and school quality by ensuring that all children have a “fair, equal, and significant opportunity to obtain a high-quality education and reach at a minimum, proficiency on challenging State academic achievement standards and state academic assessments” (No Child Left Behind Act [NCLB] of 2001, 2002, p. 15). Since its inception, NCLB has raised many questions about the implementation and effectiveness of externally imposed federal accountability measures on improving failing schools. One aspect in particular was its definition of schools’ AYP targets and its set of progressive sanctions for schools that repeatedly failed to meet their targets.
Describing how schools engage in strategic efforts to increase student learning outcomes has been the subject of considerable research and review over the last several decades (Firestone & Corbett, 1988; Louis et al., 1999; Rowan et al., 2004). Two prominent streams of research on factors that can influence school academic outcomes are school effectiveness research, which has primarily focused on identifying key variables associated with stronger school achievement (Hallinger & Heck, 1998; Lezotte & Snyder, 2011; Lezotte, 2009; Maughan et al., 1960; Scheerens, 1991; Teddlie & Reynolds, 2000), and school improvement research, which has focused on pathways through which schools improve their practices over time. By integrating school effectiveness research with a longitudinal perspective on improvement, a few recent studies (Feldhoff, Radisch, & Klieme, 2014; Mulford & Silins, 2003; Sammons & Davis, 2014) have attempted to capture the complex nature of school improvement by describing their “improvement journeys” over time (Hallinger & Heck, 2011, p. 1). Not much is known, however, about the relationship between externally imposed sanctions and whether and how they might lead to schools making the required improvements in their practices and outcomes in order to exit sanctions.

Restructured schools faced formidable challenges under NCLB. After six consecutive years of failing to meet AYP targets, schools were required to implement a restructuring plan that may have involved such drastic measures as reconstituting the school or turning the school over to a state office or external provider. Although there was very little evidence that NCLB’s restructuring options would work (Mathis, 2009) and very few empirical studies that provided evidence that could inform practice with a high level of certainty, policymakers continued to employ sanctions as a way to force schools to into compliance.
In Hawaii, from 2003 to 2012, there were 48 elementary schools that entered restructuring status. Of these, 21 schools did not get out; yet remarkably, 27 schools did. Given the conditions required for improvement under NCLB, these do not appear to be random results. Instead, it seems reasonable that the success of the 27 schools was the result of strategic and intentional actions to improve their educational practices. This study explored the improvement journeys of the 48 restructured schools against a random sample of 26 elementary schools that did not enter restructuring under NCLB in order to determine if there were educational process indicators that differentiated restructured schools that exited sanctions from those that did not, after controlling for their student composition, school, and staffing contexts. More specifically, the research focused on (a) schools that did not enter restructuring versus those that (b) entered restructuring but emerged later in time, and those that (c) entered restructuring but did not emerge.

Discussion of Findings

Two working hypotheses shaped the inquiry in this study. First, it was hypothesized that relative to the reference group (that did not enter restructuring) there would be noticeable discontinuities in the restructured schools’ improvement journeys over time. Specifically, it was hypothesized that prior to restructuring, schools’ educational processes would show minimal change. Next, when schools entered restructuring, schools’ process trajectories would show a decline, and finally, for schools that exited restructuring, it was expected that their trajectories would show an upward turn. Second, it was hypothesized that the process and context variables would differentiate the non-restructured schools from the restructured schools that exited and from those that did not exit.
Therefore, the study addressed the following research questions:

1. Are there differences in school process trajectories (patterns of growth in achievement over time) between elementary schools that do not enter restructuring and those that do?

2. What pattern of process and context variables best account for differences in the three groups (not restructured, restructured, restructured/exited)?

To address the first research question, identifying the possible change in each process over time, a two-level piecewise growth model was used to specify individual schools’ responses to a series of external events resulting from NCLB’s sanction status. Piecewise growth models are useful in testing hypotheses about how schools’ key educational processes may change naturally when they are not in restructuring status versus the possible disruption in their processes that occur as a result of entering restructuring, and the possible change in processes that result from strategic actions taken to improve. For the initial analyses, the assumption was that the effects would be seen immediately after a school’s change in status; however, it was also recognized that lagged (or delayed) effects (Heck et al., 2013) might also occur. At Level 1, each school’s possible changes in educational processes over time were examined by defining an individual growth trajectory and random error. The repeated measurements of the key educational processes were nested within each school. At Level 2, variability in schools’ educational process trajectories was initially examined. While initial status levels for each process varied randomly between schools, change rates for schools that entered sanctions and that exited were found not to vary randomly at Level 2 of the model. This suggests their effects were similar for the schools in each group.
To answer the second research question, a multinomial logistic regression model was developed to examine the differences between the three groups of schools according to changes in their educational processes over time, after taking into consideration their context and staffing controls. Four key findings emerged from the study. The first finding addressed the first research question and the remaining three findings addressed the second research question.

*Do Schools Follow Different Paths Relative to Process Changes?*

Patterns of process change trajectories, as perceived by teachers, were different in schools that did not enter restructuring, schools that entered and later exited restructuring, and schools that entered but did not exit. The two-level piecewise growth model provided clear statistical and visual evidence that there were distinctly different improvement trajectories for the three groups of schools. As summarized in the figures in Chapter 4, schools that were not restructured had trajectories that showed continuous flat or upward movement over time. Schools that were restructured but did not exit also showed continuous movement that was both ascending and descending. Schools that were restructured and exited restructuring status followed more of an S-curve trajectory (i.e., rising, falling, and rising again).

Closer inspection suggests two patterns of change trajectories were observed in the changes in process indicators among the three groups of schools. The distinction between these observed patterns could be described using terms that were introduced in organizational change research (Weick & Quinn, 1999). Patterns of change in Standards-Based Learning (SQS-A), Professionalism/Capacity of the System (SQS-C), and Responsiveness of the System (SQS-E) reflect continuous growth over time. Each of the indicators in the three groups of schools ascended at about the same pace from 2003 to 2012. By 2012, although the measures tended to
“fan out” or show a greater level of dispersion from their initial status, the change pattern did not show any dramatic discontinuities. This is consistent with the idea that continuous changes are incremental and adaptive (Weick & Quinn, 1999). One explanation for these results is that changes in standards-based education, professional learning, and accountability had commenced in Hawaii prior to NCLB. As mentioned previously, the State Legislature formed the Hawaii Commission on Performance Standards in 1994, which led to the adoption of the state's first set of standards well before NCLB was enacted. By the time NCLB was enacted, Hawaii had already begun implementation of standards-based education and had passed through the initial transition period that required extensive professional development for teachers and a system to report results. It follows, then, that small incremental changes related to these three indicators would be observed throughout this study.

In contrast, the change processes of Quality Student Support (SQS-B), Coordinated Teamwork/Leadership (SQS-D), and Focused and Sustained Action (SQS-F) were more consistent with changes that are episodic or discontinuous. These observed changes were consistent with the punctuated equilibrium framework that originally hypothesized a discontinuity in normal school practices in response to an external or internal event. What these change trajectories showed was generally, a continuous upward trajectory from 2003 to 2004, followed by divergence starting from 2004 to 2005. When the trajectories diverged, non-restructured schools continued on a steady and continuous path; in contrast, both groups of schools that entered restructuring began to decline. Around 2007, the trajectories of the group of schools that exited restructuring changed direction and began to ascend, eventually surpassing the change perceived in the non-restructured schools. Schools that did not exit restructuring
continued to decline. One compelling explanation for this observation is that the period of divergence showed the school’s response to entering restructuring. As shown in Chapter 3 (see Table 3.1), most of the schools entered restructuring between 2004 and 2007. This corresponds closely with the patterns of discontinuity and change in the trajectories for restructured schools. This disruption is described in punctuated equilibrium theory (Romanelli & Tushman, 1994) as a revolutionary period, or one in which pressure for change is increased by an external event. It is assumed that increases in pressure that accompanied restructuring led schools to make strategic shifts in processes in order to meet AYP. This study suggests that student support, leadership, and focusing the school’s efforts to build coherence were three processes that underwent the greatest change and that the timing of the changes corresponded with schools being sanctioned.

*What Factors Differentiate Schools That Exit Restructuring from Those that Do Not?*

*Changes in educational processes.* Process changes describe how “local preferences for desired changes [were incorporated] with those mandated by higher-level decision makers into an integrated vision of change and improvement” (Hord, 1995, p. 88). Through NCLB, policymakers seemed to assume that the pressure of sanctions would force schools to improve their performance. The IRC model provided a way to understand how complex organizations strategically leveraged their resources and processes in order to improve their performance (Polski & Ostrom, 1999). Thus, the framework implied that schools pursue strategic changes in their educational processes in order to make improvements that will get them out of sanctions. This study measured changes in stakeholder perceptions about the quality of key educational processes over time to examine which school-level changes corresponded with improved educational outcomes.
Multinomial logistic regression was used to examine the differences between the three groups of schools according to changes in their educational processes over time and taking into consideration their context and staffing controls. First, the weighted loadings of the Process Change variable, which incorporated each school’s six process indicators to create an average “weighted” Process Change measure, showed that all of the Process Change indicators (Standards-Based Learning, Quality Student Support, Professionalism and Capacity of the System, Coordinated Teamwork/Leadership, Responsiveness of the System, and Focused and Sustained Action) contributed equally well in differentiating schools according to predicted changes in their processes. Second, two models were examined, a model with the Process Change variable only and a model with the Process Change variable when controlled for school context and staffing. The model that included context and staffing variables was more accurate than the Process Change only model in classifying the schools into the three groupings (non-restructured, restructured and exited, restructured and did not exit). This suggested that schools that experienced higher process changes were more likely to have exited restructuring than schools that were not restructured. Similarly, schools that experienced lower process changes were more likely to have stayed in restructuring, even when differences in context were considered.

Coordinated Teamwork/Leadership and Principal Stability. Observed differences in the Coordinated Teamwork/Leadership variable prompted further investigation into the interaction between leadership and the other predictors. In this more focused examination, the leadership dimension (SQS-D) was removed from the Process Change variable and treated as a separate process; second, a variable to measure the number of times the principal changed at each school
was added to measure stability. Two models were again examined, one with leadership and Process Change only and one with staffing (including principal change) and context variables added. Comparisons of the two models showed that leadership, when combined with context variables, added to the accuracy of the model in classifying schools, especially in schools that exited restructuring.

When the school context, staffing, and principal change variables were added to the model, results showed that Coordinated Teamwork/Leadership was positively related to the schools that exited restructuring and negatively related to schools that did not exit. In other words, compared with the reference group that did not enter restructuring, schools that reported strong perceptions in Coordinated Teamwork/Leadership were likely to be in the group that exited restructuring, whereas schools that showed declining perceptions of Coordinated Teamwork/Leadership were more likely to have been restructured but did not exit. Schools that exited restructuring also had fewer changes in principals over the length of the study.

The importance of leadership in restructured schools that exited was an unanticipated finding that was revealed when leadership was treated as a separate process and removed from the other Process Change indicators. After the leadership indicator was removed from the Process Change factor, the resulting relationship between Process Change and predicted group membership also changed. More specifically, teachers in schools that exited restructuring reported lower overall changes in their schools’ educational processes (other than Coordinated Teamwork/Leadership) over time than teachers in the reference group of schools. This suggested that teachers’ perceptions of the leadership variable (and the principal stability variable) dominated in explaining differences between the group of schools that exited restructuring status.
and the group of schools that was not restructured. This alludes to the pivotal role of a stable and coordinated leadership effort in helping to make transformational improvements. Schools that exited restructuring appeared to make strategic changes over time that were consistent with research indicating that change requires from four to eight years to occur (Hall, 1995; Louis & Miles, 1991). According to March (1981), “the effectiveness of leadership often depends on being able to time small interventions so that the force of natural organizational processes amplifies the interventions” (p. 575). As such, the role of leadership can be seen as managing the “adaptiveness” of the school as well as the process of change. Coordinated Teamwork/Leadership implies that administrators, teachers, and staff work together to achieve the school’s goals. This approach to change was supported by the HDOE’s decision to provide differentiated support to leaders in all HDOE schools. From 2005 to 2009, the HDOE received a School Leadership grant and partnered with the University of Hawaii to establish a continuum of leadership support that began at the teacher leader level and continued through the senior leadership level. The grant provided differentiated training and coaching to aspiring leaders (e.g., teacher leaders and administrative trainees), new principals, veteran principals, and complex area superintendents and focused heavily on building skills in change management, shared decision making, data use, and instructional leadership to support implementation of NCLB and Act 51 (HDOE, 2007). Evidence from this study suggests that the timing and focus of the leadership development effort contributed to the overall growth in leadership processes that were observed as schools began to make their way out of restructuring.
Limitations

This study shares many of the limitations of similar studies using this dataset. While there is no known universal paradigm or theory that is valid in all school contexts (Hallinger & Heck, 1998), research suggests that every school’s context need not be treated as completely unique (Hallinger & Heck, 2011). Also, despite ample evidence that the school quality survey measures the constructs reasonably well, there may be other indicators, such as the types of external support provided to the schools, that contribute to school improvement. The selected school processes in no way represent a theoretically complete set of indicators (Hallinger & Heck, 2010). Another limitation of this study is that it is limited to elementary schools over a ten-year period; as such, it may not be possible to generalize about the effects of sanctions on secondary schools and it is not known whether more schools would have exited if the study continued for a longer period of time. Finally, the richness and complexity of organizational change cannot be fully measured by a single instrument administered on a yearly basis. What this study does not capture are the day-to-day ways that schools improve; so while it may be preferable to make multiple observations over the course of a year, it is currently not done. So it remains a limitation.

Implications

Richard Elmore asserted, in 2004, that “there is no well-worked-out theory of how you get from performance-based accountability to improvements in teaching and learning” (pp. 220-221). Today, as policymakers and policy researchers reflect on NCLB’s journey to reach its intended target of 100% student proficiency by 2014, it is hoped that the evidence provided in this study will offer some insight into how an “integrated vision of change and improvement”
(Hord, 1995) might materialize. Through this methodological, theoretical, and empirical inquiry, several implications have emerged.

**Methodological Implications.** The extensive demographic, achievement, perceptual, and process data made available to the public by the Hawaii Department of Education provided an unprecedented opportunity to examine the improvement journeys of schools over a 10 year period. Although a case study or cross-sectional design could have offered an effective way to study these journeys, the availability of this rich longitudinal data demanded a much more rigorous approach. The methodological contribution of this study lies in its use of a longitudinal time-series design to examine the complex connection between policy and practice. The study captures both the timing of external events and their hypothesized effects over time. It was assumed that the interruption of “normal” events in schools entering restructuring would produce positive improvement in educational practices known to affect student outcomes and the observed changes in practices would be useful predictors in explaining why some schools were able to emerge from restructuring status and some were not. Future research should continue this longitudinal approach to studying change. As states across the nation continue to build and populate their longitudinal data systems, researchers will have increased opportunities to explore how the complex relationships between school processes, school context and student outcomes unfold over time.

**Theoretical Implications.** This study tested the usefulness of two theories in explaining how schools’ improvement journeys unfold over time. Punctuated equilibrium theory provided a useful lens for understanding how NCLB’s sanction status likely produced changes in the normal educational processes of at least some schools entering sanctions. Importantly, in the context of
this study, the theory implied that once a disruption (i.e., sanction) occurred, schools would enter a state of uncertainty and anxiety while they attempted to reorient themselves. Because these periods of equilibrium and revolution can be observed, it was possible to test the theory by seeing if the improvement journeys would differ for schools (i) prior to restructuring, (ii) when the restructuring sanction was imposed, and (iii) in the event that the school experienced a turning point that ultimately resulted in exiting from restructuring status.

Institutional rational choice theory (IRC) was useful in focusing the inquiry on the strategic decisions that schools make that would lead to improvement. IRC draws attention to action arenas, the availability of information, and the key decision makers in the school. While the actual decision making regarding improvement needs and appropriate interventions could not be directly observed, it was assumed that the outcomes of these decisions could be measured by changes in teacher perceptions regarding key educational processes over time. For example, if building teacher capacity to participate more meaningfully in school wide academic planning (e.g., examining student data, strategies for implementing change) was a chosen strategic action, this would likely show up as a change in teacher perceptions of the quality of Coordinated Teamwork/Leadership in the school. Further research might employ case studies that reveal the relevant action arenas, decision making processes, stages of improvement, and the actual choices made in the attempt to change school practices. This will add to the considerable number of examples in the literature regarding how schools respond to external policy initiatives in making strategic changes for improvement (Firestone & Corbett, 1988; Heck et al., 2001; Louis & Miles, 1991). The theories, therefore, offered a useful way to frame the study so that the process of change over time and the actions required to make these changes could be measured.
Empirical Implications. This examination of the improvement journeys of schools provided compelling evidence that the journeys of schools that enter restructuring are markedly different from those that do not. In addition to revealing a lower overall perception of the schools’ processes, this study showed that teachers in restructured schools report a pronounced decline in leadership, student support, and program coherence that is associated with the timing of the sanction. This suggests that NCLB, as intended, dismantles the school’s normal processes in hopes that the school will re-form its existing processes to improve performance. Given that teachers often feel that policymakers’ approach to improvement fails to recognize the complexities of teaching (Hall, 1995), it is not surprising that implementing changes at the local level has yielded mixed results. What policymakers often fail to realize, is that this disruption has an adverse effect on the organizational cohesiveness of the school (Klassen, 2009), diminishes trust in leadership (Fullan, 2003), and provides no assurance that school performance will improve. In some cases, like the 27 schools that exited restructuring in this study, the changes yielded positive results; in 21 schools, results were not as fruitful. Because there was little evidence that NCLB’s suggested restructuring strategies (e.g., charter school conversion, replacing the staff, reconstituting the school) would work, schools turned to traditional reform strategies such as coaching, collaboration, and tutoring (Mintrop & Sunderman, 2009) and to external consultants for support. They also received support from the federal and state level that included leadership training, technical assistance, and funding for school-level initiatives.

The aim of this study was to add to existing research by examining school factors that differentiated schools that exited restructuring from those that did not. It was hypothesized that by observing changes in schools’ processes over a ten-year period, a pattern would emerge. As
anticipated, schools that exited restructuring status demonstrated higher perceived growth in school processes over the period after entering sanctions than schools that did not exit restructuring status, after controlling for differences in their contexts and staffing variables. Because this growth applies to all of the process indicators working interdependently, it implies that in the complex nature of school improvement, especially in schools that have been dismantled by sanctions, the interrelationships between the processes are just as, or perhaps even more, important than the individual processes themselves.

Given this set of interrelated and interdependent processes, deeper inquiry showed that the leadership component, which measured teachers’ involvement in the school improvement process and the extent to which administrators and staff worked together to achieve the school’s goals, played a dominant role in relation to the other five school processes. This evidence extended previous research which showed that setting the right context for program implementation (i.e., a shared focus, administrator support, collaboration among staff, and shared decision-making) first required training to develop these skills, and subsequently “had a substantial direct and indirect effect on the extent to which programs were implemented” (Heck, Brandon, & Wang, 2001, p. 318). This accords with Tushman et al.’s (1986) observation that during periods of upheaval, the direct involvement of leadership “in all aspects of the change” (p. 40) is critical. In schools, one of the key areas required for collaboration is developing a culture of genuine collegiality among the staff (Sergiovanni, 1992). This is vital in restructured schools and requires leadership that can enhance the professional confidence of teachers and build “collegial interdependence” (Rosenholtz, 1991). As Hallinger and Heck (2011) showed, changes in leadership practices toward greater collaboration and teamwork were a catalyst for
improvement in low performing schools. It is reasonable to conclude that in schools that exited restructuring, school wide participation in decision-making and a shared commitment to implementation accounted for gains that were observed over time in standards-based education, student support, professional learning, responsiveness, and program coherence. Shared leadership, therefore, is the *sine qua non* that binds the school processes together and helps to prepare the context necessary for implementation and growth.

The observed differences in the improvement journeys of restructured schools and the critical role of shared leadership in providing inspiration and insight during periods when schools are reorienting their processes have major implications for policy and practice. The evidence suggests that using sanctions to influence change at the local level creates periods of upheaval and uncertainty from which only some schools have been able to emerge. A necessary next step for future research is to examine *how* shared leadership evolves and is supported in schools that make substantial gains in student outcomes.

Many informal conversations with teachers and administrators in restructured schools provided insight over the course of this study. Typically, the conversations were brief and I invited people to share what happened at their school or complex area. One conversation stood out. Teachers at one of the restructured elementary schools in this study shared that a new principal had been hired just as NCLB was enacted. This Title I school was under pressure to make AYP after failing to meet targets for several years. From the time he arrived, the faculty showed intense resistance to the new principal and to his unwavering determination to implement changes. After failing to make AYP for two more years, the school was restructured in 2005. After four years of improvement, however, the school got out. One of the main reasons
for exiting restructuring offered by the teachers was that the principal “never gave up on the plan, no matter what” (Anonymous, Personal Communication, June, 2014). The principal served at the school for nine years and over time, built deep and lasting relationships with the staff that ultimately led to improved outcomes. Sadly, the principal who was later described by the staff as “beloved” and “a fair and just principal” (Vorsino, 2012) passed away at the end of the 2012 school year. Just like many other schools in this study, the “real” stories, which were remarkably mirrored in the data, remain untold. What were those plans? How did the school transform itself? How did they manage to sustain their performance over time? While using data to capture the overall improvement journeys of schools was an important first step, future inquiry should illuminate the complex interactions between teachers, administrators, and staff as they experience change, over time. It is important to more deeply understand “what happened” as some schools exited and others did not.

Presently, Hawaii schools have begun another journey. In 2013, the HDOE obtained a waiver to opt out of NCLB’s original accountability measures. In exchange, the State agreed to adopt new measures of school quality that include teacher and principal evaluation metrics, college- and career-ready standards for students, and a differentiated performance system. It is not certain whether ESEA will be reauthorized or how policymakers at the federal and state levels will approach the next iteration of school reform policy.

**Conclusion**

Recognizing that the journeys of schools that exit restructuring and those that do not are dramatically different implies that leaving no child behind means that in order to succeed, well-intentioned policies can leave no school behind as well. Restructured schools face intense
political pressure to make dramatic transformations. In order for this to take place, shared leadership that can build the internal capacity needed for lasting change is essential. This takes considerable time and commitment to accomplish.
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doi:10.1080/03057640302041


APPENDIX A

Table A.1 Summary Table of SQS Means at Initial Status

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<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
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