Preparing for Systemic Reform: What can Puerto Rico Learn from Teacher-Focused Policies in the United States and Finland?

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Abstract

This study utilized a case study methodology to describe, analyze, and compare teacher-focused State policies in Connecticut, Finland, and Puerto Rico. These policies were categorized according to the teacher professional lifecycle, and include incentives for recruitment into the profession, teacher preparation program entry requirements, and induction and professional development requirements established by policy. Contextual information pertaining to additional socioeconomic variables was provided. The final chapter explores the similarities and differences in all three cases, and presents policy suggestions that may be enacted by Puerto Rican policymakers to strengthen the island's education system. Results show that, despite significant socioeconomic differences, Puerto Rico's state-level policies have attempted to address key elements that characterize Connecticut and Finland's systems. These may be developed further by increasing teacher preparation program selectivity, establishing a multi-tier licensing system tied to professional growth and classroom initiatives, and establishing a centrally coordinated, mandatory induction program based on peer mentorship.

Resumen

Este proyecto de investigación utiliza como metodología el estudio de caso para describir, analizar, y comparar las políticas educativas enfocadas en el magisterio en Connecticut, Finlandia y Puerto Rico. Las políticas se categorizan según el ciclo de vida profesional del maestro e incluyen incentivos de reclutamiento, selectividad de programas de preparación de maestros y requisitos de inducción y desarrollo profesional. Se provee información contextual sobre variables socioeconómicas, se exploran similitudes y diferencias entre los casos, y se presentan sugerencias de política pública para que Puerto Rico fortalezca su sistema educativo. A pesar de que existen diferencias socioeconómicas significativas, las políticas puertorriqueñas a nivel estatal han intentado atender elementos similares a Connecticut y Finlandia. Continuar desarrollándolos requiere el aumento en selectividad de programas de preparación de maestros, establecer un sistema de certificación multi-nivel atado al crecimiento profesional y ejecutorias, y desarrollar un programa de inducción basado en la mentoría de pares.

Dedication

I would like to dedicate this thesis to my parents, Luz M. Soto Arocho and Héctor Segarra Román. Thank you for your unconditional support, for your advice, and for instilling in me the love and respect for education that motivated me to undertake this project.

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Preparing for Systemic Reform: What can Puerto Rico Learn from Teacher-Focused Policies in Connecticut and Finland?

Chapter I: Introduction

Context

The state of education has often been the subject of headlines in Puerto Rico, usually with negative connotations. Public discontent about the situation has drawn the attention of policymakers, academics, and private citizens, proclaiming that the situation is untenable and something must be done. Public perception about the problem can be encapsulated in the notion that public schools are failing in their mission to develop students' intellectual and academic skills. Systemic education reform is a topic that is receiving increased attention worldwide, but it holds particular significance for Puerto Rico as it undergoes the largest fiscal crisis in its history. As the global economy becomes more competitive, governments search for ways in which they may improve their education systems to attain or retain a competitive advantage. In recent decades, reaching a crescendo in the last few years, the public education system in Puerto Rico has been increasingly under criticism since it is perceived as producing academically low-performing students who are not equipped to compete with others in a knowledge-based economy.

An illustrative example of the tone and sense of urgency regarding this topic on the island can be found in the annals of the Federal District Court. Education is often a contentious topic, but rarely do we see a federal judge, acting in his official capacity as adjudicator, publish a scathing pronouncement against a State education system. In an opinion published on September 23, 2014, Judge José Fusté wrote, "it is no secret that the quality level of education in public schools in Puerto Rico is poor, broken, embarrassing, negligent, disgraceful, pitiful, and

dishonorable" (*Colon Vazquez et al v. Department of Education of Puerto Rico*, 2014). This sort of expression in a judicial opinion is called *obiter dictum*, as it provides contextual information that is not crucial to the judge's decision and rationale and is generally not considered legally binding precedent. It does, however, provide a useful glimpse into the public perception about Puerto Rico's education system. Even more telling is that the incumbent governor of Puerto Rico, when questioned about these remarks, replied that he was "100% in agreement" with the judge's expressions and that his government is working to "transform" the Department of Education ("Fusté: PR public schools 'shameful'", 2014; "Gobernador acepta," 2014). In the Puerto Rican public sphere, dissatisfaction with educational results and calls to reform public education are constant. However, the almost universal agreement about the existence of the symptom belies the difficulty in determining its causes. Can the problem be addressed by reforming processes and administrative infrastructure? Should the State utilize its ability to set macro-policy to focus on teacher recruitment, training, and development? **This project looks at international examples of high-achieving education systems and compares their teacher-focused policies with Puerto Rican mandates and efforts in the same areas.**

Recent newspaper polls have touched upon the subject of education, showing that 50% of the public perceives the Puerto Rican education system has declined over the past 10 years, 41% believe the quality of public schools in Puerto Rico is " average" and 36% consider it "poor" ("Saca malas notas la escuela pública", 2013). This has led to recognition of the need for sustained systemic reform, and calls for a "10-year plan" to improve education on the Island. Politicians, educators and other public figures (including a former Secretary of Education) have pointed towards other countries, such as Finland, as examples to be followed (or even copied) when designing an education reform project to embark on. In 2014, the president of the Puerto

Rico Senate, Eduardo Bhatia Gautier, created a Special Commission for the Administrative and Operational Transformation of Puerto Rico's Education System, which engaged in a year-long study of the Puerto Rico Department of Education. On January 14, 2015, the Commission published its First Partial Report, a 41-page document that attempts to summarize the findings from the public hearings conducted. Its contents called for a revolution in education, rather than a reform. On October 15, 2015, the Puerto Rican Senate approved a project to restructure and reform the Puerto Rico Department of Education, P.R.S. Bill 1456 (2015), which if passed by the House of Representatives would become the Alliances in Public Education in the Commonwealth of Puerto Rico Act.

Realizing that much can be learned from high-performing systems, public consensus calls for education policies that look beyond our borders and draw upon successful reforms implemented in other countries for the elements necessary to success. However, it would be ill-advised to merely adopt education policies (or copy systems) without considering the context within which they have evolved. A more tenable approach is to evaluate specific characteristics of these high-performing systems to see what policies stand out, analyzing and developing an understanding of these critical elements to enable the possibility of adapting them to the Puerto Rican reality. The objective of this research project is to examine teacher-focused educational policies, contextually situated within the system characteristics and reform trends in Puerto Rico, Connecticut, and Finland at a macro level, looking at various factors in order to describe a set of goals and policies that can become the foundation for an ongoing systemic reform.

Objective and Rationale

To conduct this research project, I utilized a multiple case study methodology to perform a cross-case analysis involving three cases, tracking the similarities and differences in key areas

amongst education systems in Finland, Connecticut, and Puerto Rico, focusing on data and policies impacting the fundamental areas of teacher selection and licensing, induction, and development. Specifically, I will present and analyze data on each case's teacher-focused policies, encompassing preparation, induction, and support systems. Two supplemental areas I will address are resource allocation, in terms of funds spent on public education, and general student demographics. The rationale for case selection is that two of the selected cases are recognized as high performing systems (Connecticut and Finland) and one case was selected to contribute to the local body of knowledge and inform future policy (Puerto Rico). I will utilize these cases to identify general tendencies and practices in the teacher policy areas that I am focusing on, drawing information from a high-performing US state placed within the broader framework of federal educational policy (the same framework that applies to Puerto Rico), a nation-state renowned for its apparently successful school system, and a U.S. territory where the education system is widely criticized for not producing adequate results.

Why study Finland?

Finland's recent educational outcomes, as measured by the Organization for Economic Co-operation and Development (OECD) have been highlighted in international media as an example of successful education reform. Pressed by the need to transform its agrarian-based economy into a knowledge-based one, Finland undertook an educational reform project in the 1990s. The Nordic country rose to prominence in 2000 when its students obtained the highest rankings in international OECD-sponsored tests. Diane Ravitch likens Finnish education practices to "an alternate universe" (Sahlberg, 2015, p xii), as they seem to go against most of the established reform practices in the United States; they run counter to the idea that the optimal

path for high-quality education is via high-stakes testing, the charter school movement, and lowered barriers for the recruitment of teachers from non-pedagogical fields.

Why study Connecticut?

In the United States, education reform has been a contentious issue for decades. Some steps have been taken towards national standards, but these were stymied in their infancy by disagreements about content and needs. However, the need for reform could not be ignored and the federal legislature introduced the No Child Left Behind Act, allowing states to determine the particular standards reflected in their standardized tests. This situation presented a quandary when selecting a state to study. In the course of investigating different possibilities, I found that the state of Connecticut was recently highlighted due to its students' high achievement in the National Assessment of Educational Progress (NAEP) tests, which are a nationally representative assessment that allows for a more accurate comparison between educational outcomes. Further research showed that Connecticut's high performing education system has been linked to its reform efforts in the 1980s, when it began to invest in teacher education, revamped its licensing regulations, and started providing higher salaries with the intention of attracting talented individuals (Darling-Hammond, 2000; Fisk, 1999; Fullan, 2007). Like Finland, it is considered an outlier to accountability-based education in many ways, as it did not follow the emphasis on conventional test-driven reforms that has taken root within many other jurisdictions of the United States. Connecticut, however, falls under the same Federal regulatory framework as Puerto Rico, presenting a valuable example of high educational achievement attained within federal requirements such ESEA and the relatively recent Flexibility Plans.

Why study teacher-focused policies?

Teachers all over the world are placed under significant and often overwhelming pressure from numerous factors. Studies have identified teachers as a key element in the education system that can be affected by state policy and that has a pivotal effect in subsequent education reform efforts (Darling-Hammond, 2000; Tatto, 2008). Their preparation, skills, and work environment are essential factors that impact their buy-in of state policy (Fullan, 2007). In the United States and Puerto Rico, the concept of teacher effectiveness is often tied to student performance in standardized tests. Developments in educational policy theory have tempered these notions of accountability with the knowledge that teachers must work within a support system that provides them the skills and professional development to effectively carry out their mission. Taking into account these premises, it is necessary to consider whether policymakers and top-level administrators are doing everything within their power to provide teachers the environment they need to thrive and be effective in their tasks, and what we might learn from the way high-performing systems select, regulate, support, and empower their workforce.

Research Questions

The relevant literature and public debate regarding education reform in the United States and Finland highlights elements such as resource allocation, teacher preparation and support, and socioeconomic factors as some of the main factors affecting the quality of education. In "Doing What Matters Most: Investing in High Quality Teaching", Darling-Hammond et al (1997) put forward the theory that out of all factors that can be influenced by State policy, improving teacher recruitment, development and work conditions has the highest impact on educational outcomes. Tatto (2008) argues that countries that the teachers in countries that achieve high results in international standardized tests demonstrate particular traits and practices, situated within their specific cultural contexts. Tatto outlines a framework for studying policies that seek

to improve educational outcomes through "teacher-focused interventions" (p. 488). As such, I have selected these areas as the focus of my research questions, situated within the three different contexts represented by the cases selected (Finland, a nation-state; Connecticut, a state within a federal framework; and Puerto Rico, an unincorporated territory within the same federal system), the questions I aim to answer are the following:

1) Teacher-focused policies –
   a) Recruitment and Selection - How does each system address recruitment (attracting talented individuals into the teaching workforce), teacher preparation program selectivity, and certification (licensure requirements) through policy?
   b) Induction and Development - Are induction and professional development processes centrally structured via policy? Are they mandatory requirements at the State level?
2) Resource allocation– How is the burden of education funding distributed between the local, state, and federal level in each case? What is the level of per-student spending for each?
3) Student profile – What is, in general terms, the socioeconomic profile for public school students in each case?

Takayama (2009) envisions the debate surrounding education reform strategies as "a discursive space where competing social groups produce and circulate their versions of truth about the past, the present, and the future of education" (p. 56). Fullan (2009) warns that system reform should never "endorse one factor at a time as key" (p 108). Instead we should look at "a small number of factors interacting to produce substantial impact" (p. 108). With these theories in mind, through this multiple case study I aim to contribute to the understanding of teacher-focused policies and consider their possible impact as related to the other factors present within the Puerto Rican educational context.

Significance

As previously mentioned, education reform is currently a topic of interest and public debate in Puerto Rico. Non-profit organizations, professional associations, politicians and their constituents seem to agree on the necessity for a plan outlining policies that will lead to sustained reform in the public education system. However, the exact nature of these policies remains a contentious point. Through my proposed project, I intend to compile and provide comparative data and analysis on teacher-focused policies, an area that may be impacted by government policy changes, in order to contribute to public debate on the subject. Fullan (2009) projects that systemic education reform will increase in importance throughout the United States during next decade, as policy-makers and the general public grow increasingly unsatisfied with the results of the No Child Left Behind Act's implementation, making alternate policy recommendations particularly valuable at this point.

The primary intended audience for my project are Puerto Rican policymakers, but I also aspire to contribute to the body of research on comparative education at both local and international levels. Though this area of research represents a necessary and important element that should inform public discourse, it remains largely unexplored within the Puerto Rican context. This presents the opportunity for this project to make a meaningful contribution to academic research while at the same time having a possible impact on policy-making during a time of organic crisis for the Puerto Rican Department of Education.

Chapter 2 - Literature Review and Theoretical Framework

Context of the Study

Although by no means a new concept, the topic of education reform has recently come up with increasing frequency in countries across the world. As economic crises deepen, the question how to improve school achievement levels becomes especially important to policy-makers. Globalization and the need to remain competitive in an international knowledge-based economy drive them to seek programs that will improve education systems, while shrinking budgets and competing priorities challenge teachers and administrators to come up with ways to do more with less. In this climate, market-based reform policies have found fertile ground. Policymakers that seeking to maximize the use of dwindling resources are attracted by notions of test-based accountability reform, school choice, and organizational restructuring in the name of agility. A recent example of this drive is the Puerto Rican Senate's "Comisión Especial para la Transformación Administrativa y Operacional del Sistema de Educación de Puerto Rico" and the result of the Commission's work, Senate Bill 1456 (2015). However, other competing variables have been put forth by scholars who argue that accountability and market-based reforms are not the most successful way of ensuring a quality education.

Teacher Policy as the Prime Variable in Education Reform

International and comparative teacher policy studies are, according to Tatto (2008), "few [and] mostly descriptive" (p. 489). However, there is a rich body of work about systemic reform in individual countries that we can draw upon and use to contextualize the present research. Much of it highlights the pivotal role of teachers as enablers of student achievement and implementers of state policy at the ground level. Teachers, though, are not simply pass-through

entities for policy. The composition and environment of their profession is also shaped by the broad policy mandates established at the State level. Recent literature highlights the importance of human and social capital building in education as a central element of reform. Haslam, Khine and Saleh (2013) argue that large scale education reform is becoming "both increasingly sophisticated and more predictable" (p. 1). The authors state that a factor all high-performing systems share is the development of the teaching profession's social capital "through, among other things, the recruitment of excellent teachers and a rewarding career path carefully integrated with suitable compensation and benefits" (p. 1) and the provision of effective mentors, resources, and a network of school learning communities. Learning communities, or Professional Learning Communities (PLCs) is a concept developed by DuFour (1998) and championed by Fullan (2007) that has made its way into the discourse of American education professionals at the state and federal level. This concept is based on the notion that interaction with other teachers is a "critical variable" in reform implementation, affecting both openness to change and classroom practice (Fullan, 2007, p. 97).

Tatto (2008) developed a framework for the study of teacher policy, establishing key elements of state policy that are characterized as teacher-focused. The overarching goal of these policies is "to produce highly qualified teachers and retain them in the profession, and to strengthen the competences of current teachers as defined by particular country contexts and increasingly by the urge to participate in a global economy" (p. 488). According to Tatto's framework, a State's teacher policies can be address one or more of four areas:

"(a) recruitment and/or selection of individuals that are considered suitable for the profession;

(b) education of individuals in the knowledge, skills, and dispositions deemed necessary to produce qualified teachers;

(c) induction and further development/support of practicing teachers;

(d) assignment and permanence in the profession" (p. 488-489)

These policy areas are based on the professional life cycle of a teacher, and provide a useful system to categorize state policies that directly target the teaching profession. It should be noted that Tatto accounts for teacher accountability reforms in her framework, but these address only a minute aspect of the possible areas open to State influence: permanence in the profession.

Market-based reform

During the last two decades, education reform has been largely driven by market-derived ideals. Many scholars remark on the shortcomings of these policies, which operate based on the idea that a self-regulatory market in education can exist and thrive with minimal state intervention (Bell & Stevenson, 2006; Darling-Hammond, 2000; Sahlberg, 2015). However, a complete free-market approach to the education system would stand in obvious tension with teacher-focused policies that make use of State power to regulate and mandate, a notion that is not lost on critics. Bell and Stevenson (2006) recognize that even within the market-based educational reform ideology, elements that are antithetic to a free market exist as the State exercises its monopolistic powers through a variety of regulations such as school attendance requirements, teacher qualification and registration, and curriculum development. Furthermore, market-driven reforms put schools in competition with one another, rather than fostering cooperation and collaboration (Bell & Stevenson, 2006).

Alternate Variables in Education Reform

There are numerous other possible variables in education reform highlighted in the literature, amongst which we can count decentralization, funding, and test-based accountability or quality assurance (Tatto, 2008). The decentralization of schools, though widely deemed as positive and desirable, has been proven to be difficult to navigate adequately (Darling-Hammond, 2010).

When considering decentralization in schools, it is necessary to look at the extent and intent of the school-based management mandate (Bell & Stevenson, 2006). Two decisive elements in this consideration are control over curriculum design and finances. Centralized education systems undergoing decentralization efforts often delegate the responsibility to measure and meet performance standards to the local level, while maintaining control over curriculum design. An additional pitfall is that prevalent funding schemes (local property taxes fund education, and are assigned per district) can lead to issues of inequality that exercise a powerful effect over schools located in low-income communities (Darling-Hammond, 2010). Darling-Hammond (2010) argues that delegation of responsibility without attention to funding can turn out be a fictional decentralization, since a school cannot exercise local control while shackled by unequal funding allocation.

Support for decentralization responds to the idea that schools can be more agile and responsive than central agencies when dealing with student needs. However, in most countries the emphasis on accountability remains high and requires school administrators to take on the evaluator roles originally assigned to central agency staff (Bell & Stevenson, 2006). This is usually achieved through a prescribed evaluation framework of standards and performance targets, and the establishment of payment incentives and punishments linked to effectiveness at the individual and school levels. This system is not without its shortcomings; as Bell and Stevenson note, “performance management as a form of accountability is widely seen as disempowering the professional domain within educational institutions at the expense of a strengthened management domain” (2006, p. 90).

In some educational systems, such as Connecticut, the accountability framework is accompanied by more rigorous control for entry into teaching and additional professional

development resources. Darling-Hammond (2010) argues that "to improve education through the use of standards and assessments, it is critically important to invest not only in well-designed assessments, but also in teacher expertise- through professional development, instructional assistance, and improved hiring and retention of teachers- and well-designed and plentiful curriculum resources" ("Challenges of Contemporary Test-based Accountability" para. 12). Darling-Hammond distinguishes two broad and conflicting categories for underlying beliefs about educational improvement through policy: one focuses on better resource allocation and building capacity at the teacher, school, and system levels, and another that attributes unsatisfactory outcomes to "a lack of effort and focus on the part of educators and students" (Darling-Hammond, 2010, "Testing without investing", para. 1). The latter belief results in policies that seek to push these educators and students into productivity through the use of tests and sanctions for low performance.

Adopting a Multi-Variable Approach to Contextualize Policy

According to Darling-Hammond (2010), although trying to establish a one to one correspondence between funding and educational achievement would be an exercise in futility, there is a link between educational achievement and specific resources such as "better qualified teachers, smaller class sizes, and smaller schools (relying on resources such as advisors, planning time for teaching teams, and support systems for students)" (Darling-Hammond, 2010, "Inequality on trial", para. 8). In stark contrast, "dysfunctional hiring practices and noncompetitive salaries" (Darling-Hammond, 2010, "Unequal access to qualified teachers", para. 1) will keep districts from attracting and retaining the teachers they need. Other scholars argue that teachers, though important, cannot be said to be the single key factor that can uplift an education system. Since the publication in 1966 of "Equality of Educational Opportunity"

(Coleman, J., 1966) the issue of factors affecting student performance remains contentious[1], and we may ascribe separate but significant importance to factors such as teacher quality (Darling-Hammond, 2000), access to resources (Darling-Hammond, 2010), and socioeconomic disparity and family environment (Anyon, 1997; Rothstein, 2004). Of these, government policy can most directly influence factors related to teacher policy and resource allocation. Accordingly, I have designed my research to address factors related to teacher-focused policy (preparation, induction, and support), while maintaining a contextual awareness about socioeconomic disparity and school resource allocation.

Literature about the Selected Cases

Responding to the global competitive environment, international entities like the OECD have created standardized assessments that may be used to compare educational jurisdictions. These results may be examined with the intention of identifying high-performing education systems so their characteristics may be studied and adapted into actionable policies in other countries (Lie & Linnakylä, 2004). One such initiative is the Programme for International Student Assessment (PISA), a series of standardized tests that rank 15 year old students in participating countries according to their scores as they apply their knowledge in literacy, science and math to "problems with a real life context" (Baldi, Jin, Skemer, Green & Herget, 2007, p. 3). In the first cycle of these tests, which ran from 2000 to 2006, Finland ranked first in all three areas (Baldi et al. 2007). In subsequent tests, Finland has remained amongst the top three countries. Other Scandinavian countries have also ranked relatively high amongst PISA participants. On the other hand, the United States' rank ranged from 15th to 24th during the first cycle, with few changes

[1] Numerous concerns about methodology and interpretations of the data in this study have been raised, but I have opted to mention it here for its historic significance rather than its conclusions.

during subsequent tests (Fleischman, Hopstock, Pelczar, & Shelley, 2010). Puerto Rico is not officially a participant country in PISA, but various factors point towards significant performance issues (as measured by standardized test results). It has many public schools that are consistently ranked amongst the lowest performers in standardized test scores across the United States. According to the federal standards developed as a result of the “No Child Left Behind” Act, in Puerto Rico 9 out of 10 schools were classified as “schools in need of improvement.” (Sapientis 2011) before recent changes to classifications did away with the term. A school in need of improvement was one that did not meet its Adequate Yearly Progress (AYP) goals for more than two years in a row. Additionally, the 2012 round of PISA tests included participants from Puerto Rico as part of an exploratory initiative. This means that for that year there is data available from Puerto Rico, Finland, and Connecticut, providing a quantified measure of performance that can tie all cases together.

Finnish education

Since 2000, much attention has been given to Finland as an education reform success story. Though popular media, pundits, and public scholars often praise the system for its unconventional style and superior results, academic writing in English on Finland’s education system is remarkably scarce. Fullan (2009) explains that Finland “began its climb from the doldrums in the 1990s” (p. 106) when it started investing in improving the quality of its teachers. The author argues that Finland’s example demonstrates “that a medium-sized country (5 million people) can turn itself around through a combination of vision and society-wide commitment” (p. 107). Other scholars have pointed towards different elements as being related to Finnish success in education. Sahlberg (2007) analyzes education reform in Finland, focusing on the divergence of its policies “from conventional market-oriented reform strategies” that “promote

consequential accountability accompanied by high-stakes testing and externally determined learning standards" (p.147). Most of the available literature highlights the professionalization and autonomy of schools and teachers and the Nordic welfare state's focus on equity (Carlgren & Klette, 2008; Fladmoe, 2012; Frímannsson, 2006; Sahlberg, 2015). Antikainen (2006) notes that throughout the region there are "low differences in income, and more generally low class differences" (p. 233), which might be one of the elements influencing PISA results. This, he points out, has led the Nordic model to acquire a reputation as a "producer of low social inequalities" (p. 233). In keeping with these attitudes, education in Finland is completely publicly-financed (Lysne, 2006).

Connecticut

In the United States, Fullan (2009) and Ravitch (2010) remark that systemic reform efforts have lacked a sustained focus due to numerous difficulties, including the problematic nature of achieving consensus on a nation-wide approach. Instead, the No Child Left Behind Act has produced a focus on test-based accountability in schools, where States that fail to comply with federally mandated and locally established standards risk being financially punished (Ravitch, 2010). Both Ravitch and Fullan are highly critical of this approach to systemic reform, considering it "bereft of any educational ideas" (Ravitch, 2010, p. 29) and ineffective as a system reform strategy (Fullan, 2009). Responding to this policy void, there have been an increasing number of voices claiming that the United States should look towards Finland for ways in which it might improve education. Childress (2010) analyzes factors contributing to educational disparities in the United States and compares its education system with that of Finland, focusing on education levels, employment, funding, and curriculum. Another possible factor highlighted

in the literature as having an impact on education has been the issue of social class (Anyon, 1981), echoing concerns that have been at the forefront of the Finnish focus on equity.

Connecticut began its investment in teacher capacity building during the 1980s. Darling-Hammond (2000) highlights Connecticut as an example of utilizing a "standards-based starting point to upgrade teachers' knowledge and skills". Among the policies implemented in the state's bipartisan reform (a product of the pre-NCLB era), the 1986 Education Enhancement Act, Darling-Hammond mentions "school finance equalization, teacher salary increases tied to higher standards for teacher education and licensing, curriculum and assessment reforms, and a teacher support and assessment system that strengthened professional development" (p. 22). In contrast with the elements of standards-based testing criticized by Ravitch and Fullan, Connecticut did not adopt a "punitive approach" to student assessment when implementing its own reforms (p. 23). Instead, the state utilized a "low-stakes testing approach" (p. 27) and focused on providing professional development opportunities, retaining experienced teachers and recruiting new ones by competing effectively in terms of salaries. The result was a surplus of teachers, which allowed school districts to be "highly selective in their hiring and demanding in their expectations for teacher expertise" (p. 25). Implementing policies that seem to parallel Finland's, Connecticut required a Master's degree to qualify for a professional teaching license, and created a state-funded mentoring program to help new teachers develop professionally (Darling-Hammond, 2004). Darling-Hammond (2000) summarizes the success factors in Connecticut's education infrastructure as "(a) linking salaries to high standards for preparing, entering, and remaining in teaching, (b) providing intensive support and assessment of beginning teachers, and (c) requiring and supporting continued high-quality professional development for teachers and administrators." (p. 30)

Puerto Rico

In Puerto Rico, recent calls in the public sphere for comparison and adaptation of other governments' policies have remained the domain of newspaper articles and other forms of mass media. I have found no peer-reviewed studies addressing the research area that my proposed project highlights. The Puerto Rico Department of Education has commissioned numerous reports to consulting firms over the years, but the content of these documents is usually kept from the general public. Some documents that are made public in Senate hearings, such as Henry, Bailey, and Acosta (2014), turn out to be protected by numerous disclaimers, policies, and warnings, limiting their use in scholarship without data triangulation. There have, however, been some articles and books that provide contextual information and useful data. Lopez-Yustos (2006), Ladd and Rivera-Batiz (2006), and Schmidt (2014) provide historic overviews of the development of Puerto Rico's education system. López-Yustos focuses on the history of the Puerto Rican public education system from its inception until the 1990s. The author discusses the Spanish and American roots of public education in Puerto Rico, highlighting its use as a hegemonic tool by local and foreign elites. The book also presents the problem of centralization of power in the Department of Education, and the accompanying political struggles that have characterized the Department's development and staffing as the two main political parties in Puerto Rico took turns at its helm. López-Yustos (2006) also highlights that teaching was once a high-status profession in Puerto Rico, a trait that has declined with the passage of time.

Ladd and Rivera-Batiz (2006) discuss the history of education in Puerto Rico, focusing on its contribution to economic development on the island. The authors emphasize various elements that may be impacting educational outcomes, such as average family income and the public-private bifurcation of the student body in local schools. Furthermore, in the 1990s efforts were

made to decentralize the school system and give parents, teachers and students greater participation in curriculum design through the Escuelas de la Comunidad, though results were limited by the fact that the Department of Education retained power over administrative decisions (Ladd & Rivera-Batiz, 2006). Additionally, during the 1990s education spending in Puerto Rico increased significantly, primarily in the area of "operating expenses" that encompass "the salaries of teachers, books and materials for schools, and administrative expenses" (Ladd & Rivera-Batiz, 2006, p 208). These legislative attempts at decentralization and increased funding reflect a similar focus to what has been identified as success factors in Finnish education, and were undertaken at the same time as Finland was implementing its own teacher-focused reforms. Further emphasizing the difficulty in adequately assessing educational outcomes on the island, Ladd and Rivera-Batiz add that the high amount of Puerto Rican students in private schools (one in four) poses a problem when attempting to measure academic achievement through the NCLB-mandated Puerto Rican Tests of Academic Achievement.

Schmidt (2014) studies educational policy in Puerto Rico, focusing on English education, its political motivations and implications. The author approaches this topic through an organized framework that highlights numerous variables, and provides contextual information on power allocation and participation in policymaking, teachers as actors in policy implementation, and State efforts to decentralize the education system.

Theoretical Framework

Policy is defined by Haddad and Demsky (1995) as "an explicit or implicit single decision or group of decisions which may set out directives for guiding future decisions, initiate or retard actions, or guide implementation of previous decisions" (p. 18). Policy making and policy planning are two separate steps in the process, covering the periods where policy is

established and where it is put into action. Policy designed from the top, without an adequate implementation, leads to ineffectual reforms. Therefore, policy planning and educational leadership, which encompass the actions of individual administrators and educators, share an intertwining, symbiotic relationship with policy making. It stands to reason, then, that teacher policy must precede other educational policy changes in order to enable the best implementation possible. Leadership "does not exist in a vacuum- it is exercised in a policy context, shaped decisively by its historical and cultural location" (Bell & Stevenson, 2006, p. 7). Policy making provides context and guidelines, and encompasses the analytical process that shapes, constrains, and guides the administrators that engage in policy planning (Haddad & Demsky, 1995). Policy analysis categorizes policies according to their scope, which can be strategic, programmatic, or issue-specific (Haddad & Demsky, 1995). In this research project, my discussion will focus on state teacher policy at the strategic, macro level.

Fullan (2007) broadly categorizes educational policy at the government level in three areas: accountability, incentives, and capacity building. Accountability is a widely-used notion that pushes the use of metrics to measure and quantify teacher and school effectiveness by gathering data on student outcomes. Incentives, as defined by Fullan, are "pressure and supports" (p. 236) that range from bonuses for high-scoring students on standardized tests to school closures and teacher firing. Capacity building in an educational context can take multiple forms. For the purpose of this research, its focus is how State policy influences the recruitment, training, certification, and administrative support of teachers. Fullan (2007) argues that "it will be a wise and courageous politician who declares that capacity building is more important than accountability" (p. 235), as accountability and incentives tend to produce short-term results that, however, are not "deep or lasting" (p. 237).

Studying any large system (such as education at the state level) is inherently complicated by the fact that it cannot be broken down into stand-alone sections that can be meaningfully analyzed by themselves. Fullan (2007) explains that in educational change, a wide variety of actors are involved and each has a key role to play in order to enact meaningful reforms. While it may seem that these factors limit the usefulness of focusing on any specific part of the system, in-depth studies on high performing systems point to the individual teacher as one of the main advantages that give the system its competitive edge (Fisk 1999; Fullan 2007; Sahlberg, 2015; Tatto 2008). One such element is the relative social capital of the teaching profession within the local public sphere– "local" in this case being the territorial jurisdiction of the case under study. Fullan (2007) elaborates on the teacher's role as "implementer" of education policy, explaining that "the conditions for change as well as strategies employed by central policymakers and administrators provide many more disincentives than benefits" (p. 14). Darling-Hammond (1997) writes that "reforms […] are rendered effective or ineffective by the knowledge, skills, and commitments of those in schools" (p. 7). Teachers, are, in many ways, the central hub in education systems that bridges the upper-level policy mandates and the local-level interaction with the community of participants in the education process (students and parents). They are also the focus of pressure from both sides. Due to their nature and importance as a coherent force that can be acted upon and empowered through policy changes, I view teachers as the fulcrum upon which a successful educational reform effort pivots. Without them as the tip of the spear, efforts at change will remain ineffective and half-implemented. This leads me to consider the policies that are brought to bear on the selection, induction, and development of this key force in education.

The teacher policy framework developed by Tatto (2008) informs my approach. Out of the four teacher policy areas identified in this framework, I will focus on the elements of selectivity, induction and support amongst the three cases. I have opted to leave teacher education and assignment/permanence out of the scope of this project, as they would involve an analysis of teacher preparation program curricula (for teacher education) and obtaining data that is, at the moment, not available for the three selected cases (quantitative teacher turnover information). Tatto (2008) explains that there is a continuum of selectivity in how States regulate entry into the profession, ranging from low to high. Tatto does not elaborate on the measurement of induction and support variables. I have classified the cases according to whether they provide a top-level mandate for teacher support in the form of a structured induction and/or professional development program.

Fullan (2007) establishes three levels of reform: "the school and community level, the district level […], and the state or national level". For this research project, I draw the same distinction between policy development at the State or institutional level, as reflected in official documents, studies, and metrics, and local implementation of policy at the district and school level. This latter element of policy I have largely excluded from my research design, due to the clash between the individual, nuanced requirements of its study and the broad system overview I intend to provide. I do not wish to understate the importance of studying the individual implementation effort; it is quite likely the most crucial area of study for the development of educational reform applicable to an individual case. Bell and Stevenson (2006) emphasize this notion, as ultimately top-level policy is a statement of goals and a framework that is not implemented mechanically. However, my intention is to contribute to the groundwork for individualized study by providing a high-level policy context distilled into system characteristics,

and point towards its particularities as areas that should be addressed during future research and specialization efforts.

Bell and Stevenson (2006), citing Grace (1995), warn against the “development of quasi-scientific management solutions […] developed with little regard for contextual specificity” (p. 7). This concern is at the forefront in my research, as I seek to situate the teacher-focused policies of each case within a broader, qualitative and holistic view of their social context and alternate key characteristics. Amongst policymakers, the question of resource allocation has long been a contentious issue when enacting reform. Academics also point out that sociodemographic factors and welfare-state policies influence school performance in myriad ways. My position is that these factors, however important, are not by themselves sufficient to address the needs of an educational reform effort. In order to achieve the greatest impact possible on an educational system, a reform effort must be designed in a way that devotes a significant portion of its policies towards capacity building measures for the teaching workforce, from student teacher recruitment to professional development and collaboration.

My theoretical approach to this project is informed and influenced by my experiences working with low-income communities and my training in education with an emphasis on sociocultural theory. I view social justice as a necessary element for building a better society, and approach concerns about the hegemonic role of education in Puerto Rico as questions of associative and distributive justice (Bell & Stevenson, 2006). Bell & Stevenson (2006) explain that education policy theorists who adopt an associational justice approach examine “the extent to which individuals and groups are able to participate in policy-making processes”, emphasizing “the involvement of social groups traditionally under-represented in decision-making structures” such as lower-income individuals and, within the context of “traditional institutional hierarchies”

(Bell & Stevenson, 2006, p. 63). Distributive justice concerns about education, in turn, focus on the educational policy's capability to "challenge inequality" and its role in the allocation and redistribution of economic, social, and cultural capital (Bell & Stevenson, 2006, p. 63). Synthesizing these approaches and concerns leads me to regard the public school system as an important resource for enhancing and promoting equity among citizens, and to consider community access, participation and engagement with the educational process as essential elements of good policy. These theoretical paradigms frame my inquiry into how Puerto Rico may improve public education to better serve the needs of lower income students and provide them an equal opportunity of success in life.

Chapter III: Methodology

This study utilizes a multiple case study methodology. Platt (1992) traces the history of the use of case studies in academic research to three main roots: “the conduct of life histories, the work of the Chicago school of sociology, and casework in social work.” (cited in Yin, 2014). Yin (2014) explains that “case study research comprises an all-encompassing method—covering the logic of design, data collection techniques, and specific approaches to data analysis” and provides a twofold definition of a case study, encompassing its scope and features. Scope is defined as follows: “A case study is an empirical inquiry that investigates a contemporary phenomenon (the “case”) in depth and within its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident” (Yin, 2014). Like a historical study, understanding in a case study is derived from the interplay between the phenomenon and its context. However, a key distinction that separates these methodologies is the case study’s focus on contemporary events. The features of a case study, as defined by Yin (2014), are that it “relies on multiple sources of evidence, with data needing to converge in a triangulating fashion,” and that it “benefits from the prior development of theoretical propositions to guide data collection and analysis”. This approach provides the flexibility to draw information from a variety of sources, qualitative and quantitative, such as official documents, relevant literature, and interviews, and approach its interpretation from either a realist or a relativist perspective (Yin, 2014).

Case studies can be designed as single or multiple-case. When working with multiple cases, the general idea is to present them and then “draw a single set of “cross-case” conclusions” (Yin, 2014). Two possibilities for design are mentioned: presenting separate, single cases followed by a cross-case analysis, or a lengthier multiple-case analysis that draws from all cases without

dividing them into separate chapters (Yin, 2014). Traditional concerns about case studies point to the need for rigorous, systematic procedures, the importance of reporting all evidence fairly, generalizability issues, the possibility of the case study growing into an unmanageable level of effort (for both writer and reader), and its unclear comparative advantages versus other methods (Yin, 2014).

I have designed my case study to follow the best practices described by Yin (2014), and to address the traditional concerns about case study research. Due to the complexity and breadth of the topic, the case study method provides a relative advantage for my research as it provides a flexible framework within the delimited scope. The nature of the research topic led me to present each case as a separate chapter, followed by a cross-case analysis chapter. To address the generalizability issues, this cross-case analysis recognizes that cases are not statistical "samples" and as such is directed towards development of "theoretical propositions" rather than extrapolating probabilities (Yin, 2014). With this in mind, my research aim is to arrive at general propositions about the status and importance of particular elements or characteristics within an educational reform effort, considering the implications of these propositions within the Puerto Rican context. Bell and Stevenson, based on Gordon et al (1997), identify several types of policy research:

1. Policy advocacy - seeks to further a particular policy or set of policies. The analysis may be designed in a particular way to support the desired research conclusions.
2. Information for policy – seeks to "provide policymakers with information and advice". Its root premise is "a need for action" and may suggest policy creation or modification.
3. Policy monitoring and evaluation – focuses on assessment, but may be motivated by the desire to influence policy.

4. Analysis of policy determination – focuses on how a policy was developed.
5. Analysis of policy content – focus is academic, and seeks to understand the origin, intentions, and operation of specific policies.

This research project was designed with an “information for policy” approach in mind. Rather than an exhaustive analysis of a particular policy that follows its lifespan, from initiation to formulation and implementation, I aim to distill a set of policies and characteristics into system descriptions and examine how high-performing education systems approach the issue of teacher-centered policy at the strategic level, vis-à-vis other factors affecting educational outcomes.

Data collection

The research procedure began with a general investigation into the context of each of the education systems. The timeframe designated for the contextual data on educational reform efforts was from 1980 to the present (2016). Using the results of this initial investigation, I sought relevant policy documents and reports that reference or provide recent quantitative data about the policy’s effects. To find this information, state-level and Federal databases were consulted, relevant reports and academic documents detailing system characteristics were sought out, and the education administration agency website for each case was consulted through navigation and Google web crawling. This latter tool was particularly relevant for documents pertaining to the Puerto Rico Department of Education, as its online database of published documents has a very rudimentary search function and many of the website pages and agency documents reference dead links. For particular documents where a web address was known but the document is no longer available, the internet archive at www.archive.org was used to obtain the last available copy. This website utilizes an automated web crawler to periodically visit pages

and mirror their contents in order to safeguard the Internet's historical record. No modifications are made to the original files. For documents that were known or suspected to exist but were not available online, such as the Report on PISA test scores for Puerto Rico, efforts were made to contact individuals who could provide access. These efforts were not always successful, as some documents either could not be located, data access policies (or their lack) precluded their distribution, or protocols limited access to the document. In this case, other sources that referenced these documents, such as books and newspaper articles, were used. Where no reliable sources were found, the document was excluded from the case study.

My research includes qualitative and quantitative variables, to provide a more thorough understanding the particular system characteristics within their context and describe the system's current characteristics. For the quantitative data variables involved in my research questions, I will use a variety of sources obtained from state-run and OECD databases. For the data on current policies, demographics, and performance, the most recent available data was used. As part of the contextual information for each case, I will include information gleaned from the policy documents and secondary sources, and the relevant PISA scores for the 2012 round of tests. Internal validity was addressed through the collection of primary and secondary data from a variety of sources. These were ranked according to their reliability, and efforts were made to corroborate data through the use of multiple sources. All sources and documents were entered into a database, tagged by case and policy area, and used in the analysis to identify points of convergence and divergence.

Limitations on data collection included language barriers (in the case of Finland) and data availability. Where necessary, information from Finnish language documents was translated through Google Translate to further contextual understanding of the case, but only English

language text was directly quoted. Statistical data about teachers included in a Finnish language document, *Teachers in Finland 2013*, was utilized, but the years referenced and terms used were readily understandable via machine translation.

Variables

As stated, the intent of the research is to look at state-level policies to elucidate the particular characteristics of each system. To facilitate the analysis of system characteristics, the following variables were developed to tabulate and classify the intent or effect of state policy or describe the population characteristic according to a standard framework.

1. Teacher-focused policies: the description and analysis of these policies was the main thrust of the research. Each variable was set up according to the following framework:
   a) Recruitment
      i. State policies limit / do not limit access to teacher preparation programs.
      ii. State policies effectively incentivize / do not effectively incentivize particularly suitable individuals to become public school teachers.
   b) Licensing
      i. Analyze the development of the licensing system based on the description of licensing requirements.
   c) Induction
      i. The induction process is formally established and structured, or informal and/or unstructured.
   d) Professional Development –
      i. Professional development is mandatory / not mandatory.
      ii. Professional development is incentivized / not incentivized.

2. Socioeconomic Factors – as stated in the literature, these characteristics are often remarked upon as having an equivalent importance to teacher quality.
    a) Student demographics
        i. Student body can be described as homogenous/heterogeneous in terms of race
        ii. State population socioeconomic status is high/medium/low.
    b) Funding
        i. What is the amount of per-pupil spending for public K-12 education?
        ii. Is the majority of public school funding provided at the local/state level? What is the distribution?

By applying the described methodological approach and theoretical framework to the stated variables, I intend to provide a broad systemic overview of each case's teacher-focused policies, contextualized by data that describes the environment within which public school teachers operate. After analyzing the points of convergence and divergence between Connecticut, Finland, and Puerto Rico, I will consider how Puerto Rico's state-level policies encapsulate the practices and initiatives seen in the two high-performing cases. I will then present and justify policy suggestions for Puerto Rican policymakers, drawn from the strengths of teacher-focused policies identified in each case.

Chapter IV: Connecticut

Context

The state of Connecticut has an estimated population of about 3.5 million (U.S. Census Bureau, 2015) and a population density of about 286 inhabitants per square kilometer. In the 1980s, during its first wave of education reforms, Connecticut launched "[one] of the nation's most ambitious efforts to improve teaching" (Darling-Hammond, 2010, "The cases of Connecticut and North Carolina", para. 1). The seeds of these efforts were sown a decade earlier, as the state department of education moved into the policymaking spotlight and collaborated in laying the groundwork for the policy initiatives that would take place during the following decades. In the 1970s, the Connecticut State Department of Education began its transformation from "a passive, decentralized bureaucracy" (Youngs, 2002, p. 9) into an agency that actively sought to create and influence policy at the State level (Fisk, 1999).

In 1986, the state enacted Connecticut General Assembly Public Act 86-1, also known as the Educational Enhancement Act. PA 86-1 (1986) was very much a product of its social, political, and economic environment. At the national level, a wave of education reforms was taking place, spurred into action by the 1983 publication of *A Nation at Risk*. Locally, Connecticut had been recently embroiled in civil litigation due to the inadequacies of its education finance system. Wilson, Darling-Hammond & Berry (2001) note that the ground for Connecticut's education reforms was prepared by a verdict against the State obtained in *Horton v. Meskill*; in 1977, Connecticut's Supreme Court determined that, due to its overreliance on municipal funds, "[the state's] public education funding system compromised [its] capacity to provide a high quality education for all children" (1977, p. 7). During the 1980s, the state

enjoyed a period of economic growth that enabled a substantial investment in education through specific measures addressing the condition of the Connecticut education system. PA 86-1 (1986) initiated and directed a number of capacity-building efforts directed at its teacher pipeline. The act sought to improve education by addressing teacher preparation, induction, and retention, while taking steps to minimize the effects of the inter-district socioeconomic disparities that had resulted in an inequitable distribution of outstanding teachers between school districts.

In Connecticut, districts are responsible for the recruitment of teachers at the local level. Consequently, districts that served lower-income communities had problems attracting and retaining the teachers they needed. Connecticut policy addressed this problem through system-wide capacity building via a three-pronged approach; its priorities focused on teacher recruitment, professional development, and licensure standards. The reform process that officially began in 1986 raised the standards for teacher preparation and increased teacher licensing requirements. It also provided additional funds to educational districts to increase minimum beginner teacher salaries and approach parity with the wealthier districts, helping them remain competitive in their hiring (Darling-Hammond, 2010). These funds were provided through state grants to districts and cost Connecticut over $300 million, an investment made possible due to the economic surplus at the time the reform was underway (Darling-Hammond, 1997).

To comply with the legislative mandate of PA 86-1, the Connecticut Department of Education developed the Beginning Educator Support and Training (BEST) Program. This induction program, which remained active until 2012, sought to "provide new teachers with mentoring and other forms of support during the critical period of their induction into the profession while determining whether they have the pedagogical skills necessary to teach

effectively" (Youngs, 2002). BEST was highly structured, providing mentoring teams for newly licensed teachers, and training and monetary incentives for teacher-mentors. The program served a dual purpose: building teacher capacity during the early stages of their professional careers by providing a closely monitored and supported experience, and linking the induction process to Connecticut's redesigned teacher licensing tiers, which comprised the third element of the state's capacity-building efforts.

After 1986, Connecticut's teacher licensing system was restructured. The Educational Enhancement Act created the three tiers of teaching credentials that, with some modifications, still exist today: initial, provisional, and professional. Satisfactorily completing the BEST program's final teaching portfolio assessment was required in order to move from the initial educator license to the provisional one. State legislative records show that over time, the state legislature continued to enact laws to reform other areas of education, while fine-tuning details about teacher preparation, salaries, and school funding (Coleman, S., 2005). Though this subsequent fine-tuning is certainly important, relevant literature identifies the initiatives implemented through PA 86-1 as a key innovation that differentiated reform in Connecticut from those in other states. The initial professional development period provided through BEST and the teacher licensing tiers created in 1986 withstood the test of time, as it was not until the most recent education reforms that it was replaced with an updated program. In 2009, the Connecticut legislature discontinued the BEST program and created a committee to design its successor. However, the BEST program left a lasting impression in Connecticut teacher policy. The result of this committee's work was the TEAM program, which retained the mentorship component of BEST and its link to teacher credentials, while replacing the portfolio requirement with the completion of five modules throughout the duration of the induction process.

In 2012, Governor Dannel Malloy signed into law Public Act 12-116, "An Act Concerning Educational Reform", which was the state's most recent educational reform effort. Over recent years, Connecticut's policy has aligned more closely with the charter school and teacher accountability movement. PA 12-116 (2012) modifies much of Connecticut's top-level education policies. It provides some additional funding for teacher recruitment, modifies state teacher license requirements, and the introduction of a policy focus on teacher effectiveness evaluation (with ensuing consequences). It is notable that PA 12-116 eliminated permanent tenure and replaced it with a performance-based temporary tenure. The law also modified grounds for dismissal to encompass ineffective teaching, rather than the previous requirement of incompetence. Though recent changes in education policy point towards Connecticut's embrace of the mainstream staples of reform in the United States, it is too soon to point to these as catalysts for current educational outcomes. Systemic reform literature points out that the initial results of a policy shift can take over six years to show measurable, sustainable change (Fullan, 2007). System-wide change, measurable by high achievement in test scores at the state level, would take place over a longer time span. From these premises it would be safe to conclude that the current education outcomes are still the product of the state's previous policies. Much of the literature on the history of Connecticut education reform cites Linda Darling-Hammond, who has repeatedly and consistently pointed to the extended, continuous programmatic work carried out after PA 86-1 as the main driving force behind the state's high educational outcomes. (Darling-Hammond, 1997; Darling-Hammond, 2010).

Case data

Teacher Recruitment

In the years since the Educational Enhancement Act of 1986, and arguably to this day, money has been at the forefront of Connecticut's teacher recruitment strategy. During the initial stages of the reform started by the Educational Enhancement Act, the state responded to a shortage in qualified teachers by providing additional incentives to individuals who entered teacher preparation programs, including scholarships and forgivable loans (Darling-Hammond, 2010). After enacting its 1986 reform effort, it matched district funds with a state contribution in order to raise beginner teacher salary and address teacher shortages. Recruitment capacity shortcomings at the district level were addressed by establishing a supplementary funding model that provided formula grants to districts, enabling them to offer more competitive salaries. The state designated salary for full-time teachers in 1989 was twenty thousand dollars (PA 86-1). To promote entry into the teaching profession degrees and incentivize service in high-need districts, the state created scholarship programs and a generous loan forgiveness program (PA 86-1).

Some evidence seems to indicate that there was a disconnect between the policymaker expectations about the results of PA 86-1 and its actual effect, due to the decentralized relationship between the State Department of Education and local districts. Recruitment responsibilities and the negotiation of teacher contracts in Connecticut are managed at the local level, which in this case fortuitously complicated policy implementation. McDermott (2011) states that "many EEA advocates hoped that local school districts would use the higher level salaries as leverage to get teachers to agree to longer school days or years" (p. 151-152). In practice, the law did not establish this condition as a requirement for its grant program, and

districts raised salaries without a corresponding increase in teacher workload (McDermott, 2011). The increased salaries were successful in incentivizing entry into the profession and increasing the supply of teachers in the state, allowing districts to be selective and demanding in their hiring practices (McDermott, 2011).

Over time Connecticut became the third highest-paying state in the United States for a beginner teacher, and as such utilized its relatively high minimum starting salaries to incentivize entry into the profession and attract teachers from all over the United States. Looking at teacher salaries compared to the estimated average per capita income in the state, we may begin to form conclusions about the relative level of prestige of the profession within its local context. This approach can also help inform us about the attractiveness of teaching as a profession in the state. After the initial salary boost from PA 86-1 reforms, diminished State funding for teacher salaries has become a contentious issue for municipalities (McDermott, 2011) and beginner teacher salaries have seen reduced growth, staying around $40,086 in 2010, which lowered Connecticut to eighth rank nationwide in this category according to the National Education Association (2010). Average teacher salary, however, remains fourth highest in the United States at $63,152 (National Education Association, 2010).

There is substantial variation in starting salaries between districts in Connecticut, due to economic capacity and the fact that individual districts negotiate with the local union to establish three-year contracts through collective bargaining. Every year, around 33% of districts are renegotiating their collective bargaining agreements. ConnCAN, an advocacy group with links to charter schools, provides a database of teacher contracts in Connecticut for the 2014-2015 school year. According to their data, beginner teacher salaries in Connecticut start in the $37,000-$39,000 range (5 districts), and their upper range is $53,001-$55,000 (3 districts). ConnCAN

calculates the average starting salary of a teacher with a Bachelor's degree is $44,149 while the average maximum salary is $69,699. Teachers with a Master's degree have an average starting salary of $47,627 and an average maximum salary of $81,806. The U.S. Census Bureau (2015) estimated average per capita income for the state of Connecticut in 2013 at $37,892. Tables 1 and 2 illustrate the comparison between teacher salaries and per capita income in Connecticut.

Table 1. Average Starting and Overall Teacher Salaries, and Per Capita Income for 2010.

Starting	Overall	P.C. Income
$40,086	$63,152	$36,775

Sources: National Education Association (2010), U.S. Census Bureau (2015).

Table 2. Average Connecticut Teacher Salaries in 2014, and Per Capita Income in 2013.

Bachelor's Degree		Master's Degree		
Starting	Maximum	Starting	Maximum	P.C. Income
$44,149	$69,699	$47,627	$81,806	$37,892

Sources: Connecticut Coalition for Achievement Now (2015), U.S. Census Bureau (2015).

In 2010-2011, the education system had a full-time equivalent staffing of 51,013 employees. Of these, 70.5% (approximately 35,964) were general education teachers. (Connecticut State Department of Education, 2013). According to a May 2014 data bulletin, there were approximately 3,000 open positions (teachers and administrators) that the Department of Education sought to fill during this period, and 92.6% of these were filled by October 1 (Connecticut State Department of Education, 2014a). On average, there were 23 applicants for each available position. This evidences that the Department of Education possesses a strong capacity to attract human capital.

Recent developments show that, though narrower in scope, Connecticut retains its policy of providing economic assistance to districts, increasing their salary competitiveness and tying these funds to specific desirable teacher qualifications. In 2012, Public Act 12-116 established

the Municipal Aid for New Teachers grant program, aimed at improving the 10 lowest-performing school districts in the state. This grant provided State funding of up to $200,000 (per district, per year) to enable these districts to "hire five seniors […] who are graduating in the top 10% of their classes from teacher preparation programs at Connecticut colleges and universities" (PA 12-116, Section 10). The principle operating behind this program seems to be the same that justified the state loan forgiveness program in 1986: attracting new teachers (in this case, high performers in their respective programs) to the lowest-performing school districts.

With this in mind, let us turn to teacher preparation, looking at State licensure requirements and general data on teacher preparation programs as provided in Connecticut's Title II reports.

Teacher Preparation

The second prong of PA 86-1 raised standards for entry into teaching profession. As previously mentioned, PA 86-1 established three tiers of teacher certification in Connecticut: initial, provisional/standard, and professional. The distinction between the provisional license and the standard license was solely based on years of experience, and over time it was eliminated. Each license's description and requirements are as follows:

1. Initial educator certificate – has a three-year duration. To receive this certificate most candidates must:
    - "Successfully complete a state-approved planned program of general academic and professional education at a regionally accredited college or university;
    - Pass Praxis Core Academic Skills Tests (Core); and

- Pass subject-specific tests, if applicable." (Connecticut State Department of Education, 2014b)

2. Provisional educator certificate – valid for eight years. To move from an initial certificate to a provisional one, a teacher must have:
    - "10 months of experience under the initial educator certificate, and complete the two-year teacher induction/mentoring program;" (Connecticut State Department of Education, 2014b) or
    - "30 months of experience within 10 years in a public school system, approved nonpublic school or nonpublic school approved by the appropriate governing body in another state." (Connecticut State Department of Education, 2014b)
3. Professional educator certificate – highest level of certification available. Renewable every five years. To obtain it, a teacher must have:
    - "30 school months of successful appropriate experience in a Connecticut public or approved nonpublic school under the provisional educator certificate; and
    - additional course requirements, as prescribed by current Connecticut certification regulations." (Connecticut State Department of Education, 2014b)

After 1986, the Connecticut State Department of Education required teachers holding an initial certification to submit a portfolio for evaluation during their second year of participation in the BEST mentorship program in order to complete the program requirements and obtain a provisional license. If they did not meet this requirement or the portfolio did not pass the

evaluation, their participation in BEST was extended for one year while they prepared a second portfolio. Initially, if their second attempt was unsuccessful, they were denied the provisional license and could not teach in the public school system. Since 2009, when the BEST program was replaced by TEAM, related changes in licensure requirements now allow teachers to renew the initial license in order to complete the induction program (U.S. Department of Education, 2014a).

The close relationship between Connecticut's licensure requirements and its induction and mentoring program has been highlighted as a factor that made its system unique and a possible reason for its high educational achievement (Darling-Hammond, 2010; Kellor, 2002). Recently, PA 12-116 (C.G.A., 2012) introduced a number of changes to the licensure system. It modified the additional course requirements for the Professional Educator certificate, establishing that from July 1, 2016 onwards a Master's degree will be required for the professional educator license, rather than the 30 credits beyond the bachelor's degree established by PA 86-1 (C.G.A., 1986, Section 20.7). Connecticut Department of Education documents do not mention any GPA requirements for any certification. PA 12-116 also established a fourth tier of educator credentials, the distinguished educator designation. The required qualifications for this designation are:

1. Five years of teaching experience
2. Holding a professional educator certificate.
3. Possessing "additional, advanced education beyond a master's degree [in areas including but not limited to] mentorship or coaching of teachers."

4. Meeting additional performance requirements established by the Department of Education. (PA 12-116, 2012)

This additional designation addresses an internal capacity-building concern. It allows the State to identify teachers who would ostensibly be better suited for mentorship and coaching roles within the TEAM program or other professional development initiatives required by PA 12-116. However, mentor recruitment criteria established in the law open eligibility for educators holding either a provisional or professional certificate or the distinguished educator designation. One of the strengths of the BEST program was its inclusive criteria for participation, which led to a significant portion of active teachers at the time of implementation becoming mentors.

Another area where the State can influence teacher preparation is the entry requirements and number of teacher preparation programs within the state. According to Title II reports, there are currently 16 education providers (Institutions of Higher Education) with teacher preparation programs in Connecticut. There are also two alternate certification programs, of which one is the Teach for America program. The state department of education does not enforce significant barriers to entry into these programs, but it requires students to "successfully take the Praxis I Pre-Professional Skills Test to assess academic skills in reading, writing, and mathematics," prior to beginning a teacher preparation program (Kellor, 2002, p. 9).The data on teacher preparation programs for 2011-2012, 2012-2013, and 2013-2014 is as follows:

Table 3. Connecticut Teacher Preparation Programs, 2011-2014.

	Total			
Year	Providers	Programs	Enrollees	Completers
2011-12	18	114	5716	1948
2012-13	18	130	3884	1736
2013-14	18	130	3558	1685

Source: U.S. Department of Education (2014a; 2015a)

Teacher credentialing data for 2014 shows that Connecticut issued 2,663 initial teacher certifications. Of these, 41.34% were issued to teachers who received their training in another state (U.S. Department of Education, 2015). Looking at available Title II data, illustrated in Table 4, shows that a large portion of the teachers credentialed each year come from other states. This number speaks to Connecticut's ability to attract human capital in order to adequately staff its schools.

Table 4. Connecticut Teacher Credentials Issued and Percentage of Teachers Receiving an Initial Credential Who Were Trained in Another State, 2011-2014.

Year	Credentials issued	Teachers Trained in Another State
2011	2,017	34.87%
2012	2,179	44.63%
2013	2,229	79.77%
2014	2,663	41.34%

Source: U.S. Department of Education (2014a; 2015b)

Connecticut does not have reciprocity of teacher credentials with any other state, but will accept completion of a State-approved teacher preparation program at an accredited university in another state (Connecticut State Department of Education, 2014b).

Induction and Professional Development

C.G.A. PA 86-1 (1986) provided for the development of new teachers by requiring districts to create a five-year professional development strategic plan (along with additional funding to sustain this function), and creating workgroups tasked with designing and implementing career incentives at the state and local levels. Section 10(c) of PA 86-1 also authorized the state department of education to provide annual professional development

institutes, “taught by exemplary Connecticut teachers and administrators” that would serve as model programs.

In Connecticut, induction processes respond to a legislative mandate by the State, are developed and monitored by the state education agency, and responsibility to provide additional support beyond the minimum level is delegated to districts. From 1986 to 2009, Connecticut’s BEST program was the main source of professional development for teachers with an initial license (within the first two or three years of their careers), supplemented by individual district induction policies. BEST was “designed to help novices learn to examine student learning, construct and apply subject-specific instructional knowledge, and reflect on their practice” (Youngs, 2002). It promoted interaction and supplemental activities involving the central agency and each district. Earley and Ross (2006) estimate the annual cost of the BEST program at “$3.6 million for 2,800 teachers, or about $1,300 per teacher” (p. 21). Youngs (2002) notes that “While the state influences beginning teachers’ induction experiences by training mentors, offering subject-specific seminars, and requiring second-year teachers to go through the high-stakes portfolio process, new teachers’ experiences are also shaped by district policy related to induction”(p. 6). BEST contributed to enhancing the overall preparation and the culture of sharing of teachers and administrators, as its lengthy active period ensured that gradually an ever-increasing number of personnel had experience with mentorship, either as mentor or mentee. An additional stipend was provided to mentors for their participation in the program. Earley and Ross (2006), citing Curran and Goldrick (2002), enumerate various characteristics that the BEST program shared with other effective induction programs:

- promote universal participation for new teachers from both traditional and alternative preparation programs
- use experienced teachers as mentors

- include mentor preparation
- facilitate release time or reduced teaching loads for mentors and beginning teachers
- have earmarked funding from the state legislatures
- are based on clear and established standards
- are structured, defined, and evaluated by input from beginning and veteran teachers
- assess beginning teachers' performance
- have a subject-specific or content-area focus
- extend throughout the school year and beyond the first year of teaching (Earley & Ross, 2006, p. 14)

In 2009, the Connecticut State Legislature discontinued the BEST program and tasked the Connecticut Department of Education, with participation from regional education service centers, higher education, and teacher unions, to design a successor program. The result of this effort was the creation of the Teacher Education and Mentoring (TEAM) program, which builds upon BEST. The legislature also incentivized mentor teacher participation via an annual $500 minimum stipend per mentee. Of note is that responsibility for preparing and coordinating a three-year mentoring plan falls upon the district, though the central agency provides templates for these plans.

Professional development requirements for holders of a professional license dictated that teachers had to complete 90 contact hours per 5-year licensing period (Connecticut State Department of Education, 2011). Continuing education requirements were established at the state level and coordinated at the district level. In 2012, PA 12-116 introduced various changes to the state's teacher professional development requirements. It eliminated the established Continuing Education Units requirement for teachers holding a professional license, and tasked districts to provide 18 hours of annual professional development to all its employees.

Education Funding

Per-pupil spending in Connecticut is among the highest in the United States. Census data from 2012 reports that Connecticut spends on average $16,274 per student (U.S. Census Bureau,

2014a). There is, however, little uniformity in district spending due to individual economic capacity variation. Some districts spend close to thirteen thousand dollars per student, while wealthier districts spend around twenty thousand dollars (Connecticut State Department of Education, 2015a).

Until the late 1970s, education in Connecticut was primarily funded at the district level through property taxes. In 1977, the Connecticut Supreme Court ruled in Horton v. Meskill, (1977) that the state's education finance system produced unequal spending at the school level due to "its reliance on local property taxes" (Darling-Hammond, 2010, p. 135). In response to this ruling, the state education system began a reform effort to increase state contributions and provide districts with supplementary funds to level the playing field between them. Currently, education is financed through district funds with special assistance from State and Federal funds. In 2012-13, there were 1,135 public schools in Connecticut (Connecticut State Department of Education, 2013). Seventeen of these were charter schools. Education spending in 2013 was 8.1 billion dollars. Of this, 57% (4.617 billion) was dedicated to instructional staff and education services. According to a 2012 advocacy report by the Connecticut Conference of Municipalities, education funding sources during that year were distributed as follows:

Table 5. Distribution of Funds for K-12 Public Education in Connecticut by Source, 2012.

Funding source	Percentage
Municipalities	51.4
State	42.9
Federal	5.2
Private donations	0.5

Source: Connecticut Conference of Municipalities (2012).

Public spending on education in Connecticut retains a strong inclination towards local, property tax-funded spending. This has been highlighted as creating a risk of unequal access to

resources (Darling-Hammond, 2010), which the State has endeavored to mitigate through grants directed at the school districts most in need of funding. In spite of these efforts, the high reliance on local spending to fund education remains a contentious issue, with periodical and ongoing litigation attempting to increase the State's share.

Student Demographics

Another important factor identified in systemic reform literature as affecting education outcomes is the socioeconomic element. Looking at the Connecticut State Department of Education's annual reports and U.S. Census data, a broad overview of demographic characteristics can be constructed. Public school enrollment in Connecticut increased from 1995 to 2004-2005, where it peaked at 577,378 students (Connecticut State Department of Education, 2006). The student population has decreased steadily over the last ten years, reaching 541,815 students in 2014-2015 (Connecticut State Department of Education, 2016).

Accurately gauging socioeconomic factors in public education decision-making is a rather contentious issue, marred by difficulties in obtaining accurate data. One of the most-used measurements for economic need in the United States is the percentage of students who are receiving free or reduced price lunch from the National School Lunch program. Though this figure is often used by the federal government, it has been criticized for providing an extremely inexact measurement that is of limited value when discussing poverty (Cotto, 2012; Huntsberry, 2015). For the intended purpose of comparison and analysis with Finland and Puerto Rico, this data alone is of limited use. To qualify for a reduced price lunch, the student's household must fall below the threshold of 185% of the poverty level. For a free lunch, the threshold is 130% of the poverty level. Other particular characteristics of the two additional cases in this study further limit the usefulness of this comparison. With these caveats in mind, the data on free and reduced

lunches provided by the Connecticut State Department of Education is provided here, but it will be supplemented by general census information in order to paint, in broad strokes, a picture of the overall economic environment in Connecticut that is more amenable to comparison with the other cases.

In 2011-2012, 35.2 percent of students in Connecticut qualified for free and reduced price lunch. In 2012-2013, it was 36.7 percent. Previous data from 2003-2004 shows that at the time it was 26.6 percent, which reflects an increasing trend. Unfortunately, the Connecticut State Department of Education has not published statistics separating students who qualify for free lunches from those who receive them at a reduced price. Another important data element for this variable is that these students are not evenly distributed amongst Connecticut's schools. In elementary/middle schools, there is a sharp divide that correlates school classification with free and reduced price lunches. An average of 10 percent of students at excelling schools qualify for free lunches, versus 93% in turnaround schools. The difference at the high school level, 8 percent versus 82, is slightly less pronounced, but still significant (Connecticut State Department of Education, 2013).

2010 student poverty rate data from the U.S. Census Bureau estimates the number of children between age 5 and 17 living beneath the poverty line at 11.3% (New America Foundation, 2012). In terms of statewide demographics, Connecticut has less individuals living under the poverty level relative to the United States as a whole. According to the 2013 Census Poverty Estimate, 10.2% of Connecticut's total population lived under the poverty level, compared to 15.4% of the nationwide population (Short, 2014).

In general demographic terms, the Connecticut State Department of Education describes the population of Connecticut as "older, wealthier, less diverse, and more educated than the

nation on average" (2013, p. 2). In United States education statistics, race is a criteria that is often utilized when discussing disparities and diversity. In 2012, 40.5% of students in Connecticut public schools were minorities and 59.5% were white. In terms of general racial composition in the state, the following data can be gleaned from the most recent available report:

Table 6. Composition of Connecticut Student Body Race/Ethnicity, 2014-2015.

Race/Ethnicity	Percentage
White persons, not Hispanic	57.3%
Hispanic	22.1%
African American	12.9%
Asian	4.8%
Two or More Races	2.5%
Alaskan native or American Indian	0.3%
Native Hawaiian	0.1%

Source: Connecticut State Department of Education, 2015c.

NAEP data shows that the achievement gap between Hispanic and White students has decreased in recent years, though it remains an unresolved issue for Connecticut (Hemphill & Vanneman, 2011).

Conclusion

Connecticut's characteristics demonstrate a system that is highly decentralized in its administration, but retains cohesion and exerts control over teacher quality through credentialing and an established induction program. Mentoring is a mandatory requirement and provides a common experience for beginner teachers. Teacher salaries in Connecticut remain competitive, even if they have not kept up with increasing salaries in other states. Its policy shift, beginning with the Education Enhancement Act, towards linking increased credentialing requirements to higher salaries and a centrally-coordinated induction program, was successful in making teaching

a more attractive profession, allowing districts to be selective and demanding in their hiring practices.

Though Connecticut as a whole is rather homogenous, the situation has changed in recent years as more Hispanics move into the state. The public education system exhibits a somewhat diverse composition, but it continues to struggle with inequality in outcomes as measured by its achievement gap. It should be noted that two of the factors that characterized Connecticut's lauded reform effort have undergone changes during the state's most recent reforms. Its high beginner salaries meant to attract teachers have been somewhat diminished in recent years, and its two-year induction and mentoring program followed by a State portfolio assessment are often credited in the literature as the cause for Connecticut's high performance relative to the rest of the nation (Darling-Hammond, 2000; Darling-Hammond, 2010; Fisk, 1999; Fullan, 2007). It will be interesting to see how the changes to these characteristics and the modifications to the system that make it more attractive to charter schools will influence statewide educational outcomes in the future.

Chapter V: Finland

Context

The country of Finland is home to 5.4 million residents (Statistics Finland), with a population density of around 17 inhabitants per square kilometer (a tiny fraction of Puerto Rico's 407 inhabitants per square kilometer), and its official languages are Finnish and Swedish. It is one of the world's wealthiest nations and, like other Nordic countries, is renowned for its strong cultural identification with "lifelong learning" (Antikainen, 2006, p. 230). This cultural attitude is exemplified in the centuries-old Finnish proverb "Oppia ikä kaikki", meaning "All life is learning" (p. 230). Antikainen theorizes that the roots of these qualities can be found in "the necessity of coping under Nordic conditions and the prevalent Protestant work ethic" (p. 230). In keeping with these attitudes, education in Finland is almost completely publicly-financed. The Ministry of Education and Culture and the National Board of Education, both government entities, are responsible for steering and developing education at the State level (Lysne, 2006).

Since 2000, much attention has been given to Finland as an education reform success story. The roots of Finnish School reform began in the 1970s, when it was "poorly ranked educationally, with a turgid bureaucratic system that produced low-quality education and large inequalities" (Darling-Hammond, 2010, "The Finnish Success Story" para. 1). The education system was highly centralized, and curricular content was rigidly and thoroughly prescribed. Carlgren & Klette (2008) point out that during the 1990s Denmark, Finland, Norway and Sweden underwent reforms aimed at restructuring three aspects of education: decentralization/deregulation, collaboration, and commercialization. These reforms moved their educational systems from "a bureaucratic, centralised state" into "a highly decentralised and locally-based model rooted in goal steering and constructions of professionalism as a steering

mechanism" (p. 118). The authors argue that Nordic countries also sought to make teaching "a more collaborative task by focusing on team teaching and collaborative planning among teachers" and introduced "marketisation, consumer orientation and voucher systems, both within schools and within communities" (p. 118). Carlgren & Klette conclude that these reforms introduced new demands on teachers, "expanding their roles and responsibilities beyond the classroom" through "making of local curriculum plans, collaborative decision making, [and] new ways of communicating with parents and others outside school" (p. 118).

The decentralization of schools means that the State grants teachers greater leeway in terms of curricular design, permitting them to participate in the creation of locally-designed curricula that respond to student needs. In Finland, "national documents designate frames and general goals and leave it to the local level to make things substantially and methodologically explicit" (Carlgren & Klette, 2008, p. 119).

In the first PISA cycle, which ran from 2000 to 2006, Finland ranked first in all three areas (Baldi et al., 2007). After the outstanding performance of its students in the first cycle of PISA tests, Finnish education was touted by nonacademic, popular publications as a model that should be emulated in American classrooms. Takayama (2009) notes, with certain cynicism, that "Publishers filled the market with books written by individuals who had studied or lived in Finland and had suddenly become "experts" on Finnish schooling" (p. 52). In subsequent tests Finland's ranking has declined, though it remains among the top countries. Other Scandinavian countries have also ranked relatively high amongst PISA participants, leading to scholarly interest on studying these countries as a Nordic bloc that shares certain characteristics. Sahlberg (2009) provides a general description of what international visitors seeking the secret of Finnish success may find: "Most visitors to Finland discover elegant school buildings filled with calm

children and highly educated teachers. They also recognize the large autonomy that schools enjoy; little interference by the central education administration in schools' everyday lives; systematic methods to address problems in the lives of students and targeted professional help for those in need." Nordic countries are generally considered to be inclined towards a social-democratic view of society and governance; throughout most of their post-World War II history they have been examples of extensive welfare states (Frímannsson, 2006). According to Antikainen (2006), the main characteristics of the Scandinavian welfare state are:

• "citizens' equal social rights;

• responsibility of public authority (state) for welfare of all citizens;

• striving towards narrowing of differences in income and gender equality;

• striving towards full employment." (p. 235)

Gauging public opinion towards education in Finnish society, Fladmoe (2012) notes that is "seems to be a non-controversial issue among Finnish citizens" (p. 470) The author suggests two possible conclusions that can be drawn from this fact: either Finnish education suffers from a technocratic inclination that may indicate a deficiency in democracy, or the lack of polarization in Finland is a positive result of the educational reforms instituted in Finland over the past few decades (Fladmoe, 2012). This positive outlook towards public education, Fladmoe explains, may be the result of its popular perception "as a rather unique part of the Finnish welfare state [that has] survived austerity and political conflict" (p. 474).

Case Data

Sahlberg (2015) divides the history of educational change into three overlapping phases, spanning around three decades. These phases are "Rethinking the theoretical and methodological

foundation of schooling", focused on teacher preparation, "Improvement through networking and self-regulated change", and "Efficiency of structures and administration" (Sahlberg, 2015, p. 42). Of particular importance is that, starting in the 1980s and continuing over a span of 20 years, the main focus of policy change was the teacher. Policymakers, reacting to the then-highly centralized nature of the Finnish education system, saw their investment in the professionalization and development of teachers as a strategy that would enable them to shift power to the local school level while increasing the quality of education (Darling-Hammond, 2010). The national curriculum was pared down significantly, and teachers were given authority to build upon it according to their professional assessment of their students. The reform of teacher preparation enabled the creation of intra and inter-school networks of highly-trained professionals. Only after these policies laid the foundation for the education system did the focus shift to structural changes in administration, including efficiency, measures of productivity and indicators of quality (Sahlberg, 2015, p. 42).

Teacher Recruitment

Identifying what he believes are the sources of educational success in Finland, Sahlberg (2015) emphasizes various factors: the overarching goal of equal educational opportunities, the focus of quality over quantity in terms of teaching hours and homework, and the rejection of the notion of test-based accountability. However, Sahlberg points to one factor that "trumps all others: the daily contributions of excellent teachers" (p. 98). According to Carlgren & Klette (2008), the National Board of Education provides teachers with a frame curriculum and expects schools and municipalities to produce their own curricula based on its goals and their particular needs. This increased autonomy was paired with high-quality teaching education, which prepares student teachers for the professional demands that increased classroom autonomy implies.

Antikainen (2006) argues that “training of teachers for a research-based professionalism has proved on average to correspond well to such new policy developments as school-based curricula and local decision making” (p. 232). Sahlberg (2015) explains that Finnish teachers work in an environment “based on professional dignity, social respect, and collegiality” (p. 98). The author expounds that Finland “[celebrates] its educational achievements” and that it “publicly recognizes the value of its teachers and implicitly trusts their professional insights and judgments regarding schooling” (p. 99). This approach to empowerment through professional responsibility, Sahlberg argues, has made teaching an attractive career path in Finland. The public image of the profession is one important factor that influences talented individuals who choose to dedicate themselves to education.

Those who choose to become teachers in Finland (which is, by design, not an easy task) do so out of a desire to dedicate themselves to education, rather than seeing it as a second or third career choice. Citing data from the “Shifting Pedagogical Expertise Project”, the National Board of Education report *Teachers in Finland 2013* informs that “83% of teachers in general education […] wished to engage in teaching as a profession” (National Board of Education 2014, p. 36). Teacher turnover, a significant problem in the United States (Fullan, 2007), is at the same level as other professions in the country (National Board of Education, 2014). Only 20-25% of teachers considered changing profession or employment. The report concludes that “There is no sign that many of the threats facing the teaching profession in other countries are about to become more common in Finland” (p. 37). In order to maintain or improve the current level of interest in being a teacher, the report adds that “more attention should be paid to professional well-being among teachers, continuing teacher education as a means of support, and appreciation of the work of teachers” (p. 37).

Interestingly, a look at the starting salaries for teachers seems to back assertions by policy analysts that there are factors other than money involved in Finnish teacher recruitment: according to the OECD, a Finnish teacher working in secondary education has an initial salary between $31,351 and $32,276 (OECD, 2012). By comparison, a similarly situated teacher in the United States has a slightly higher salary, between $36, 772 and $37, 267 (OECD, 2012). Annual per capita income in Finland for the same period is calculated by Wolfram|Alpha (2015a) at $48,590.

The deciding factor drawing students towards a career in teaching, it seems, can be traced to institutional and popular culture. Prevailing institutional culture in Finnish schools is that administrators should "listen to teachers, then back up their words by giving teachers autonomy and resources" (Frysh, 2011). Finnish teachers do not seem to experience strong pressure from state steering documents. (Carlgren & Klette, 2008, p. 126) Additionally, in Finnish society teachers "possess a strong sense of being esteemed professionals similar to medical doctors, engineers and economists" (Sahlberg, 2015, p. 105). Sahlberg (2015) notes three factors that potentiate to build the teaching profession's social, cultural, and symbolic capital: professional dignity and social respect, high-quality teacher education, and elevated student admission requirements. In the next section, we shall look in more detail at this last factor.

Teacher Preparation

Concurring with Sahlberg's observations about the value of teachers in Finnish culture, Antikainen (2006), quoting Westbury et al. (2005), explains that "In Finland, [teachers must possess] a Master's degree, which has been internationally noted in attempts to pinpoint reasons for the high success rates of Finnish youngsters in PISA studies" (p. 232). Though interest in becoming a teacher is high among the country's youth, Finnish teacher education is highly

selective, with higher education institutions being “able to select the most suitable and motivated applicants”. Out of the total number of applicants each year, about 10% are selected for teacher preparation (National Board of Education, 2014).

Table 7. Applicants and Accepted Students in Finnish Teacher Preparation Programs, 2011-2013.

Year	Applicants	Accepted
2011	7,079	703
2012	7,918	779
2013	8,345	818

Source: National Board of Education (2014).

There are 8 universities in Finland with teacher preparation programs (Sahlberg, 2015), a rather low number for the population they serve, but consistent with Finland’s reputation for selectivity when accepting student teachers. Criteria for entry into these programs is established collaboratively between the universities and the Ministry of Education. Candidate selection for teacher education in Finland is highly competitive, prompting Sahlberg to pronounce that “only the best and most committed” (p. 103) are able to become teachers. Applicants must undergo a two-phase process that begins with a written examination “based on a set of scientific and professional articles” (Sahlberg, 2015, p. 103) made available two months in advance. Candidates who do well in this exam move on to the second phase, which tests “the candidate’s personality, knowledge, and overall suitability to become a teacher” (p. 104). It is notable that all candidates are required to attend an individual interview where they are asked, among other things, to demonstrate their interpersonal skills and explain the reasons for choosing teaching as a profession (Sahlberg, 2015). The final selection is conducted on the basis of a holistic evaluation of the candidate, including their grades, exam results, particular merits and prior experience in education.

The reason this process is so important to Finnish education is that it serves a dual purpose: it acts as a highly selective filter at the beginning of the applicant's career, rather than at the end (the opposite of the traditional certification examinations), and it contributes symbolic and social capital to the profession by making entrance the result of a rigorous selection competition, enhancing teachers' standing within Finnish society. Sahlberg notes that similarly selective programs are the norm in other high-performing systems such as Singapore, South Korea, and Ireland. The National Board of Education (2014) points to studies supporting the notion that establishing this highly selective filter before studies begin, and paying particular attention to having applicants make an informed career decision, has the additional effect of ensuring lower teacher turnover.

To be able to teach, an applicant must complete a teacher education program conducive to a Master's degree in education. Nordic teachers are required to be university graduates with subject-specific training. However, the particularities of Finnish higher education mean that it is not possible to simply compare their Master's degree to the degree offered by American universities. The Finnish Master's program can take the form of either a five-year program entered by applicants out of high school, or a consecutive program that provides pedagogical training after the initial degree (National Board of Education, 2015). Once obtained, the University degree constitutes a license to teach (Sahlberg, 2010).

In terms of qualifications, *Teachers in Finland 2013* provides data to the effect that "96 per cent of principals and lecturers and 94 per cent of primary school teachers were fully qualified." (National Board of Education, 2014, p. 7). The overall number of fully qualified teachers (at all levels, including secondary, vocational and special education teachers) is 88.7 percent. The report also concludes that teacher preparation programs have increased in

popularity at the same rate that teacher education programs have increased the number of applicants selected, and therefore entrance rates have remained constant. Since 2000, the Finnish Ministry of Education produces a forecast about the need for teachers every 3 to 4 years. This forecast is based on a number of factors, including teacher age, qualification level, expected number of students and group sizes (determined at the municipal level), and other more abstract considerations about institutional changes and the labor market. It is aimed at providing a quantitative target for teacher training in specific areas, and forms the basis for a periodically-renewed agreement between the Ministry of Education and Finland's Institutions of Higher Education and polytechnics. Throughout the life of the agreement, the Ministry of Education provides statistical data and written feedback to the institutions about the fulfilment of its targets. At the same time, the report suggests that the volume of pedagogical education should be limited in order to avoid an over-supply of teachers (National Board of Education, 2014).

Induction and Professional Development

The high level of decentralization of the Finnish education system, and the autonomy it provides at the local level, has inherent consequences for teacher professional development and continuing education. Support structures for teachers are delegated to individual schools and funded by a combination of municipal government and state government funds. Therefore, it can be said to be unstructured and diverse. Professional development and induction processes have historically not been centrally regulated or required, making initial teacher experiences differ significantly according to particular practices at municipalities and schools. The Finnish Ministry of Education has recently remarked upon the apparent disconnect amongst Finnish teachers between initial teacher preparation and continuing professional development. Data from the 2013

National Teacher Survey (National Board of Education, 2014) and the TALIS 2013 (OECD, 2014) Survey estimates participation rate in professional development activities at around 80%.

Further evidence that these activities are generally unstructured is the number of teachers who report having formally planned their continuing education activities. The report *Teachers in Finland 2013* notes that “a personal training and development plan is still rare among teachers.” (National Board of Education, 2014 p. 7) as only 14.5 percent of them had such a plan at the time the report was published. The Board of Education concludes that Finnish initial teacher education “has developed due to its strong basis in research” (p. 40), and that to ensure high-quality education, continuing teacher education must follow the same path.

Education Funding

Education in Finland is financed almost exclusively from public sources. Sahlberg (2009) characterizes Finnish spending on education as "reasonable", pointing out that in 2005 "expenditure on educational institutions as a percentage of GDP (...) is at the OECD average, 6.0%". In the period between 1995 and 2004, during the height of its reform efforts, "public and private investment in education increased 34%" (Sahlberg, 2009). Local authorities in Finland, usually municipalities, have a legal mandate to provide basic education and possess the taxing authority to partially fund it. The Center on International Education Benchmarking reports that “Funding responsibilities are divided between the federal and municipal governments with the federal government assuming about 57% of the financial burden of schools and municipal authorities assuming the remaining 43%” (2011).

Funding allocation for the annual school budget is performed at municipal and school levels, which causes variations in budgets from school to school according to local economic

capacity. Overall, per Pupil expenditure for primary and secondary education is slightly less than the OECD average (Sahlberg, 2015). Finland spent an average of $9,624 per student in 2012 (OECD, 2015). The OECD average for this period was $10,220 (OECD, 2015).

Student Demographics

Basic education in Finland is comprised of 9 years of primary and lower secondary education, with most students starting at 7 years old and finishing at 16. Recently, Finnish policymakers extended mandatory education to the pre-primary level, but this is mostly a symbolic gesture of state power backing cultural practice, as a majority of parents were already sending their children to school at 6 years old. Finnish students finish their compulsory education at 16, which is followed by optional upper-secondary or vocational school education. 90% of students continue their studies at this point (Sahlberg, 2015).

School sizes in Finland are relatively small, with most having around 300 students (Darling-Hammond, 2010). These schools are highly homogenous in educational outcomes and demonstrate a small achievement gap. Välijärvi (2012) notes that variation in PISA performance among schools in Finland is very low. PISA 2009 results support this assertion, as the lowest-performing schools in Finland still match the average OECD results (OECD, 2010). Based on these results, Valijarvi (2012) posits that socioeconomic and cultural factors in Finnish schools seem to have little effect on educational outcomes. Antikainen notes that throughout the Nordic region there are “low differences in income, and more generally low class differences” (p. 233) which might be one of the elements influencing PISA results. Another aspect of Nordic education tied to the concept of equity is the rejection of tracking and differentiation. Thanks to these factors the Nordic model, and Finland in particular, have earned a reputation as a “producer of low social inequalities” (p. 233).

Conclusion

From the comparative data provided by the PISA test and the relevant literature on Nordic education, we may consider Finland as an exceptional case study in education reform: through a reform process that spanned over 30 years, it became a high-achieving country that attracts high-quality human capital to the classroom and provides the necessary support structures that facilitate teacher collaboration and the effective use of autonomy in the preparation of local curricula. It significantly limits access to its teacher preparation programs both through stringent requirements and the regulation of available slots according to supply and demand studies. Licensing requirements are minimally developed, as completing a teacher preparation program is the only requirement. Teacher induction and professional development have not been a priority in Finnish education policies, though this is starting to change. Neither are mandatory, and have been largely dependent on school and district practices. Studies show that participation in continuing education may be attributed to intrinsic factors rather than policy mandates.

In terms of socioeconomic and demographic characteristics, Finnish society is highly homogenous and with a relatively high economic status. These qualities provide alternate factors for educational success due to more equitable funding and student access to support outside the school, which can potentiate the efforts of Finland’s teachers and result in the high level of achievement seen in PISA scores.

Chapter VI: Puerto Rico

Context

Puerto Rico is a territory within the United States that has an estimated population of 3.5 million (US Census Bureau, 2014b), and a population density of 400 inhabitants per square kilometer in 2010 (World Bank, 2015). Formal schooling in Puerto Rico began when it was a colony of Spain, but the roots of its current education system can be traced back to the island's military occupation by the United States. During this time, the structures and basic characteristics that would develop with the passing of time were established (López Yustos, 2006). Education in Puerto Rico has historically been imbued with a strong cultural and nation-building significance, and its hegemonic power has often been wielded with purpose by the island's cultural elites (Schmidt, 2014). A brief overview of its development is important to contextualize Puerto Rico's current situation and the result of its efforts to reform its education system during the past three decades. Broadly construed, we can divide the education department's history in three periods based around the shifts of its linguistic and cultural policy, which Schmidt calls Americanization period (1898-1948), the Puertoricanization policy (1949-1968), and the Bilingualization policy (1969-present) (Schmidt, 2014). Though Schmidt's focus is on language policy, these periods provide a useful frame of reference to understand the Department of Education's history, policies, growth, and development. During the first two periods, well-established elites held hegemonic and political dominance over the government. During the third (and still ongoing) period, the balance of ideological power has been divided between two opposing political parties and control of the government has shifted regularly between them.

During its beginnings, education was viewed as a key element of the military government's Americanization policy. The Foraker Act established the position of Commissioner of Instruction, and gave the individual in this position broad powers to plan, expand, implement, and spend in order to establish instructional practices in tune with the government's agenda. Power was, then, undeniably centralized, to the point where López Yustos (2006) claims that nothing could be done about education on the Island without the commissioner's consent. The commissioner, in turn, answered to the political imperatives of the island administrators. Schmidt (2014) remarks upon the "centralized, political, and non-participatory nature of the department of education" (p. 123) in the context of its language policies, but the same conditions apply generally to the department's operation and administration. The consolidation of power at its central levels is a characteristic that has remained a constant in Puerto Rican education to this day, presenting unique challenges and dynamics as the island undertook its latter reform efforts.

Schmidt (2014) points out that, during the transition of power from American authorities to local politicians and the establishment the Commonwealth of Puerto Rico, the Public Instruction System responded to the increasing population on the island with "an aggressive program of building schools, hiring new teachers and improving the attendance of children" (p. 124). During this time the Constitution was drafted and approved, enshrining in its bill of rights a child's right to a free education (P.R. Const. art. II, § 5). Article 4, Section 6 created the Department of Public Instruction as part of the executive branch of government. Almost immediately after the Partido Popular Democrático lost the 1968 elections to the Partido Nuevo Progresista, Lopez Yustos (2006) notes, shadows of political partisanship in the Department of Education began to be apparent. The new administration, unable to lay off personnel who had

been hired under the PPD, proceeded to bring in new employees as they attempted to steer the education system according to their ideological and political preferences (López Yustos, 2006). This problem would be exacerbated by frequent electoral changes over the following decades (López Yustos, 2006), leading to a gradual increase in administrative personnel at the agency.

In the 1990s, three laws sought to reform the education system: Law number 68 of 28 August 1990, also known as the Organic Law of the Department of Education, Law number 18 of 16 June 1993, also known as "Ley de Escuelas de la Comunidad", and Law 149 of 15 July 1999, which repeals both laws and incorporates some of their characteristics into a new organic law. Decentralization of the by now monolithic agency was a primary concern for policy makers, who sought to provide schools with *autonomía administrativa, docente y fiscal* (administrative, pedagogical, and fiscal autonomy) within the limits of the Organic Law (1999). Over the course of the next 17 years, the Department of Education has been criticized for failing to attain the level of decentralization evidenced in the Organic Law's intent. Schmidt (2014) comments that "there remained strong institutional obstacles towards a real decentralization and participation of teachers and parents in public education" (p. 136). Schmidt highlights four obstacles to decentralization faced by Puerto Rican schools: limitation imposed by schools' "modest fiscal autonomy," and their lack of participation in the teacher hiring process, curriculum development, and educational language policies (p. 136). An additional problematic aspect of State-level education policy during this period identified by Schmidt (2014) is that "decentralization ended at the school director's level" (p.136). By focusing on school principals as implementers of the educational reform, the reform framework implemented in the 1990s reduced or denied the agency of teachers and parents and thus disincentivized their participation in the process.

Performance in PISA 2012

An additional problem when gathering information about the Department of Education is a lack of transparency that limits the public availability of key documents and information. An example of this was the process of obtaining the PISA 2012 report prepared by Ying Chan et al. (2014) for the Department of Education. After numerous unsuccessful attempts, it was necessary to request assistance from a journalist with interest in the topic, requesting he attempt to obtain the report. Various months later, the draft of the report was leaked and published online. A final version, though commissioned by the Department of Education, was never officially published. The results for Puerto Rico, Connecticut, and Finland in the areas of mathematics, science, and reading are summarized in Table 8, and their respective rankings in Table 9. Each subject area was scored according to a 0-1000 scale, and the results were averaged by country, state, or territory. There were 66 participating countries/territories, and 3 U.S. states. These 3 states were not included in the report's ranking list, but in table 9 Connecticut has been inserted in the position it would have achieved according to its average score.

Table 8. PISA 2012 Scores for Puerto Rico, Connecticut, and Finland.

	Jurisdiction		
Subject	Puerto Rico	Connecticut	Finland
Mathematics	382	506	519
Science	401	521	545
Reading	404	521	524

Source: Ying et al., 2006.

Table 9. PISA 2012 Ranking by Score for Puerto Rico, Connecticut, and Finland.

	Jurisdiction		
Subject	Puerto Rico	Connecticut	Finland
Mathematics	61st	18th	12th
Science	59th	16th	5th
Reading	56th	10th	6th

Source: Ying et al., 2006.

Finland scored amongst the highest countries overall, and Connecticut consistently scored at a higher level than the United States average. Puerto Rico obtained lower scores than the U.S. and OECD countries. However, there is not much in this report that would justify the secrecy with which it was treated. With this in mind, the next sections proceed to explore and analyze available data and policy documents, and examine how they relate to the previous two cases.

Case data

Teacher Recruitment and Selection

Throughout the history of Puerto Rican education, policymakers have enacted various policies aimed at incentivizing entry into the education workforce. Amongst these, measures addressing the cost and availability of higher education stand out. The University of Puerto Rico was created in 1903 with the intention of providing that workforce, and López Yustos (2006) points out that during its beginnings the campus' education department had the largest enrollment count of the university. Other higher education institutions were eventually established and developed their own teacher preparation programs. Currently, a large number of students attend these teacher preparation programs (U.S. Department of Education, 2014b, 2015c), many of whom proceed to work in the island's public and private schools after they graduate.

The cost per credit of higher education in Puerto Rico is among the lowest in the United States, which lowers barriers for applicants. Many students at public and private universities make use of university or federal assistance programs to finance their studies. Institutional financial aid is given to high-achieving students who are in the top percentile of their cohort, and

covers the cost of credits at the institution. Federal assistance programs include subsidized loans guaranteed by the United States Government, and Pell Grants. These loans can be discharged after five years through the Federal Teacher Loan Forgiveness program, for which many local schools qualify due to the socioeconomic composition of their student body. Pell Grants were established in 1983, and provide funds according to a formula based on the student's socioeconomic status. López Yustos (2006) remarks that the Pell Grant's availability greatly increased the demand for postsecondary education in Puerto Rico. For many private higher education institutions, federal student aid contributes a significant portion of their annual income. It falls upon these institutions to organize promotional campaigns that entice graduating high school students to continue their studies in one of the programs they offer.

Puerto Rico has an extremely low teacher immigration rate, with less than 1% of teachers receiving initial teaching certificates coming in from another U.S. state (U.S. Department of Education, 2015c). It seems that the island's particular historical circumstances, its relative geographic isolation, and the efforts of its institutions of higher education have produced a system where a relatively plentiful supply of high school graduates choose to enter teacher preparation programs. During academic year 2009-2010, Puerto Rico was 9th in the top 10 teacher producing states by number of enrollees, with 19,869 student teachers in traditional programs (U.S. Department of Education, 2013). This total does not include the number of enrollees at University of Puerto Rico Mayaguez, which could bring the global number to 20 thousand. However, published enrollment numbers for subsequent years showed a significant downward trend that nearly halved the number of enrollees in two years (U.S. Department of Education, 2014b). In the 2015 Title II report, there was a slight increase in the number of enrollees. Table 11 shows that during Academic Year 2014-15 there were 12,229 enrollees in

Puerto Rico's higher education institutions. It should be noted that Puerto Rico is currently undergoing a large school-closure and consolidation process due to a dwindling student population (Henry, Bailey, & Acosta, 2014). Due to this factor, a scaling back of teacher preparation programs and enrollees may prove warranted.

The number of teacher preparation programs and enrollees in Connecticut and Finland are much lower than in Puerto Rico, though their populations are similar (Connecticut) or larger (Finland). Connecticut has 3.591 million residents (Wolfram Alpha, 2015b), with 18 teacher education providers and 3,558 students (US Dept of Education, 2015b). Finland has 5.43 million residents and 8 universities with teacher preparation programs (Sahlberg 2015, p. 103; Statistics Finland, 2016). Finnish programs accept around 10% of applicants (Sahlberg, 2015).

As evidenced in the two high-performing cases previously presented, increased selectivity during admission to teacher preparation programs has been a key policy element in both Connecticut and Finland. Finnish teacher education policy in particular presents high barriers to entry and a significant focus on starting the teacher education process with the best candidates available. Selectivity criteria for teacher preparation programs in Puerto Rico are established individually by each institution, and are relatively low compared to other programs. The Department of Education's "Reglamento Para la Clasificación de los Programas de Preparación de Maestros en Puerto Rico Conforme a los Requisitos del Programa de Título II, Secciones 207 Y 208 de la Ley Federal de Educación Superior" (hereafter Teacher Preparation Program Regulation) includes a broad mandate for teacher preparation programs to "have and implement plans to recruit, admit, and retain the student population that demonstrates potential for professional success in schools." (Department of Education 2006, p. 17, translated by author).

Section 2.4.1 of the Teacher Preparation Program Regulation deals with credentials and traits of program entrants, mandating a "comprehensive" (Department of Education 2006, p. 18, author's translation) review of applicant credentials. Admission criteria should include a "complete evaluation of academic competence, biographical information, and evidence of successful conclusion of university coursework" (p. 18, author's translation). This requirement may at first glance seem to be in line with the criteria used by the other cases, but in practice it leaves much to interpretation by individual teacher preparation programs. To further elucidate program admission requirements, one can turn to section 1.b of the Higher Education Act Title II Reports, published annually by the Federal Department of Education. These documents are prepared using self-reported data submitted by each teacher preparation program. In the 2015 report, 34 Institutions of Higher Education with "traditional" teacher preparation programs and 9 with "alternate" programs submitted information about their entry requirements. The U.S. Department of Education requires information on the applicability of a predetermined set of admission criteria. Most programs have minimum GPA and transcript requirements, but inclusion of these basic criteria falls short when we consider the selectivity requirements developed in the other two cases studied. Two additional criteria disclosed in Title II reports that would indicate a more holistic approach and heightened selectivity in admissions are the requirement of an interview and a written statement or essay. Table 10 summarizes the information disclosed about these requirements in the 2015 report.

Table 10. Interview and Personal Statement requirement in Puerto Rican Teacher Preparation Programs, 2015.

	Traditional Programs		Alternate Programs	
Requirement	Yes	No	Yes	No
Interview	6	29	5	4
Essay or Personal Statement	3	31	1	8

Source: U.S. Department of Education, 2015c

Out of 34 traditional undergraduate programs, only 6 (17.6%) indicate that they require an interview with applicants as part of their admission process. 3 out of 34 (8.8%) require an essay or personal statement, and only 2 out of 34 (5.88%) require both. In "alternate" teacher preparation programs, 5 out of 9 (55.5%) report that they require an interview. Only 1 of 9 requires an essay or personal statement. This program, belonging to University of Puerto Rico Mayaguez, is the only alternate teacher preparation program to require both a personal statement and an interview. Though it would be of great use to calculate the actual number of teacher students who must fulfill these requirements, the structure of the data reported makes it impossible. Enrollment information is grouped by institution, conflating traditional and alternate programs into one number from which no meaningful conclusions can be drawn. That said, under the most favorable interpretation for traditional programs (possibly overestimating their total enrollment) less than 13% of student teachers go through an interview process and around 7% are required to provide a personal statement. These numbers cast a shadow of doubt on the thoroughness of the programs' examination of non-academic factors. It is clear that these requirements have not been embraced jurisdiction-wide, inviting questions as to the comprehensiveness of the admission process and whether it properly serves Puerto Rico's current needs by allowing teacher preparation programs to focus their resources on the most qualified and likely to succeed teacher candidates.

In contrast, both of the high-performing cases studied present much more extensive use of non-GPA criteria. The Title II report for 2015 shows that 100% of undergraduate teacher preparation programs in Connecticut require an interview with the candidate (U.S. Department of Education, 2015b). Some programs require candidates to complete PRAXIS II or PRAXIS Core, a standardized test "designed to provide comprehensive assessments that measure the skills and

content knowledge of candidates entering teacher preparation programs," (Educational Testing Service, 2016) before entry into teacher preparation programs. The Connecticut State Department of Education requires that all applicants pass this test, or qualify for a waiver, before initial licensing (Connecticut Department of Education, 2015b). As previously discussed, admission to Finnish teacher preparation programs involves a holistic evaluation of the applicant's academic record, personal traits, achievements, and personality that includes an interview and a statement about the reasons for wanting to become a teacher (Sahlberg, 2015). Finnish programs also have strict GPA requirements that result in admission of the top 10-15% of students who apply, and all applicants must take a standardized entrance examination (Sahlberg, 2015).

Salaries

In Puerto Rico, teacher salaries have long been a contentious point and the subject of numerous political promises. Relatively recently, Law 109 of 2008 was enacted to increase a starting teacher's monthly salary from $1,500 to $1,750 ($21,000 annual salary). The explanatory introduction to this act establishes that "in spite of the unquestionable importance of teachers to society, it is a fact that they are not adequately compensated for their labor" (Ley de Aumento, 2008) and that Puerto Rican teacher salaries are "much lower than the average teacher salary in all 50 U.S. states (Ley de Aumento, 2008). At the current scale, a new teacher in Puerto Rico is earning $6,274 less than the lowest starting teacher salary in the United States during 2013, and $15,141 less than the nationwide average starting teacher salary for the same period (National Education Association, 2013). The two cases studied show significant deviation from Puerto Rico: Connecticut had the sixth highest starting teacher salary in 2013, while Finland pays its teachers at about the average rate for OECD countries (Sahlberg, 2015). While

Connecticut uses monetary incentives to attract talent, Finland's emphasis is on other intangible benefits for teachers such as high social capital and professional autonomy. However, in both case studies it is apparent that even if teacher salaries are not the deciding factor for improved educational outcomes, they can hinder other improvement efforts if no measures are taken to remain competitive. Though Puerto Rico has taken some steps in this direction, it has much room for improvement.

Teacher Preparation

Data submitted in response to Title II reporting requirements shows that there are currently 44 education providers (Institutions of Higher Education) with 249 teacher preparation programs in Puerto Rico. The data on teacher preparation programs for 2011-2012, 2012-2013, and 2013-14 is as follows:

Table 11. Puerto Rico Teacher Preparation Programs, 2011-2014.

Year	Providers	Programs	Enrollees	Completers
2011-12	36	206	13,836	1,948
2012-13	36	206	11,489	1,756
2013-14	44	249	12,229	1,489

Source: U.S. Department of Education, 2014b, 2015c.

Teacher credentialing data for 2014 shows that Puerto Rico issued 2,484 initial teacher certifications. Of these, 0.81 % were issued to teachers who received their training in another state (U.S. Department of Education, 2015c). Looking at available Title II data, illustrated in Table 11, practically all of the teachers receiving initial credentials each year come from local teacher preparation programs. It is likely that this phenomenon occurs due to a variety of factors, chief amongst them that teacher salaries are low relative to the United States and that the language barrier might pose an insurmountable obstacle to most teachers. Most U.S. states see

teachers move in and out of the jurisdiction in search of better job opportunities, but Puerto Rico almost exclusively incurs in a loss of locally-credentialed teachers to other states.

Table 12. Puerto Rico Teacher Credentials Issued and Percentage of Teachers Receiving an Initial Credential Who Were Trained in Another State, 2011-2015.

Year	Credentials issued	Teachers Trained in Another State
2011	1,938	-
2012	3,283	0.64 %
2013	4,606	0 %
2014	2,484	0.81%
2015	1,874	0.64%

Note: Data about teachers trained in another state is unavailable for 2011.
Source: U.S. Department of Education (2015c)

Highly-Qualified Teacher shortage areas in Puerto Rico, as reported by the Department of Education, have remained stable over the years. The following areas are classified as *areas de difícil reclutamiento*, which means that the Department may hire teachers who do not meet the required qualifications if a suitable candidate is not found: special education, elementary and secondary English, secondary mathematics, high school physics and chemistry, and environmental sciences.

Though the Puerto Rico Department of Education possesses the power to regulate teacher preparation programs, analysis of the documents where it establishes its high-level policies and the reports submitted to the Federal Department of Education shows it to prefer a soft approach focused on a narrow set of minimum requirements. At times, it seems to act in more of an advisory role than as a regulating body. One example of this is the way it addresses Highly-Qualified Teacher shortage areas, reporting that “programs are informed of critical shortage areas and are urged to develop programs and initiatives in efforts to address identified and potential shortages” (United States Department of Education, 2014b, Section IX). In contrast, the

Finnish Ministry of Education regularly conducts studies about teacher supply and demand and has the authority to limit or expand available slots in teacher preparation programs, an undertaking that is no doubt facilitated by the publicly-funded nature of all higher education in Finland. The relationship between the Puerto Rico Department of Education and the local teacher preparation programs does not extend to this level, and shows few significant steps taken to control and shape the input and output of teachers by the 44 education providers operating on the island.

Licensing

Teacher certification in Puerto Rico has two levels, and advancement is determined solely by length of time served as a teacher. Most new teachers begin their career with a regular certification, which is renewable every six years and can eventually be converted into a lifelong certification. The regular certification's description and requirements are as follows:

1. Regular teacher certification – renewable every six years. According to the most recent version of the Teacher Certification Regulation, applicants must:
    a. Be 18 years old or older.
    b. Possess the required academic and professional preparation.
    c. Pass the required teacher certification exam (PCMAS) according to the regulations established by the Secretary
    d. Have completed a course on the nature of exceptional children, including the concepts of inclusion and assistive technology.
    e. Have completed a course on integrating technology with education, including identifying trustworthy sources and adapting them to the curriculum.
    f. Have completed a course on the history of Puerto Rico.
    g. Have completed a course on the history of the United States.
    h. Provide all personal and professional documents required by the Department of Education, delivered either personally at the Regional Office or via certified mail. (Department of Education, 2012)

After 50 months of teaching under a regular license, a teacher can request a lifelong certification under Law 94 of June 21, 1955 (Ley para Regular la Certificación, 1955).

Provisional teacher licenses are also issued to teachers in private schools, according to requirements established by the school. During the 2012 revision of the Teacher Certification Regulation, the Department of Education raised the required GPA for certification applicants. For School year 2011-2012 and 2012-2013, it was 2.50. For 2013- 2014, 2014- 2015, and 2015-2016 it is 2.80, and for 2016-2017 and on the required GPA will be 3.00. This change formally establishes the Department of Education’s prioritization of teacher quality through increased requirements. However, the two other cases studied show evidence of holistic evaluation processes that go beyond establishing a minimum GPA, while in Puerto Rico this is left to the individual program.

In comparison with the other two cases studied, Puerto Rico stands in a middle ground in terms of development of its teacher licensing system. At the lower end of the spectrum we have Finland, where completion of the teacher preparation program “constitutes a license to teach” (Sahlberg, 2010, p.3). On the other hand, Connecticut developed a multi-tier license system that over time has been refined to tie into both length of service and the teacher’s professional advancement (C.G.A. Public Act 86-1, 1986; Connecticut State Department of Education, 2014b).

Induction and Professional Development

Induction and Professional Development have been the subject of many top-level policy documents in Puerto Rico, with varying degrees of emphasis and specificity. The federal framework within which Puerto Rico operates, and its high reliance on federal funds, further direct policy development in this area while at the same time constricting policymakers’ options and limiting their willingness to innovate. Many policy developments at the state level can be

correlated to a federal mandate or initiative, and these represent but one option among many paths that can be taken to improve education.

Law 68 of 28 August 1990 codified into the Department of Education's Organic Law a mandate directing the Secretary of Education to establish an induction program that would use teacher mentor and mentees in coordination with training provided by local universities (Ley Orgánica, 1990, Article 3.05). It also directed the Department of Education to "facilitate, coordinate with schools, demand, and regulate continuing education for all teachers" (Ley Orgánica, 1990, Article 3.08). Law 149 (Ley Orgánica, 1999) later replaced this organic law, and in some ways represented a step back for legislative policy in this area, as it instructed the Secretary of Education to "coordinate" with local universities "the establishment of continuing education programs" (Ley Orgánica, 1999, Article 4.04) and to "establish continuing education programs for faculty and non-faculty" (Article 4.08). This law also removed the section requiring the establishment of an induction program, and the lack of a clear legislative mandate for this teacher support structure remains to this day. The proposed education reform legislation introduced by Senator Bhatia in 2015 builds on and expands Article 4.08 by adding a minimum requirement of 6 credits of continuing education per semester and reintroducing language pertaining to the regulation of these programs (P.R.S. 1456, 2015).

The Department of Education has also produced various lower-level public policy documents that deal with the professional development of teachers. The Professional Standards for Teachers, published in 2008, include a section dedicated to professional development. It emphasizes its importance for all teachers and provides guidance about the self-reflection process that should inform a teacher's professional development planning (Aragunde, Vilches, & Reyes, 2008). Previous Department of Education Regulations going show that Puerto Rico has

historically instituted a continuing education requirement for teachers holding a regular license. The number of contact hours required has varied; in the 2004 version of the Teacher Certification Regulation, it required 180 contact hours per six-year period (30 hours per year) (Puerto Rico Department of Education, 2004). When this regulation was revised in 2012, the continuing education requirement remained but information about the required contact hours was removed from the text, instead allowing the Secretary of Education to set and modify the amount via circular letter. After a thorough review of the Department of Education's circular letter database, looking at all circulars published from 2012 to 2016, I have not found a document specifying the amount of continuing education contact hours required to renew a teacher certification. This 30-hour requirement is significantly more than what is asked of teachers in both Connecticut and Finland. In Connecticut, teachers holding a professional license must complete 18 hours of continuing education per year, while in Finland there are no state-level minimum requirements and very few teachers partake in structured professional development (OECD 2014; Sahlberg 2015).

Another important policy initiative for professional development of teachers in Puerto Rico was established by Law 158 of June 30, 1999, also known as the *Ley de Carrera Magisterial*. Law 158 and its corresponding regulation sought to promote professional development by establishing a teacher rank system and providing a series of salary incentives for reaching specific milestones on a 5-year plan (Ley de Carrera Magisterial, 1999). Some parallels can be drawn between Law 158's system of rank and pay increases and Connecticut's multi-tier teacher licensing plus financial incentives to recruit teachers. It brings teacher agency to the forefront by tying their professional advancement to a plan each individual designs, and it provides necessary additional compensation that would help retain these teachers in the local

workforce. Unfortunately, two elements had a significant impact on Law 158's outcomes. One of them was the Department of Education's screening and evaluation of continuing education providers, which coupled with its highly politicized status presents a quality control quandary. The second problem was the economic burden that increasing teacher salaries posed. For this reason Law 7 of 2009, which declared a fiscal crisis and enacted emergency measures, temporarily suspended the benefits the *Carrera Magisterial* provided to teachers (Ley Especial, 2009). Given the current financial turmoil in Puerto Rico, the future viability of these incentives remains in doubt.

The two other cases discussed present opposite sides of the spectrum Puerto Rico straddles; Connecticut's induction and professional development programs form the centerpiece of its teacher-focused policies (Darling Hammond et al., 1997; Fisk, 1999), while Finnish professional development is almost completely informal and unstructured (OECD 2014; Sahlberg 2015). Despite extensive policy measures taken to promote professional development by policymakers, the structure of professional development initiatives in Puerto Rico flows from a structured policy framework into a fragmented implementation at the school level (Fortis, 2005). Its value is recognized and promoted, but it falls upon the teachers, schools, and education providers to implement it piecemeal and then report to the central administration its progress. Fortis (2005) looked at three schools and found that most induction practices for Puerto Rican teachers were "informal, improvised," (p.1) and lacked proper follow-up. None of the schools had an established induction plan (p.9), and most of the induction process was dedicated to procedure and policy requirements rather than support and training. Furthermore, school principals did not adequately live up to the educational leader role that was required of them (p.8). Fortis (2005) illustrates the significant gap that can occur between top-level policy and the

implementation of educational reform. The recently approved ESEA Flexibility Plan for Puerto Rico included a new undertaking to develop a "state-level professional development model" (Puerto Rico Department of Education, 2015), which if properly designed and implemented might mitigate some of these problems.

Education Funding

The education finance system in Puerto Rico receives funds from Federal and State sources. Funds are allocated to the Department of Education in the following proportion (2014-15 data):

Table 13. Distribution of Funds for K-12 Public Education in Puerto Rico by Source, 2015.

Funding source	Percentage of total spending
General Fund (State)	64.26
Federal	32.08
Other	3.66

Source: Estado Libre Asociado de Puerto Rico, 2015

Puerto Rico's funding source distribution is distinctly different from that of the two other cases presented, as it demonstrates a high level of reliance on federal funds. By contrast, available data on Connecticut shows that federal funds make up around 5% of its public education budget while local (property tax) sources remain close to 50% of the total (Aud et al. 2013, p. 91). Finnish education funding shows a similar distribution of local and State funds. (Center on International Education Benchmarking, 2011).

Per-student spending in Puerto Rico has recently risen to the forefront of the education debate. Two recent reports on the subject exist. Ladd and Rivera-Batiz (2006) indicate that per-student spending has steadily increased from $1,377 in 1970-71 (calculated in 2003 dollars) to $4,154 in 2002-2003. In November 12, 2014 the Boston Consulting Group presented the results

of its research into the Department of Education during a Puerto Rican Senate public hearing. The consultants claimed that per-student spending in Puerto Rico was $8,540 in 2010-11 (adjusted to 2013 dollars) (Henry, Bailey, & Acosta, 2014). The NCES document BCG references as its source lists per-pupil expenditure at $7,429, with around 50% for instruction and 50% for supporting services; for the same time period, it lists Connecticut's as $16,224 with two thirds going to instruction and one third for supporting services. The United States average for that year is $10,658 (Cornman, 2013).

Student Demographics

Puerto Rican public schools provide services to a large portion of the island's socioeconomically disadvantaged students (Quintero, 2009). In 2014, the U.S. Census estimated that 41.3% of Puerto Rican families lived beneath the Census Bureau's poverty line (2014d). According to data provided by the Puerto Rico Department of Education to the Puerto Rico Institute of Statistics, during Academic Year 2012-2013 there were 419,166 students between the ages of 5 and 17 enrolled in public schools across Puerto Rico. Of these, 324,473 (77.41%) students were classified as below the poverty line (Puerto Rico Department of Education, 2013). For Academic Year 2013-2014, the reduction in students below the poverty line proportionally matched the reduction in enrolled students, leaving the Department of Education's tally at 314,397 (77.02%) (Puerto Rico Department of Education, 2014).

Total enrollment in Puerto Rican public schools has steadily decreased since Academic Year 1981-1982, when it reached 711,748 students (Lopez Yustos, 2006). In 2013-2014, data from the National Center for Education Statistics indicated an enrollment of 423,934 (2015). The Department of Education reported its regular student enrollment in 2015 as 410,950, and

forecasted a further decrease in 2016 to 390,252 (Estado Libre Asociado de Puerto Rico, 2015). This tendency is not found in either of the two high-performing cases presented, and correlates to a significant migration pattern from Puerto Rico into the mainland United States. This phenomenon is posited to be a direct result of the economic conditions in Puerto Rico (Suárez, 2016). As a result of these factors, combined with the current financial crisis and pressure from the legislature, the Department of Education has formally adopted a school closure and consolidation policy due to the expected continuous decrease in enrolled students and consequent sub-utilization of school infrastructure.

Conclusion

Significant differences exist between Puerto Rico and the two cases previously presented, both in terms of teacher-focused policy and contextual socioeconomic variables. Puerto Rico has a large number of teacher preparation programs, which, coupled with minimum entrance requirements that often focus solely on GPA, points to low selectivity in the applicant selection process. However, enrollment reports show a decrease in prospective applicants, which may be related to the teaching profession's lower social capital as indicated by public discourse about low-performing schools and organized labor conflicts. Additionally, Puerto Rico's porous borders with the United States ensures that teachers from Puerto Rico can be recruited for higher-paying jobs in another public school on the mainland, but no immigration from American teachers occurs to replace that human capital on the island. This could lead to a labor shortage in the future, though the current government response to decreased school enrollment is to reduce teacher jobs and consolidate schools.

Licensing requirements fall halfway between Finland's insignificantly developed system and Connecticut's multi-tier licensing. Available information on teacher induction points to it being an informal and unstructured process that is largely dependent on local resources and attitudes. Professional development requirements and incentives are in place and the Department of Education has a mandate to implement them, but has been hampered by the island's financial crisis.

Chapter VII: Analysis and Policy Recommendations

This research project focused on each case's teacher-focused policies according to Tatto's (2008) framework (recruitment of student teachers, certification requirements, induction, and professional development) and looked at some funding and demographic characteristics as alternate, secondary elements to contextualize the case study. This approach tempers Darling-Hammond's (1997) assertion that investment in teacher capacity building can have the strongest impact on educational outcomes with the knowledge that significant differences exists between these cases in terms of the student body and of school funding models (distribution and total investment). For illustrative purposes, the findings about all variables explored are summarized in Tables 14 and 15.

Table 14. Socioeconomic Characteristics Studied in Connecticut, Finland, and Puerto Rico.

	Connecticut	Finland	Puerto Rico
Demographics			
Racial composition	Homogenous	Homogenous	Homogenous
Socioeconomic status	High	High	Low
Funding			
Per-student spending	High (for U.S.)	Average (OECD)	Low (for U.S.)
Funding burden distribution	Mostly even state-local distribution. Low federal funding.	Mostly even state-local distribution	Mostly state funds with high reliance on federal funds

Table 15. Teacher-Focused Policies in Connecticut, Finland, and Puerto Rico.

	Connecticut	Finland	Puerto Rico
Recruitment			
Limitation on access to teacher preparation programs	Low barrier to entry	High barrier to entry	Low barrier to entry
Capacity to incentivize particularly suitable individuals to become teachers	Medium – focuses on competitive salaries.	High – focuses on building social capital.	Low – Poor public perception and comparatively low salaries.
Certification			
Development of licensing system.	Highly developed – Degree and test required. Multi-tier licensing structure tied to induction and professional development.	Low – Degree grants license to teach.	Medium – Degree and test required. Opt-in parallel ranking structure.
Induction			
Formal requirement and structure development	State requirement. BEST/TEAM provide structured induction that is centrally coordinated	Induction is unstructured and developed locally.	Induction processes are largely dependent on local school resources and leadership.
Professional Development			
State requirement	Mandatory – 18 hours.	Not a state requirement.	Mandatory – 30 hours.
Incentivized	Incentivized through teacher certification and induction.	Not incentivized at the state level. Up to schools and districts.	Incentivized through teacher ranks and salary benefits.

There are significant socioeconomic differences between the two cases with high-achieving educational systems and Puerto Rico. While the population in all three individual cases show largely homogenous socioeconomic characteristics within the jurisdiction, Connecticut and Finland have relatively wealthy economies while in Puerto Rico most public school students come from economically disadvantaged backgrounds. This situation not only affects the student population's support structures, it makes a funding system like that of Finland and Connecticut

impractical in Puerto Rico because of their high reliance on local property taxes. These socioeconomic factors certainly affect educational outcomes in Puerto Rico, and changing them will require proper governance and sustained economic development over an extended timespan. Because of this, and taking into account the urgent need for education reform, teacher-focused policy decisions gain relevance in Puerto Rico as a possible fulcrum that can be applied to improve outcomes. As Fullan (2007) points out, teachers and their professional culture form the base upon which the success of any subsequent reform efforts must build upon.

Popular opinion about Puerto Rican education might lead one to expect glaring faults at the macro-policy level. However, the documents and evidence analyzed indicate that, within reason, Puerto Rico has encapsulated in its policies and pilot projects much of the best practices in education. This does not mean, however, that there is not room for improvement informed by a comparative look at what has worked in other jurisdictions. Drawing from the elements observed in the two high-performing cases studied, Puerto Rican policymakers should include in their reform efforts the following measures to strengthen and enhance the local teacher professional lifecycle:

1. **Recruitment and selection** - Strengthen the Department of Education's mandate and capacity to regulate teacher preparation programs with the aim of increasing program selectivity based on applicant traits such as relevant experience, personal aptitude and motivation.
2. **Certification** – amend Law 94 of June 21, 1955 to establish a multi-tier licensing system tied to an educator's professional growth and classroom initiatives.
3. **Induction and Professional Development** – provide a legislative mandate for the creation of a centrally coordinated, mandatory induction program based on the

characteristics and practices of Connecticut's BEST and TEAM programs, and linked to professional advancement beyond the first tier of educator licensing.

Teacher Recruitment and Selection

In this area, Puerto Rico shows a marked difference from both Finland and Connecticut. At the outset, the number of institutions of higher education with teacher preparation programs on the island dwarfs those of the other two cases. This is, in part, justified by teacher migration patterns and brain drain, but the high number of education providers is probably resulting in low selectivity during applicant selection. Though some efforts have been made at mitigating this effect by imposing minimum GPA requirements for entry into teacher preparation programs, looking at Finland and Connecticut shows that this measure by itself does not constitute an adequate filter. Finland's approach to education depends heavily on the barriers to entry placed on its teacher preparation programs; capacity building begins with the teacher education selection process. This means that educational resources are concentrated on a smaller cohort of students, rather than on larger groups. In comparison to Connecticut and Puerto Rico, there are substantially less teacher preparation providers in Finland, and all of them are publicly-funded (as is almost all education in the country) and operated in close coordination with the State. It seems this allows the State to encourage stricter requirements to entry, as applicants must undergo a holistic evaluation that includes GPA, essays, interviews, and evaluation of aptitude and prior experience. In addition, the Finnish Ministry of Education has the power to control the availability of new slots in teacher preparation programs, which it exercises in response to periodic supply and demand studies. On average, only 10% of all annual applicants (800 out of 8,000) are selected. The oft-repeated claim that all teachers must hold a master's degree, however, should be considered critically as Finnish higher education does not exactly correlate to

the American system. Finnish students undergo a five-year program that culminates in a master's degree. What sets it apart is that a student must write a thesis to obtain their degree, and that to enter the program they must have already proven their aptitude and potential for teaching.

Teacher recruitment in Finland is driven by the social status and working conditions of teachers (Sahlberg 2015) and State-directed efforts to enhance the profession's image. Meanwhile, in Connecticut there has been a concerted effort to provide monetary incentives for entry into the profession. The C.G.A. PA 86-1 (1986) provided districts grants to increase salaries and established a State student loan forgiveness program for public school teachers. While there are various controls (including a standardized test) to regulate entry into teacher preparation programs, the state focuses most of its resources on teacher support after graduation.

Given education's status as an expansive industry in Puerto Rico, it will be difficult to adopt and adapt the highly controlled and selective Finnish teacher education system. However, the possible benefits and current labor market conditions combine to strengthen the case for this type of reform. A focus on research-based teacher education and an artificial lowering of the annual acceptance rate would provide various benefits for the profession, such as increased prestige, improved allocation of resources, and reduced competition in a rapidly shrinking job market, removing one incentive for teacher migration. A legislative mandate and framework for regulating teacher education would be necessary, as it would provide greater stability than the policies established by individual Secretaries of Education through circular letters and regulations. This framework should be informed by the notions of teacher supply and demand, research-focused education and collaborative negotiation with institutions of higher education, culminating in a publicized and renewable agreement between education providers and the Department of Education.

In response to the large decrease in student enrollment in the public school system, Puerto Rico has been consolidating schools and reducing teacher positions over the last three years (Estado Libre Asociado de Puerto Rico, 2015). This situation will allow less students to enter the workforce as teachers upon graduation. Therefore, it would be advisable for Puerto Rico to endeavor to reduce its 44 teacher preparation providers and 249 teacher education programs to a more manageable amount and enforce increased selectivity based on non-GPA characteristics such as candidate's aptitude, background, and motivation. To assess these criteria, the admission process would have to change to include written statements and interviews as a standard practice. Over time, this increased selectivity would enhance teachers' social capital while additionally enabling teacher preparation programs to focus their resources on fewer students. A side effect of raising standards for admission into these programs is that teacher supply would be more akin to the current demands of the Department of Education (around 2,500 per year in the annual shuffling of positions, though the total number of positions has decreased for the last three years).

One corollary of increased selectivity is that Puerto Rico must take care to remain competitive in order to retain the highest quality teachers produced by its teacher preparation programs. The basic beginner teacher salary should be increased in order to reduce the probability that the teachers produced by an educational reform effort move on to the United States, producing a shortage in Puerto Rico and doing little to improve local education. In doing this, it may follow Connecticut's example and provide monetary incentives for entry into the profession, either through salary increases or other benefits such as State student loan forgiveness programs aimed at keeping talented teachers on the island.

Certification

Puerto Rico's current teacher license structure is determined by Law 94 of June 21, 1955, as amended (Ley para Regular la Certificación, 1955). According to this law, most teachers will have two types of license throughout their career: the "regular" license, which is renewable every six years, and a lifelong license for which they are eligible after 50 months of teaching. The development of the licensing system in the other two cases presented differs greatly. In the Finnish education system, completing a teacher preparation program automatically authorizes a teacher to practice their profession. This speaks to the level of collaboration and control in the relationship between the Ministry of Education and the country's 8 institutions with teacher preparation programs. Connecticut, on the other hand, has a highly developed license structure. PA 86-1 (1986) established three tiers of licenses: initial, provisional/standard, and professional. After the BEST teacher induction program was implemented, transitioning from an initial to a provisional or standard license required the teacher to complete the two-year program.

Puerto Rico's teacher licensing system could benefit from transitioning to a multi-level system. By tying these levels to induction, professional development and mentorship, and classroom projects, it would recognize and promote teacher agency, empowering them to take control of their professional advancement. The *Carrera Magisterial* shared many of these traits, and by adopting its characteristics in the licensing model it would change from a voluntary alternate program to part of the requirements for becoming a teacher in Puerto Rico. This would serve as a critical catalyst to revert the school induction conditions found by Fortis (2005), where the process is largely unstructured and may not take place at all. By providing teachers with a personal incentive to ensure the induction activities are carried out, this policy would effectively be recruiting them as program implementers at their school. An added benefit of a multi-level

teacher licensing structure that Connecticut takes advantage of is that it allows easier identification of teachers who may be recruited as mentors and professional development providers, fostering the development of learning communities through the training and use of internal human resources rather than outside providers.

The pursuit of higher license levels can also be promoted by providing additional perks to the holders, such as increased access to discretional funds for classroom and school projects. Senator Bhatia's proposed education reform carves out a part of the Department of Education's budget to provide performance-based salary incentives to teachers (P.R.S. 1456, 2015). It provides funds for these incentives by enacting measures to reduce administrative costs at the Department of Education. A similar system might be put in place to provide, instead, access to funds based on teacher proposals. The teacher would then be treated as someone who can compete for, access, and manage funds to plan and carry out educational projects, signaling a shift in attitude that would align more closely with the Finnish "trusted professional" model (Sahlberg, 2015).

Induction and Professional Development

Induction and professional development, which we may conflate as support structures for teachers, is an area where all three cases diverged. Teacher support in Finland is highly unstructured and decentralized, generally delegated to the municipalities and schools, and with significant variations between individual schools according to the local culture. It has not been a high priority in Finnish education policy throughout its reform process from the 1980s to the early 2000s, as capacity building in Finland begins with the teacher education selection process and focuses on the country's preparation programs. In contrast, Connecticut evidenced a highly structured approach to induction and professional development, making them the linchpin of the

state's capacity building efforts. All beginner educators have to complete a teacher induction and mentoring program (which originally included the submission of a portfolio for evaluation by the program administration) in order to qualify for the next license level.

Puerto Rico shows characteristics from both systems, switching from a structured mandate at the higher levels to an unstructured system in practice. On paper, we have a more developed and thorough professional development curriculum and incentive program than Finland and, arguably, Connecticut. The Institute for the Professional Development of Teachers, part of the Department of Education, is tasked with advising all higher education institutions with teacher preparation programs. It also coordinates workshops and other professional development opportunities. Policy documents used to mention induction, and still emphasize professional development, though its effectiveness and implementation are open to questions. Concepts such as Professional Learning Communities have made their way into the Department of Education's parlance, though one might consider this a result of federal incentives and mandates rather than of local initiative. The end result is a system that does not comply with its own mandate for supporting a teacher's development of knowledge and entry into the profession.

These support structures can be strengthened by developing a centrally coordinated, mandatory induction program that prioritizes internal capacity building over the use of external service providers. Significant participation of the workforce in the mentorship of fellow teachers is a key aspect that helps develop both the mentee and the mentor. A further incentive may be provided by linking mentorship to professional advancement. Though these elements should be codified into law to provide a level of permanence to the program, we have seen that without buy-in at the ground level policy may not be worth much. Any efforts in this area should recognize and foster teachers that take ownership of the process, and it must be accompanied by

the associated reforms in licensing, selectivity and recruitment that would provide the raw materials from which to build further success. Only then will it be possible to address problems that appear further in the lifecycle of educational reform, during the transition from policy mandates into action.

Areas for Future Research

This study provides a broad overview of teacher-focused policies in two high-performing cases and one low-performing case. As the research progressed, numerous avenues for further topic development became apparent. While Finland and Connecticut have received extensive attention and there is a significant body of work about their education reform efforts, there is relatively little published material on Puerto Rico. Most research about education in Puerto Rico focuses on the "tactical" level of the individual classroom or, at most, the school, while the "strategic" level of study that might provide a broader policy perspective has been largely neglected. This extends to studies about the teaching profession in two contexts: its sociocultural environment, and the implementation process for policy mandates that focus on teachers.

This project's focus was on the purpose and effect of policy actions on a macro level, providing a broader policy context within which more targeted and specific research can be carried out. There would be much to be gained by further inquiry into the cultural values and the conditions in the public sphere that underlie policy development in each case. The English department at University of Puerto Rico Mayaguez is uniquely situated to continue addressing this gap in local education research. It can draw information and participants from the campus' highly successful teacher preparation program, and the Master of Arts in English Education program would benefit from analyzing and developing its role in Puerto Rico's education policymaking and overall teacher preparation environment. This avenue of research has the

potential to enhance English teacher selection and preparation, and to shape an improved, more supportive work environment that would benefit not only the department's graduates but also student teachers from other programs in the Arts, Science, and Math fields. Two examples that could provide particularly useful insight are studies on public opinion about teachers in Puerto Rico, and on attitudes and beliefs among teacher preparation program applicants. These would help elucidate the level of social capital the profession currently holds, and how it has changed over time, informing future efforts to improve it.

Further groundwork for policy enactment can be performed by conducting in-depth research on the acceptance rate for teacher program applicants in Puerto Rico's 44 higher education institutions that submit Title II reports. The amount of programs and their annual output relative to the total population on the island points to a low level of selectivity, but it would be worthwhile to pursue this notion further. Additionally, a future undertaking necessary to inform policy in this area would be to analyze teacher supply, demand, and turnover in Puerto Rico, both annually and according to a set reporting period. The Department of Education probably has the data necessary for this study.

Continued research into the implementation process of Puerto Rico's policies --which are, after all, statements about how things should be (Bell & Stevenson, 2006)-- can shed more light into the realities faced by teachers on the island. An additional benefit of these studies is that the cases and available literature seem to point towards the need for constant, readily available research and follow-up to ensure the integrity of the implementation. As evidenced by the open culture promoted in high-performing systems, transparency is of paramount importance to continue steering a reform effort. Administration personnel need the continuity of a steady work approach, as results of any policy that begins at the teacher preparation level will necessarily

span multiple administrations. Highly publicized work and research, combined with an approach that leverages community buy-in can help ensure that a reform is given sufficient time and feedback to develop and produce results.

Limitations of the study

As is the case with any large project, there are limitations that must be accounted for while conducting research. The most obvious one is the language barrier when studying Finnish policy. This was partly mitigated by the extensive online presence in English of the Finnish Ministry of Education, developed in response to the significant interest in Finland's educational success since 2000, and the translation of many legal texts due to OECD requirements. Additionally, OECD documents provided necessary data that would otherwise have been inaccessible, and there was some limited use of online translation tools for exploring Finnish reports.

There were also, as expected, difficulties in obtaining information from the Puerto Rico Department of Education. Much of the information the Department possesses is reserved for internal use or simply not published. The lack of a culture of transparency in Puerto Rican government is infamous and evident, and though some steps have been taken in recent years to address this problem most of the work remains to be done. The case study was developed around this limitation by utilizing federal reports, contacts with access to information, and web archives. In spite of these measures, some reports commissioned by the Department of Education that might have informed the analysis remained inaccessible.

Finally, this case study provides an outsider perspective on all three educational systems. I briefly served as an assistant teacher in Puerto Rico's public education system, but do not

believe this brief ground-level experience provided much more than a glimpse of the reality that local teachers face every day. As for Finland and Connecticut, financial and temporal constraints did not allow for a site visit in order to see the results of their educational reforms first-hand. Accordingly, the research focus was directed towards policy details and information that can be gleaned through document analysis.

Despite these limitations, this study addresses an area of education research that is infrequently the focus of study in local the body of knowledge. As the debate on educational reform grinds on, it fulfills its function of contributing to public discussion and knowledge while laying the groundwork for further research and policy development.

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