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Lost in Translation: Understanding Education Policy Implementation in Nepal

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LOST IN TRANSLATION: UNDERSTANDING EDUCATION POLICY IMPLEMENTATION IN NEPAL

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ABSTRACT

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May 2020

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This study examines the impact of the School Sector Reform Plan (SSRP), a national education reform in Nepal, on primary and secondary education. The study uses mixed-methods to analyze indicators of educational outcomes and identify the underlying environmental, organizational, and individual factors that affect reform implementation.

The first phase of the study is a quantitative analysis of annual, district-level data on 75 districts for 10 years, from 2006 to 2016 using regression models to predict dropout and

promotion rates. The second phase of the study is a qualitative analysis of the perceived effectiveness of SSRP using in-depth interviews with 33 stakeholders from local-, district-, and national-level education offices and schools in Kathmandu district. The interviews examined how teachers, school principals, and district education officers understood education reform and how this sense-making combined with the cooperation and resource sharing between implementing organizations affected reform outcomes.

Several key findings emerge from the analysis of quantitative and qualitative data. First, the study shows that policy implementation is a complex undertaking and is affected by a multitude of environmental, organizational, and individual factors. Second, results show that sense-making can vary at different levels of implementation and for different actors involved in implementation. In line with prior research, individuals make sense of policies based on their roles and their understanding and beliefs about the policy, its environment, and their own surroundings (Spillane, 2002; Coburn & Stein, 2006). Third, the study finds that teacher training during SSRP had limited effects on student dropout and promotion despite significant time and finances allotted to the professional development of primary and secondary school teachers. This finding highlights the significance of considering stakeholders' needs, demands and the availability of resources to support policy implementation. Fourth, the study provides evidence of several socioeconomic barriers to successful education policy implementation. This finding highlights the need to integrate education policy with other socioeconomic policies that have a significant effect on educational outcomes.

DEDICATION

I dedicate this dissertation to my son, Archit.

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CHAPTER 1: INTRODUCTION

In 2009, the government of Nepal introduced the School Sector Reform Plan (SSRP) to initiate national-level change in standards, structure, assessment, accountability, and provision of school education to all children. Accountability, access, and decentralization have been major themes in recent reform efforts in Nepal since the signing of the Dakar Framework for Action[1] in 2000. These themes have also been incorporated into national and regional legislation aimed at improving access and quality of education. A precursor to SSRP, enacted in 2000 after the signing of Dakar Framework, the Education for All (EFA) policy highlighted the need for structural change and accountability standards to provide quality education for all children in Nepal.

By 2008, there were many positive changes in the education system in terms of access to education. More than 90 of percent children were enrolled in primary education and children in rural communities had better access to schooling (World Bank, 2009). However,

[1] The Dakar Framework for Action, led by UNESCO and pledged by 164 countries, established six goals: to expand early childhood care and education, provide free and compulsory primary education for all, promote learning and life skills for young people and adults, increase adult literacy by 50 percent, achieve gender parity by 2005 and gender equality by 2015, and improve the quality of education (UNESCO, 2000).

there was not much progress toward quality of education. Improvements in student learning outcomes, teacher training, and inclusion of minority and girls were slow (World Bank, 2009). Thus, to speed up the process, the government of Nepal introduced SSRP in 2009. SSRP is the most comprehensive large-scale reform in Nepal's education history, with a multi-stakeholder financing and implementation process aimed at creating robust changes in the education system. Despite its scale and significant implications for the nation's children, there is not a single empirical study of its implementation that has been published to date. In the context of Nepal, using an interdisciplinary theoretical framework and mixed methods analysis, this dissertation addresses this gap in literature with the following guiding questions:

1. How do national reforms in education affect educational outcomes?
2. What underlying factors affect the implementation of large-scale reforms?

Statement of the Problem

The importance of implementation has become increasingly evident in education research (Durlak, 2011). Research suggests that reform outcomes are significantly affected by the quality of implementation (Wilson, Lipsey, & Derzon, 2003; Durlak & Dupre, 2008). DuBois et al. (2002) compare outcomes from the same intervention but with varying quality of implementation and find that participants in the better implementation category benefited twice or thrice more from the intervention than those in the lower quality implementation category (DuBois et al., 2002). There are serious short- and long-term costs and consequences of poorly implemented interventions (Durlak, 2011). This is especially true for

large-scale interventions. Large-scale education reforms like SSRP are high-stakes, big-budget activities introduced to affect substantial social and political access to education (Phillips, 1975; Coburn, Hill, & Spillane, 2016).

By nature, education reforms demand a sizeable share of national and local budgets. Large-scale reforms also require simultaneously implementing complex changes in several components of the system. These changes all have a common, overarching objective of building a coherent, integrated, and improved education system (Supovitz & Taylor, 2005). Coherence and integration are based on partnerships between governments, districts, and local communities. These reform partners promote various reform agendas that help to ultimately improve individual schools and students (Honig & Hatch, 2004). In many large-scale reforms, policymakers are often so consumed by the ideals and intended benefits of the reform that they give little consideration to the implementation of these reforms at the regional and local level (Noell & Gansle, 2009).

Even though education is seen as a lever of change that promises to improve the welfare of all children and youth, school systems around the world face shrinking budgets and vie for resources against health care, infrastructure, and agriculture projects. Resource scarcity coupled with the socio-economic significance of large-scale education reform makes us question what works, what gets implemented, and what adds value to the education system (Honig, 2006). In addition, several other barriers related to individuals, organizations, and the external environment affect policy implementation. These factors are present in all large-scale policies, but the fact that children are at the receiving end increases the stakes in

education reform. The following paragraphs provide a brief outline of each of the underlying factors affecting reform implementation focusing on environmental, organizational, and individual levels.

First, policy implementation is affected by various external factors including but not limited to political and economic influences, sociological trends, technological changes, and legislative requirements (Raphael et al., 2005; Kirst & Wirt, 2009; Trouche et al., 2012). For example, changes in political ideologies and discourses affect reform initiatives (Cochran-Smith et al., 2013). As the international political discourse on school education has shifted from accountability to human development (Sen, 2000), countries across the globe have modified or reformed their educational policies to accommodate the human development perspective (Tarabini, 2010), which emphasizes human well-being as a priority in shaping public policy (Sen, 2000). Likewise, sociological factors such as parental and community involvement, race and ethnicity, religion, culture, and gender disparities in teaching and learning affect policy implementation to a great extent (Ballantine & Hammack, 2015). For instance, recent reform efforts in education have prioritized community involvement in schools (Baquedano-Lopez, Alexander, & Hernandez, 2013). Such efforts challenge previous notions of power and participation of parents and communities in schools and change the way policy is implemented (Vincent, 2013).

Second, implementation of a large-scale reform requires numerous organizations to come together and work to achieve the same objectives. Institutional theorists have studied this phenomenon extensively, resulting in many studies of inter-organizational relationships

(Oliver, 1990; Bardach, 1998). While mutual resource dependence and goal congruency may motivate organizations to cooperate with each other, shared interests and objectives increase trust and create the foundation for successful cooperation and overcoming implementation struggles (O'Toole, 2003). Here, cooperation is defined as "the interactions among actors aiming at solving public problems by working together rather than by working separately" (Smith, Carroll, & Ashford, 1995, p. 10). Similarly, trust is defined as the expectation that organizations' communicated preferences are honest and that actors will remain committed to shared goals until and unless certain conditions are dramatically altered at some future time (Scharpf, 1997, p. 137). Lundin (2007) has found that shared interests and goals positively affect implementation only if organizations trust each other. Even if the organizations have congruent goals and share resources, a lack of trust among implementing organizations may prevent or greatly limit cooperation (Lundin, 2007). Thus, the theoretical and empirical literature on inter-organizational relationships suggests that policy implementation is affected by the extent of cooperation among implementing organizations.

Third, the personal characteristics, attitudes, beliefs, and collective behaviors of individuals working in the education sector have a significant impact on the sustainable implementation of policies (Domitrovich & Greenberg, 2000). Several researchers have studied the role of teacher attitudes and beliefs on reform implementation (Handal & Herrington, 2003; Marz, Virginie, & Kelchtermans, 2013). Teachers hold strong beliefs about the quality of education and the process of educational change. These beliefs are often critical in determining the pace of reform implementation at the local level (Handal &

Herrington, 2003). In reforms attempting to change teaching and learning styles, implementation depends to a significant extent on the attitudes and beliefs of teachers (Morris & Morris, 2000). Furthermore, how individuals make sense of reform and the complex implementation process also affects implementation. Spillane (2000) suggests that district leaders struggle to understand the goals and full implications of a large-scale reform. These leaders tend to focus on piecemeal changes and make decisions based on their limited understanding of the reform message (Spillane, 2000).

As implementation becomes more complex and is affected by a combination of individual, organizational, and environmental factors, it is crucial to investigate the conditions under which education reforms get implemented and actually work. Education researchers now aim to examine the various factors that "combine to produce implementation results" (Honig, 2006, p. 21) and shape reform efforts. Yet, few studies have done so in low-income countries like Nepal. Because low-income countries tend to have limited resources and technical and administrative capacity, understanding the effects of large-scale reforms and their implementation process is critical for the social and economic development of such countries. This dissertation follows the direction set forth by Meredith Honig (2006) in her book *New Directions in Education Policy Implementation* to examine the extent and combination of factors affecting the implementation of SSRP in Nepal.

Research Questions and Purpose of the Study

The purpose of this study is twofold. First, this study seeks to understand the impact of a national education reform on key educational outcomes in Nepal with a particular focus

on primary and secondary education. Second, it seeks to explore the underlying factors affecting reform implementation. Specifically, it examines how teachers, school principals, and district education officers understand education reform and how this sense-making, combined with the cooperation and resource sharing between implementing organizations, affects reform outcomes. Using an interdisciplinary framework and mixed methods analysis, this study seeks to answer two principal questions:

1. How does the implementation of SSRP affect student outcomes (dropout and promotion) in Nepal's primary and secondary schools?
2. What are the underlying factors affecting reform implementation?

Significance of the Study

This dissertation is significant for several reasons. First, although there is a considerable body of research on policy implementation, much emphasis has been given to understanding the creation and evaluation of policies rather than the process of implementation (Hill, 2003; Lundin, 2007). Only a handful of studies have examined the combination of factors affecting implementation and most studies focus on a singular aspect of implementation such as teacher training, the role of district offices, or the role of government agencies (Makinde, 2005; Honig, 2006; Datnow & Park, 2009). This dissertation builds on this literature and adds to the knowledge of policy implementation by integrating several aspects of implementation into a single study.

Second, a study of the intersection of individual, organizational, and environmental factors influencing policy implementation has the potential to inform practice in the

education sector and add value to future policy development. Results from this study can potentially help policymakers to understand aspects and barriers of the implementation process at the local level. Specifically, Nepal has undertaken increasingly complex reforms to improve the quality of education since the 1990s. Previous research on the Nepalese education system has focused on the political economy and sociology of these reforms, but no published empirical study has explored the intersection of factors affecting reform results at individual, organizational, and environmental levels of implementation. The application of an interdisciplinary framework to examine this combination of factors is an important first step in understanding what does and does not work in large-scale reforms.

Third, in addition to pertinent and inclusive policy formulation, which falls beyond the scope of this dissertation, successful implementation is equally critical to sustaining Nepal's education system. Nepal's education system is becoming detrimental to quality education and equality for all as a result of poor implementation (Mathema, 2007). The current system of education works well for those social and economic classes and groups that do not rely on public education for their children. With more and more children, especially advantaged children, switching to private schools, public schools are increasingly serving children from low-income families, girls, and disadvantaged groups (Mathema, 2007). The present system is producing two classes of citizens "who are schooled and prepared very differently…and the failure of the public education system may have a negative impact on the creation of a national culture and cohesive society…" (Mathema, 2007, p. 65). Thus, it

has become necessary to understand implementation barriers and provide prompt policy suggestions to the government to improve reform efforts.

Fourth, this study has methodological significance in its use of a mixed methods design. This dissertation uses a quantitative analysis of secondary data on education indicators before and after reform implementation, and qualitative interviews aimed at understanding the perceptions of local and regional actors about the reform and its various components. To the best of my knowledge, this dissertation is the first mixed methods study of education reform implementation in Nepal and one of few mixed methods studies in developing countries. This study is expected to make potential contributions to understanding the importance of policy implementation and the role of individual and organizational characteristics in shaping reform outcomes. By analyzing secondary data on district-level education indicators and using rich interview data to examine key indicators such as teacher training and socio-economic context, this study aims to provide a more complete and comprehensive account of the process of reform implementation. While the quantitative data and analysis identifies the effect of various SSRP initiatives on education outcomes, the qualitative data and analysis allows us to understand how implementation has influenced success of the SSRP.

Lastly, the use of panel data of district-level education indicators for research in a developing country like Nepal is an important contribution in itself. A considerable number of developing and less-developed countries in Asia and Africa lack sufficient data necessary for social science research and policy decisions. This is especially true for data that are

comparable over time. According to a 2015 World Bank study, out of the 155 countries for which the World Bank monitors socio-economic data to gauge poverty, 29 did not have any poverty data between 2002 and 2011. Furthermore, 77 out of these 155 countries had difficulty producing timely or any poverty estimates during the 2002-2011 period (Serajuddin et al., 2015). Given this context, this study is significant because it utilizes a unique panel data set of district-level education indicators to examine the effects of a national education reform in a developing country where comparable, multi-year data are difficult to acquire.

The remaining chapters of this dissertation are outlined as follows. Chapter 2 provides a contextual background on the history of education in Nepal, the role of the international community in shaping Nepal's educational policies, and a brief overview of the SSRP. It also provides a review of the policy implementation literature and a conceptual framework derived from the implementation literature. Chapter 3 discusses the analytic components, and the quantitative and qualitative research methods that will be employed in this study. Chapters 4 and 5 present findings from the quantitative and qualitative analyses, respectively. Chapter 6 provides a discussion of key findings from the quantitative and qualitative analysis as well as a synthesis of the findings from both components. Chapter 7 concludes with implications for policy makers and implementers as well as directions for future research.

CHAPTER 2: REVIEW OF LITERATURE

Nepal has a diverse topography, climate, religion, and population. With three topographic regions – the Terai plains, the middle hills, and the Himalayan mountains – Nepal has tropical, sub-tropical, temperate, sub-arctic, and arctic climate zones. Figure 1 shows the most recent map of Nepal with its 77 districts and seven provinces[2]. There are more than 123 spoken languages in Nepal (Ministry of Foreign Affairs, 2020). With respect to economy, the per capita income is USD 1,034[3] and the agriculture sector employs 70 percent of the population and accounts for 24 percent of economic growth. The service sector accounts for 57 percent of economic growth (World Bank, 2019). In 2015, Nepal ranked 144th out of 188 countries in the UN Human Development Index and remained one of the least developed countries in Asia.[4] Only about 68 percent of adults and about 60 percent of

[2] Please note that Nepal had 75 districts until 2015. In 2015, the government of Nepal restructured the geographic configuration of Nepal that added two districts to its administrative structure. However, data for SSRP continued to be collected for 75 districts until it ended in 2016.

[3] GDP per capita (current USD) as per World Bank national accounts data in 2018. Retrieved from: https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=NP

[4] Nepal's education profile in World Education News + Reviews in 2018. Retrieved from https://wenr.wes.org/2018/04/education-in-nepal

women are literate in Nepal[5] (UNESCO, 2018). With this socioeconomic background, the following paragraphs provide an overview of the history of education in Nepal.

Figure 1. Administrative map of Nepal

Modern education was introduced in Nepal with the establishment of the first formal school in 1853. This school was open, however, only to those in ruling families and children of high-level administrators. Only after a political movement that overthrew the autocratic

[5] Literacy rate among the population aged 15 years and older in Nepal. Retrieved from http://uis.unesco.org/en/country/np

regime and initiated a democratic system in 1951 did common people gain access to education. At that time, only 5 percent of adults 15 years or older were literate and barely 10,000 students were enrolled in 321 schools (Ghimire, 2005). The government introduced its first five-year plan in 1956 to expand formal education in Nepal. This plan, developed with financial and technical assistance from USAID, propelled the education system forward with "the purpose of helping the youth of a nation to become better integrated into their society" (NEPC, 1955, pg. 14). In 1959, Nepal adopted a national primary school curriculum and established Nepali as the compulsory medium of instruction for Grades 1-5 (NEPC, 1955). While USAID was the first and the only organization to provide such assistance for the first 20 years following the political movement of 1951, an increasing number of international organizations such as the World Bank and the United Nations have since influenced the development and implementation of all major education policies in Nepal (Caddell, 2007).

Building on the existing education plan, the education sector continued to expand with the introduction of the National Education Sector Plan (NESP) in 1971. The plan, funded again by USAID, aimed to establish a unified public education system and empower district education offices to manage schools in Nepal (MOEC/USAID, 1988). However, NESP was too centralized to achieve its objectives and enabled only those with power and resources to benefit from public education. Local communities and marginalized groups were not able to participate. Thus, in 1982, the government passed the Decentralization Act as an attempt to give local panchayats (*village council*) governance responsibilities in major

political programs (MOEC/USAID, 1988). Even though gradual changes were taking effect, they were not enough to address the educational needs of the nation's growing school-age population. The NESP curriculum emphasized Hinduism, the Nepali language, and reinforced the dominant position of the monarchy and elite caste groups, which contradicted and even restricted the participation of children from certain castes, non-Hindu religions and language traditions. In the late 1980s, considering the urgent need for a comprehensive education reform, the government undertook a U.S.-funded study to analyze the efficiency of the education system. This study helped the government to identify weaknesses and loopholes in education management and administration. It also provided recommendations to renew and decentralize education management at the district and local levels (MOEC/USAID, 1988).

With the ongoing political unrest in the 1980s, the failure of NESP to deliver its objectives and the government seeking financial support from outside sources, the international donor community started to exercise substantial influence in the development of Nepal's education policies (Bhatta, 2011; Regmi, 2016). The United Nations agencies and the World Bank became significant players in the education sector in Nepal, financing education and introducing new, regional education policies. The Primary Education Project (1984-1992) was largely funded by the World Bank and the International Monetary Fund (IMF) through the Structural Adjustment Program (SAP). Initiatives such as the Education for Rural Development Project (*also known as the 'Seti project'*) and the Primary Education Project attempted to blend the interests of the international donor community with the rural

development needs of Nepal. While this approach did not address the overall educational needs of the country, it gave initiatives like BPEP the authority to decentralize primary education administration in the late 1980s (Khaniya & Williams, 2004; Caddell, 2007; Bhatta, 2011; Regmi, 2016).

Along with financial assistance, donor agencies gained varying degrees of influence on national education planning based on their global prominence. As educational governance shifted from national government to international agencies and their networks, supranational organizations like the World Bank became more influential in education policy planning and governance in Nepal (Bhatta, 2011; Winther-Schmidt, 2011). The demands of globalization and neoliberalism shaped the agendas of supranational organizations such as the World Bank, and education policies in least developed countries (LDCs) like Nepal became heavily influenced by vested interests of those supranational organizations (Carney & Bista, 2009; Mundy & Menashy, 2014; Regmi, 2015). As a result, global visions of sustainable development became dominant in education reform discourses in Nepal. Policy makers, with the help of technical experts from inside and outside the country, increased efforts to quantify indicators of success and link education with other development goals such as gender parity and poverty alleviation (Caddell, 2007).

Nepal's education reform efforts really took off after the popular people's movement that established a multi-party democracy in 1990. The government of Nepal has emphasized education development and implemented a number of primary and secondary education reform programs since then. Simultaneously, the Jomtien Conference on Education for All

(EFA) was also organized in the same year. The EFA initiative was started in 1990 with a global conference that set the goal of universalizing primary education and significantly reducing illiteracy in all countries by the year 2000 (UNESCO, 2013). In 2000, during a follow-up conference in Dakar, Senegal, more than 1,100 educational leaders from around the world approved the Dakar Framework for Action as a guiding document to realize the initial EFA goals. This Framework was adopted by 189 countries in September 2000 with the target of reaching these goals by 2015, including for 49 LDCs. Nepal was one of those LDCs, with an annual per capita income of about US $350, and its economy largely dependent on financial assistance from bilateral and multilateral agencies (Regmi, 2015).

The post 1990 or post EFA discourse on education in Nepal indicates the complexities created by the need to incorporate local, regional, national, and global voices into education policy (Caddell, 2007). Nepal signed the Education for All (EFA) declaration in 1990 to attract more financial and technical assistance from the international donor community. Following the first Regional Planning Workshop in Jomtien in October 1991, Nepal's National Commission for UNESCO prepared a comprehensive National Plan of Action (NPA) for 1992-2000. EFA goals were incorporated into Nepal's eighth and ninth five-year national development plans (1992-1997 and 1997-2002) and measurable targets were set to achieve EFA goals by 2002. Some of these targets included establishment of more than 34,000 early childhood development (ECD) centers, net enrollment rate of 90 percent, reduction of illiteracy in the population above 6 years of age to 30 percent, and teacher training and awareness programs (Ministry of Education EFA assessment, 2000).

Along with financial support from the global community and increasing need for education reform, Nepal also saw a continuous and significant increase in educational spending after 1990. As an example, Nepal's pre-1990 education budget ranged between 1.3 percent and 2 percent of the Gross Domestic Product (GDP), but increased to 2.5 percent in 2000 and rose to 3.8 percent in 2010 (Thapa, 2015).

While Nepal's education system underwent impressive expansion and restructuring in the 1990s, the government struggled to resolve critical issues in terms of gender and geographic disparities, exclusion of marginalized groups, and the growing achievement gap between children in public and private schools (Bhatta, 2004). To address these issues, the government also formulated the tenth five-year plan (2002 – 2007) and the three-year interim plan (2007 – 2010) to guide Nepal's education priorities and goals. All these plans adopted the rights-based approach to education as envisioned by the Millennium Development Goals (MDG) framework in 2000. The focus in the 2000s was on initiating early childhood development programs, provision of free and compulsory basic (Grades 1 – 8) education to all and increasing enrollment and retention of students in primary and secondary schools (EFA Nepal, 2001). By the end of 2008, EFA exceeded its early childhood and primary enrollment targets, but failed to improve student retention and performance targets, meet the demand for qualified teachers, or provide required certification and training to existing teachers (NORAD, 2009, p. 16).

Noting the increasing influence of international organizations over the years, Bhatta (2011) stated that "global education targets have become the de facto policy" in Nepal's

education policymaking since the 1990s (Bhatta, 2011, p. 11). When EFA was officially implemented, the World Bank became a leading partner in Nepal's education in terms of both funding and programming. Since then, the Bank's embedded agendas of education decentralization and privatization have become the priority for Nepal's government (Carney & Bista, 2009). The SSRP is the most recent example of Nepal's dependence on supranational organizations and their influence. The World Bank alone, for example, committed almost 75 percent of the estimated US$96 million pooling budget for Nepal to the SSRP for the fiscal year 2014-15 (World Bank, 2014). Given the ongoing struggles to meet reform targets and increasing demands for quality education, the government initiated a more comprehensive and system-wide reform in 2009 – the School Sector Reform Plan (SSRP). The SSRP was a "long-term strategic plan that describes the goal and objectives that will be pursued by the Government of Nepal (GON), Ministry of Education (MOE) over the period starting from the fiscal year 2009/10 [until] 2015/16" (MOE, 2009). This program was introduced as a continuation of EFA and other school sector policies. The primary objective of the SSRP was to expand access and equity in education (Terry & Thapa, 2012). While EFA covered primary education, SSRP builds on the EFA program and aims to improve education quality and governance and addresses gender and social inclusion in primary, secondary and tertiary education. SSRP has the following objectives:

1. Restructuring school education into basic (Grade 1-8) and secondary (Grade 9-12),
2. Introducing vocational and soft skills education in some selected secondary schools,
3. Implementing free and compulsory basic education,

4. Expanding access to early childhood education,
5. Identifying out of school children and implementing quality education programs in formal and informal settings,
6. Introducing minimum standards and norms to ensure quality in schools,
7. Enhancing teacher management,
8. Increasing representation of women and disadvantaged groups, and
9. Continuing decentralization and strengthening of education management and financing.

The above objectives and the SSRP itself are products of the interaction between political and economic processes in the national and international arena. Specifically, these processes occur mostly through the government's interactions with supranational organizations such as the World Bank and United Nations (Pherali, 2011). While supranational organizations have in theory moved towards the framework of assisting development in LDCs through national and local governments, their influence through funding, technical expertise, and informal governance remains evident in SSRP implementation (Pherali, 2011).

Considering this history of education policy and international influence in Nepal, the following two sub-sections will situate SSRP's effects and implementation within relevant policy literature and develop a conceptual framework that will guide this study. Specifically, the sub-section on effects of education reform will provide an overview of current literature

on large-scale education reforms and their effects on educational outcomes and beyond. The sub-section on policy implementation will address the above discussed supranational influence and national as well as local political and economic processes by situating them into three domains influencing policy implementation – namely, environmental, organizational, and individual.

Education Policy Implementation

Policy implementation falls between the development of desired policy outcomes or goals and the actual policy outputs (Hill, 2003). As discussed in the previous section, there is often a huge gap between expected policy outcomes and what is ultimately achieved when a policy gets implemented (Sabatier, 1986). This gap is generally explained by a combination of processes and factors affecting implementation. This chapter provides an overview of three major domains that cover most of these factors: environmental, organizational, and individual (Honig, 2006). Environmental factors include economic and financial resources, and the political, legislative, social, and demographic changes that influence policy environment (Honig, 2006). Organizational factors include an organization's internal operations and structure and cooperation among organizations involved in policy implementation. Finally, individual factors include the attitudes, values, beliefs, motivation, and cognition that influence a person's understanding of the reform message. The following sub-sections provide a review of each factor and their role in policy implementation.

Environmental factors: Resource allocation and effects on educational outcomes

Although the educational policy environment includes an array of social, economic, and political factors, this section reviews relevant literature on the effective and efficient allocation of economic and human resources in education while addressing ongoing political and social changes as issues that affect resource allocation. Allocation of resources plays a vital role in the success or failure of education policy implementation (Pritchett & Filmer, 1999; Chiu & Khoo, 2005; Faguet & Sanchez, 2008). Processes by which monetary and human resources are allocated among different components of a program have a more significant impact than the total amount allocated for implementing a policy (Hanushek, 1995; Glewwe et al., 2011). As such, it is crucial to understand the relationship between resource allocation and education production.

The education production function developed by Eric Hanushek and other economists in the 1970s helps to explain this relationship (Hanushek, 1979). A production function gives us the "maximum amount of output possible for an amount of inputs given the constraints imposed by the underlying technical process" (Pritchett & Filmer, 1999, pp. 3-4). Applying this concept to education enables us to simplify the relationships between inputs to the education system, the underlying technological processes, and educational outcomes. Simply defined, an educational production function is "the relationship between school and student inputs and a measure of school output" (Bowles, 1970, p. 12).

A substantial number of studies have examined the efficiency and effectiveness of resource allocation in education and other social sectors (Hanushek, 2002; Kochhar, 2003;

Rajkumar & Swaroop, 2008). Three distinct perspectives emerge from the literature: rate of return on education and economic growth, equity and human development, and service provision and delivery. First, the 'rate of return on education' perspective views education as a current investment with potentials for future income generation and economic growth. It suggests that the efficiency of education spending can be measured by its ability to increase earnings in proportion to an additional year of schooling (Glomm & Ravikumar, 1997; Gradstein, 2003; Blankenau & Simpson, 2004). Second, the 'equity and human development' perspective suggests that government intervention in education can result in the development of human capital, enabling equitable distribution of wealth in society (Anand & Sen, 2000; Checchi, 2006). Lastly, the 'service provision and delivery' literature focuses on the importance of institutional arrangements and governance in achieving the objectives of educational access and equity through efficient allocation of resources and delivery of educational services (Pritchett & Filmer, 1999; Devarajan & Reinikka, 2004). The following sub-sections will provide a detailed review of each perspective.

Rate of return on education and economic growth. Economic growth is a predominant objective of most public expenditure policies. Efficient public spending can boost economic growth and play a critical role in physical and human capital formation. Empirical studies on public spending and growth have focused on measuring the extent to which public sector outputs result in economic growth and the efficiency of public expenditure allocation (Gupta, 2014). In education, economists and sociologists have long sought to estimate the social and economic returns to education (Barro, 1991; Jensen, 2010;

Bowen, 2018). Lau, Jamison and Louat (1991) suggest that education affects economic growth in different ways by enabling individuals to learn and perform new tasks better, improving individual and group communication and coordination skills, enhancing individual ability to obtain and process new information, improving emotional and psychological reactions to changes, and helping individuals to innovate, develop and adopt new technologies of production (Lau, Jamison, & Louat, 1991). So far, it is evident that education is critical to the economy and can contribute significantly to economic growth. Given this relationship between education and economic growth, different studies have measured the rates of return on education in different ways.

Many studies have used educational production functions to understand the relationship between government spending, return on investment in education, and economic growth (Glomm & Ravikumar, 1997; Hanushek, 2002; Hanushek & Woessmann, 2015; Hanushek, 2016). Employing the concept of production function, one study found that an additional year of schooling increases farm output by about 2.5 percent (Lau, Jamison, & Louat, 1991). Another set of studies analyze the relationship between education and earnings (Smith, 2009; Zhou, 2014; Himaz & Aturupane, 2016). For instance, Smith (2009) found that workers with a bachelors degree earned 65 percent more that those with only a high school diploma and nearly 130 percent more than those without a high school diploma (Smith, 2009). More recently, a study of returns to education in urban China, based on nationally representative surveys from 1996-2010, showed that nearly half of the growth in earnings inequality during that period was due to increases in returns to education (Zhou, 2014).

Similarly, Himaz and Aturupane (2016) examined returns to education in Sri Lanka using repeated cross-sectional data from 1997-2008. They found that one extra year of education increases monthly earnings by about 5 percent.

Equity and human development perspective. Both equity and human development objectives are closely related to the allocation of resources from the national budget to support other exogenous factors such as reduction of household poverty and community health (Nazir, 2002; Doyle et al., 2009; Heckman, 2011; Darling-Hammond, 2015). Even though government spending on education is expected to have a positive impact on equity and human development, recent empirical studies either indicate no relationship or a negative relationship or find other factors that confound the relationship between spending and education outcomes (Baldacci et al., 2003; Baker, 2016). Baldacci et al. (2003), for instance, suggest that the effect of government spending on educational outcomes is weak in both developed and developing countries. They concluded that income per capita has a more significant effect on school enrollment than government spending on education (Baldacci et al., 2003). Baker (2016) found that, on average, aggregate per pupil spending is positively associated with improved student outcomes, but the size of this effect is moderated by the way resources are allocated using that money. He suggests that a more equitable and adequate allocation of resources to education are a necessary underlying condition for improving equity and adequacy of education outcomes.

As a potential solution to this issue, the literature on equity and human development suggests that instead of focusing on just economic returns, we should broaden our analysis

and acknowledge the importance of equity and human development in education. Besides earnings and contributions to economic growth, there are other distinct benefits of education such as personal development, employment, better lifestyles and community quality, improved equity, and social mobility (Scotchmer, 1994; Murray, 2009; McMahon, 2010). In fact, there is a significant relationship between public expenditures on education and the potential to achieve educational outcomes related to equity and human development (Ranis, Stewart, & Ramirez, 2000; Baldacci et al., 2008; Fitzsimons, 2015).

There is an ongoing debate among sociologists over disparities in resource allocation, racial and gender inequality among school districts, and its effects on educational outcomes (Cooper et al., 1994; Johnson, 2011; Gorski, 2017; Lafortune, Rothstein, & Schanzenbach, 2018). The general finding in this strand of studies is that households tend to segregate into homogeneous communities and this segregation adds to disparities in educational inputs and outcomes at the household and community levels (Benabou, 1996; Jerrim & Macmillan, 2015). For example, Bayer, Fang, and McMillan (2014) find that neighborhood segregation in the U.S. influences socioeconomic and educational inequality. They find that for the age group 20-24, one standard deviation increase in segregation lowers the probability of black students graduating from high school by about 3.3 percentage points relative to whites, and the probability of completing college falls by about 1.3 percentage points (Bayer, Fang, & McMillan, 2014).

To understand how education finance affects distribution of resources, we need to analyze the mechanisms through which resources are transferred across districts, schools and

individuals. Studies of inter-district resource disparities in the U.S. have found persistent and significant differences in educational resources per pupil over the years (Hussar & Sonnenberg, 2000; Fernandez & Rogerson, 2003; Jimenez-Castellanos, 2010; Darling-Hammond, 2015). For example, Berne and Stiefel (1994) measured resource equity at the district-level in the United States and found that poorer districts receive more per pupil funding for non-classroom management and oversight categories, but not for classroom management and direct categories. They also found that poorer students are taught by less experienced, less well-educated teachers (Berne & Stiefel, 1994). More recently, Logan et al. (2012) explored the geography of inequality in terms of the geography of school districts and their performance in the United States. They found disparities beginning in elementary grades where Black, Hispanic, and Native American children attended schools that were on average at the 35th to 40th percentile of performance while White and Asian children attended schools at close to the 60th percentile (Logan et al., 2012).

Even within school districts, there are disparities among equally situated students as well as among those situated differently. That is, historically disadvantaged groups such as minority or female students receive fewer resources than students from other groups. Moreover, there is also consistent evidence of lack of equity in the distribution of teacher resources in terms of gender and community characteristics (Iatarola & Stiefel, 2003). In another study, Jimenez-Castellanos (2010) finds inequitable resource allocation trends and patterns between schools within a school district that result in different outcomes for different groups of students based on their race/ethnicity and whether they are in Title I

schools or not (Jimenez-Castellanos, 2010). Given this situation, many studies point to the importance of national and local policies in advancing equitable allocation of resources across schools and individuals (Baker, 2015). In other words, one way to improve the efficiency of education spending is by implementing policies that aim to reduce racial, community-based, and gender inequalities within schools and among school districts.

Service provision and delivery. Distinct from the previous two perspectives related to the allocation of inputs and their effects on outputs, there are numerous studies that have focused on the provision and delivery of education. Literature within the service provision and delivery perspective ranges from studies of inefficiencies within schools in terms of teacher absence and motivation (Chaudhury et al., 2006; Gershenson, 2016), to inefficiencies related to spending a significant percent of the education budget on teacher salaries and administrative costs (Filmer & Pritchett, 1999; Stiglitz & Rosengard, 2015; Johnes et al., 2017), and issues with governance in low-income countries (Rajkumar & Swaroop, 2008; Muralidharan et al., 2017). First, a majority of studies of the effects of governance on outcomes of public spending on education suggest that spending does not yield desired outcomes. Researchers attribute this phenomenon to bad governance, corruption, bureaucracy, and weak institutional capacity (Gupta, Davoodi & Tiongson, 2000; Muralidharan et al., 2017). In countries with poor governance, public spending on education has a strong negative impact on outcomes such as enrollment, learning and completion. Public spending becomes more effective as the level of corruption declines or the quality of bureaucracy improves (Rajkumar & Swaroop, 2008; Duflo, Dupas & Kremer, 2015; Glewwe

& Muralidharan, 2016). These findings suggest that efforts to improve governance structures along with increases in public education spending is more likely to lead to better outcomes.

Another important issue is related to allocation of public spending on teacher salaries and professional development in the education system. Some studies have found that considerable educational resources are being wasted in low-income countries because of significant absence of teachers in primary schools. A survey of public-school teachers in India suggests that one in five teachers are absent from schools at any given time (Chaudhury et al., 2006). Productivity of even those present in schools were found to be questionable (Chaudhury et al., 2006). Not only teachers but also administrative staff and government officials in the public education sector can exhibit similar behavior (Muralidharan et al., 2017). Devarajan & Reinikka (2004) suggest potential causes of such inefficiencies: intended expenditure may not be reaching service providers because of corruption at higher levels, education systems do not have a strong incentive and monitoring mechanism in place, or governments lack knowledge of significant variations in the demand for and needs of educational services in different districts. To improve service delivery, the authors argue that local governments should form alliances with voluntary organizations and community groups to work together in improving incentives and monitoring of schools within their jurisdiction (Devarajan & Reinikka, 2004). Nevertheless, decentralization of education service provision should be viewed with caution. While decentralization and sharing of monitoring responsibilities can improve service delivery, weaker governments are more likely to

withdraw from the responsibility of providing service and monitoring schools (Bardhan, 2004; Mbiti, 2016).

All of the above three perspectives on the relationship between policy environment and educational outcomes are prevalent in research on low-income countries and their educational development (Verger, Novelli, & Altinyelken, 2012; Asiedu, 2014; Riddell & Nino-Zarazua, 2016). From the 1960s to early 1980s, global aid to education was concentrated on building infrastructure, providing equipment, and technical assistance (Nino-Zarazua, 2015). For instance, the World Bank allocated two-thirds of its aid to education during the 1970s to building schools. In the late 1980s and early 1990s, there was a global shift to equity and human development-based aid to education. Driven by the United Nations' principle of universal access to elementary education and the human rights framework, supranational organizations along with bilateral agencies imposed access and equity goals in their financial and technical assistance to governments in low-income countries (Stromquist & Monkman, 2014). In the 2000s and recent years, global education policy shifted away from a project aid approach to sector-wide interventions, focusing on quality and student learning objectives in addition to access and equity (Riddell & Nino-Zarazua, 2016). These phases of global policy shifts from the 1960s to recent years have been markedly evident in Nepal's education policy landscape, as shown in the above sub-section on history of education in Nepal.

While policies are made at the system level and affected by several environmental factors, organizational actions form the crux of policy implementation. The following sub-section discusses the organizational context of policy implementation.

Organizational actors, organizational fields: Cooperation between organizations

Policies get implemented when layers of governments and organizations work together to make something happen. Working together necessitates interactions and constant cooperation among participating organizations. Institutional theorists often use "organizational field" as a unit of analysis to explore these interactions and cooperation practices across organizations involved in implementing policy (Burch, 2007; Powell & DiMaggio, 2012). Researchers use organizational fields to ask questions about how policies are shaped, mediated and channeled by the institutional environment (Wooten & Hoffman, 2008). An organizational field is "a community of organizations that partakes of a common meaning system and whose participants interact more frequently and fatefully with one another than with actors outside the field" (Scott, 1995, p. 56). This community of organizations is guided by stable cultural-cognitive, normative, and regulative structures that provide collective meaning to social behavior (Scott, 1995; Powell & DiMaggio, 2012).

Institutional scholars have looked at organizational fields to understand the underlying social, behavioral, and cognitive processes that guide the decisions of institutional actors (Edelman, 1992; Lindenberg, 1998; Marquis, 2003). One group of institutional researchers have used organizational fields to understand the role of the state and the influence of the regulatory environment in shaping policy implementation. For instance,

Edelman (1992) examined the collective behavior of organizational actors in shaping and implementing equal employment opportunity legislation. The legislation called for representation of historically underrepresented groups in different levels of organizations but did not specify how organizations were to show compliance. As a response to this uncertainty, organizational actors pushed for the development of Affirmative Action and Equal Employment Opportunity (AA/EEO) offices to show their compliance. As a result, many organizations adopted AA/EEO offices in the following years (Edelman, 1992). In other studies, researchers have looked at the cognitive processes that guide organizational behavior. Marquis (2003), for example, studied the development of inter-corporate network ties and the cultural-cognitive processes that guided them. He found that locally based network ties guide the behavior of firms (Marquis, 2003).

Most earlier studies viewed an organizational field as a largely static entity that was formed around common industries or technologies. In the late 1990s, however, this view was challenged and criticized by many scholars (DiMaggio, 1995). Newer studies have identified organizational fields as dynamic entities, capable of change and constantly evolving in terms of interaction patterns and power relations among organizations (Greenwood & Hinings, 1996; Hoffman, 1999). Notions of agency, change, and variety have dominated the conversation in recent years. For example, Greenwood and Hinings (1996) suggested that organizational fields are inter-connected and embedded within other similar and conflicting institutional systems. These dynamics affect the behavior of organizational actors and push the organizational field toward constant change (Greenwood & Hinings, 1996). Another

study by Krucken (2007) examines the driving forces underlying higher education reform in Germany using organizational fields as a conceptual tool. This study finds that rapid reform processes can be explained by strong cooperation among the organizations involved, with the state as a coercive actor in driving reform implementation (Krucken, 2007). Many similar studies have used institutional theory, particularly organizational fields to understand the role of institutional actors, their cooperation, and its effects on reform outcomes (Vaira, 2004; Rawlings & Bourgeois, 2004; Meyer, Gaba, & Colwell, 2005).

More recently, Russell et al. (2014) studied the role of states in implementing a federal education reform, Race to the Top. They found that states designed large implementation networks and enable participation of non-system actors to bring a wide range of resources to bear on reform efforts (Russell et al., 2014). This research indicates the shift from highly localized collaborations in the 1980s to dynamic collaboration between state and non-state actors at the national and state-level arenas (Russell et al., 2014). Empirical research in education points to three major themes in organizational fields that shape policy implementation: *co-construction, organizational learning, and social capital* (Datnow, 2006; Honig, 2006; Smylie & Evans, 2006; Burch, 2007).

Co-construction perspective. The co-construction perspective (Datnow, Hubbard, & Mehan, 2002; Ramirez & Garcia-Penalvo; 2018) is built on the assumption that different organizational actors with different interests and intentions participate in the reform process at different points along the course of reform formulation and implementation (Hall & McGinty, 1997, p. 4). With co-construction, there is a "relational sense of context" (Datnow,

2006) in that actors take actions within a specific context or setting. Similarly, contexts are shaped by actors' decisions and actions over time. This interconnectedness of actors and contexts throughout the social system affects policy implementation and change (Hall & McGinty, 1997; Datnow, 2006).

While actors at all levels contribute to policy implementation, access to resources and use of power are determined by an actor's position in the system (Levin & Datnow, 2012). For example, Olsen and Sexton (2009) use organizational fields to look at how policy contexts influence schools and how schools in turn implement those policies that influence teachers' work. They find that an organization or a group of organizations can influence actors and other organizations by centralizing, controlling, and restricting information flow (Olsen & Sexton, 2009). In another study, Datnow (2006) finds that while conditions at federal, state, district, school, and group levels all co-construct policy implementation efforts in education, loose connections between different policy levels make it difficult for national reform legislations to transition to the state, district, and school level. She also finds that districts are important mid-level actors in the implementation chain (Datnow, 2006).

Organizational learning. The second theme in organizational fields literature is organizational learning. Organizational learning in education involves "the search for information outside the organization and the use or the incorporation of that information…into rules regarding the behavior of individual organization members and the organization as a collective" (Honig, 2006, p. 128). In education, organizational learning occurs when individuals engage in and learn through socially embedded activities, practices,

and behaviors (Higgins et al., 2012). Socially embedded practices in education include the use of intentional strategies that address a specific learning goal within the context of daily routines, activities, and interactions (Bensimon, 2005). For instance, the Equity Scorecard project uses the approach of inquiry and action as intentional strategies to initiate organizational learning and change with the goal of creating equitable outcomes for students of color in higher education institutions. Individuals from different departments and divisions come together to investigate their own campus data, practices, and policies. The team of individuals then become experts on their institution's practices and pull together to implement sustainable institutional change (Bensimon, 2005).

Literature suggests that there are several building blocks that facilitate organizational learning, including "a supportive learning environment, concrete learning processes and practices, and leadership that reinforces learning" (Garvin, Edmondson, & Gino, 2008, pp. 2-4). Recent research on urban schools has examined the relationships between professional learning communities, social trust, and a school's capacity for innovation and experimentation (Byrk et al., 2010). Findings from this line of research suggest that a trusting and collaborative climate within and between educational organizations has a positive impact on student outcomes (Silins et al., 2002; Goh et al., 2006; Schechter & Atarchi, 2014).

Social capital. The third theme is social capital. Social capital is a combination of "intangible and abstract resources derived from interactions among individuals and the social structures that frame them" (Coleman, 1988). Like organizational learning, social capital also has a "trust" component, but it goes beyond collective learning and emphasizes open

communication, mutual assistance, and joint accountability that result from social trust (Smylie & Evans, 2006). In addition, social capital also has "social structures" that include multilevel social systems and relationships among individuals and organizations such as teachers, principals, district education offices, government offices, school management committees, and other entities (Smylie & Evans, 2006). There are also norms, expectations, and sanctions that shape the relationships between individuals and organizations. For example, individuals in one organization may have high trust and communication internally, but not externally with other organizations in the social system (Smylie & Evans, 2006).

Research findings suggest that social capital has a situational influence on implementation and depends on the strength of relationships as well as the alignment of social structures with the content of policies and programs (Smylie & Evans, 2006). For instance, Bridwell-Mitchell & Cooc (2016) examine the effects of social capital on school improvement and its effects on teacher communities. They find that teachers in larger communities and communities with stronger cohesion are more likely to interact with each other over time. These interactions are tied to higher job satisfaction, knowledge sharing, commitment to student learning, and improved student achievement (Bridwell-Mitchell & Cooc, 2016). Another study of social network of 43 primary schools in England showed that higher levels of social capital increased collaboration, learning, complex information sharing, problem solving, shared decision making, and coordinated action (Brown, Daly, & Liou, 2016).

Although all three themes of organizational fields are visible in Nepal's education policy landscape, it is fair to say that the current field is largely defined by a dynamic, politically driven structure of social capital (Carney, 2015). This structure comprises influential supranational organizations like the World Bank and the United Nations, the national ministry of education and district-level departments of education as regulatory and governing organizations, non-governmental organizations like Teach for Nepal, and school-level organizations such as school management committees (Carney & Bista, 2009; Carney, 2015). Educational reforms over the past few decades have established the World Bank as the central, influential actor at the organizational level in Nepal as the Bank continues to provide more than half of all foreign aid to education (Regmi, 2015). On the other hand, Teach for Nepal is emerging as an influential local organization in terms of teacher enterprise and social entrepreneurship (Carney, 2015). These social networks and changing relationships between supranational, national, and local organizational actors seem to shape the current organizational field in Nepal.

While organizations and organizational contexts shape policy implementation, individual actors with resources and aligned interests can influence policy. Actors, who are parts of organizations and organizational contexts, also influence policy implementation through individual-level policy cognition and decision-making abilities. The following sub-section discusses individual actors and their role in policy implementation.

Individual actors and policy cognition: How actors make sense of policy

Individuals in the national, district and local education and administrative organizations collectively turn implementation goals into action. Implementation is affected by the extent to which these implementing agents individually and as a group understand and are motivated to fulfill the policy's objectives and expectations (Spillane, Reiser, & Reimer, 2002). Motivation is defined here in its dictionary meaning as the willingness of an individual to do something (Motivation, n.d.). A person's "cognitive framework" defines their understanding of policy objectives (Spillane, Reiser, & Reimer, 2002, p. 388). That is, one's cognitive network represents the interaction of one's knowledge, beliefs, and attitude (cognition), situation, and external policy signals. Employees' motivation to fulfill policy objectives is shaped by their understanding of the policy. This framework contests conventional arguments that policy failure is the result of either policy ambiguity or the mismatch of agendas and interests between policy makers and implementing partners (Datnow, 2006). It moves beyond the rational-choice argument, challenges the assumption that agents undermine policy and directives to suit their agendas, and emphasizes the complexity of the sense-making process (Spillane, Reiser, & Reimer, 2002). By focusing on the mechanisms that implementing agents undertake in making sense of policy and translating that into practice, this framework enables us to move beyond the purely behavioral or rational-choice analyses of policy effectiveness. It shifts our focus to the cognitive processes of individual agents, their sense-making situation, and their interpretation of policy signals (Spillane, Reiser, & Reimer, 2002; Datnow, 2006).

In education, teachers, principals and other implementing agents adapt to new experiences and information based on their prior knowledge, values, beliefs, and experiences. How they understand policy depends critically on their current frame of reference – their views of the reform, views of students, and understanding of teaching and learning (Spillane, Reiser, & Reimer, 2002). Cognitive science researchers define this understanding as 'sense-making' or 'cognition'. Scholars have studied the role of sense making among school leaders, district officials, and other actors to examine how actors' understanding of policy shapes implementation (Coburn, 2001; Louis et al.; 2005). For example, Louis, Febey, and Schroeder (2005) studied implementers' cognitive perspectives to examine the effects of sense making on accountability policy in the United States. They found that sense making affected teacher attitude and motivation toward the policy and their efforts to change classroom practices (Louis et al., 2005). Coburn (2001) also draws on the sense making and cognition framework to analyze the processes by which teachers interpret policy messages. She finds that the nature and structure of formal networks and informal alliances among teachers shape implementation efforts (Coburn, 2001). More recently, Coburn (2016) summarized how different approaches to studying policy implementation all put forth different accounts of the nature of human agency. She emphasized the role of individual policy actors and their agency in influencing educational services and shaping policy implementation based on their positions in the policy and social structure (Coburn, 2016).

Researchers have used two distinct approaches to study policy cognition and sense making in education: an economic approach and a political approach (Loeb & McEwan,

2006; Malen, 2006). In the economic approach, individual decision makers are "guided by their preferences and constrained by their resources and knowledge" (Loeb & McEwan, 2006, p. 170). For instance, one study examines a special education finance reform that provided school districts serving special education students with additional compensation (Cullen, 2003). This study looks at the preferences of district administrators and other important actors in the school districts and finds that these actors have preferences for increased revenues in their district. Based on this preference, policy makers would predict that the policy provides incentives for central actors to increase the percent of special education students (Cullen, 2003). Researchers using the economic approach to sense making find that preferences and goals differ from person to person and understanding these differences across central policy actors is an important part of understanding implementation (Loeb & McEwan, 2006).

Another group of researchers have used a political approach to examine policy cognition and sense making (Bardach, 1977; Malen, 2006). This approach suggests that policy implementation is a "dynamic political process that affects and reflects the relative power of diverse actors" (Malen, 2006, p. 85). Research suggests that political perspectives can help to unpack the way actors at all levels of the education system make sense of policy and how that influences policy implementation. For instance, policies that do not align with the interests and political ideologies of teachers, parents, or administrators often encounter strong resistance during implementation (Muncey & McQuillan, 1998; Zimmerman, 2002). Bache and Taylor (2003), using a case study of the University of Prishtina in Kosovo, find

that the coercive nature of policy transfer by international actors resulted in resistance from those not receptive to international initiatives (Bache & Taylor, 2003). Research on the political approach to sense making further demonstrates that actors who can make sense of policies and their consequences and have the resources and means to push forward their political interests are more likely to influence policy implementation (Kingdon, 1995). For example, Schneider and Ingram (1993) provide an example of government subsidies and suggest that direct government subsidies are often granted to large corporations with the purpose of increasing the number of jobs in the community, even though public-sector agencies with lower overhead costs and salaries would alternatively create more jobs. In this case, policy actors in corporations have the resources and means to push forward their political interests and influence policy implementation (Schneider & Ingram, 1993).

In Nepal's context, Carney (2008) analyzed the changing 'policyscape' in education. He suggested that the shift from central governance to decentralization has led to a new governance structure where individual actors at the school level have a bigger role in policy implementation (Carney, 2008). At present, the majority of public schools in Nepal have school management committees, comprised of parents and local stakeholders, to manage school organization and make decisions about finance and service provision (Carney, 2008). In line with the political approach to examining sense making, Joshi (2016) conducted a mixed methods study on the political, economic, and societal challenges encountered by public school systems in Nepal. She states that while decentralization has empowered more local actors and school level stakeholders in educational decision making, political

engagement and pressures affects how district and school level education officials make sense of and implement policies (Joshi, 2016). Her study concludes that district education officials, principals, teachers, and school management committee members are systematically engaged with political parties and their district-level officers in order to ensure implementation of education policies. This in turn has turned decentralized education governance into a playing field of political interests (Joshi, 2016).

Effects of Reform on Educational Outcomes

The above review of literature reveals the influence of individual, organizational, and environmental factors in the success or failure of educational policy implementation. Because educational policy implementation is ultimately tied to educational outcomes such as dropout, promotion, retention, and student learning, this section will review the literature on the effects of educational policies and their implementation on educational outcomes, with a focus on the methodologies used to measure those effects. An understanding of how the measurement of causal effects of educational policies has evolved over the years is crucial to developing an appropriate conceptual and methodological framework for this study. The following paragraphs summarize the literature on the different strands of educational outcomes measurement.

Educational researchers often measure the extent and causes of success or failure of a reform by establishing ‘cause and effect’ relationships between what goes in to the reform and what happens as a result of its implementation (Maxwell, 2004; Mertens, 2014). Given the complex nature of education production and considering the myriad of observable and

unobservable factors that affect educational outcomes, increasing attention is being given to isolating the causal effects of educational policies (Van Elk, 2014). The field of educational research has had active debates about validity of evidence and appropriate methods for causal inference ever since its inception (Camburn et al., 2015). This debate has created three distinct strands of research on the measurement of effects of education reforms or policies. The first strand focuses on the use of randomized experiments to measure educational program effects (Glewwe & Kremer, 2006; Duflo, Glennerster, & Kremer, 2008; McEwan, 2013; Murnane & Ganimian, 2014). The second strand focuses on the use of quasi-experimental designs and evaluations in which units are not assigned to conditions randomly (Shadish, Cook, & Campbell, 2002; White & Sabarwal, 2014; Campbell & Stanley, 2015). And the third strand focuses on the use of mixed methods designs in which researchers combine quantitative and qualitative methods to enrich, explain, or even contradict research findings (Johnson & Onwuegbuzie, 2002; Jones & Sumner, 2009; Mertens, 2014).

Randomized experimental designs are the most commonly sought-after methods for causal inference (Shadish, Cook, & Campbell, 2002; Slavin, 2008). Random experiments, also known as true experiments, are considered the most rigorous design because of their characteristic feature of random assignment (Creswell, 2005). Participants are randomly assigned to different conditions of the variable being tested. Those in the experimental group receive treatment and those in the control group do not receive treatment (Creswell, 2005). Because participants are randomly assigned to groups, random experiments eliminate most

threats to internal validity. Such designs control for differences in participants' history, selection, and interaction between selection and other threats (Creswell, 2005).

There has been a growing use of randomized control trials (RCTs) to examine the impact of education interventions over the last decade. For instance, Kremer, Miguel, and Thornton (2009) studied the impact of a merit scholarship program for adolescent girls in Kenya using RCT evaluation. Their sample included 116 schools, with 51 percent of the sample in the treatment group. They found that the scholarship program raised test scores by 0.19 standard deviations for girls enrolled in schools eligible for the scholarship, and the average program effect for girls corresponded to an additional 0.2 grades worth of primary school learning (Kremer, Miguel, & Thronton, 2009).

Another study used RCT to examine the effects of teacher incentives on increasing students' test scores. Glewwe, Ilias, and Kremer (2010) studied teacher behavior and its effects on student test scores in a group of 100 schools in Kenya, with 50 schools in the treatment group and 50 in the control group. They found that students in schools with a teacher incentive program were more likely to take exams and had higher test scores in the short run. At the end of the program, however, the test score difference between students in the treatment and control schools disappeared (Glewwe, Ilias, and Kremer, 2010).

More recently, Muralidharan and Prakash (2017) examined the impact of the 'cycling to school' program in India. This program aimed to reduce the gender gap in secondary school enrollment by providing girls who continued to secondary school with a bicycle to improve access to school. They used girls aged 14 or 15 in Bihar as the treatment group and

girls and boys aged 16 or 17 in Bihar and students in the neighboring state of Jharkhand as control groups. Employing a triple difference approach (using boys in Bihar and the neighboring state of Jharkhand as comparison groups), they found that being given a bicycle increased enrollment in secondary school by 30 percent and reduced the gender gap in age-appropriate secondary school enrollment by 40 percent (Muralidharan & Prakash, 2017). There have been a growing number of randomized experiments in developing countries similar to this one to evaluate the impact of education programs. McEwan (2015) conducted a meta-analysis of 76 randomized experiments in primary schools in developing countries from mid-1970s to 2013. These experiments evaluated the impact of 110 school-based treatments on language and mathematics test scores. The treatments ranged from instructional interventions and incentive-based interventions to health interventions in schools. His meta-analysis revealed that most interventions had small mean effect sizes, and that there is insufficient data to gauge the relative cost-effectiveness of categories of interventions (McEwan, 2015).

As indicated by McEwan's (2015) meta-analysis of the effects of randomized experiments in education, and despite their rising traction and promise of rigor, randomized experimental designs in education have significant limitations (Cook, 2002; Maxwell, 2004; Schanzenbach, 2012; Rutkowski & Delandshere, 2016). First, the nature and complexity of education limits the usage and effectiveness of randomized experiments. Educational researchers often argue that random assignment is not ethically and politically feasible in education, especially in large-scale programs (Cook, 2002). For example, it is difficult to

imagine random assignment of fully trained teachers in schools and depriving other schools in the same region of that resource, or randomly assigning some students in a school to an intervention while placing others in the 'control' group. Experiments like these can be designed in theory but are practically infeasible (Schanzenbach, 2012).

The second significant limitation of random experiments is that they are best suited to test individual programs or a group of programs within a single reform geared toward the same outcome. However, large-scale reforms operate in complex environments where many programs are implemented simultaneously and have important connections without necessarily sharing the same goal or outcome. When these programs are tested for impact, it is possible that the assumptions and criteria of random experiments limit the causal inference (Cook, 2002; Schanzenbach, 2012). As a result of this limitation, researchers have criticized policy makers for implementing a group of disconnected programs and called for the need to create streamlined programs and implementation processes (Payne, 2008; Easton, 2010).

Lastly, and most important, randomized experiments are infeasible for evaluating national level education reforms. It is nearly impossible to find a national comparison group for a national policy, and even in the rare case of availability of a natural comparison group, the time and cost required to implement the experiment and analyze its effects on outcomes make experimental studies infeasible (Elbers & Gunning, 2013). To this end, researchers have often used quasi-experimental designs and applied regression techniques to analyze the effects of national policies (Elbers & Gunning, 2013).

Similar to randomized experiments, quasi-experimental designs view policy as an 'intervention' where a treatment is analyzed to assess how well it achieves its goals (Cook, 2015; Campbell & Stanley, 2015). The extent of the treatment's effectiveness is measured by a set of pre-specified indicators. Unlike randomized experiments, however, quasi-experimental design includes no random assignment to treatment and control groups. Alternatively, quasi-experimental designs assign a comparison group with similar characteristics on key indicators and variables in terms of baseline. This comparison group provides a way to test what the outcomes would have been if the policy was not implemented, known as the 'counterfactual'. Quasi-experimental designs are mostly used in ex-post studies of policy effects and when it is not possible to assign individuals to treatment or control groups (Shadish et al., 2002; Handley et al., 2018).

In education, comparison groups for quasi-experimental designs are created using techniques such as regression discontinuity design (RDD), interrupted time-series design, or propensity score matching design. For instance, Melguizo, Sanchez, and Velasco (2015) used regression discontinuity design to estimate the impact of a national level subsidized loan program, ACCES, on a number of higher education outcomes including increase in enrollment rates, decrease in dropout rates, and increase in academic performance. Their study found that the ACCES program had a positive effect in increasing enrollment of low-income students at the margin who would have enrolled in college, decreasing dropouts, and increasing academic performance. Similarly, Elert, Andersson, and Wennberg (2015) studied the long-term effect of entrepreneurship education and training in high school on

entrepreneurial entry, performance, and survival using quasi-experimental design and propensity score matching. They compared three Swedish cohorts from Junior Achievement Company Program (JACP) alumni with a matched sample of similar students and followed them for up to 16 years after graduation. They found that participation in the entrepreneurship education program increases the long-term probability of starting a business as well as income through entrepreneurship. However, they did not find any effect of the JACP program on the survival of those businesses (Elert, Andersson, & Wennberg, 2015).

Most recently, Markowitz (2018) used interrupted time series analysis to study the changes in school engagement as a function of the federal reform No Child Left Behind (NCLB). Using data from repeated cross-sections of a national longitudinal survey of youth, he found that NCLB had a positive short-term effect in increasing engagement that diminished over time and ultimately became negative (Markowitz, 2018).

While quasi-experimental studies are preferred over random experimental studies in educational research due to their time and logistical feasibility, researchers are often concerned about the limitations of quasi-experimental studies. Cook, Campbell, and Shadish (2002) state that a primary concern is that quasi-experimental control groups may differ from the treatment group in many non-random ways other than the presence of the treatment. For example, for a study examining the effects of teacher training on student outcomes, if the treatment group is made up of volunteer teachers, it becomes difficult to isolate whether student outcomes improved because of the training program or because the volunteer teachers had better cognitive and non-cognitive skills compared to the control group.

Consequently, researchers often have to rule out alternative hypotheses in order to confirm the causal claim they are making (Cook, 2002).

Another concern is the limited generalizability of results of quasi-experimental studies (Saunders, Goldenberg, & Gallimore, 2009). There are threats to external validity with multiple treatment interference (Bernard & Bernard, 2012). For instance, low-income countries experience waves of education reforms as well as reforms in other sectors (i.e., health) that have the potential to affect educational outcomes. However, a national de-worming program, unrelated to specific educational reforms, may result in more students attending schools due to reduced worm-related illnesses. Similarly, previous education reforms may have cumulative effects on the current reform since there are long-term effects of education interventions (Bernard & Bernard, 2012; Campbell & Stanley, 2015). With practical infeasibility of randomized experiments and validity threats of quasi-experimental designs, researchers in education have increasingly used mixed methods analysis to study the effects of policies and programs.

Mixed methods studies allow researchers to combine methods to enrich, explain, or even contradict research findings (Johnson & Onwuegbuzie, 2002; Jones & Sumner, 2009; Mertens, 2014). Johnson and Onwuegbuzie (2002) consider mixed methods research as the "third wave" of research and advocate for the use of mixed methods in educational research because of its ability to "fit together the insights provided by qualitative and quantitative research into a workable solution" (Johnson & Onwuegbuzie, 2002, p. 16). Educational researchers have used different types of mixed methods designs to study the effects of

education programs. For instance, Zumbrunn et al. (2012) used explanatory sequential mixed methods to study the relationship between academic achievement and perceptions of belonging, motivation, and engagement in college students in a large, Midwestern university. They collected and analyzed quantitative data using structural equation modeling in the first phase to test the relationship between supportive classroom environment, belonging, motivation, engagement, and academic achievement. They found that student perceptions of supportive classroom environment predicted their belonging beliefs, which in turn predicted their motivation, engagement, and academic achievement. In the second phase, they followed-up with qualitative interviews with students to further understand their perception of belonging and their experiences with their instructor and peers in the course. Results from the qualitative phase supported and supplemented quantitative findings (Zumbrunn et al., 2014).

Another commonly used mixed methods design is the sequential explanatory design, where the researcher first uses a quantitative analysis to measure the properties of the problem and then uses a qualitative analysis to deepen or expand the findings of the quantitative analysis (Mertens, 2014; Ponce & Pagan-Maldonado, 2015). For instance, Watson et al. (2017) use sequential explanatory mixed methods design to examine learner profiles in a MOOC focused on attitudinal learning, Science of Happiness. The study first used attitudinal learning surveys to assess students' cognitive, affective, and behavioral learning, followed by interviews with a subset of participants. They found two different

profiles of learners based on the differences in the levels and trends of happiness reported by learners during the course (Watson et al., 2017).

Yet another strand of commonly used mixed methods in education research are the ones with convergent parallel phases, where quantitative and qualitative data are used to either triangulate or complement each other. For instance, Song & Mustafa (2015) used convergent parallel mixed methods to study factors impacting teacher job satisfaction related to science teaching. They collected quantitative data using surveys and qualitative data through interviews in parallel, analyzed these data separately, and then merged findings to provide a comprehensive understanding of the factors affecting teacher satisfaction in science teaching. They found that teachers' job satisfaction was not related to the number of science teachers in a school or school size. Larger schools provided more support with curriculum materials compared to smaller schools, and new teachers indicated their needs for emotional support from mentors (Song & Mustafa, 2015).

As highlighted by the examples above, mixed methods research has become increasingly prominent in studies of small- and large-scale educational policies and programs. Mixed methods studies build upon complementary strengths and weaknesses of quantitative and qualitative approaches by combining or triangulating data and findings from both (Johnson & Onwuegbuzie, 2004; Shannon-Baker, 2016). This also indicates a 'paradigm shift' in the methodology of educational research from separating positivist-quantitative and interpretivist-qualitative to merging the two together for a pragmatic mixed methods approach (Jones & Sumner, 2009; Mertens, 2014). A growing number of

researchers now argue that using mixed methods design is integral to strengthening the quality of analysis of education policies and programs (Hibberts & Johnson, 2012; Mertens, 2014; Burch & Heinrich, 2015).

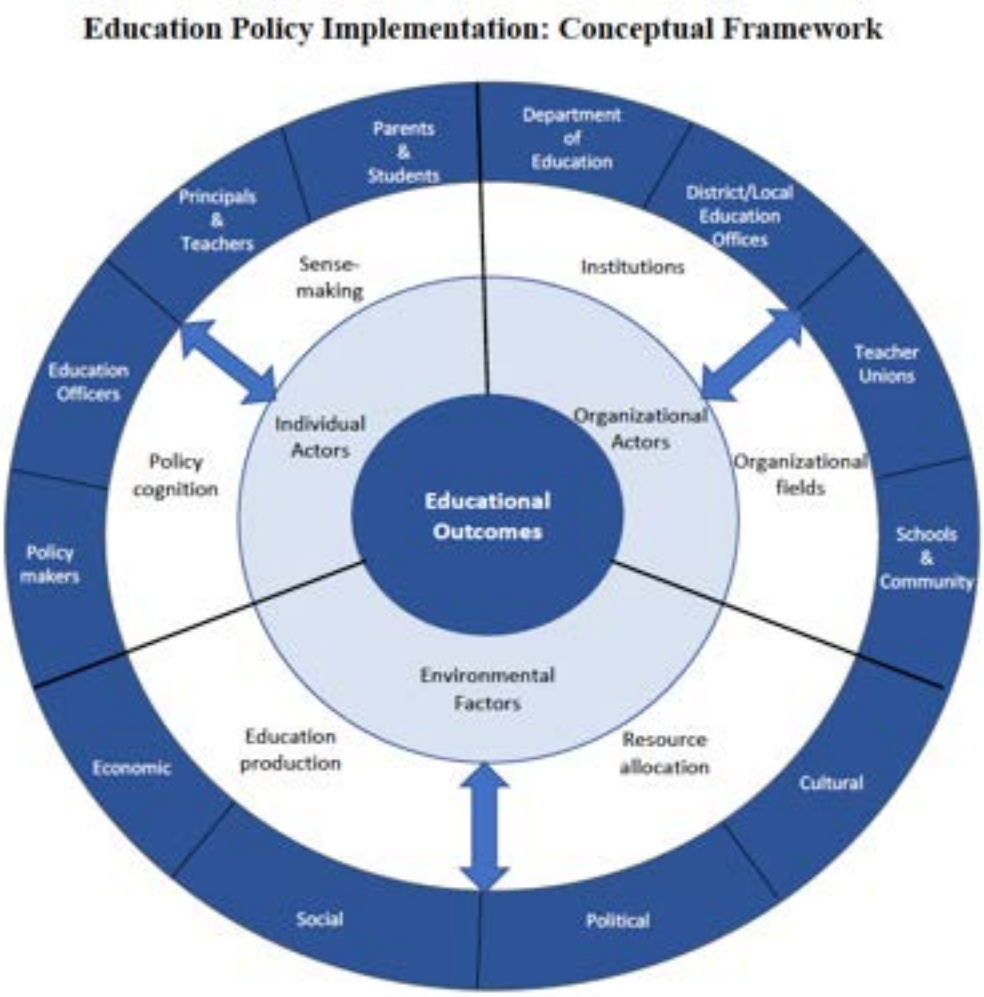
Conceptual Framework

Based on the review of literature, this study builds on the framework suggested by Honig (2006) on the intersection of people, places, and policies (*see Honig, 2006, p.14 for details*). Honig (2006) states that policy, people, and places – three highly inter-related dimensions – together form a notion of implementation as a contingent process. Her definition of implementation as a dynamic and contingent process rather than a static process enables researchers to reveal an array of previously hidden or unnoticed factors that influence policy implementation. This definition is beneficial especially for those examining implementation in complex policy environments (Honig, 2006). In addition to Honig's framework, this study positions educational outcomes at the heart of implementation efforts (Viennet & Pont, 2017), and draws from the three categories of factors discussed above to develop an integrated conceptual framework. The three factors are resource allocation and education production (Hanushek, 1995), institutional theory and organizational fields (Scott, 1995; Burch, 2007), and policy cognition (Spillane, Reiser, & Reimer, 2002). These categories are relevant for the study because they provide explanations for the factors that influence the implementation process.

Figure 1 presents the conceptual framework of the study. For the purpose of this study, educational outcomes are positioned at the center of policy implementation. This is

because the ultimate objective of any reform is tied to improving educational outcomes such as dropout, promotion, retention, and student learning. The circle outside the center is divided into factors that affect implementation. Specifically, one of the primary factors affecting policy implementation is the environment. Environmental factors include economic, political, social, and cultural aspects that affect reform implementation. As discussed in the previous section, a production function gives us the "maximum amount of output possible for an amount of inputs given the constraints imposed by the underlying technical process" (Pritchett & Filmer, 1999, pp. 3-4). Applying this concept to education reform enables us to simplify the implementation environment and categorize important aspects using a well-defined theory of education production discussed in the previous section. Therefore, we would expect supportive socio-economic, cultural, and political structures to be positively associated with positive educational outcomes such as reduced dropout rates, increased promotion rates, and improved student learning.

Figure 2. Conceptual framework for the study of reform implementation



The second factor is related to organizational actors and organizational fields. Implementing a reform brings together a group of organizations to achieve a common objective. In education reform, these organizations often include the government's Department of Education, regional and local education offices, teachers' unions, universities, colleges, training centers, schools, and communities. This is the space where individual actors make collective sense of the reform. They interact and cooperate with each other to

keep the shared meaning of reform intact and to coordinate implementation efforts. Their interconnectedness throughout the social system affects policy implementation and change. Therefore, we would expect organizational collaboration and frequent interactions to be associated with collaborative decision making, coordinated action, and improved educational outcomes.

The third factor is related to individual actors. In reform implementation, there are individual actors at the national and local levels of implementation. Each individual actor has a set of beliefs, values, and attitudes toward the reform. Those beliefs, values, and attitudes are shaped in part by their past experiences and in part by the implementation environment, also known as cognition (Spillane, Reiser, & Reimer, 2002). They try to make sense of the reform and its parts based on this cognitive framework. Therefore, we would expect individual actors and their beliefs, values, attitudes, and actions to be associated with educational outcomes at the classroom, school, district, and national level.

By broadening the view of the implementation process, this conceptual framework helps to reveal factors that influence implementation directly or indirectly through interaction with other factors. Building on this dynamic and contingent framework of policy implementation, the following chapter describes the research design and methodology of this study.

CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

This study utilizes a mixed methods research design to analyze the impact of a national education reform implementation on key educational outcomes and factors influencing implementation in Nepal with a focus on basic and secondary education. This study seeks to answer two principal questions:

1. How does the implementation of SSRP affect student outcomes (dropout and promotion) in Nepal's primary and secondary schools?
2. What are the underlying factors affecting reform implementation?

The decision to use both quantitative and qualitative evidence is influenced by recent suggestions in research methods regarding studies analyzing large-scale reforms (Yin & Davis, 2007). Johnson and Onwuegbuzie (2004) suggest that researchers "can answer a broader and more complete range of research questions because the researcher is not confined to a single method or approach" using a mixed methods design (Johnson & Onwuegbuzie, 2004, p. 21). Similarly, using a mixed methods approach allows researchers to triangulate methodology and data sources (Creswell, 1994). Researchers using mixed methods intentionally collect both quantitative and qualitative data to combine the strengths of each method to answer research questions (Creswell et al., 2011). Following these

pragmatic suggestions, this study develops a mixed methods research design with the help of multiple approaches to data collection and analysis (Creswell, 2013). In an explanatory mixed methods design, Creswell (2005) suggests that a researcher can collect quantitative and qualitative data in two phases or sequentially. It involves first collecting and analyzing quantitative information to provide a general picture of the research problem, and then collecting and analyzing qualitative data to refine, extend, or explain the general picture (Creswell, 2013).

This study utilizes a two-phase data collection strategy. It first collects and analyzes quantitative data followed by collection and analysis of qualitative data. Quantitative data obtained from secondary data collection in this study can be used to understand the trends in education and the association between reform and student outcomes. However, this data cannot answer how implementing actors and organizations made sense of the reform, how resources were shared, interactions between implementing organizations, and the combined effect of sense-making, resources, and the mechanisms through which the reform had an impact on outcomes. To answer these questions, this study then collected primary data using a qualitative approach to obtain in-depth information and also provide an explanation of the effects and processes not captured by quantitative data. Specifically, qualitative interviews were administered with the purpose of exploring the impact of environmental, organization, and individual level factors on reform implementation. Both quantitative and qualitative data were collected and analyzed separately, and a combined summary of quantitative and qualitative findings is presented.

The following subsections provide detailed information on the analytical components of the proposed study, their rationale, data sources, methodology, and address issues of validity and reliability of proposed data and analytic methods. The following sections discuss the two analytical components of the dissertation in detail.

Analytical Component 1: Effects of Reform on Student Dropout and Promotion

This study employs an econometric analysis of the effects of SSRP on key education indicators to answer the first research question: How does the implementation of SSRP affect student outcomes in Nepal's primary and secondary schools? This part of the study investigates the extent to which the implementation of SSRP affected two key education indicators – student dropout and promotion.

Data source and description

To address the first research question, this study uses a panel dataset including 750 observations of annual, district-level data on key education indicators for 75 districts in Nepal between 2006 and 2016. This data comes from the Ministry of Education (MOE), Nepal. Every year, the MOE publishes flash reports that provide a snapshot of education indicators including enrollment, pass rates, repetition, survival rates, teacher training status, school facilities, and infrastructure. The information presented in these reports include facts and figures from all public, private, and religious schools at all levels of education: early childhood, primary, lower secondary, secondary, and higher secondary. Thus, the annual datasets provide nearly perfect coverage of the entire school system in Nepal, except for the newest schools established after the annual data collection period. The underlying data are

structured such that the status or value of each indicator is provided by each level of education – namely, early childhood, primary, lower, secondary, and higher secondary schools, and for each of the 75 districts in Nepal. For example, there are three separate columns for net enrollment in primary schools, lower secondary schools, and secondary schools. Similarly, there are 75 separate rows for each year of data on these indicators. Specifically, for the education indicator 'dropout rate' for, say, Kathmandu district, there are ten separate rows (for each year) and three separate columns (for primary, lower secondary, and secondary schools). This study relies on secondary data and creates a panel dataset using these flash reports for ten years starting from 2006 through 2016. While data for all variables included in the study is available for at least six years, data for 2009 is not available for any of the variables. All data used in this study were shared, upon request, in electronic format by the Statistics division at the Ministry of Education in Nepal.

In addition to the indicators for each school and year, this study also includes data that measures socioeconomic factors called the Human Development Index (HDI). The HDI is a composite measure of average achievement in key dimensions of human development: life expectancy, years of schooling, and GNI per capita[6]. Data for the HDI were downloaded from the United Nations Development Program (UNDP)'s publicly available human development reports website[7]. However, HDI data are available only at the country level

[6] Definition: http://hdr.undp.org/en/content/human-development-index-hdi
[7] Link to UNDP's human development reports website (Nepal page): http://hdr.undp.org/en/countries/profiles/NPL

except for the year 2011, where they are available at the district level. For this reason, HDI is used as a control only in the cross-sectional analysis and not in fixed-effects estimation and ITS analysis in Chapter 4. The cross-sectional analysis in Chapter 4 explores the effect of explanatory variables on dropout and promotion rates and uses HDI as a control to test for its effects on the dependent variables. It is not included in fixed-effects because whatever the affect HDI will have will be captured by year fixed-effects in the fixed-effects estimation model.

Although panel data are becoming widely available in developing countries, they are still a rarity in the education sector, especially publicly available panel data. In the case of this study, Nepal does not have a long tradition of panel data collection in education. The government of Nepal did not have an efficient system in place prior to the establishment of the Education Management Information System (EMIS) in 2004. By the time of SSRP's implementation in 2009, the EMIS was a well-established system used to gather school level education performance data from all schools across the country twice a year. The government aggregates these data to create district, regional, and country level educational performance averages over time. However, district level data is not publicly available except in the form of summarized reports called bi-annual Flash Reports and access to the EMIS data is still limited to government officials and certain stakeholders. Given limited access to education data, it is important to acknowledge the fact that this study was able to utilize a district level panel data on key educational indicators from 2006 to 2016.

The following paragraphs provide a definition of study variables. One thing to note about the study variables and model specification is that the quantitative model is limited to include explanatory variables that were measured annually at the district-level and readily available from the Ministry of Education. This is because many indicators or factors affecting reform implementation are not easily quantifiable and readily available at the district-level. While the data that was available for the study has its limitations, it is highly valuable considering the rarity of public access to panel data in developing countries. Furthermore, to overcome this limitation of quantitative data and analysis, the interview questions as well as the analysis of qualitative data focused on stakeholder perceptions of the individual, organizational, and environmental factors affecting the implementation of SSRP.

Study variables

Dependent variables. Table 1 presents the list and definition of variables used in the study. Two dependent variables – dropout rate and promotion rate – are used as measures of reform outcomes. These variables are selected as outcome variables for two reasons. First, the SSRP has identified dropout and promotion rates as key indicators of success of the reform (MOE, 2009). Second, prominent studies of education policy identify dropout and promotion rates as common measures of educational outcomes (Alexander, Entwisle, & Horsey, 1997; Christenson & Thurlow, 2004; Freeman & Simonsen, 2015).

Predictor variables. Predictor variables for this study are selected based on the review of existing research on educational outcomes in line with the conceptual framework for the study. The variables fall into two categories: teacher-related variables and school-

related variables. First, teacher-level variables such as teacher quality and teacher training affect student outcomes (Darling-Hammond, 2000). In her study of teacher qualifications related to student achievement across different states in the United States, Darling-Hammond (2000) finds that measures of teacher preparation and certification strongly correlate with student academic achievement, both before and after controlling for student poverty and language status. She notes that teachers enrolled in formal pre-service training and preparation programs are more likely to be effective than those without such training (Darling-Hammond, 2000). The teacher training variable, presented in this study as percentage of fully trained teachers, is a characteristic of the individual actors by district and their role in reform implementation. The assumption is that when teachers are fully trained and prepared for their jobs, they are able to positively affect student learning and life outcomes. Thus, I hypothesize:

H1a: Increase in the percentage of fully trained teachers will lead to a decrease in dropout rate.

H1b: Increase in the percentage of fully trained teachers will lead to an increase in promotion rate.

Second, school-related variables such as student-to-school ratio and student-to-teacher ratio are also widely used in studies of educational outcomes (Fowler & Walberg, 1991; Case & Deaton, 1999). For instance, Fowler & Walberg (1991) investigate the effect of school-related variables on educational outcomes. They find that student-to-school ratio, regardless of socioeconomic status and grade level, is negatively associated with student

outcomes (Fowler & Walberg, 1991). Similarly, Case & Deaton (1999) examine the relationship between pupil-teacher ratio and school outcomes. They find strong and significant effects of pupil-to-teacher ratio on student retention and academic achievement (Case & Deaton, 1999). Student-to-teacher ratio and student-to-school ratio are characteristics of the organizational factors and their role in reform implementation. The assumption is that classrooms with smaller number of students per teacher and schools with smaller number of students tend to provide better academic and other educational opportunities to their students. Thus, I hypothesize:

H2a: Increase in the number of students per teacher (student-to-teacher ratio) will lead to an increase in dropout rate.

H2b: Increase in the number of students per teacher (student-to-teacher ratio) will lead to a decrease in promotion rate.

H3a: Increase in the number of students per school (student-to-school ratio) will lead to an increase in dropout rate.

H3b: Increase in the number of students per school (student-to-school ratio) will lead to a decrease in promotion rate.

Model specification

The dependent and predictor variables in Table 1 form a panel dataset with a consistent unit of analysis, i.e. district-wise education indicators for each of ten years for three levels of schooling, namely – primary, lower secondary, and secondary schools. In principle, we would compare dropout and promotion rates of districts that participated in

SSRP to the counterfactual (i.e., dropout and promotion rates of the same districts that did not participate in the reform) to examine the effects of SSRP at each level of schooling. However, the counterfactual is not observed in universal interventions like SSRP and conducting a controlled randomized experiment is not possible. To overcome this challenge, this study utilizes non-experimental methods to analyze the extent of variation introduced by SSRP's implementation over time. To analyze the effects of reform implementation on key outcomes, this study utilizes the ordinary least squares (OLS) regression with a fixed effects estimation strategy, followed by an interrupted time series (ITS) analysis. Specifically, the OLS with fixed-effects estimation helps to examine what factors influence educational outcomes, and the ITS estimation helps to examine how the influence of these factors changed after SSRP implementation.

In this study, data are exhaustive and include district-level education data on all 75 districts in Nepal before, during, and after the implementation of SSRP for primary, lower secondary, and secondary schools. For this study, availability of panel data on each district for several years before, during, and after SSRP means that it is possible to control for variables that are difficult to observe or measure like socio-cultural factors. It is also possible to control for variables like national policies and political agreements that change over time but not across districts.

In addition to explanatory variables, the model also uses fixed-effects specification, namely – district-fixed effects and year-fixed effects. District level fixed-effects allow to account for any time-invariant characteristics that may impact dropout and promotion rates.

Although Nepal is a small country in size, the geographic variability, cultural and socio-economic differences are prominent among different districts in Nepal, and district fixed-effects allows us to account for those differences and assess the net effect of the predictor variables on dropout and promotion rates (Allison, 2009). The fixed-effects model also assumes that those time-invariant characteristics are unique to the district and should not be correlated with other characteristics of the district. Each district is assumed to be different, with an error term and constant that is uncorrelated with the other districts. If the error terms are correlated, researchers recommend using random effects instead to model the relationship between outcome and predictor variables (Allison, 2009). Similarly, the model also uses time-fixed effects to account for time-variant changes that affects all districts in the study. Specifically, time fixed effects allows us to account for the different political and technological changes that impacted dropout and promotion rates during the period of the study (i.e., 2009 to 2016).

Table 1. Study variables

Variables	Operational Definition	Research/Literature
Dependent Variables		
Dropout rate	Ratio of students who failed to complete the school year as well as those who completed the school year but did not enroll in the succeeding year to the number of students enrolled in the previous year	Dropout rate as dependent variable (Freeman & Simonsen, 2015)
Promotion rate	Proportion of students who complete the school year to the number of students enrolled in the previous year	Promotion rate as dependent variable (Freeman & Simonsen, 2015)
Predictor Variables		
Teacher-related Variables		

Fully-trained teachers	Percentage of teachers who completed ten-month pre-service training.	Relationship between teacher qualification and student dropout (Rumberger & Lim, 2008)
School-related Variables		
Student-to-school ratio	Proportion of number of schools to number of students in each district	Relationship between school size and student retention (Fowler & Walberg, 1991)
Student-to-teacher ratio	Proportion of number of students to number of teachers in each district	Pupil-teacher ratio and student achievement (Case & Deaton, 1999)

The following linear ordinary least squares regression with fixed-effects estimation is used in the study separately for each of the three levels of school education – primary, lower secondary, and secondary – given the structure of the data:

$$y_{it} = \alpha_i + \beta_t + \beta_1 W_{it} + \varepsilon_{it}$$

where, *i* and *t* indicate districts and years respectively. *y* is the key student outcome either promotion or dropout rate; α_i is district fixed effects; β_t is year fixed effects; W is a vector of predictor variables or SSRP variables; and ε is the error term. Predictor variables include teacher- and school-level variables such as teacher training, student-to-school ratio, and student-to-teacher ratio that have been found in numerous prior studies to affect student outcomes. The term ε_{it} captures the unobservable and non-measurable characteristics that differentiate individual units in the dataset.

In addition to fixed-effects estimation, this study uses interrupted time series (ITS) to analyze how the effect of teacher training, student-to-teacher ratio, and student-to-school ratio changed after SSRP implementation as well as to test the robustness of results from

fixed effects analyses. The ITS analysis uses repeated measures of key educational indicators of the 75 districts in Nepal before and after SSRP that were measured on an annual basis and uses the data to establish an underlying trend which is 'interrupted' by SSRP after its implementation in 2009 (McCain & McCleary, 1979; Bernal, Cummins, & Gasparrini, 2017). This study satisfies the three key assumptions of ITS. First, the implementation of SSRP has a clear timeframe as it was implemented in the year 2009. This clearly differentiates when the intervention started in order to separate the pre-intervention and the post-intervention period. Second, SSRP had a gradual and permanent impact like most education policies (Barnett, 1995; Heckman & Raut, 2016), which satisfies the criteria that interventions that have either an immediate and permanent impact, an immediate and temporary impact, or a gradual and permanent impact (Campbell et al., 2009). Third, sequential measures of the outcome variables, dropout and promotion rates, are available both before and after the intervention, which satisfies the third criteria for an ITS analysis (Bernal, Cummins, & Gasparrini, 2017). The following regression model was used separately for primary, lower secondary, and secondary levels of school education:

$$Y_{it} = \alpha_0 + \alpha_1 T + \alpha_2 D_{it} + \alpha_3 T * D_{it}$$

where: T is the time elapsed since the introduction of SSRP (2009) in years, D_{it} is a dummy variable indicating the pre-intervention period (coded 0) or the post-intervention period (coded 1) for each district i, and Y_{it} represents the outcome for district i at time t. Similarly, α_0 represents the baseline level at T = 0, $\alpha_1$is the change in outcome associated with a time unit increase (representing the underlying pre-intervention trend), α_2 is the level change

following the intervention and α_3 indicates the slope change following the intervention (using the interaction between time and intervention: $T * D_{it}$).

Validity and reliability

There are distinct advantages and disadvantages of using secondary data. For this study, the major advantage of using secondary data is the breadth of data available. In this case, the government conducts annual education status surveys of populations rather than individuals or samples. This kind of data allows researchers to examine the changes in education status in the population over time (Boslaugh, 2007). This is particularly important for this study because of the nature of SSRP, a national reform where the entire population was affected by changes in the education system. Another advantage is that the reliability of these data and the data management system were assessed and reported on by independent agencies. For example, in 2011, an independent research agency – Aasaman Nepal – conducted a study on reliability of educational data managed and published annually by the government (Yadav, 2011). This study found that the government had the infrastructure to ensure high and uniform data quality. There were problems with data collection at the local level due to lack of expected staff and technological capacity that affected the collection of attendance and enrollment data. However, the government's education management information system (EMIS) had basic validation mechanisms in place that identified errors of duplication and mis-reporting by schools (Yadav, 2011). These studies provide explicit guidelines for data use and caveats of using certain data, which is an important resource for any researcher planning to use educational data.

Some disadvantages in using secondary data are that data may not be tailored to answer specific research questions, may not include the geographic regions, years, or population that you need for your study (Boslaugh, 2007). For this dissertation, since the data were readily available, this study relies heavily on the government's process documentation and testing of their data collection methods. Nonetheless, the Department of Education has made public its data collection techniques and reliability studies with each annual report. Another disadvantage is that the data can only be used to examine the effects of the implementation of SSRP on reform outcomes, but not why those effects exist or how they influence implementation. The qualitative interviews help to get to the 'why'. This is covered by the second analytical component of this study, discussed in detail in the next subsection.

Analytical Component 2: Stakeholder Perception of Reform Implementation

This dissertation uses primary data obtained through qualitative interviewing (Seidman, 1991) to understand the combination of individual, organizational, and environmental factors that affect reform implementation. This process of studying a phenomenon through the perception of stakeholders or actors is known as phenomenology (Merriam, 2002). In other words, phenomenology is concerned with "the experience of other people and the meaning they make of that experience" (Seidman, 1991, p. 3). Using the phenomenological approach, this study gathered in-depth information about different stakeholders of SSRP. Guided by phenomenology, this study attempts to bring forth the experiences of various stakeholders of the reform (teachers, principals, school management committee members, district and regional education officers) to inform policy and practice.

In education, observing and interviewing teachers, principals, and other stakeholders can help us to understand how they make meaning of their experience and how that experience affects their action (Seidman, 1991). Additionally, interviewing allows a researcher to engage participants to bring forth the richness of their experiences with a program (Creswell, 2007). As mentioned in the literature review chapter, to the best of my knowledge, there are no independent, empirical studies on factors affecting the implementation of SSRP. Most research that exists, authored by the Ministry of Education or participating donor agencies like the World Bank and the United Nations, are either descriptive or focused on a particular aspect of reform outcomes. Using semi-structured interviews with various stakeholders of the reform, this study aims to understand their perception of the implementation process. This part of the study draws on qualitative interviews with a purposive sample of teachers, principals, school management committee members (SMC), and district education officers from one selected district.

Population

The target population of this study are district education officers, principals, teachers, and school management committee members in public schools in the 75 districts in Nepal. As of 2015, there are 34,806 schools in Nepal, out of which 29,133 are public schools. More specifically, the target population includes all district education officers, principals, teachers, and SMC members who worked to implement SSRP for one or more years between 2009 and mid-2016 (reform implementation period).

Sampling and research setting

This dissertation uses public schools in Kathmandu district as the case location. There are several reasons behind selecting Kathmandu district as the study location. First, Kathmandu represents schools of all types – large and small, old and new, rural and urban, and high and low performing schools in school leaving certificate examination (SLC) results. There are 275 public schools in Kathmandu – 113 schools serve primary grades and 162 schools serve secondary grades. Public schools in Kathmandu serve 40,041 students in primary grades, 25,535 students in lower secondary grades (6-8), 19,614 students in secondary grades (9 & 10), and 15,124 students in higher secondary grades (*data from Ministry of Education, Annual Flash Report, 2015*). Second, public schools in Kathmandu also represent most of Nepal's schools in terms of teacher-student ratio and social and economic composition of students and teachers. For example, in the year 2015, the average teacher-student ratio was 1:22 for the nation and 1:20 for Kathmandu district (*data from Ministry of Education, Annual Flash Report, 2015*). Lastly, schools in Kathmandu consist of a mix of teacher and student population with a blend of migrant students and teachers from all geographical regions of the country. This dissertation focuses on public schools in Kathmandu to limit the scope of inquiry and increase the depth of understanding of SSRP implementation through the case of public schools. Public schools are also representative of most schools in Nepal as they constitute more than 80 percent of all primary and secondary schools (Thapa, 2011).

Sample size

Research suggests that a sample size should be small enough to preserve the voice of individual participants in the study and large enough to allow for robust analysis of interview data (Robinson, 2014). Because sample size in qualitative studies is influenced by practical and theoretical considerations, it is effective to have a provisional sample size at the initial design stage with possibilities of altering the number based on either of those considerations (Robinson, 2014). With practical and theoretical considerations, the final sample included 33 interview participants – six key informants at the national- and district-level including SSRP policy makers, department of education and district education officers, and 27 school-level stakeholders functionally and structurally involved in the implementation of the reform (teachers, principals, and school management committee members).

Purposive sampling (Patton, 1990) was used to select interview participants based on their involvement in the policy making, planning, and implementation of SSRP. First, three key informants – policy makers and education professionals involved in the planning and implementation of SSRP – were interviewed to explore perceptions of intended and unintended consequences of SSRP implementation. Second, three high-level Ministry of Education (MOE) officers or joint secretaries were interviewed to capture their perception of SSRP implementation at national-, regional-, and district-level government offices. Lastly, one key informant affiliated with the MOE was requested to identify six public schools that are typically representative of the national average in terms of promotion and dropout rates, 10^{th} grade graduation rates, and teacher-student ratio. The MOE provided a list of 30 schools

that were typically representative of the population of public schools in Nepal, based on their academic and performance status in the school year 2016-2017. This list numbered the schools from 1 through 30. From that list, six schools were selected using a random number generator[8] without duplicates. When the schools were selected, a list of teachers from each of those schools were requested from the district education office in Kathmandu. Even though a list of teachers was made available by the district education office, it was not feasible to randomly select teachers due to the limited time and availability of teachers on a given day that the interview visits were undertaken. For that reason, teachers were selected based on the following criteria. First, during the interviews with principals in each school, they were informed about the expected teacher selection criteria for this study – a mix of teachers in terms of gender, subject, and grade-level taught. With that criteria in mind, the principal checked each teacher's availability on the day of the interview/school visit and recommended a mix of teachers that met those criteria. After the principal confirmed availability, each teacher was asked if they were willing to participate in the interview and informed that the interview was completely voluntary. When agreed, they were provided with an overview of the study along with a copy of the informed consent form. Table 2 provides the list of all interviewees, including teachers from the six public schools based on the principal's recommendations and availability of teachers.

[8] Random number generator used to select schools for this study: https://stattrek.com/statistics/random-number-generator.aspx

Table 2. Demographic Characteristics of Interview Participants (n=33)

Characteristic	n	%
Affiliation/Occupation		
Ministry of Education Official (Policy Maker)	2	6.1
Department of Education Official	3	9.1
Education Expert (Academic)	2	6.1
School Principal	6	18.2
School Teacher	16	48.5
School Management Committee Member	4	12.1
Gender (number of participants = 33)		
Female	7	21.2
Male	26	78.8
School Level Taught (number of teachers = 16)		
Primary Grade Teacher	5	15.2
Lower/Secondary Grade Teacher	11	33.3

Ethical and IRB considerations

Participants in this study include stakeholders directly involved in the implementation of SSRP: department of education officers, district education officers, principals, teachers, and school management committee members from public schools in one district in Nepal. This study does not include vulnerable populations such as the children, the elderly, and persons with disabilities for the interviews. This study involved no more than minimal risk to the participants. The only cost to participants is the time they allocate for these interviews. All participants were adults above 21 years of age and participation was completely voluntary based on willing consent of each participant. Each participant was given two copies of the informed consent form (Appendix A) prior to the interview. The informed consent form explained the purpose of the study, structure of the interview, statement of confidentiality and voluntary participation, and the risks and benefits of participation. It

ensured that participants had all the information necessary to make a voluntary decision to participate. Participants kept a copy and signed and returned another copy before beginning the interview. Participants were allowed to withdraw from the study and withdraw his or her information at any time.

Necessary precautions were used to protect participants' privacy and confidentiality by asking for participant consent to record the interview and storage of their recorded responses in digital files on the Principal Investigator (PI)'s password-protected personal computer. In addition, no individual or school were identified with their real names, addresses, and in written products based on the information gathered. Data in this dissertation are reported in the aggregate and not attributed to individuals. Each interview transcript was assigned a code number and access to the interview data including transcripts and digital audio files were limited to the primary investigator.

Interview instrument and protocol

Semi-structured interviews with teachers, principals, school management committee members, and district-level education officers were conducted. Interview instruments were designed based on strategies for semi-structured interviews suggested by Merriam (2002) and Creswell (2005). A thorough review of the literature was conducted to develop the interview protocol (*in Appendix B*). Questions from similar interviews of teacher perceptions of education reforms were adapted (Greenfield et al., 2010; DeVoe, 2014; Warnock, 2015). The interview protocol provided a framework for the interviews and probing questions were used

where necessary to build on participants' responses and obtain a more detailed and in-depth understanding of their perceptions and experiences (Merriam, 2009).

Each interview lasted between 45 to 60 minutes. All interviews were one-on-one, with just the interviewee and the interviewer in the room, and they were all conducted in person. The interviews took place in designated office rooms in each school and each interview was recorded using a digital recorder. The interviews began with background questions about the participants' role in the educational system. Following the background questions, the interview was divided into three parts. Consistent with the research questions and conceptual framework of this study, the first part of the interview focused on policy cognition or how participants made sense of SSRP. The second part focused on cooperation within and between organizations during the implementation of SSRP. The third part focused on how resources are allocated and how resource allocation affects student outcomes in the participant's organization. The interview ended with questions about collection and utilization of student data in the participant's organization, followed by a closing question requesting suggestions to policy makers on how to ensure successful implementation of future education reforms at school, district, or national level.

After the interviews, all data were collected, transcribed, and translated from Nepali to English by a professional transcriptionist and translator. The transcriptionist transcribed the recorded interviews following standard verbatim transcribing procedures in qualitative research. As Bailey (2008) suggests: "representing audible talk as written words requires reduction, interpretation and representation to make the written text readable and

meaningful" (Bailey, 2008, p. 127). Verbatim transcripts were created by a professional transcriptionist who was familiar with the interview context and able to capture the full essence of each interview, including features of conversation such as speed, pitch and tone of voice, emphasis, and pauses between sentences (Bailey, 2008; Seidman, 2013).

Data analysis strategy

This study follows qualitative research guidelines (Tesch, 1990; Creswell, 1994; Bailey, 2008) for the analysis of qualitative data. After transcription and translation of interviews and recording of observation notes, there are several options a researcher can take. These options include creating memos, categorizing strategies (coding/thematic analysis), and connecting strategies (narrative analysis) (Maxwell, 2005). Most researchers explicitly use coding as the main categorizing strategy but also create memos and connecting strategies informally. Qualitative researchers use categorizing strategies such as coding and thematic analysis to break down interview transcripts and rearrange the data into different categories with the purpose of organizing data into broader themes and issues (Boyatzis, 1998; Maxwell, 2005). Memos and narrative analysis facilitate analytic thinking and help to look for relationships that connect segments of data and make it coherent (Maxwell, 2005).

This study used NVivo, the qualitative data analysis software that allows users to code and create thematic categories within and across respondent groups, to organize and analyze transcribed interview data. Following Maxwell's guidelines for qualitative data analysis, I coded and created themes based on three broader analytic categories: organizational, substantive, and theoretical. Organizational categories were established prior

to interviews based on anticipated areas, issues, or "topics" (McMillan & Schumacher, 2001). These topics helped to sort the data into different baskets based on their area or issue and prepare them for further analysis. Once the topics were sorted into different groups, I created substantive and theoretical categories to make sense of what is going on. While substantive categories are descriptive in nature and include description of respondents' beliefs and perceptions of different topics (McMillan & Schumacher, 2001), theoretical categories are either derived from inductive coding or from prior theory (Maxwell, 2005). I used the substantive categories to develop a more general theory of what is going on. Following these categorization strategies, I then used connecting strategies to conduct a narrative analysis that identifies the relationships underlying the data and connects the categories developed in the earlier steps of analysis. This coding strategy is illustrated in Table 9, Chapter 5.

Along with using Maxwell's guidelines to create analytic categories, thematic analysis also followed Braun and Clarke's (2006) six-phase guide to conducting thematic analysis. These phases include familiarizing yourself with your data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report (Braun & Clarke, 2006, p. 87). For the purposes of this study, each interview transcript was read and re-read first and initial ideas for coding were noted. The second phase involved organizing the data into meaningful groups based on their relevance to the underlying factors affecting reform implementation. This process generated 33 initial codes that captured recurring experiences, ideas, or opinions of participants. Under the second phase of thematic

analysis, three organizational categories were established prior to interviews based on anticipated topics and factors identified in the review literature. These categories were environmental factors, organizational actors, and individual actors. These broad, organizational categories helped to sort the interview data into different buckets based on their area or issue and to prepare them for further analysis. Once the topics were sorted into different groups, substantive and theoretical categories were created to make sense of what is going on. Substantive categories are mostly descriptive in nature and they provide a description of participants' beliefs and perceptions. For example, 'financial challenges' and 'challenges under SSRP' were coded to describe the interview data and do not imply a broader theory. These categories were based on participants' own words and concepts during the interview. In contrast, theoretical categories were derived from a mixture of prior, well-established theories or from inductive coding based on prior analytic dimensions found in similar studies (Maxwell, 2005). For example, 'top-down decision-making' and 'accountability' were coded based on prior analytic dimensions found in the policy analysis and implementation literature (McLaughlin, 1987; Honig, 2006). Table 11 in Chapter 5 provides a breakdown of the categories, sub-categories and example themes used to code the interview data.

The third phase involved sorting the 33 codes into potential themes and collating all relevant data extracts within the identified themes. These broader themes were identified under one of the three analytic categories as mentioned above. In the fourth phase, all the collated extracts under each theme were checked to confirm whether they appeared to form a

coherent pattern. Extracts that did not fit under a theme were either re-assigned or discarded from the analysis. Once this checking was completed for each theme, the validity of individual themes in relation to the entire set of data to ensure accurate representation based on the theoretical and conceptual approach of the study. This stage also involved re-reading the entire dataset to identify extracts that fit one of the refined themes but had been missed in earlier coding stages. In the fifth phase, final themes were identified and a thematic outline for the study was created that would later be expanded in the sixth or final phase to form detailed analysis of each theme and a broader overall story that emerged from the rigorous analysis of data.

Following this categorization, connecting strategies were used to conduct a thematic analysis that identified the relationships underlying the data and connected the categories developed in the earlier steps of analysis (Reissman, 1993). Specifically, this phase followed steps 4-6 of Braun and Clarke's (2006) six-phase guide to conducting thematic analysis that included the following steps (Braun & Clarke, 2006). First, as suggested by Braun & Clarke in phase 4, codes were reviewed for each theme and category and checked for evidence of a coherent pattern. Second, once a set of themes were found to be following a coherent pattern, the validity of each theme in relation to the data as a whole was considered. This involved re-reading the entire data to ascertain whether the themes were accurately and consistently representing the data collected, and to code any additional data within themes that were missed during earlier coding stages. Third, as suggested by Braun & Clark in phase 5, the essence of each theme was identified and the aspect of the data that each theme captured was

determined. Then, a detailed analysis was conducted and written for each theme by identifying the 'story' that each theme told and considering how each theme fit into the broader overall 'story' that the data is telling in relation to the research question of the study. Lastly, following Braun & Clarke's suggestion in phase 6, a detailed analysis of each theme was presented that emerged from the interview data (Braun & Clarke, 2006, p. 20-23). Chapter 5 presents the detailed analysis of each theme and the overall story that emerged as a result of the analysis.

Validity and reliability

Researchers employ several strategies to ensure internal and external validity, including data triangulation, converging sources of information, conducting verbatim transcription, two or more researchers, and member checks (Creswell, 1994). To ensure rigor and reliability of the study, I undertook three steps. First, I interviewed different groups of stakeholders involved in policy implementation at national, district, and local levels to ensure different sources of information. Interviewing different groups of stakeholders including policy makers, education experts, district administrators, principals, and teachers with a similar set of questions provided a way to crosscheck for correctness and credibility of information presented in the study (Maxwell, 2005).

Second, I wrote interview memos and daily reflection memos minimize the potential of researcher bias and reactivity. After each interview, I wrote a few sentences in my data collection notebook to highlight key takeaways, interviewee's general demeanor during the interview, and any sudden changes in behavior and/or attitude evoked by specific question(s).

For example, here is an extract from a daily reflection memo written after several teacher interviews in a day:

> *Two of the four teacher interviewees expressed frustration when asked about their experience participating in important planning activities within their school. They were both primary grade teachers. Teachers from lower-secondary and secondary grades, however, did not express this frustration. Does this mean that the school prioritizes participation of upper level grades but not lower level grades? How does this affect cooperation within the organization? Implications for policy implementation at the school?*

These memos provided me with a tool to articulate, explore, contemplate and challenge my own interpretations when examining data later in the study (Strauss & Corbin, 1998; Green & Thorogood, 2004). Similarly, these memos helped me to make decisions regarding identifying relevant probing questions and/or changing the order and grouping of questions to solicit more information (Speziale & Carpenter, 2007).

Third, as with most qualitative studies involving interviews and translation of those interviews into a different language, there was a potential of loss of meaning of the original data during translation (Chen & Boore, 2009; van Nes et al., 2010). To ensure retention of meaning in translated interview data, I hired a Nepalese native translator with professional fluency in English. This study assumes that the translator was able to keep the meanings of participants' experiences close to original data due to his familiarity of the differences in meanings across Nepali and English languages, deep understanding of the Nepali language,

and sensitivity to the sociocultural context of education in Nepal (Ho, Holloway, & Stenhouse, 2019).

The following chapters present the findings of the study considering and in light of the theoretical assumptions, methods, and methodological limitations discussed above.

CHAPTER 4: EFFECTS OF EDUCATION REFORM ON STUDENT DROPOUT AND PROMOTION

This chapter presents the findings from quantitative analysis of secondary data. First, this study performed a descriptive analysis to summarize statistics for key variables used in the study. Second, bivariate and cross-sectional analyses were utilized to explore correlation between key study variables and to understand the relationship between outcome and predictor variables in the study. Third, this study utilized ordinary least squares regression with fixed-effects estimation to examine what factors influenced educational outcomes, and interrupted time-series estimation to examine the shift in key educational outcomes before and after SSRP implementation.

Descriptive findings from the study indicate that average dropout rates decreased, and average promotion rates increased in primary and secondary schools over the years. Between-district variation in both dropout and promotion rates also declined over the years of SSRP implementation. Inferential findings from the study indicate that teacher training, a key indicator of SSRP, had a mixed overall impact on educational outcomes. While lower secondary schools benefited from SSRP's implementation, SSRP did not have a significant effect on primary and secondary schools.

The following sections of this chapter present descriptive statistics followed by detailed presentation of findings from both the fixed-effects model and the interrupted time-series estimation.

Descriptive Analysis of Study Variables

Table 3 displays summary statistics for key variables used in this study in the years 2008 and 2016 – the year before and the year after the implementation period of SSRP. In primary and lower secondary schools, descriptive statistics suggest that dropout rates have decreased, and enrollment and promotion rates have increased over the years of SSRP implementation. Variation in dropout and promotion across districts has also decreased as indicated by the standard deviation in 2016 compared to 2008. In secondary schools, however, while net enrollment rate has increased slightly from 36.5 percent to 39.2 percent over eight years and promotion rate has increased from 82.6 in 2008 to 91.2 percent in 2016, average dropout rate has increased by 2.4 percentage points. The percent of fully trained teachers has increased drastically in all three groups. This increase seems reasonable as teacher-training was one of the key priorities for SSRP. While student-to-school ratio and student-to-teacher ratio have declined noticeably for primary and lower secondary schools, there is still considerable variation across districts as shown by respective standard deviations ranging from 39 to 64 for student-to-school ratio and from 12 to 20 for student-to-teacher ratio. Student-to-school ratio and student-to-teacher ratio show little to no change in secondary schools, with 2-3 percentage point drop in means but 1-3 percentage point increase in standard deviations.

Table 3. Descriptive statistics before and after SSRP implementation

	2008			2016		
	Mean	**Median**	**SD**	**Mean**	**Median**	**SD**
Net Enrollment Rate (%)						
Primary School	92.9	95.9	6.8	97.0	97.5	2.3
Lower Secondary School	60.0	62.0	18.8	83.8	92.0	14.2
Secondary School	36.5	37.2	11.8	39.2	39.4	7.1
Dropout Rate (%)						
Primary School	7.8	7.6	2.8	4.3	4.2	0.8
Lower Secondary School	11.3	10.4	3.1	5.1	5.1	0.9
Secondary School	3.1	3.3	1.3	5.5	5.5	0.5
Promotion Rate (%)						
Primary School	75.1	75.1	5.7	87.2	87.1	2.9
Lower Secondary School	79.9	80.0	3.3	90.4	90.3	1.4
Secondary School	82.6	83.8	5.6	91.2	91.2	0.8
Repetition Rate (%)						
Primary School	17.1	16.8	5.5	8.5	8.9	2.6
Lower Secondary School	8.8	9.2	2.4	4.5	4.5	0.8
Secondary School	7.9	7.6	2.0	3.3	3.3	0.5
Percent of Fully Trained Teachers (%)						
Primary School	70.6	70.9	4.8	97.3	97.8	2.7
Lower Secondary School	53.3	51.5	6.1	88.9	89.8	5.5
Secondary School	76.3	77.0	9.8	95.2	95.4	2.8
Student-to-School Ratio						
Primary School	150.3	130.2	65.2	113.0	98.2	63.9
Lower Secondary School	134.4	136.2	42.2	120.9	110.0	45.8
Secondary School	111.3	112.5	31.5	109.6	97.8	38.9
Student-to-Teacher Ratio						
Primary School	34.6	32.5	13.7	21.2	17.2	12.7
Lower Secondary School	44.3	44.9	15.8	39.1	32.5	20.8
Secondary School	32.0	31.5	12.2	29.4	25.6	13.6

**Note: Mean and median percentages in the above table are based on the 75 districts in Nepal.*

Although the overall averages show gradual improvement in key education indicators over the years, the following graphs indicate wide variations in both dropout and promotion across the 75 districts in 2010, with gradual decline in variation across districts by the year 2016. Figure 2 shows district-level dropout rates in different school levels from 2010 to 2016. It shows two distinct trends over the years. First, overall dropout rates declined across districts over the years. Second, variation in dropout rates across districts narrowed in all three school levels over the years. While there is an overall decline in dropout rates and variation across districts, lower secondary and secondary schools had a slight increase in average dropout in 2016 compared to 2015.

Figure 3 shows promotion rates over the years of SSRP implementation for three school levels. It shows two distinct trends in averages. First, the average promotion rates have increased across grade levels from 2010 to 2016. Second, variation in promotion rates across districts decreased as shown by the box and whisker lines in Figure 3. For example, three districts had average promotion rates below 75 percent in lower secondary school in 2010 and there was a widespread in average promotion rates between top and bottom quartiles. In 2016, median promotion rate was 90 percent, and the spread between top and bottom quartiles was distinctively narrow.

Figure 3. District-level trends in dropout rates, 2010 to 2016

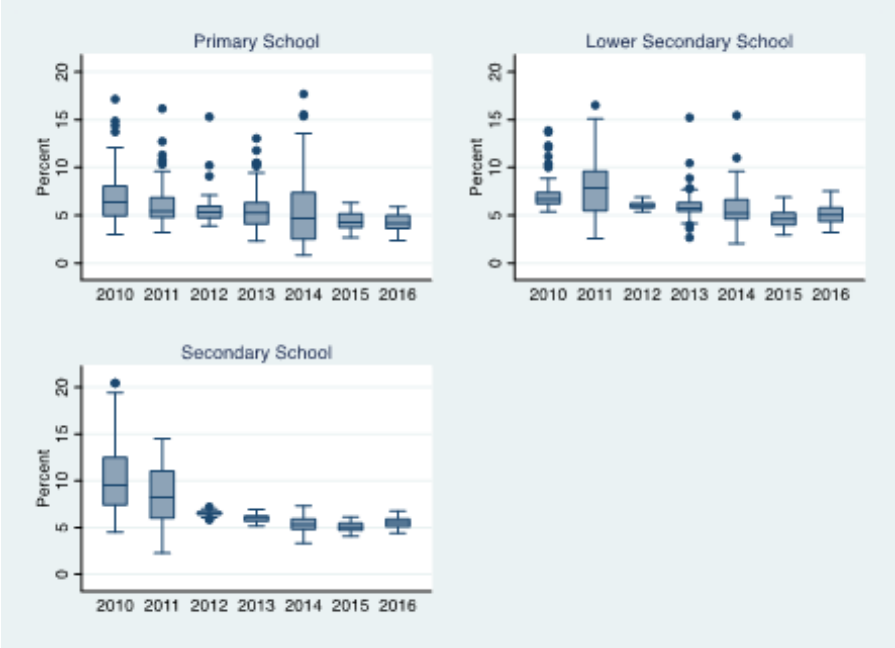


Figure 4. District-level trends in promotion rates, 2010 to 2016

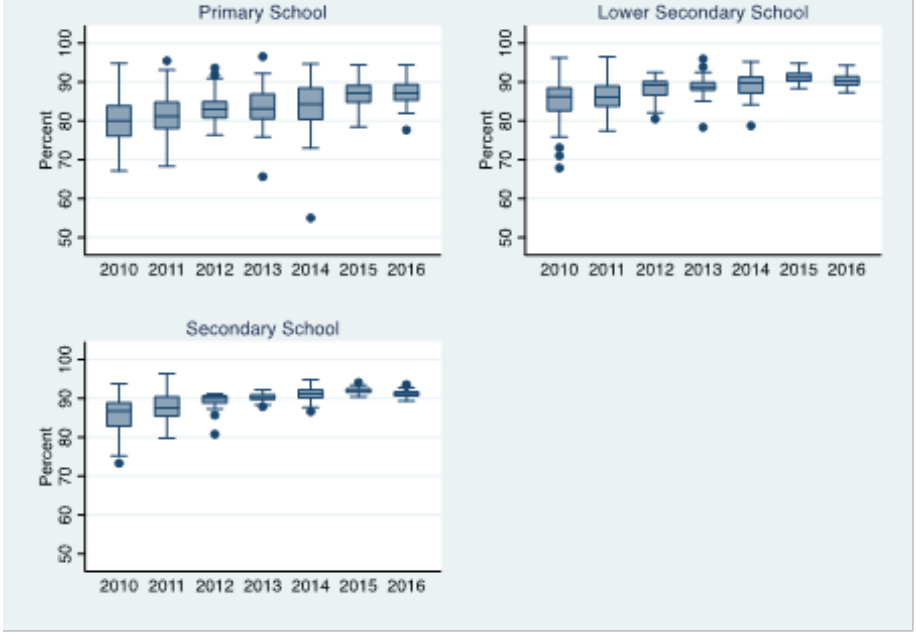


Figure 4 shows district-level average percentage of fully trained teachers. This plot shows two distinct trends. First, the average percentage of fully trained teachers has increased in districts over the years. Second, while the variation in percentage of fully trained teachers in primary schools has narrowed over the years, there are still wide variations in lower secondary and secondary schools.

Figure 5 shows two district-level trends in student-to-school ratio from 2010 to 2016. First, the average number of students per school has remained similar over the years. Second, the variation in average number of students per school has also remained comparable across years. Similarly, figure 6 shows district-level trends in student-to-teacher ratio from 2010 to 2016. The average number of students per teacher has slightly decreased in all three school levels over the years, but the variation remains comparable across years.

Figure 5. District-level trends in percentage of fully trained teachers, 2010 to 2016

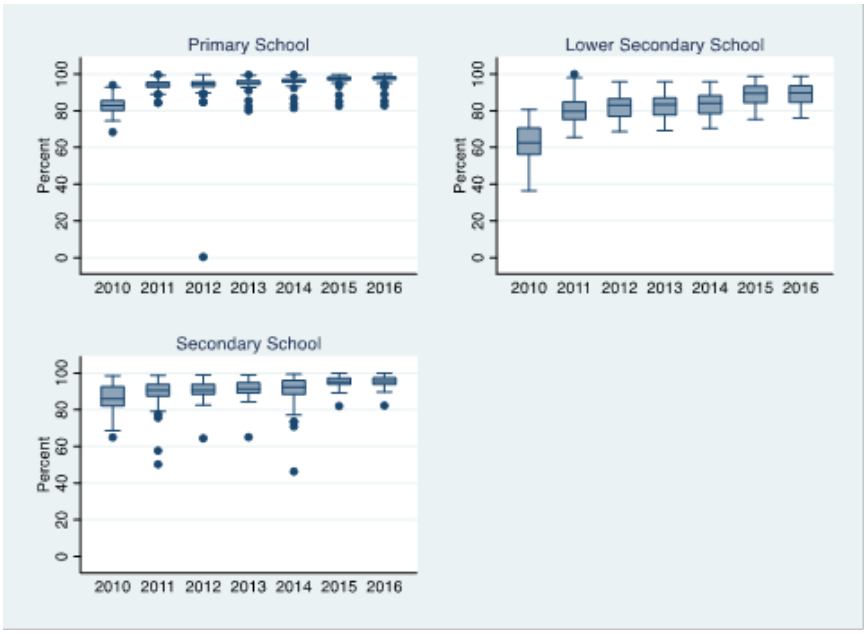


Figure 6. District-level trends in student-to-school ratio, 2010 to 2016

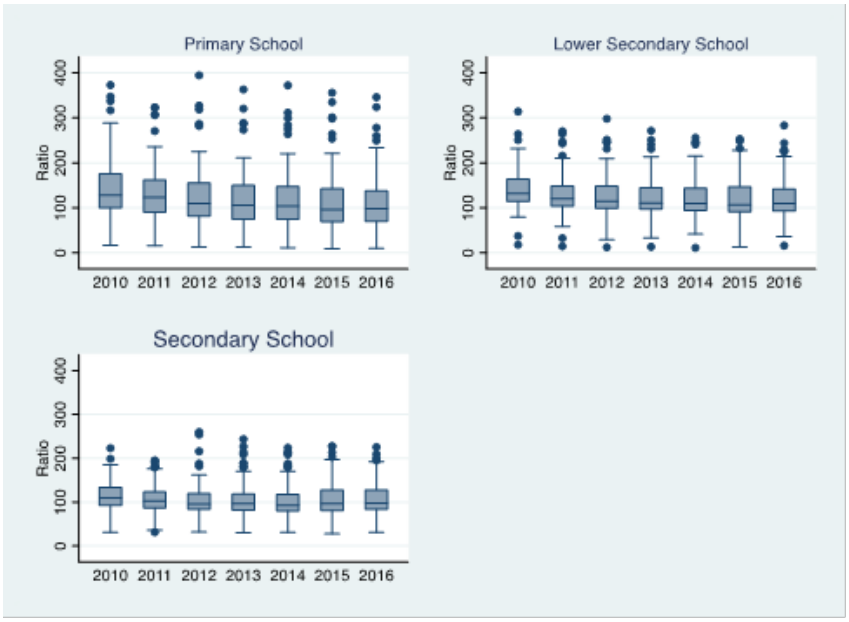
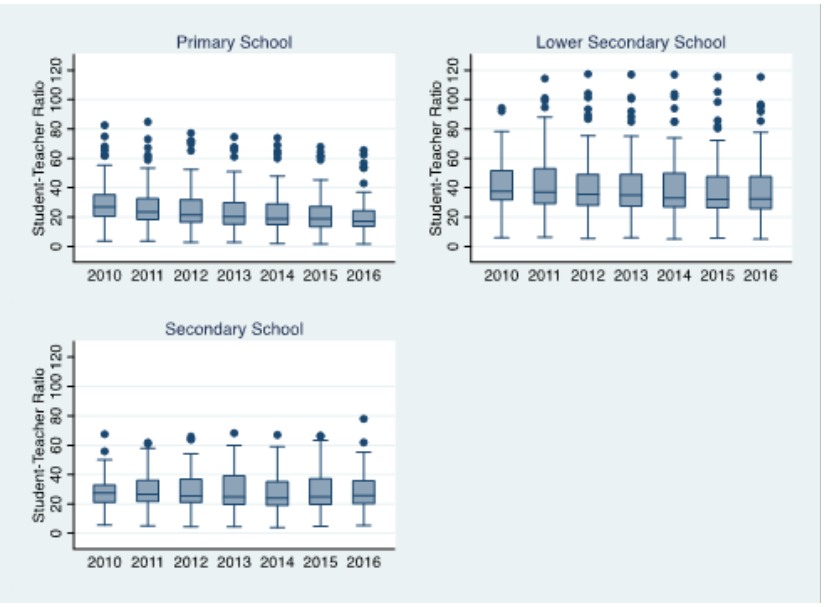


Figure 7. District-level trends in student-to-teacher ratio, 2010 to 2016



Bivariate Analysis

The next step was to test for the strength of relationship between the outcome and predictor variables specified in the model (see Chapter 3 for details). As seen in Table 4, dropout rate is negatively and significantly correlated (at $p<0.01$) with the percentage of fully trained teachers in primary and lower secondary schools but not in secondary schools. On the other hand, promotion rate is positively and significantly correlated (at $p<0.01$) with the percentage of fully trained teachers in primary, lower secondary, and secondary schools. Besides teacher training, student-to-teacher ratio is positively and significantly correlated (at $p<0.01$) with dropout rate and negatively and significantly correlated (at $p<0.01$) with promotion rate in primary and lower secondary schools.

Table 4. Correlation between outcome and predictor variables by grade level

Variables	Dropout Rate			Promotion Rate		
	Primary	Lower Secondary	Secondary	Primary	Lower Secondary	Secondary
Percent of fully trained teachers	-0.63*	-0.58*	-0.07	0.72*	0.74*	0.57*
Student-to-school ratio	0.08	0.00	0.05	-0.03	0.00	-0.08
Student-to-teacher ratio	0.34*	0.12*	0.05	-0.38*	-0.11*	-0.15*

*shows significance at the .01 level

These correlations indicate that in primary and lower secondary schools, dropout rates decline, and promotion rates improve with an increase in the percentage of fully trained teachers. Student-to-teacher ratio has a moderate, significant correlation with both dropout and promotion rates in primary school, suggesting that an increase in the number of students per teacher in primary schools may lead to increase in student dropout and decrease in

promotion. In secondary schools, however, percent of fully trained teachers has a significant, positive relationship with promotion rate but there is no significant correlation with dropout rate. One assumption is that secondary school students drop out of schools due to other reasons like family poverty, distance to schools, or lack of sanitation facilities for girls (Salon & Gulyani, 2010; Cervero, 2013; Pangeni, 2014). While testing these assumptions is out of the scope of this study, the following subsections will present findings from the analysis of the cross-sectional data for the year when HDI was available at the district level, panel data using fixed effects modeling, and interrupted time series, with the goal of isolating the overall effects of SSRP on student dropout and promotion rates in primary, lower secondary, and secondary schools in Nepal.

Cross-Sectional Analysis with HDI

After testing for the strength of the relationship between outcome and predictor variables of the study, the next step was to utilize cross-sectional analysis to identify the effects of HDI[9] along with predictor variables on the outcome variables for the only year (i.e., 2011) that the HDI district-level data was available. HDI is a compact measure that includes multiple socio-economic measures combined into a single variable, helping to control for multiple factors using a single variable for the purpose of this study. HDI is included as a control variable in separate regression models below to explore whether HDI

[9] HDI is measured with a range between 0 and 1. For context, Nepal's HDI has increased from 0.502 in 2008 to 0.569 in 2016.

would have been a suitable control variable for the regression estimations if HDI data were available at the district-level for all years of analysis in this study.

Tables 5 and 6 shows the results of the regression estimation for outcome variable dropout and promotion rates for the year 2011. The coefficients provide the average percentage point change in dropout rate due to one-unit change in predictor and control variables. The estimates in the three columns in Table 5 provide evidence that HDI has a statistically significant (1% level), positive effect on dropout rates in lower secondary and secondary schools. Similarly, the estimates in the three columns in Table 6 provide evidence that HDI has a statistically significant (1% level), positive effect on promotion rates at all three levels of schooling. Specifically, an increase in HDI (which implies an increase in life expectancy, average years of schooling, and GNI per capita of a district) by one unit would lead to a significant percentage point decrease in dropout rates and a significant percentage point increase in promotion rates across districts. These findings suggest that although HDI cannot be used in this study due to limitations of district-level, annual HDI data availability, it is a suitable control variable to use in regression estimations for future studies where data availability is not a concern.

Table 5. OLS Regression Coefficients: Dropout Rates by School Level, 2011

	Primary School	**Lower Secondary School**	**Secondary School**
Percent of Fully Trained Teachers	0.123	0.039	-0.018
	(-0.103)	(0.040)	(0.044)
Student Teacher Ratio	0.026	0.020	-0.016
	(-0.033)	(0.019)	(0.033)
Student School Ratio	-0.019**	-0.030***	-0.007
	(-0.009)	(0.010)	(0.013)
HDI	-7.617	-31.381***	-39.701***
	(-6.341)	(5.198)	(4.474)
Constant	-0.084	22.592***	29.878***
	(-10.941)	(3.595)	(3.999)
Number of observations	75	75	75
Adjusted R^2	0.129	0.384	0.469

note: *** p<0.01, ** p<0.05, * p<0.1

Table 6. OLS Regression Coefficients: Promotion Rates by School Level, 2011

	Primary School	**Lower Secondary School**	**Secondary School**
Percent of Fully Trained Teachers	-0.128	-0.033	0.026
	(0.186)	(0.053)	(0.053)
Student Teacher Ratio	-0.075	0.019	0.045
	(0.053)	(0.024)	(0.040)
Student School Ratio	0.051***	0.023*	0.003
	(0.015)	(0.013)	(0.015)
HDI	57.448***	33.896***	38.394***
	(10.551)	(8.825)	(6.550)
Constant	61.874***	69.318***	65.734***
	(19.540)	(5.403)	(5.469)
Number of observations	75	75	75
Adjusted R^2	0.485	0.234	0.321

note: *** p<0.01, ** p<0.05, * p<0.1

Fixed Effects Model Results

The basic specification used for ordinary least squares (OLS) regression model using district and year fixed effects estimation strategy based on these data is:

$$y_{it} = \alpha_i + \beta_t + \beta_1 W_{it} + \varepsilon_{it}$$

where, *i* and *t* indicate districts and years respectively. *y* is the key student outcome either promotion or dropout rate; α_i is district fixed effects; β_t is year fixed effects; W is a vector of predictor variables or SSRP variables; and ε is the error term. Predictor variables include teacher- and school-level variables such as teacher training, student-to-school ratio, and student-to-teacher ratio that have been found in numerous prior studies to affect student

outcomes. The term ε_{it} captures the unobservable and non-measurable characteristics that differentiate individual units in the dataset.

To determine appropriate regression model and parameters using available data, three statistical tests were conducted. First, researchers analyzing panel data to examine the effects of a program or policy often conduct the Hausman test to choose between fixed and random effects (Hausman, 1978; Cancado, 2005; Clark & Linzer, 2015). The Hausman test is conducted to test for correlations between error terms and the constant (Allison, 2009). In line with these recommendations from prior research, the decision to use fixed effects instead of random effects estimation was based on the Hausman test. Hausman (1978) suggested using random effects if the p-values for coefficient of estimators are insignificant and using fixed effects if they are significant (Hausman, 1978). Coefficients for all estimators had significant p-value for primary, lower secondary, and secondary levels. These results indicated fixed effects as the relevant estimation strategy for this study. Second, once the decision to use fixed effects estimation was made, Wald tests were performed to decide whether to include time fixed effects in the regression models. A Wald test is a parametric statistical test to determine if explanatory variables in a model are significant. If the Wald test is significant, the tested variables are recommended to be included in the regression model (Stock & Watson, 2008). Corresponding Wald tests indicated the need to include time fixed effects in all regression models. Third, tests of heteroskedasticity were conducted to identify the presence of heteroskedasticity. Heteroskedasticity refers to data with unequal variability across a set of predictor variables (Stock & Watson, 2008). Tests indicated presence of

heteroskedasticity in all models. To control for heteroskedasticity and increase robustness, all fixed effects models include heteroskedasticity-robust standard errors.

Table 7 shows the results of the fixed effects estimation for outcome variable dropout rate. Specifically, Table 7 shows the estimated effects of the three predictor variables – percent of fully trained teachers, student-to-teacher ratio, and student-to-school ratio on dropout rate for primary, lower secondary, and secondary schools. The coefficients provide the average percentage point change in dropout rate due to one-unit change in predictor variables. Models for all three grade levels include district- and year-fixed effects and robust standard errors of coefficient estimates. The adjusted R-squared, which is the explained variation, is 67 percent in primary schools. Hypothesis 1a in Chapter 3 suggested that an increase in the percentage of fully trained teachers would lead to a decrease in dropout rate. The results here find support for this hypothesis for lower secondary schools, but not for primary and secondary schools. The estimates in the first column in Table 7 provide evidence that while the percent of fully trained teachers had no statistically significant effect on dropout rates, student-to-teacher ratio had a statistically significant, positive effect on student dropout in primary schools at 5% level and student-to-school ratio had a statistically significant, negative effect on student dropout at 1% level in primary schools as a result of SSRP implementation. Specifically, increase in the number of students per teacher by one led to a 0.011 percentage point increase in dropout rate and increase in the number of students per school by one led to a 0.026 percentage point decrease in dropout rate in primary schools. These results find support for hypothesis 2a which suggested that an increase in the number

of students per teacher would lead to an increase in dropout rate, but not for hypothesis 3a which suggested that an increase in the number of students per school would also lead to an increase in dropout rate.

The second and third columns in Table 7 show the estimated effects of predictor variables on dropout rate for lower secondary and secondary schools. The coefficients provide the average percentage point change in dropout rates due to one-unit change in predictor variables. Both columns include district and year fixed effects and robust standard errors of coefficient estimates. The adjusted R-squared for lower secondary schools is 59 percent and that for secondary schools is 60 percent. In lower secondary schools, findings as shown by the second column in Table 7 suggest that one unit increase in fully trained teachers led to a decrease in dropout rates by 0.028 percentage points. This effect is statistically significant at the 10% level. This finding supports hypothesis 1a which suggested that an increase in the percentage of fully trained teachers would lead to a decrease in dropout rate. Student-to-teacher ratio did not have a statistically significant effect on dropout rates in lower secondary schools, while student-to-school ratio had a statistically significant effect on lower-secondary dropout rates at 1% level. Specifically, the second column in Table 5 shows that one unit increase in student-to-school ratio in lower secondary schools led to a decrease in dropout rate by 0.018 percentage points. These findings support hypothesis 3a for lower secondary schools.

However, in secondary schools, none of the predictor variables seem to have a statistically significant effect on dropout rate, and these results do not find support for hypotheses 1a-3a in secondary schools.

Table 7. Fixed effects: Dropout rates

	Primary	**Lower Secondary**	**Secondary**
Fully Trained Teachers	0.006	-0.028*	-0.004
	(0.025)	(0.015)	(0.012)
Student-to-Teacher Ratio	0.011**	-0.005	0.001
	(0.005)	(0.004)	(0.003)
Student-to-School Ratio	-0.026***	-0.018***	-0.005
	(0.010)	(0.005)	(0.004)
District fixed effect	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes
Number of observations	750	750	750
Adjusted R^2	0.67	0.59	0.60

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1
Note: number of districts = 75; number of years = 10

Table 8 show the results of the fixed effects estimation for outcome variable promotion rate. The first column in Table 8 shows the estimated effects of the three predictor variables – percent of fully trained teachers, student-to-teacher ratio, and student-to-school ratio on promotion rate for primary schools. The coefficients provide the average percentage point change in promotion rate due to one-unit change in predictor variables. All three columns include district and year fixed effects and robust standard errors of coefficient estimates. The adjusted R-squared, which is the explained variation, is 86 percent for primary schools.

Table 8. Fixed effects: Promotion rates

	Primary	**Lower Secondary**	**Secondary**
Fully Trained Teachers	0.009	0.077***	-0.015
	(0.034)	(0.022)	(0.025)
Student-to-Teacher Ratio	-0.018***	0.004	-0.002
	(0.006)	(0.003)	(0.004)
Student-to-School Ratio	0.039***	0.018**	0.013*
	(0.011)	(0.007)	(0.007)
Human Development Index (HDI)	284.37***	78.90***	98.99***
	(15.70)	(12.82)	(6.83)
District fixed effect	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes
Number of observations	750	750	750
Adjusted R^2	0.86	0.74	0.64

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1
Note: number of districts = 75; number of years = 10

Hypothesis 1b in Chapter 3 suggested that an increase in the percentage of fully trained teachers would lead to an increase in promotion rate. The results here find support for this hypothesis for lower secondary schools, but not for primary and secondary schools. The estimates in the first column in Table 8 provide evidence that the percent of fully trained teachers had no statistically significant effect on promotion rates in primary schools. Student-to-teacher ratio had a statistically significant, negative effect on student promotion at 1% level and student-to-school ratio had a statistically significant, positive effect on student promotion at 1% level in primary schools. Specifically, increase in the number of students per teacher by one led to a 0.018 percentage point decrease in promotion rate and increase in

the number of students per school by one led to a 0.039 percentage point increase in promotion rate in primary schools. These results find support for hypothesis 2b, but not for hypothesis 3b.

The second and third columns in Table 8 show the estimated effects of predictor variables on promotion rate for lower secondary and secondary schools. The coefficients provide the average percent change in promotion rate due to one-unit change in predictor variables. Both columns include district and year fixed effects and robust standard errors of coefficient estimates. The adjusted R-squared for lower secondary schools is 74 percent and that for secondary schools is 64 percent.

In lower secondary schools, findings from fixed-effects estimation support hypothesis 1b which suggests that an increase in the percentage of fully trained teachers would lead to an increase in promotion rate. Specifically, the second column in Table 8 shows that one percent increase in the percentage of fully trained teachers led to an increase in promotion rates by 0.077 percentage points. This effect is significant at the 1% level. Student-to-teacher ratio did not have a statistically significant effect on promotion rates in lower secondary schools, while student-to-school ratio had a statistically significant, positive effect on lower-secondary school promotion rates at 1% level. Specifically, one unit increase in student-to-school ratio in lower secondary schools led to an increase in promotion rate by 0.018 percentage points. These results do not find support for hypotheses 2b and 3b.

In secondary schools, while the percent of fully trained teachers and student-to-teacher ratio did not have statistically significant effect on promotion rate, student-to-school

ratio and HDI had statistically significant effect on secondary school promotion rates. Specifically, the third column in Table 8 shows that student-to-school ratio had a significant positive effect at 10% level, with an increase in promotion rate by 0.013 percentage points for each increase in number of students per school by one. These results do not find support for hypotheses 2b and 3b.

Interrupted Time Series (ITS) Results

An ITS was used to assess the effects of SSRP in reducing student dropout and increasing promotion rates in primary, lower secondary, and secondary schools. Specifically, the ITS analysis assessed whether the introduction of SSRP resulted in a shift in dropout and promotion rates compared with those of the pre-SSRP period. First, a single group ITS analysis with 2010 as the intervention start period was specified, and post-intervention trend estimates, and ITS graph were requested using the 'itsa'[10] package in Stata. Please note that since SSRP was introduced in late 2009 and implemented across the nation at the beginning of 2010, the start period was specified as 2010 for the purposes of ITS analysis. For the interrupted time series specification, data were collapsed to the annual national-level for each year from 2006 to 2016 with 10 observations for the ten years excluding the year of SSRP's introduction (2009), in contrast to fixed-effects estimation where annual district-level data were used for each year. Although 10 observations is a potential limitation of this analysis and results are interpreted with caution, literature suggests that there are "no fixed limits

[10] See Linden (2015) for details about the 'itsa' package in Stata.

regarding the number of data points, as the power depends on various other factors including the distribution of data points before and after the intervention, variability within the data, strength of effect, and the presence of confounding effects such as seasonality" (Bernal, Cummins, & Gasparrini, 2017, p. 350; Hawley et al., 2019).

The following graphs and tables present the results of ITS shown by the shift in dropout and promotion rates in primary, lower secondary, and secondary schools before and after the intervention, controlling for independent variables also collapsed to the annual national-level, including percent of fully trained teachers, student-to-school ratio, student-to-teacher ratio, and HDI. Tables 9 and 10 show changes in dropout rates before and after the implementation of SSRP in primary, lower secondary, and secondary schools respectively. Figures A1-A6 in Appendix C present these results visually. The coefficients in Table 9 suggest statistically significant increase in dropout rates prior to the implementation of SSRP, followed by statistically significant decline in dropout rates in lower secondary and secondary schools after the implementation of SSRP. Coefficients in Table 10 suggest statistically significant increase in promotion rates in lower secondary schools after the implementation of SSRP.

To summarize, these results provide no evidence of statistically significant shifts in primary school dropout and promotion rates as a result of SSRP implementation. On the other hand, for lower secondary schools, the results indicate that the implementation of SSRP had statistically significant, positive effects on both dropout and promotion rates. Finally, for secondary schools, while there was a statistically significant decline in dropout rates after

SSRP implementation, there is no evidence of improvement in promotion rates as a result of the implementation of SSRP.

Table 9. **ITS estimation results, dropout rates by school level**

	Primary	**Lower Secondary**	**Secondary**
Pre-SSRP	3.67	3.12**	9.10**
	(7.37)	(0.47)	(1.17)
SSRP implementation year	-4.29	0.95	1.70
	(15.00)	(1.71)	(2.09)
Post-SSRP implementation	-3.44	-1.75**	-7.91**
	(6.95)	(0.19)	(1.18)
Fully trained teachers	-0.09	-0.07	-0.29**
	(0.07)	(0.07)	(0.07)
Student-to-School ratio	-0.13**	-0.22	0.12*
	(0.02)	(0.10)	(0.03)
Student-to-Teacher ratio	0.77	-0.05	1.02**
	(0.87)	(0.04)	(0.13)
Human Development Index (HDI)	-4.80	-334.57	-243.24**
	(114.26)	(48.00)	(26.42)
Constant	3.05	209.00**	83.16**
	(103.87)	(37.21)	(18.05)
Number of observations	10	10	10

note: *** p<0.01, ** p<0.05, * p<0.1

Table 10. ITS estimation results, promotion rates by school level

	Primary	**Lower Secondary**	**Secondary**
Pre-SSRP	1.00	-3.01	-0.40
	(24.08)	(1.23)	(2.25)
SSRP implementation year	-0.69	-2.80	1.40
	(49.19)	(3.82)	(5.41)
Post-SSRP implementation	-0.41	1.41*	-0.013
	(22.72)	(0.38)	(2.58)
Fully trained teachers	0.07	0.18	0.08
	(0.23)	(0.12)	(0.13)
Student-to-School ratio	0.09	0.27	-0.15
	(0.06)	(0.18)	(0.06)
Student-to-Teacher ratio	-0.44	0.07	0.45
	(2.85)	(0.06)	(0.30)
Human Development Index (HDI)	43.86	397.38	154.21
	(367.27)	(140.25)	(76.49)
Constant	47.84	-162.61	2.43
	(340.18)	(94.38)	(57.16)
Number of observations	10	10	10

note: *** p<0.01, ** p<0.05, * p<0.1

Figures 7 and 8 demonstrate changes in dropout and promotion rates in lower secondary schools as an example. Figure 7 indicates that the trend pre-SSRP was an annual increase in dropout rates in lower secondary school, which reduced significantly in the years during the implementation of SSRP in 2009 to 2016. Similarly, Figure 8 indicates that promotion rates in lower secondary schools were on a declining trend pre-SSRP but saw a gradual and significant increase in the years during the implementation of SSRP in 2009 to 2016.

Figure 8. Change in dropout rates, pre- and post-SSRP: Lower secondary school

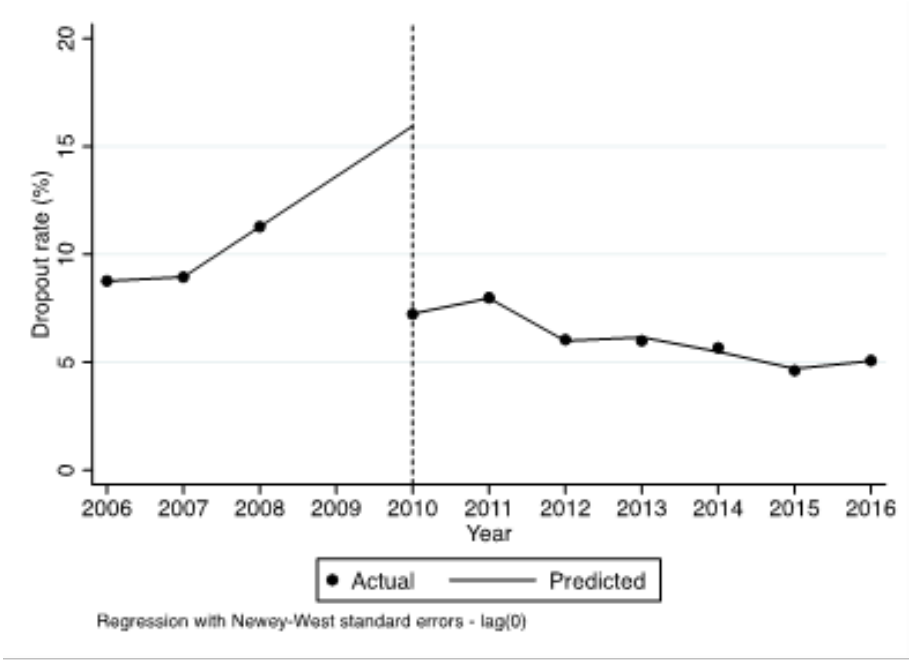
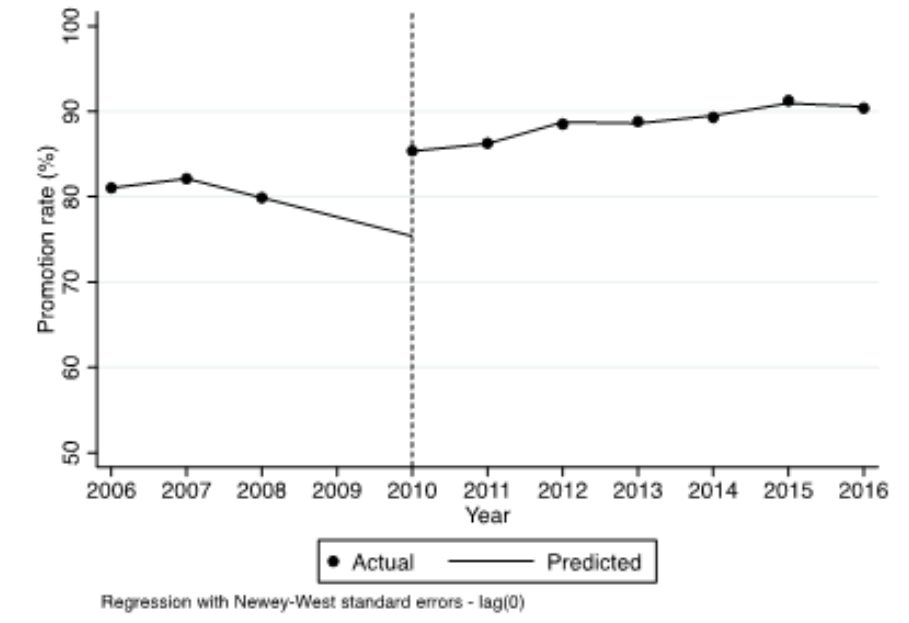


Figure 9. Change in promotion rates, pre- and post-SSRP: Lower secondary school



Overall, results from fixed effects estimation suggest that SSRP had some significant effects on student dropout and promotion rates through the implementation of teacher training programs and management of student-to-teacher ratio and student-to-school ratio. Findings indicate that both SSRP – the reform overall – and SSRP's teacher training program positively affected dropout and promotion rates in lower secondary schools, but not in primary and secondary schools in Nepal. Both fixed effects and ITS analyses point to mixed overall effects of SSRP and its key indicators on educational outcomes in Nepal.

CHAPTER 5: STAKEHOLDER PERCEPTION OF REFORM IMPLEMENTATION AND EFFECTIVENESS

This chapter presents a summary of findings from the qualitative interviews with education stakeholders in Nepal. For this study, 33 individual stakeholders at the school-, district-, and national-level participated in semi-structured interviews and provided their response to questions regarding their knowledge and understanding of SSRP and its implementation, and changes affected by the reform in their organizations and across the nation.

The following sub-sections present a detailed analysis of each of the three major categories and themes under each of those categories that emerged from the interview data. The first category is environmental factors affecting SSRP as perceived by SSRP's stakeholders. Under this theme, four sub-categories are presented, namely – allocation of resources, governance, service delivery, and effects of international actors on resource allocation. The second category is organizational factors and two sub-categories are presented under this sub-section, namely – co-construction and organizational learning and social capital. The last sub-section presents the third category, namely – individual actors and policy cognition.

Environmental factors: Perceptions of SSRP's stakeholders

This section presents four theoretical and substantive categories under the broader category of environmental factors revealed in the data analysis. Under the first sub-category – allocation of resources, interview participants' perceptions of financial and human resources are presented. The second sub-category, governance, provides a detailed analysis of stakeholders' perception of good and bad governance under SSRP. The third sub-category, service delivery, discusses the availability of teacher trainings and professional development opportunities along with the inefficiencies associated with service provision and delivery during SSRP. The last sub-category, effects of international actors on resource allocation, presents a breakdown of stakeholders' perception of the influence of international organizations on policy implementation and resource allocation under SSRP. The following table provides examples of the organizational categories and sub-categories that emerged from the analysis of interview data:

Table 11. Examples of categories and themes that emerged from interview data

Organizational Categories	Type of Sub-Category	Example Theme	Example Quotes
Environmental factors	Theoretical	Resource allocation	"You have to spend the money on the given item. For example, if you save a bit of funds under one item, you cannot use it for another item. If they [the schools] spend it for another item, the money will be in overdraft and they will have to pay from their pocket, which creates a limitation and that is one of the biggest problems as 90 percent of the fund is sent to a school's account and 10

			percent to DoE's account. The fund that goes to the school's account includes teacher salary, scholarship, books, and other administrative costs."
	Substantive	Effects of unstable politics	"It would be easier to analyze the duties and responsibilities of one director [at the department of education], but they changed almost four or five times during SSRP due to political reasons. Directors change when the government changes, and ministers change, which I think is a psychological factor because I think a minister thinks that if a particular person [of his choice] is elected as Director, then s/he will do a good work, which, as I said before, affects the entire sector. There isn't a constant leadership in the DoE. Since the leadership changes every now and then, new leaders blame the previous leader for their lack of success."
Organizational actors	Theoretical	Organizational fields	"SSRP started in 2009 but the planning was initiated in 2006. Participatory discussions were done in several phases. Our local education group is very strong as there are development partners, government, donor agencies, NGOs and INGOs that contribute to education. And the local education group has teachers' professional organizations, student groups, guardians, and the network of subject teachers. We consulted with every stakeholder including Dalit federation, and our bottom line was to identify the right constituted by the constitution."
	Substantive	Lack of coordination between organizations	"Talking about central level, coordination is a problem and people give priority to the institution they work at, so there is a problem of coordination

			at a broader level, and there is a problem of capacity in the lower level."
Individual actors	Theoretical	Policy cognition – political approach to sense making	"We are guided by the plans of SSRP because it is a government policy and I accept it. Government has provided us with work and salary, so I will not go against it, but the weakness of the government is that it implemented SSRP in context of other countries. And to move it forward, there should have been implementation based on the law, but they are working against or without the law. They bring in various plans and policies but do not implement them properly."
	Substantive	Lack of teacher motivation	"There has been no enthusiasm from the teachers and there is no refreshment training for them. They are just here to, you know, to spend their time sun-basking. There has been no training to boost the energy. Principal sir sends the teachers for the training, but there is no feedback, and how it [the training] is running is not quite specific."

Allocation of resources

Allocation of financial resources. Decentralization in financing was a key objective of SSRP. Policies before EFA were largely piecemeal and did not require financial management and budgeting at the national level. Even with EFA, the focus in financing was mostly on primary education access and improving enrollment. On the other hand, SSRP sought to affect change at each and every level of education in the nation and required continued coordination and cooperation between national organizations, including ministries of education, finance, and general administration to plan and implement educational budgeting

and financial management. The interview data provide ample evidence of both positive and negative aspects of financial management and resource mobilization under SSRP.

First, there was a consensus in the data from all six schools in the sample regarding the positive effects of SSRP implementation on infrastructure development in schools. When asked about changes in physical infrastructure during SSRP, most participants at the school level point to improvements in infrastructure. In particular, participants highlighted things like computers, a science lab, libraries, and materials that are now available because of SSRP. One teacher explained:

> I have seen a lot of changes [after SSRP]. When I first came here, the students used to ask: 'how does computer look like?' Now we have a room full of computers and computer is a compulsory subject. They have a chance to study using computers. The school was in bad shape, but now we have infrastructure including a science lab and a library. We did not have a science lab [before SSRP] and we had very little material, but we have plenty now. We did not have any computers, but now we have a computer lab. So, there has been a lot of improvement.

Although the extent differed from school to school, participants agreed that there were noticeable improvements in physical infrastructure in their schools during SSRP. However, most participants at the school level were also unanimous about the challenges and inefficiencies of the government in financial management and budgeting under SSRP.

Specifically, participants expressed frustrations about the rigidity of budgeting and funding structures at different levels of administration and the government's top-down approach to financial management. A principal at one of the model schools in Kathmandu summarized this issue in a sentence:

> If you take a look at this school, we are okay financially, but we do not have sufficient funds for activities including providing quality education – to buy educational materials and keep all the teachers satisfied.

Another secondary school teacher, who was also a principal during SSRP, shared his frustration with the budgeting system:

> They provide one hundred and fifty thousand [Nepali rupees] for computers, but they do not provide the fund for electricity bills [that come out of using those computers]. Government provides twenty-five thousand as miscellaneous expenses. What can we do with it? Buy books? Pay electricity bills? Maintain computers? It is not enough! I left the post of principal three years ago and, during my time as a principal, I never saw them sending any fund for computer maintenance.

The principal at the same school confirmed:

> The budgeting system is not flexible. What is not working is that policy makers are disregarding the need of schools. It would be more

> effective if there was bottom-up planning instead of top-down planning. Even though SIP is known as bottom-up approach, budget planning is actually top-down in reality.

Prior research on Nepal's education financing has shown that more than 85 percent of the government's education budget is spent on salary of teaching and non-teaching staff, textbooks, and other recurring costs of educational institutions (National Education Accounts Report, 2016). Even with a significant amount of the budget spent in teacher salaries, the interview data suggests that teachers and principals in many schools do not receive their salaries on time. When asked about financial challenges in their school, a secondary school teacher said:

> The teachers in our school do not even get their salaries in time, but we work hard to teach the students and have to wait for three or four months to get our salary. Even our school's principal does not get his salary in time. He acts as a guardian and provides salary to the teachers by personally taking a loan so that it won't affect our personal life. The school administration sometimes provides limited money for the teachers during the time of examination as an allowance. The financial state of the teachers is miserable, government officers have monthly salary whereas the teachers get salary in quarterly basis.

Another persistent theme that emerged from the interview data was the dissatisfaction of stakeholders with the itemized and earmarked budgeting system under SSRP. This is an important finding as research has shown that schools with autonomy and authority over their budget and human resource allocation tend to raise their students' educational outcomes (Woessmann, 2016; Cobb-Clark & Jha, 2016). One school principal concisely summarized this issue:

> Budget for teacher salary, scholarship, and books are guaranteed and those are easy for us to provide and implement. However, budget for other things like furniture are dependent solely on whether the DEO determines furniture building as a priority. If it is not a priority for the DEO, we do not get funding for furniture building. Even when there is something that a school needs immediately, but if that thing is not itemized in DEO's budget, they don't provide it to the school. Often times, what a school really needs is different than what is allocated for the school by the DEO.

Even at the national level, data point to examples of inefficiencies in the financial management system that affected other aspects of the reform including performance management in regional and local education offices. One DOE official shared his experience with planning for performance-based employee assessment in the organization:

> Performance management is part of the policy, but we have not been able to implement it properly because, let us say, if they gave me

> leadership to overlook performance management, but am I allowed to use the required resources or not? No, because the budgetary system does not allow it. We have an earmark system that requires that, for example, scholarship budget be used in scholarships only. That is, the budget provided for scholarships must be used in scholarships or the budget gets frozen. The budget for text book should be used on text book, or it will be frozen. We do not have the ability to use this budget. If performance-based contract is provided, then the ability to implement it properly must be provided as well.

While financial autonomy is important for schools and education systems in achieving desired educational outcomes, it is also important for education systems to effectively allocate their human resources to better support student learning (Ainscow, 2012; Chapman et al., 2015). The following paragraphs present a detailed analysis of the interview data with respect to participants' perceptions on human resource allocation under SSRP.

Allocation of human resources. In line with the literature that policies adopted by education systems regarding teacher training, hiring, licensing, and professional development can have important implications for the quality of teaching and learning in schools (Darling-Hammond, 2000), the study participants shared their experiences of human resource allocation and management during and after SSRP. Interview data showed evidence of inefficiencies in human resource allocation in all six public schools in the sample.

Participants shared about challenges they face on a daily basis due to lack of sufficient human resources in their schools, government's differential treatment of teachers compared to civil servants in other government sectors, lack of appreciation of the teaching profession from the community, and weaknesses in teacher hiring and retention policy. One primary school teacher expressed his concerns regarding the insufficient number of teachers and staff that has continued to affect the school for more than five years:

> I have a lot to say in this [about human resources] because, in our school, there is only one secondary level teacher. We have to bring private teachers by paying them extra money and we have teachers from lower secondary level teaching in the secondary grades. So, primary level teachers have to also teach in the lower secondary level. The salary for ECED teachers is high and the school adds a little more. We don't have a sufficient number of secondary level teachers in our school. If two to four more government-funded teachers joined in the secondary level, it would be easier for us financially.

Another teacher shared about how her school's financial challenges coupled with the government's differential treatment of teachers as well as a lack of appreciation from the community affects her job satisfaction and motivation to teach:

> I feel that the teachers are treated badly than other employees because the teachers do not even get their salary on a monthly basis. We

had a problem during Dashain[11] last year. We did not get the salary at the time of Dashain/Tihar so, we provided Rupees 10,000 to all the teachers and managed the rest later. And talking about benefits, the civil servants have a lot of benefits, but the teachers are treated a bit harshly and it makes us feel like, 'Ugh, we do not have any benefits.' We keep on working but the parents never appreciate us. The parents of students that are first in class give credit to their child saying, 'my kid worked hard', and the parents whose kid fails blame us. If you like the job, you can get satisfaction, but we do not have good salary, no allowance nor benefits. So, you have to feel satisfied about your own achievements.

Talking about teacher hiring and retention practices, one school principal stated that favoritism from district offices and lack of sufficient manpower has affected teacher hiring practices in this school:

About recruitment, talking about the system, I am the kind of person who follows the rules and regulations of the system but there is a lot of favoritism and nepotism in this school. The best way to recruit a teacher would be to hold a written examination and send them to the practical field, which is the classroom, and let the students decide who would be the best

[11] Dashain is a Hindu festival that takes place around September/October of each year.

> candidate for the post but it is not possible. There are many times when even I don't know who is teaching the students. The government does not provide us with sufficient manpower, and we have to find a way to make it work, and the other thing is, the government has requested us to not take fee from the students, but we are compelled to take fees as we cannot put the money from our pocket. So, the situation is not good.

In addition to inefficiencies in the allocation of financial and human resources, the above data also point to issues related to governance and institutional capacity during SSRP. Standardization of teacher hiring procedures, allocation of qualified teachers, and coordination between national and local educational institutions are part of governance in the education system. The following paragraphs present participants' perception of these issues in the context of the SSRP.

Governance

In line with the research that largely attributes the failure of education spending to yield desired educational outcomes to bad governance, corruption, bureaucracy, and weak institutional capacity (Gupta, Davoodi & Tiongson, 2000; Rajkumar & Swaroop, 2008; Duflo, Dupas & Kremer, 2015; Glewwe & Muralidharan, 2016; Muralidharan et al., 2017), participants in this study shared their experiences with both good and bad governance at their organizations and in the education system as a whole. Examples of good governance were prominent at the national level of policy planning and implementation where participants

expressed their satisfaction with increased ownership of the SSRP's policy planning team in developing goals, indicators, management systems, and survey instruments without substantial support from international experts. Talking about positive effects of good governance and improved institutional capacity at the national level, one DOE official who was intensively involved in SSRP formulation, said with excitement:

> Now [since SSRP] we take the support of international experts, but we do all the work by ourselves… we develop all the indicators, all the necessary baseline surveys, we have our own Education Management Information System. We interpret our goals and set the target. We need the help of the experts but not as much as we did before.

He clarified further that this shift in ownership positively affected the government's capacity and resulted in a decrease in overhead costs compared to the planning of prior policies.

> In the previous project modality, all the budget was spent on the technical advisors, team leaders, experts as they would come for each project, sent by the donor organizations. Then, we initiated SSRP as a sector plan approach and there were no team leaders, no technical advisors, no chief technical advisors, which allowed the Ministry to set and implement its own plans and policies. It enhanced the system's capacity and decreased the overhead as well as expertise cost.

While the interview data showed that SSRP implementation helped to improve institutional capacity and coordination at the national level, it also pointed to examples of bad governance and weak institutional capacity at district- and local-levels of implementation. Participants suggested that while there was some progress at the national level of educational governance, the same development did not trickle down to district and local institutions. One DEO official who was also involved in the formulation of SSRP said, reflecting on the lessons learned during the reform's implementation period:

> This program [SSRP] improved individual capacity but it did not improve institutional capacity, which was our primary motive. It improved but very marginally. The linkage between institutional and individual goals was not established. People from many places thought that capacity development is only a training, and so capacity improvement is a challenge at the local level.

This perception of lack of institutional capacity was echoed by another DEO official involved in the development of teacher training programs during SSRP:

> We lacked in various aspects including SMC, national education committee's broader planning and perspective, resource generation or impact of training on teachers and their delivery, and proper implementation of curriculum. The situation of lower levels of implementation, that is schools and classrooms, when compared to upper

> levels of implementation is a huge weakness because we do not have enough capacity to implement at the lower level.

At the school-level, most of the teachers and principals interviewed for the study agreed that the government lacked sufficient institutional capacity to implement a large-scale, nationwide reform like SSRP. They provided examples of why they thought the government was inefficient in building and managing capacity, including lack of monitoring and follow-up from the government, misuse of authority at different levels of governance, and ineffective and untimely disbursement of finances under teacher training and professional development. One school's principal shared an example of the problem with lack of government monitoring in their school:

> We make policies in paper and send it for implementation, but no one comes to monitor if it has been implemented or not. Just making policies in paper and sending it for implementation does not make it successful, it should be monitored. We can achieve the goals if the policy is implemented successfully, and to do that, the top-level should send the officials for monitoring to see if the plans at school-level has been implemented or not. Unless the monitoring is done on a timely basis, we will not achieve any success.

The school's secondary school teacher confirmed:

> The government never monitors to check if the resource centers are implementing their work. The resource centers provide training when it is available but when I take a training, they never check if I am implementing it in the class or not, the monitoring system is very weak.

Besides monitoring, the interview data also provided examples of misuse of authority in the government. One DOE official said about lack of governance that has affected professional development opportunities for employees in the department of education:

> The training programs are held but the difficult part is, same people attend the programs often, so the chances of other people getting the exposure is less. The one with power gets all the benefit for example, if there is a program in Thailand, the ones closer to the education secretary gets a chance to attend it and others have no chance. When it was my chance of going to a program, they sent the minister's personal assistant and we could not say anything. This has happened in the past and is still happening.

Lastly, even though teacher training was central to SSRP, the data showed indications of ineffective and untimely disbursement of finances and a lack of coordination at different levels of implementation that affected student learning. A lower secondary school teacher summarized the issue:

> The way the government runs its program is – firstly, the budget is determined, and it is required to be used up within a certain period of time, and they haphazardly conduct the training. The training in Nepal does not run sequentially. For example, when curriculum changes, they should complete training the teachers regarding the curriculum changes in Baisakh, but the budget is allocated in Ashadh and training is provided in Shrawan, and between those six months, the children's education is hampered.

Service delivery: Professional development of teachers

While the above subsection presented findings related to overall governance structure of the education system, this section presents findings related to service delivery and specifically regarding training and professional development of teachers. As stated earlier, one of SSRP's key objective was to improve institutional capacity, and the government invested heavily in teacher training and professional development with the aim of improving institutional capacity (MOE, 2009). The interview data pointed to the availability of teacher training programs and professional development opportunities for teaching staff throughout SSRP. For example, when asked about the types of trainings she had attended during SSRP, a primary school teacher said:

> A lot of trainings were held before. Our resource center once held almost eight trainings in our school. For example, English improvement

training was held to help teachers teach the students in English. I found this training very effective.

A secondary school teacher at another school shared similar experiences with training programs:

> I have participated in various training programs organized by the school and the government. For example, we compulsorily had to take a 10-month training. In that training, we were taught to make lesson plans, learn about how to present it to the students, how to behave with the students, and so on. And we had to implement it in classroom. I also participated in several other three- to five-day trainings.

One school principal confirmed, appreciating the availability of teacher training programs during SSRP:

> There has been a drastic change in the quality because there weren't any training facilities provided to the teachers before. It just started [with SSRP] and the teachers who have been appointed by the government should compulsorily take the TPD training. Without the TPD training, a teacher cannot get promotion. The TPD contains information related to course including yearly lesson plan, so, when a teacher is involved in TPD, he/she is well informed. If the teachers do not implement it in the

> classroom, then that is another thing, but when they have participated in the TPD training, they have learned something for sure because it is a very logical training.

As illustrated by the examples above, there was ample evidence in the data that training programs were available and frequent during SSRP. When the participants were asked about the effectiveness of trainings, however, the reaction was mixed. Some teachers said that the trainings were effective and helpful in the classroom while others expressed their dissatisfaction with the quality of training and lack of follow-up from the government to ensure that the teachers were implementing what was learned during their training. A secondary school teacher shared his mixed feelings about the training:

> The training facilities are good and are provided by the government. I think they provide enough training. It's the implementation part that's weak. It's not just the government that is faulty, the teachers who get the training are at fault in some ways. Some teachers who get the training have provided proper education to their students and have achieved good results. But I don't think the training is updated as per the changing times because the information technology has moved forward but we are still using the traditional methods for the operation of the school. We still teach 60 students in the same class, but how can we deliver information to them? We have 300 to 500 students enrolled in the school, but we only have

> around 25-30 computers. The training we receive is not technical or practical education, and we are still using traditional methods of teaching in our classrooms. We are not working as per the changing needs of the community, so we have to restructure and change our way of teaching.

Another secondary school teacher echoed the sentiment, expressing his concerns with the lack of monitoring and evaluation from the government following training programs. He emphasized the need to monitor the implementation of teacher training programs in classrooms as well as continued follow-up of teacher performance after such trainings.

> I have not been involved in any type of professional development training. I once got an opportunity to attend a demand-based training, but I did not find that effective because the things that are taught there, the ones giving and taking the training should take the training seriously and effectively. Just taking the training is not enough, implementing it is the most crucial part. Although I have not been involved many training facilities, I have seen many people who are involved in a lot of training facilities, who are not able to implement it. The training in our country is just for the sake of 'we provide training' and allowance. We have sent the teachers to training programs, 6-7 months long, but there is no change in behavior. If there is no change in the behavior of the teachers, the training

is pointless. In my opinion, the training providers should evaluate the trainee's performance and investigate their progress.

Within the service delivery literature, some researchers have identified lack of teacher motivation and absenteeism as causes of inefficiencies in education delivery that ultimately affect student outcomes (Chaudhury et al., 2006). Others have identified corruption, lack of monitoring and follow-up, and government's lack of awareness about the needs of educational services at the local level (Devarajan & Reinikka, 2004; Muralidharan et al., 2017). In line with this literature, the interview data primarily points to a gap in monitoring and evaluation of the training programs as a potential cause of ineffective service delivery in the case of SSRP.

Effects of international actors on resource allocation

Participants in this study shared their perception of the influence of international organizations on policy implementation and resource allocation under SSRP. Overall, participants at all levels of policy implementation were aware of the dynamics and impact of the government's interactions with donor nations and supranational organizations such as the World Bank and the United Nations. Talking about influence of developed countries in Nepal's education development, one secondary school teacher said:

> In my experience of 40 years, I have seen the nation change its policy many times, and they have played a big role in the contribution of development of education sector, but Nepal is being helped by many

> developed countries. They suggest their policies, provide budget, and they are benefiting from us. It is not sure that these policies have been successful or not, but I think that that they have influenced Nepal's education.

Interview participants almost unanimously shared their understanding of SSRP as a program introduced as a result of Nepal's political and economic ties with foreign governments. When probed about their perception of why they thought SSRP was not fully effective, one secondary school teacher said:

> The motive for which SSRP was introduced, it was a foreign program as well. They sent the project in Nepal with a vision to develop various aspects of education, including infrastructure development, educational improvement, school improvement, and so on, but their vision and Nepal's condition did not match.

Another secondary school teacher echoed, talking specifically about the effectiveness of teacher training programs, that donor agencies and nations had a significant influence on the teacher training programs provided under SSRP.

> The government pressures to conduct the training their way and does not provide enough fund to conduct it. They immediately enforce the training and talking about its effectiveness makes me sad. I have taken a lot

> of trainings and provided training to a lot of people, but I do not think I have been able to update and improve myself. The training packages are sent in Nepal by foreigners, but we have difference in the teaching environment.

These findings suggest that while supranational organizations have in theory moved towards the framework of assisting development in LDCs through national and local governments, their influence through funding, technical expertise, and informal governance remains evident in SSRP's implementation (Pherali, 2011).

Organizational factors: Perception of SSRP's stakeholders

This section presents two theoretical and substantive categories under the broader category of organizational factors revealed in the data analysis. The first category, co-construction or the interconnection of actors and contexts, provides a detailed analysis of interview participants' perceptions of communication and interactions within and between institutions at different levels of governance involved in policy implementation during SSRP. The second category, organizational learning and social capital, discusses participant perceptions on collaborative decision-making, communications across organizations, and knowledge-sharing during SSRP.

Co-construction: Interconnection of actors and contexts

In line with the research that successful implementation of a reform is in part determined by whether it was co-constructed and implemented through continuous

interaction between stakeholders at the school, district, region, and national levels (Datnow, Hubbard, & Mehan, 1998), data suggested that while communication and co-construction was prevalent in policy planning and implementation mostly at the national level, the same did not translate to interactions between institutions at the national, district, and local levels of implementation. Participants expressed their satisfaction about aspects of the reform such as the development of School Improvement Plan (SIP) at each school that fostered positive communication and interactions among school staff, they also shared their dissatisfaction about the lack of communication and knowledge-sharing between their schools and district education offices.

Among the themes that emerged from the interview data, communication or lack thereof was frequently mentioned by the participants. There were mixed perceptions of co-construction among stakeholders at different levels of SSRP implementation. Specifically, higher level officials at the DOE and DEO believed that the government initiated significant interactions in SSRP's planning and implementation phase. One DOE official, who was also involved in the formulation of SSRP, said:

> SSRP started in 2009 but the planning was initiated in 2006. Participatory discussions were done in several phases. Our local education group is very strong as there are development partners, government, donor agencies, NGOs, and INGOs that contribute to education. And the local education group has teachers' professional organizations, student groups,

> guardians, and the network of subject teachers. We consulted with every stakeholder including Dalit federation, and our bottom line was to identify the right constituted by the constitution.

In contrast, stakeholders at the local-level expressed their dissatisfaction with interactions during SSRP planning and implementation. Specifically, they shared that stakeholders, especially teachers and other staff at the school level, did not feel ownership of SSRP because they were not given a chance to communicate their ideas to improve the education system. One school principal said:

> The major reason why most policies are unsuccessful is because there isn't a lot of communication between the stakeholders. The stakeholders think of most policies as 'Government made policy - it is what it is.' It is not necessary for it to be my way, but every stakeholder should have a chance to communicate their ideas and have ownership. Then everyone will be responsible. Everyone should have an ownership and it should be built up, then, every policy will be successful.

Another principal echoed:

> The government has not been able to implement the policies successfully. If the government held meetings with every stakeholder group, then success would be imminent. You just asked about SSRP and

> whether I thought it was successful, if all the teachers are against it how will it be successful. When new policies are implemented, there should be a feeling of togetherness among the stakeholders for the policy to be successful. No matter who makes the policies, it should be made as per the need and demand of the sector, because the policies do not fall from the sky or from mars, we have to make it from here.

Although a majority of school-level stakeholders expressed dissatisfaction with the lack of cross-organizational communications and oversight from the government, they acknowledged the benefits of the school improvement plan (SIP) and training programs under SSRP. They stated that creating the SIP encouraged open communication and frequent interactions between school leaders, teachers, and other staff. One principal explained:

> Many schools got the opportunity to develop the SIP during SSRP because DoE had a huge fund for this. They gave training to the teachers and principals. But they never asked us to report about how much work have we have done regarding SIP, but I worked with my full loyalty and dedication, and as far as I know, the school where I have worked has been full of quality and the school works as per the SIP.

Another principal shared that SSRP, and specifically the process of developing the SIP, improved communications with stakeholders at their school and positively affected student enrollment and outcomes:

> The school works based on SIP. Our main stakeholders are students, teachers, parents, and school management committee (SMC) and these stakeholders are involved in the development of SIP. For example, we focus on four questions during the development of SIP. We ask each stakeholder - 'what is a good school in your opinion?' This question helps to clear the vision and to identify the present situation of the school. Another question we ask is – 'What should be done to improve your school?' This helps to determine the goal. We focus on the challenges and the threats while asking these questions and discuss and plan accordingly. Conclusions drawn from these discussions are taken as the main priorities and this is how we determine our plans. All stakeholders including guardians, students, and the community know that the school has been improving. While the number of students in community schools is generally decreasing, our school has seen increasing enrollment and student achievement has been good too.

Teachers' views were similar to their school's principals regarding interactions that were focused on affecting changes at the school-level. When asked about the types of interactions and issued discussed during those interactions, one lower secondary school teacher said without hesitation:

> We hold teachers meeting monthly to figure out how to improve the education of our students. We solve classroom-related problems and take guidance from the principal. All teachers and staff hold meetings together to share our ideas and try to implement them.

Based on the interviews, it is evident that there were aspects of co-construction that included sufficient coordination and interaction within organizations, but there was a notable lack of coordination and interaction across organizations at different levels of reform implementation. Specifically, as presented in the above paragraphs, while the interview data provides several instances of within-organization interactions that resulted in positive organizational and student-related outcomes, majority of teachers and principals experienced little to no interaction with local- and district-level stakeholders during SSRP.

Organizational learning and social capital

As mentioned in the review of literature, organizational learning occurs when individuals engage in and learn through socially embedded activities, practices, and behaviors (Higgins et al., 2012). Socially embedded practices in education include the use of intentional strategies that address a specific learning goal within the context of daily routines, activities, and interactions (Bensimon, 2005). Like organizational learning, social capital has a situational influence on policy implementation; depends on the strength of relationships; and the alignment of social structures with the content of policies and programs (Smylie & Evans, 2006). In line with this literature, there were several themes in the interview data that

pointed to the existence (or lack thereof) of organizational learning and social capital. Specifically, data provided evidence that there were several formal structures in place including steering committees at the national level, annual discussions between district education officers, regular staff meetings and parent-teacher committees in schools that enabled organizational learning and problem solving during SSRP. Although these structures seemed to facilitate organizational learning within organizations, the interview data suggested that there was a notable lack of knowledge-sharing and collaboration between organizations. The following paragraphs provide a detailed analysis of the above findings that emerged from the data.

Under the theme 'collaborative decision-making', one DEO official shared a few examples of formal structures in place that allowed different levels of stakeholders to interact during SSRP's implementation. One of the examples that he shared explained formal structures in place for resolving pressing issues that arose during SSRP:

> We had a committee led by the Secretary of Education called the steering committee. If we had any problems or conflicts in the reporting system – for example, sometimes even when we submitted the reports in time, they would say that it was not submitted in time, or the accusation of the documents not being perfect, or sometimes when we had conflicts with our development partners, we would submit it to the steering committee. Secretaries from different offices including the Ministry of Education held

> the meetings. Donors were also members of the committee. Every conflict would be resolved with the help of the steering committee.

Research also suggests that organizational support, belonging, and group structure are also important in facilitating organizational learning and building social capital (Lin, 2006; Ekinci, 2012). At the upper levels of SSRP's implementation, there were instances of knowledge-sharing and supportive interactions between national- and district-level offices under the theme 'communication across organizations.' For instance, when asked about support and coordination between different levels of government's education offices, a DEO official who was previously involved with the government's educational development center said:

> The interaction between NCED and DEO happened at the time of planning. We called the officers from DEO once a year and discussed about the need of training, the number of teachers to be trained, what type of curriculum we should develop for teacher training, and so on. Planning workshops were held once a year that focused on last year's training status, its impact, and how trainings should be implemented in the future. And as per the feedback, we used to focus on improving our training programs. We used to go to training centers to monitor training activities. We also interacted with trainers, provided suggestions, and monitored whether our suggestions were incorporated.

Beyond the structural dimension of social capital, literature also suggests that the strength of cooperation, trust, team spirit and shared vision are equally important aspects of social capital (Bryk & Schneider, 2002; Conrady, 2013). These aspects were evident in several teacher interviews and under the theme 'communication within organizations.' For instance, one secondary school teacher at a model school said:

> All the teachers discuss about the problems in the school. Teachers' meeting is held, student grades are monitored, and our weaknesses are determined. Teachers have their internal problems regarding what is not sufficient, and all the teachers participate in the discussion. After the discussion, we identify our problems and share it with representative sir or head sir and make plans to improve, and again, us teachers hold a meeting with members of the SMC. We even include some students if needed. We have a Creative Kids Group, in which the students from grades 6 to 10 are involved. They represent the study body and know students' concerns, and we discuss with them for the improvement of the school.

It was clear from the interviews that schools that were identified by the DEO as model schools had some form of formal structure in place that facilitated social capital and organizational knowledge-sharing. When asked about any formal internal processes established to facilitate continuous improvement under SSRP, one principal at a model school that was part of the interview sample said:

> We have a team of teachers and parents. We listen to the problems and complains of the parents and try to find a solution. We listen to the problems of the teachers and students as well and set targets. We make questionnaires and distribute it to them. They write their views in the form, and from that we understand the perceptions of our teachers and students, and we address them. That is how we were selected as one of the model schools. We were able to make this school as a model by continuously improving and achieving every goal that were determined at the beginning of each school year.

For the other schools, however, there seemed to be a lack of knowledge-sharing and formal structures that supported the development of social capital. A teacher representative of one school's management committee, when asked about the level of interaction among stakeholders at the school, said:

> I have seen a lot of good board members in this school and we expect a lot from them, but we do not get as much as we expect, and they do not spare any time for the school. They have supported us but if they shared their knowledge and wisdom, then this school would have progressed a lot. I have talked to three of the directors, now there are four, and we held a meeting for a long period of time, but they do not participate effectively in it. They do not share any knowledge and expect me to do all the work.

A lower secondary school teacher at another school echoed:

> We often study the plans and policies made by the central level through various mediums including newspaper, notices from Ministry of Education, but implementation is not as good as the plan. The condition of our school is not good either. No matter who they call, whether it is the SMC, the principal, or the teachers, for example, while holding a meeting about ECD, the program would be fruitful if they contacted the teachers of ECD. Similarly, if the plans for subject training are made by taking suggestions from corresponding subject teachers, then that can be effective.

The interview data point to the existence of several aspects of organizational learning and social capital in the model schools, but not necessarily in other schools in the interview sample. Besides interview data, observation of the two model schools made clear the existence of physical infrastructure that supported organizational learning and social capital. For example, both model schools had larger, open-concept staff offices and space for the staff to have small- and large-group discussions. Principals' offices were open and inviting, and the doors were mostly kept open for the staff. In contrast, other four schools in the sample had small, unorganized staff offices with insufficient lighting and rusty furniture. While the model schools in the sample had the groundwork and structure in place to facilitate organizational learning and social capital, it should be noted that model schools account for less than one percent of the total number of public schools in Nepal.

Individual Actors and Policy Cognition

This final category of individual actors and policy cognition presents a detailed analysis of relevant themes that emerged from the analysis of interview data. Prominent literature suggests that, at the core of systems and organizations, there are individual actors that make sense of and implement policies in their organizations with the given authority based on their roles and their understanding and beliefs about the policy, its environment, and their own surroundings (Spillane, 2002; Coburn & Stein, 2006). In line with this literature, the interview data indicated that participants made sense of aspects of SSRP and its implementation using both economic and political approach to policy cognition (Loeb & McEwan, 2006; Malen, 2006). Specifically, data revealed that participants were aware of the economic and political dynamics that affected the education system and policies in Nepal including disparities between public and private schools, struggles of low-income families and their children, and the effects of hiring based on political interests on district education offices, schools, and classrooms. At the classroom level, in line with the literature that collective sense-making is often found in classrooms (Spillane, 2001), data revealed the presence of collective sense-making in classrooms through interactions between teachers and students where both parties discussed the relevance of curriculum and different aspects of education policies that had a direct effect on their lives and students' educational outcomes.

One school principal shared his understanding of the effects of unstable political and economic situation on public schools in Nepal:

> Due to unstable government and deteriorating quality of public schools, parents that can afford enroll their children to private boarding schools while parents from low-income backgrounds, laborers, those from struggling neighborhoods, and people who migrated from other districts send their children to public schools. This is another challenge for us. This is because of society and politics.

Spillane (2001) suggested that sense-making is often situated in classrooms as classrooms provide a structure to learn from action and interaction as well as collaborative activities (Spillane, 2001). The data also showed the presence of this kind of situated learning and collective sense-making in classrooms. One secondary school teacher, reflecting about her recent interactions with her students about their understanding of what is missing in the current education system, shared:

> The students of our school request us to help them by providing practical education. Students say, 'What's the point of studying when we end up making carpets or building houses?' Most of the students, even after passing high school, end up making carpets. We tell them that making carpets is not bad work. If they were able to do this work differently, they may end up being happy. Our students are weak in practical education, but they are exceptionally talented and very creative. They are ahead of me when it comes to creativity. I just have better theoretical knowledge. So, if

> the school can implement practical education, then the students would be more productive. 'Your life will be better after the examination,' we say to the students. They ask if the exam results will help them get better jobs. I end up being speechless.

Another principal alluded to the kinds of practices regarding teacher hiring that affected the social context of sense-making in his school:

> But what we have not been able to focus on are issues related to improving quality, decreasing dropout rate, improving learning achievement, or eliminating irregularities in teaching and learning. It takes months to find replacement teacher when a teacher leaves school. There is nepotism and favoritism with SMC members who try to place teachers they know.

A secondary school teacher at the same school confirmed:

> We get pressure from the committee (SMC) and DEO. They pressure us to recruit the people from DEO, SMC, and VDC. But because of this we have lost a lot of qualified teachers.

The effects of political interests on policy cognition were evident not just at the school-level, but also at the national level of education governance. A DEO official, talking about the influence of political interests and practices in professional development, said:

> The training programs are held but difficult part is, same people attend the programs often so, the chances of other people getting the exposure is less. The one with power gets all the benefit for example, if there is a program in Thailand, the ones closer to the education secretary get a chance to attend it and others have no chance. When it was my chance of going to a program, they sent the minister's personal assistant and we could not say anything. This has happened in the past and is still happening.

These examples are in line Joshi's (2016) findings from a mixed-methods study on the political, economic, and societal challenges encountered by public school systems in Nepal. Her study states that while decentralization has empowered more local actors and school level stakeholders in educational decision making, and concludes that district education officials, principals, teachers, and school management committee members are systematically engaged with political parties and their district level officers in order to ensure implementation of education policies. This in turn has turned decentralized education governance into a playing field of political interests (Joshi, 2016).

Summary

Each of the categories, sub-categories and themes identified and discussed above convey the fundamental factors affecting SSRP's implementation. Important findings emerge from this analysis and those findings are situated between the alignments and contradictions

found in the data. Five key findings emerged under the first broad category, 'environmental factors.' First, while the data suggested that SSRP led to improved infrastructure in public schools, it also pointed to the inefficiencies of the budgeting system and financial resource allocation under SSRP. Second, the data revealed that a lack of qualified teachers and administrative staff had an adverse effect on the implementation of SSRP in schools. Third, in terms of governance and institutional capacity, participants shared that governance at the national level improved significantly during SSRP, but data pointed to the lack of governance including monitoring and follow-up at the district and local levels. Fourth, although SSRP provided sufficient training and professional development programs over the years, participants had mixed reactions about the effectiveness of those trainings. Lastly, participants had a shared understanding of SSRP as a product of Nepal's political and economic ties and obligations to donor agencies, foreign governments, and supranational organizations.

Two key findings emerged under the second broad category, 'organizational factors.' First, data revealed sufficient communication and interactions between stakeholders at the national level of educational governance, but a significant lack of the same at the district and local levels of governance. Participants expressed their dissatisfaction with the lack of communication between schools and district education offices and the lack of oversight from the national government. Second, organizational learning and social capital were abundant within organizations with several formal structures established to encourage collaboration

and communication. However, very few formal structures were in place to drive organizational learning, knowledge-sharing, and collaboration between organizations.

Under the last broad category, ‘individual actors and policy cognition’, the analysis revealed that participants understood SSRP with a political and economic lens. Participants shared the effects of politics on SSRP including nepotism and favoritism that affects teacher hiring and school operations, and the effects of socio-economic status including poverty and unstable family structures on the students they served. Taken together, the factors discussed above demonstrate the underlying factors and actors that affected the implementation of SSRP.

CHAPTER 6: SUMMARY AND DISCUSSION OF FINDINGS

The purpose of this study was twofold. First, this study sought to understand the impact of a national education reform on key educational outcomes in Nepal with a particular focus on primary and secondary education. Second, it sought to explore the underlying factors affecting reform implementation. Specifically, it examined how teachers, school principals, and district education officers understood education reform and how this sense-making combined with the cooperation and resource sharing between implementing organizations affected reform outcomes. The aim of this dissertation was to add to the understanding of national or large-scale reforms in education in terms of their impact on student outcomes, as well as their perceived effectiveness as comprehended by immediate stakeholders including teachers, principals, school management committee members, policy makers, education experts, and local-, district-, and national-level education officials.

The first phase of the study was a quantitative analysis of annual, district-level data on 75 districts for 10 years, from 2006 to 2016, on key education indicators in Nepal. The central research question for the quantitative component of the study was: How does the implementation of SSRP affect student outcomes (dropout and promotion) in Nepal's primary and secondary schools? At the heart of this component of the study was an interest in

identifying the effects of different student and school characteristics on student dropout and promotion rates in Nepal. The second phase of the study was a qualitative exploration of the perceived effectiveness of SSRP via in-depth interviews with 33 stakeholders in Kathmandu district in Nepal that were involved in the implementation of SSRP at the local-, district-, and national-level. The central research question for the qualitative component of the study was: What are the underlying factors affecting reform implementation?

This chapter provides a summary and discussion of findings for the two research questions in line with pertinent literature that was presented in Chapter 2. References to data, results, and findings of both quantitative and qualitative components of the study are used where appropriate in the following discussion of findings. This chapter first presents a summary of major findings from both quantitative and qualitative analyses, followed by a combined discussion and interpretation of connected findings from both sets of analyses.

Summary of Major Findings

The major findings in this study emerged from an exploratory analysis of key SSRP-related indicators, and from the examination of perceived effectiveness of the reform by its key stakeholders. The quantitative findings include descriptive and inferential statistics based on secondary data provided by the Ministry of Education in Nepal. The qualitative findings include issues resulting from thematic analyses conducted after the collection of interview data. These quantitative and qualitative findings were found in many instances to be complementary and together provide a holistic picture in addressing the central question of the study.

Quantitative findings

Several key findings emerged from the quantitative analysis of district-level, panel data on key indicators of SSRP. The following sub-sections provide a summary and discussion of each finding along with its connections with relevant literature:

Trends in outcome variables

The first key finding concerns trends in the outcome variables – dropout and promotion rates in primary, lower secondary, and secondary schools. With the implementation of SSRP, average dropout rates decreased, and average promotion rates increased in primary and secondary schools over the years. Between-district variation in both dropout and promotion rates also declined over the years of SSRP implementation in Nepal. These were expected findings considering the emphasis on access and equity in school education under SSRP. According to the joint evaluation report of the SSRP, the government applied various strategies to retain students, including scholarships, school meal or snack, construction of primary and basic education classrooms, and an annual welcome to school campaign at the beginning of the school the school year (Poyck et al., 2016).

Percentage of fully trained teachers

Second, descriptive statistics showed that the percentage of fully trained teachers increased drastically on average and across districts and grade levels during SSRP. The government of Nepal spent approximately USD 11 million on teacher training and development throughout the duration of SSRP (MOE, 2009). The government employed a cascade model for teacher development that involved training the trainers who then trained

other trainers, and the process was repeated until the trainers reached school level teachers (Hayes, 2000). Bivariate statistics showed that the percentage of fully trained teachers had a significant, positive correlation with promotion rates in primary, lower secondary, and secondary schools. This finding also corresponds with the literature that teacher preparation and certification strongly correlate with student academic achievement (Darling-Hammond, 2000) and thus their promotion from one grade level to another.

Bivariate statistics also showed that the percentage of fully trained teachers had a significant, negative correlation with dropout rates in primary and lower secondary schools, but not in secondary schools. In other words, an increase in the percentage of fully trained teachers led to a decrease in student dropout rates in primary and lower secondary schools. In secondary schools, although the government made efforts to recruit and deploy a large number of teachers in public schools, teacher shortage was still a prominent concern throughout the duration of SSRP (Poyck et al., 2016). This is discussed further in qualitative findings as interview data also indicate that teacher shortage was a concern in several schools in the qualitative sample.

Although the cascade model for teacher development enabled the government to conduct large-scale teacher training programs across the country, inferential statistics suggest that this increase in the percentage of fully trained teachers had a positive effect on dropout and promotion rates in lower secondary schools, but not in primary and secondary schools. For lower secondary schools, this finding is congruent with the literature that suggests that school factors such as teacher training influence whether a student drops out of school (Case

& Deaton, 1999; Doll et al., 2013; Powers et al., 2015). Similarly, strong academic supports from qualified teachers can drive students to continue to attend and return to school over time (Doll et al., 2013). Furthermore, students of teachers who received training tend to show higher engagement and stay in school as a result (Powers et al., 2015). One probable reason for the non-significant relationship between dropout and promotion rates and percentage of fully trained teachers in primary schools may be due to the shift in educational resources from primary to lower secondary schools with the introduction of SSRP (MOE, 2009). And for secondary schools, as explained in the prior paragraph, teacher shortage may have affected student dropout (Poyck et al., 2016).

Student-to-teacher and student-to-school ratios

Third, descriptive statistics showed that average student-to-teacher and student-to-school ratios declined noticeably for primary and lower secondary schools, but there were no noticeable changes in either indicators for secondary schools. Even for primary and lower secondary schools, there was still considerable variation across districts in both indicators by the end of 2016 (i.e., the last year of SSRP implementation). According to SSRP's joint evaluation report, the national average for the student-teacher ratio in community schools in 2014 was 26:1 in primary schools and 42:1 in lower secondary schools. However, in the Terai districts, the student-teacher ratio was 41:1 in primary schools and 60:1 in lower secondary schools. In contrast, schools in Kathmandu valley had a 15:1 student-teacher ratio in primary schools and 20:1 in lower secondary schools (Poyck et al., 2016). These statistics

suggest that while the overall student-to-teacher ratio reduced over time, regional and district-level disparities did not decrease as much.

Bivariate statistics showed that student-to-teacher ratio had a statistically significant, negative relationship with dropout rate in primary and lower secondary schools, but not in secondary schools, and a statistically significant, positive correlation with promotion rates in all three levels of schooling. This finding corresponds to the literature that finds support for a positive relationship between student-to-teacher ratio and student retention and academic achievement (Case & Deaton, 1999).

Inferential statistics showed that student-to-teacher ratio had a statistically significant effect on student dropout and promotion rates in primary schools, but not in lower secondary and secondary schools. One probable reason for this occurrence is that primary schools have received the largest share of resources since the beginning of EFA in 2000 while the resource shift to secondary schools began in 2009 with the implementation of SSRP. It may take more time for the effect to show in secondary schools as the education system adjusts to the changes in funding, governance, and resource distribution structures at different levels of schooling in Nepal.

Inferential statistics also showed that student-to-school ratio had a statistically significant effect on dropout rates in primary and lower secondary schools, but not in secondary schools, and a statistically significant effect on promotion rates in all three levels of schooling. This positive relationship between student-to-school ratio and dropout and promotion rates is potentially due to the government's investment in the construction of new

schools throughout the duration of SSRP (Poyck et al., 2016). As the number of schools across the country increase over the years, it is possible that schools were able to retain more students and provide better academic support to their students. However, there is limited literature on this topic. Further research is recommended to identify concrete reasons for the positive relationship between student-to-school ratio and student dropout and promotion rates.

For secondary schools, one reason for the statistically non-significant correlations between dropout rate and all three predictor variables in this study might be the persistent teacher shortage and high student-to-teacher and student-to-school ratios in secondary grades as Nepal struggles to provide adequate resources to its secondary schools compared to primary and lower secondary schools (Poyck et al., 2016).

Findings from interrupted time series analysis

The second set of inferential findings emerged from interrupted time series analysis. Overall, results of ITS suggest that SSRP had no statistically significant effect on both dropout and promotion rates in primary schools. On the other hand, ITS analysis showed that SSRP had a statistically significant, positive impact on both dropout and promotion rates in lower secondary schools over the years of its implementation. Lastly, SSRP had a statistically significant, positive impact on dropout rates but not on promotion rates in secondary schools. Similar to findings from descriptive and bivariate analyses and fixed effects estimation, results from ITS analysis also provide evidence that SSRP had the most

positive effect overall on lower secondary schools and mixed effects on primary and secondary schools.

Qualitative findings

Seven key findings emerged from the analysis of interview data. The first finding concerned financial resource allocation. SSRP had a positive effect on physical infrastructure development in public schools, but a majority of school-level stakeholders were frustrated with the budgeting system and financial resource allocation under SSRP. With the implementation of SSRP, the Department of Education prioritized five minimum enabling condition indicators that included the condition of buildings, provision of adequate classrooms, separate toilets for girls and boys, and a playground for all (MOE, 2009; Poyck et al., 2016). While these conditions enabled rapid infrastructure development in schools, school-level stakeholders did not have the ability to purchase building and teaching materials specific to the schools' needs and requirements due to the itemized budgeting structure utilized by the government and district education offices.

The second finding was related to human resource allocation. Study participants were unanimous in their concerns regarding human resource allocation by the government during SSRP that has not yet been resolved and has extended to the current reform, beyond SSRP. While the extent differed from school to school, all six schools in the sample shared their struggles with the insufficient number of teachers and administrative staff that affected school operations.

The third finding was regarding governance and institutional capacity. SSRP had a positive effect on governance and institutional capacity at the national- and district-levels of government, but not so much at the local-level. While interview participants at the national and district education offices shared examples of strengthened capacity and independence in planning and operating educational policies compared to the past, teachers and principals at the local-level shared examples of the government's inability to provide monitoring, follow-up, and required support to the schools.

Fourth, regarding professional development of teachers, SSRP provided tremendous opportunities for professional development through different teacher training programs over the years of its implementation. However, the reaction was mixed when participants were asked about the effectiveness of the trainings. While some teachers and principals appreciated the availability of trainings, most participants thought that the trainings were not as effective as expected due to outdated curriculum and lack of monitoring and post-training follow-ups from the government.

The fifth finding was related to the influence of international actors on resource allocation. A majority of interview participants made sense of SSRP as a program introduced as a result of Nepal's political and economic ties with and obligations to international organizations and foreign governments. This kind of sense-making exists in part due to the education sector's historic dependence on foreign support in both technical expertise and financial matters, and in part because the government does not yet have the human and

economic resources to ensure proper translation and interpretation of its education policies at the regional, district, and local levels of policy governance and implementation.

Sixth, regarding communication and co-construction, while officials at the national- and district-level believed that the government initiated significant interactions in SSRP's planning and implementation, stakeholders at the local-level expressed their dissatisfaction with the lack of cross-organizational communications and oversight from the government. However, they appreciated and acknowledged the benefits of the SIP and training programs introduced under SSRP. Data showed that SSRP spurred more communications within organizations, but not necessarily between organizations.

Seventh, regarding organizational learning and social capital, there were examples of organizational learning and social capital at all levels of SSRP implementation. However, informal structures were predominant in driving organizational learning and very few formal structures in place as experienced by interview participants. Schools identified as model schools by the government had some form of formal structures in place that facilitated social capital building and knowledge-sharing within the schools. Other schools had little to no formal structures in place to facilitate organizational learning and social capital.

Lastly, regarding sense making and policy cognition, participants used both political and economic lens to understand SSRP as well as the effects of unstable political and economic status of children in public schools on the reform. On the political side, participants shared examples of nepotism and favoritism that affects teacher hiring and school operations. On the economic side, majority of participants seemed highly aware of the effects of poverty

and family structures on the students they served. Many participants at the local-level shared examples of their struggles in teaching children that are affected by extreme poverty and unstable family structures.

Discussion of Findings

Overall, quantitative and qualitative findings together provide evidence that teacher training, even though a major goal of SSRP, did not have its intended effect on educational outcomes. Although teachers had the opportunity to participate in numerous trainings during SSRP, quantitative and qualitative findings both suggest that those trainings did not increase teacher capacity. Similarly, improving physical infrastructure and increasing the number of classrooms was another major goal of SSRP and quantitative findings provide evidence of positive effect of student to school ratio on educational outcomes, qualitative findings provide a more nuanced picture from the perspective of local stakeholders. Specifically, qualitative findings suggest that although the number of classrooms and schools increased during SSRP, thereby improving access, the government employed itemized budgeting structure that restricted the agency of school level actors to utilize the budget where it was most needed.

In addition to these explicit findings, several ideas and possibilities emerged from this study that necessitate discussion but extend beyond the summary of findings presented in the above section. The following paragraphs provide a discussion of those ideas in light of the conceptual framework and significance of the study.

Policy implementation is complex and affected by a multitude of factors. As discussed under the significance of this study in Chapter 1, there is a large body of research on reform implementation but much of the literature has emphasized understanding the creation and evaluation of policies rather than the process of implementation and just a handful of studies have analyzed the combination of factors affecting implementation (Hill, 2003; Lundin, 2007). Most studies focus on a singular aspect of implementation such as teacher training, the role of district offices, or the role of government agencies (Makinde, 2005; Honig, 2006; Datnow & Park, 2009). This dissertation builds on that literature and adds to the knowledge of policy implementation by exploring the implementation process with a broader conceptual framework. Specifically, this study shows that policy implementation is a complex undertaking and is affected by a multitude of environmental, organizational, and individual factors. In this case, SSRP's implementation was affected by environmental factors such as financial and human resource allocation, influence of international actors on resource allocation, and students' socioeconomic status; organizational factors such as governance, institutional capacity, communication and co-construction between and within organizations, and organizational learning and social capital; and individual factors such as sense-making and policy cognition by actors involved in policy implementation. As such, this study highlights the importance of using a broader lens to understand policy implementation and its barriers.

Sense-making and policy cognition affect the implementation of policy. A key finding of this study was that sense-making can vary at different levels of implementation and for

different actors involved in implementation, in line with prior research that individuals make sense of policies based on their roles and their understanding and beliefs about the policy, its environment, and their own surroundings (Spillane, 2002; Coburn & Stein, 2006). For example, education officials in national and district education offices perceived SSRP as a product of continuous discussion of national education needs with relevant stakeholders, but teachers and principals perceived SSRP as a product of Nepal's obligations to international agencies and donor nations. Similarly, while education officials in national and district education offices perceived teacher training as influential and successful, teachers and principals perceived teacher training as only partially effective due to the lack of updated curriculum, shortage of trainers, and lack of motivation among trainers and trainees. These findings suggest that we must continue to explore the role of individual actors and factors that affect their sense-making of a policy if we are to better understand the policy implementation process.

Gap between policy goals and resources negatively affects implementation. Teacher training was a key objective of SSRP. However, despite significant time and finances allotted to the professional development of primary and secondary school teachers, teacher training during SSRP had limited effects on educational outcomes. Interview data pointed to the fact that teacher training programs under SSRP were outdated or too short or lacked clear objectives, and there was a lack of monitoring and follow-up by the government. In line with prior research on policy-practice gaps (Donnelly, Murchu, & Thies, 206; Watkins & Meijer,

2016), this finding highlights the significance of considering stakeholders' needs, demands and the availability of resources to support policy implementation.

Education policies cannot be created and implemented in silos. This study also adds to the understanding of barriers to education policy implementation in Nepal and beyond, especially considering the current education system that has created a divide between those who can afford private education and those who cannot. Findings from the qualitative analysis provided evidence on the poor socioeconomic condition of children attending public schools in Nepal. Specifically, teachers in the public school system struggle to provide adequate academic and social emotional support to their students because their students are struggling with persistent poverty and lack of stable family structure outside of school. These are significant barriers with potential long-term effects on the educational outcomes of students in public schools. This finding is consistent with prior literature which suggests that the present system is producing two classes of citizens "who are schooled and prepared very differently…and the failure of the public education system may have a negative impact on the creation of a national culture and cohesive society…" (Mathema, 2007, p. 65). This finding also highlights the pressing need to integrate education policy with other socioeconomic policies that have a potentially significant effect on educational outcomes. Or at the very least, this finding points to the undeniable influence of poverty and family dynamics on educational outcomes and the necessity to consider these influences while attempting to implement a policy.

CHAPTER 7: CONCLUSION AND POLICY IMPLICATIONS

Education reforms have long been an intricate part of education development in countries around the world. Deepening our understanding of the processes and perceptions tied to such reforms, especially when they are national reforms of education, is vital for successful implementation of future reforms and improvement of student outcomes and achievement. The SSRP was developed to overhaul Nepal's education system. However, the scale and scope of this reform created concerns for those involved in its implementation at the national, regional, and local levels of the education system.

When effectively implemented, a national education reform has the potential to dramatically improve a nation's educational outcomes as well as its workforce for generations to come. In light of such critical importance of effective implementation of national education reforms, this dissertation examined the perceptions of policy makers, administrators, and teachers regarding the effectiveness of the SSRP, a national-level education reform in Nepal. The study also analyzed the impact of key reform inputs such as teacher training and school characteristics on student outcomes such as dropout and promotion rates at different levels of schooling. The purpose of this chapter is to provide a comprehensive overview of what the study's findings mean for policy and practice, outline

recommendations for future research, state the limitations of the study, and end with concluding remarks on the overall study.

Policy Implications

The findings of this study have several implications for current and future policies. First, the comprehensive review of literature, history of Nepal's education, and the study's findings provided adequate evidence that SSRP's strategies for improving access and retaining students across different levels of schooling proved to work. Statistics presented in this study indicated that an increasing percentage of students stayed in and returned to primary and lower secondary schools every year throughout the duration of SSRP. This trend was particularly strong in lower secondary schools and noticeably weak in secondary schools. Literature suggests that this occurrence is due to teacher shortage and lack of adequate resources provided to secondary schools. To increase the impact of current and future policies, it is recommended that policy makers and government invest proportionate financial and human resources to develop and nurture secondary schools and its students.

Second, policy cognition was found to be strong and in line with SSRP's intended meaning at the national level, whereas local level stakeholders were struggling to make sense of the reform. This resulted in a fractured understanding of the reform, its goals, and benefits to local level stakeholders. To overcome this phenomenon, it is recommended that policy makers and government take the time to ensure awareness of the context and goals of national reforms before rolling them out across the country. This can be done by conducting

awareness workshops and campaigns at the national and local levels, or by phasing out the implementation of different parts of the reform based on national need and priority.

Third, this study identified the lack of district and local education offices' capacity to provide relevant services to local level stakeholders as one of the key concerns of policy implementation. It is recommended that, similar to the improvement plan at the school level, the government introduce joint development of a capacity building plan at the district and regional levels to ensure adequate ownership and provision of supports and services at the local level. This approach will not only ensure proper coordination and collaboration between district and local level stakeholders, but it will also empower these stakeholders to voice their concerns during the planning phase and ultimately improve their understanding of the context and goals of the reform.

Lastly, another key finding of this study was the ineffectiveness of the teacher training programs under SSRP even with a considerable amount of investment that went to developing and executing those programs across the nation. It is recommended that the government replace the cascade model of teacher professional development with a more rigorous training program which takes into account the professional needs of teachers and educational needs of their students. Conducting a national needs assessment of teachers' professional development could be the first step to improving future teacher training programs. Updating the training curriculum based on needs assessment and to reflect the latest changes in national and international education every year or two can help to drastically improve the relevance of teacher training programs. Similarly, the government

should focus on increasing the number of qualified trainers and building capacity of teacher trainers prior to implementing such large-scale training programs.

Recommendations for Future Research

Since this study generated emergent findings, a number of potential future research can be developed based on those findings. First, future quantitative studies similar to this study should consider using either more years of data on key education indicators or select number of school or district cases with student or school level data could provide researchers and policy makers with more robust and statistically significant findings on the effects of SSRP on key outcomes of the reform.

Second, qualitative studies with a larger sample of schools from several districts can increase generalizability. For instance, a researcher may select two districts with high and low performance on key SSRP outcomes and conduct a study comparing and contradicting stakeholder perceptions of the reform to further explore underlying factors affecting policy implementation and student outcomes.

Lastly, researchers can expand on the findings of this study by requesting student-level data on learning and other student outcomes for a sample of schools with various sizes and proportion of underserved students, and interviewing school-level stakeholders in those schools. This approach will allow researchers to control for school size and socioeconomic status of students and generate more robust findings for school-level factors affecting policy implementation as well as student outcomes.

Limitations of the Study

Several factors create limitations to this study. One major limitation is the reliance on district level data to analyze the effects of the reform on student outcomes. This study relies heavily on the government's process documentation and testing of their data collection methods and there is no way to test the robustness or correctness of the data provided by the Ministry of Education other than their own report on data quality.

Similarly, another limiting factor is the quantitative methods used in the study. Although the available data fit the basic requirements of both fixed effects estimation and interrupted time series analysis, findings may have been more robust with the availability of a larger dataset with many more observations and/or more years of data.

Another factor that posed limitations to this study is related to the interview sample. All schools included in the sample came from one district out of the 75 districts that existed during the implementation of SSRP in Nepal. While efforts were made to create a representative and diverse pool of interview participants, teacher selection depended on each school's principal who adhered to the selection criteria but also used his or her own judgement in terms of which teachers the researcher had access to. While the available pool of participants met the overall selection criteria for the study, a larger participant pool from several districts would likely have provided the ability to better compare and generalize different aspects of this study.

Conclusion

This study contributes to the limited body of literature on Nepal's education reform by examining the effectiveness of implementation of a comprehensive school sector reform program (SSRP) using an interdisciplinary framework and a mixed-methods research design. Previous evaluations of the reform conducted by the government and participating donor organizations suggest that the reform has been mostly successful. Their conclusions are based on factors such as improved infrastructure, growth in the number of schools, access to education, and increasing youth and adult literacy rates (Khaniya & Williams, 2004). The government and donor organizations perceive, based on these factors, that the education system in Nepal is undergoing a potentially successful major reform. Nonetheless, as scholars and researchers trained in critical analysis, we should always ask ourselves if these reports are sufficient to contend that the reform was effective. Gauging at access to basic education and gradual improvements in input allocation (teachers, schools, infrastructure and so on) can make the reform look effective. However, there is no clear evidence of success yet if we focus on broader outcomes such as learning gains, teacher capacity, life-skills improvement, and geographical and gender equity in education. This situation compelled the researcher to question the rationale for investing heavily on a large-scale reform with such meager learning gains and student achievement. Furthermore, to the best of my knowledge, there was not a single study that has conducted an independent, critical examination of SSRP prior to this study.

Given this background, this dissertation addressed the gap in the current literature on education reform in Nepal. In addition, the findings of this study have implications for future education research and policy implementation. The theoretical framework, methodology, and findings of this study can be used to inform future analysis of small and large-scale education programs by academic researchers, consultants, governments and donor organizations. Academic researchers may find the theories and methods used in this study highly relevant in analyzing similar reforms and programs in education and beyond. Consultants working in the education sector can take parts of the study relevant to them and consider the findings in reviewing and re-evaluating their own programs. Governments and donor organizations can learn from this analysis to base their assessments on initial program objectives and analyzing overall effectiveness instead of focusing on basic status reporting with limited focus on broader implications of the reform.

This study also has implications for policy at the national, district, and local levels. With the help of the conceptual framework discussed in this study and its implications on the findings, national policy makers can ground future policies in appropriate framework to ensure achievement of desired outcomes. Findings of this study can reinforce the need for policy makers to assess a range of possibilities and estimate the consequence of each alternative before introducing a policy. Similarly, policy makers can reassess levels of support for the reform program and boost status or create supplementary programs that aid the success of current and future reforms. They can also use the study findings to increase their awareness of dynamic changes in the school sector. Implementers at the district and

local levels can learn from the findings on program coherence and interaction and meaning sharing activities to improve implementation efforts. Policy makers and implementers can collaborate to improve program coherence and find innovative ways to increase interactions for effective policy implementation.

APPENDIX A: INFORMED CONSENT FORM

INTERVIEW and AUDIO-RECORDING CONSENT FORM

Lost in Translation: Understanding Education Policy Implementation in Nepal

The purpose of this research project is to explore various stakeholders' perspectives on the factors affecting and influencing the implementation of Nepal's national education reform – the School Sector Reform Plan (SSRP). If you decide to participate in this research project you will be asked questions about your perspectives and experiences relative to education reform implementation in Nepal. The interview will take approximately 45 to 60 minutes. Please read this form and feel free to ask questions any time something is not clear.

The interviews will be digitally recorded. The audio files will be transcribed professionally. Information gathered for this project will be stored on a secure, password protected server and only the researcher will have access to the data. Transcripts of your interview may be reproduced in part for use in presentations or written products that result from this study. Neither your name nor any other identifying information (such as your voice) will be used in presentations or in written products resulting from the study. **Therefore, the information you will provide for this study will be kept confidential.**

The decision whether or not to take part in this study is voluntary. You may terminate this interview at any time should you feel it necessary to do so and you may choose to have the audio file erased if you wish to withdraw your consent to recording. You may also pass on any questions that you wish not to answer, or let the interviewer know if there are any subjects that you do not want to discuss. The risk or discomfort you might feel from participating in this study is minimal consisting mainly the time spent in the interview.

You have the right to ask questions about this research before you sign this form and at any time during the study. If you have any questions or concerns about your rights as a research participant, please contact a representative at the Review Board (IRB), at the University of Massachusetts, Boston. The IRB at the University of Massachusetts Boston watches over projects that gather information from people. The IRB may be reached at the following address: IRB, Office of Research and Sponsored Programs, Quinn Administration Building, University of Massachusetts Boston, 100 Morrissey Boulevard, Boston, MA 02125-3393. Or you can contact the Board by telephone at (617) 287-5370.

I HAVE READ THE CONSENT FORM. MY QUESTIONS HAVE BEEN ANSWERED. MY SIGNATURE ON THIS FORM MEANS THAT I AGREE TO PARTICIPATE IN THIS STUDY. I ALSO CERTIFY THAT I AM 18 YEARS OF AGE OR OLDER.

Signature of Participant	Date	Signature of Researcher
Typed/Printed Name of Participant		Typed/Printed Name of Researcher

APPENDIX B: INTERVIEW PROTOCOL

Introduction:

Thank you for agreeing to participate in the interview process. Today, we will be talking about your perceptions of implementation of the School Sector Reform Plan (SSRP). I will be digitally recording our conversation today, as well as taking some notes. All of your answers will remain anonymous and you have the option to discontinue the interview at any time. Please sign the consent form to indicate that you have given me permission to use this interview as a component of my research for my dissertation at the University of Massachusetts Boston.

I chose to speak with you today because you are a _____ in Kathmandu Valley and directly or indirectly involved in the implementation of SSRP. I am interested in investigating stakeholder perceptions of the implementation of SSRP at the _____ (national/regional/district/grassroots) level in Nepal. I would like to better understand your perception of the reform. Thus, there are no right or wrong answers. I just want to hear your stories, understandings, and viewpoints of the issues, realities, and changes.

Today we are going to discuss the implementation of SSRP in your school. When I mention SSRP, I am suggesting the national reform that was introduced by the government

of Nepal in 2009 and ended in 2016. Its goal was to restructure school education, improve the quality of education, and institutionalize decentralization and performance accountability. It also aimed to improve access to education and enhance effectiveness of the delivery of services in the education sector. As a _____ you were directly or indirectly a part of SSRP implementation. That is why I would like to talk to you about your perception, beliefs, practices, and experiences with SSRP.

Study Themes	Guiding Questions	Sub-Questions	Theoretical Linkage
To begin this interview, I would like to ask you some questions about your background in this organization.			
Background Questions	*For principals and teachers*: What subjects and grade levels do you teach? *For government officials*: What is your role in this organization?		
	How long have you been working at this organization?		
	For teachers: Do you have any other roles at this school in addition to being a classroom teacher?	Are you a department head, sports coach, or a school management committee representative?	
Thank you for your responses. I would like to now ask you questions regarding your understanding of and experiences with SSRP.			
Individual actors and policy cognition	Let's begin by talking about your experience with the implementation of the School Sector Reform Program (SSRP) at your organization. Please describe what SSRP	• Since the introduction of SSRP in 2009 (or since the time you started working in this organization), what kind(s) of change(s), if any, have you noticed within your organization?	Policy cognition: how implementing agents understand and make sense of policy (Coburn, 2001; Spillane,

	looked like at your organization.		Reiser, & Reimer, 2002).
	What do you see as the main goal of implementing SSRP in your organization?	• Do you think all stakeholders in your organization share the same goal(s)? Why or why not? • Tell me about the time you faced conflict in your organization about setting goals under SSRP.	Preferences and goals differ from person to person and understanding of these differences across actors is an important part of understanding implementation (Loeb & McEwan, 2006).
	Tell me about your involvement in decision making about your organization's goals under SSRP.	• Do you believe that your feedback and voice is valued by other members of your organization? • Tell me about the support you received or did not receive from leader(s) in your organization over the last few years.	Policy implementation is a "dynamic political process that affects and reflects the relative power of diverse actors" (Malen, 2006, p. 85).
Thank you for sharing information about your understanding and experiences with SSRP. I would like to now ask you a few questions about your experiences working with other organizations and your professional development under SSRP.			
Co-operation within and between organizations	Tell me about your experiences working with the government/other education support organizations/schools over the last few years.	• *For principals and teachers*: Tell me about the support you received or did not receive from the government over the last few years. • *For government officials*: Tell me about the ways in which you supported schools under SSRP.	While actors at all levels contribute to policy implementation, access to resources and use of power are determined by an actor's position in the

			system (Levin & Datnow, 2012).
	Tell me about your experience with collaborative learning activities within your organization and with other education support organizations including government and nonprofits.	• What kinds of training and professional development activities have you participated in the last few years?	In education, organizational learning occurs when individuals engage in and learn through socially embedded activities, practices, and behaviors (Higgins et al., 2012).
	Please share about your experience participating in important planning activities within your organization.	• In the last year, how frequently did you meet with your organization's leaders to plan budget and strategies for your organization's goals under SSRP?	In education, organizational learning occurs when individuals engage in and learn through socially embedded activities, practices, and behaviors (Higgins et al., 2012).
	Please share about your experience participating with district/ regional/national government/schools in important planning activities for your organization.	• In the last year, how frequently did you meet with leaders from other organizations and government officials to plan budget and strategies for your organization's goals under SSRP?	Social capital goes beyond collective learning and emphasizes open communication, mutual assistance, and joint

			accountability that result from social trust (Smylie & Evans, 2006).
Thank you for sharing your experiences working with other organizations and learning experiences under SSRP. The next set of questions are focused on getting to know more about financial and human resource allocation in your school/district/region/organization.			
Resource allocation and its effects on educational outcomes	Please share your thoughts on your organization's financial resource allocation.	• For school level actors: How sufficient was the funding allocated to teachers, teaching materials, classrooms, transportation, training and professional development, and technology in the last five years? • For government actors: How sufficient was the funding allocated to employees, districts/regions/education sector, training and professional development, and technology in the last five years?	There are disparities within and between schools and districts in terms of equity in the distribution of financial resources (Cooper et al., 1994).
	Please share your thoughts on your organization's human resource allocation.	• How knowledgeable and skillful are colleagues and leaders in your organization? • Overall, does your organization have sufficient human resources to provide quality education/support the provision of quality education?	There is consistent evidence of lack of equity in the distribution of teacher resources in terms of gender and community characteristics (Iatarola & Stiefel, 2003). Many studies

			point to the importance of national and local policies in advancing equitable allocation of human resources across schools and districts (Baker, 2003).
My final set of questions focuses on learning more about your experiences with the collection and management of student outcomes data in your organization under SSRP.			
Measuring student outcomes	One major aspect of SSRP was improving mechanisms to collect student data from districts and schools. Please share your thoughts on your organization's efforts to collect and manage data in the last five years.	• What kind of data does your organization collect from students? How frequently? • What system/software do you use to manage data in your organization?	
	How does your school/district/organization use data to measure student outcomes?	• Tell me about your experience using student enrollment, dropout, promotion, and academic performance data to inform decisions in your classroom in the last five years.	
Thank you for sharing your experiences working with student data. I would like to hear your final thoughts on how to ensure successful implementation of national reforms at the local level and conclude this interview.			
Closing question	What suggestions would you give policy makers to ensure successful implementation of future education reforms in your		

	classroom/school or district/region?		
Before we conclude this interview, is there something about your experience in this organization that you think influences how you perceive SSRP that we have not yet had a chance to discuss?			

APPENDIX C: GRAPHS OF INTERRUPTED TIME SERIES ESTIMATES BY SCHOOL LEVEL

Figure A1. Change in dropout rates, pre- and post-SSRP: Primary school

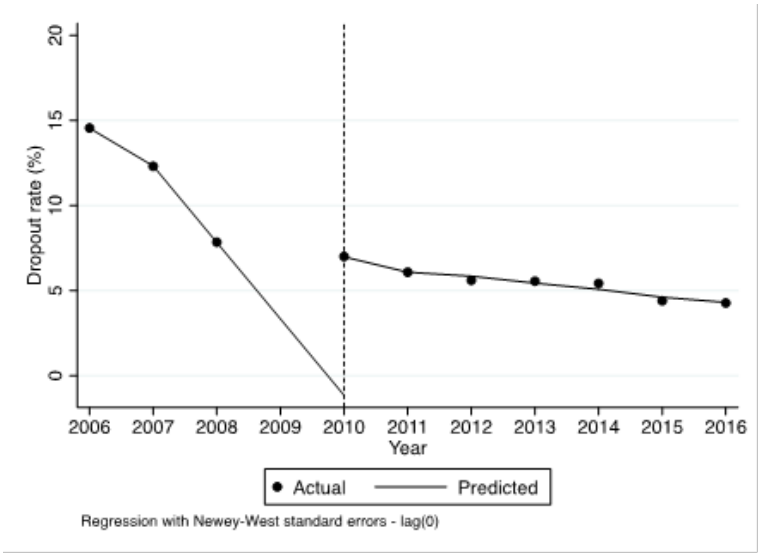


Figure A2. Change in dropout rates, pre- and post-SSRP: Lower secondary school

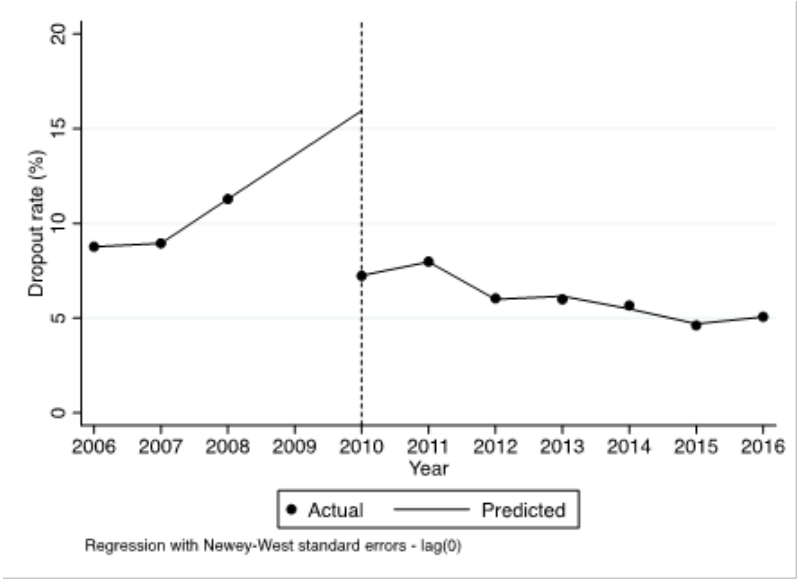


Figure A3. Change in dropout rates, pre- and post-SSRP: Secondary school

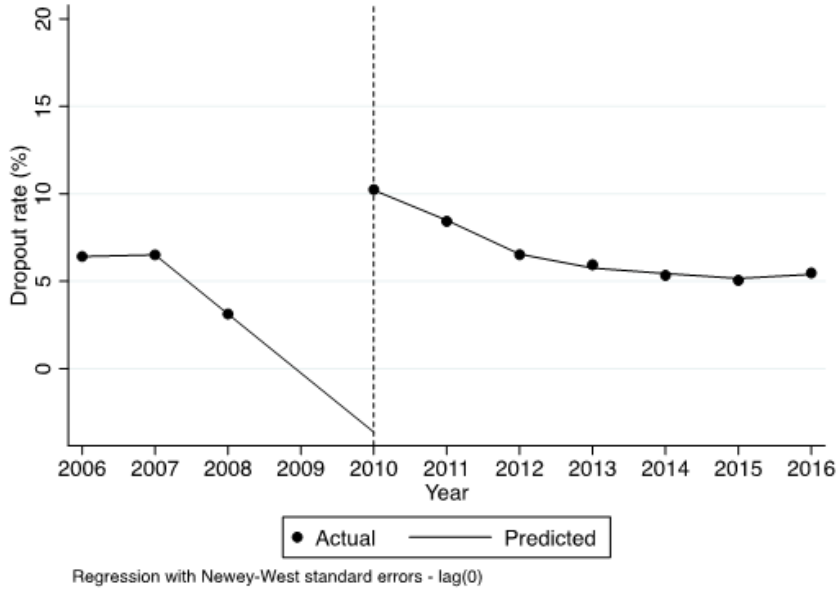


Figure A4. Change in promotion rates, pre- and post-SSRP: Primary school

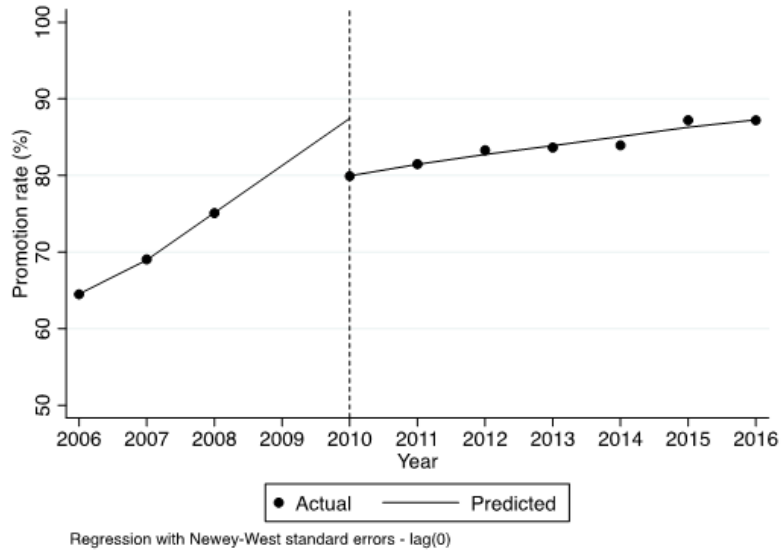


Figure A5. Change in promotion rates, pre- and post-SSRP: Lower secondary school

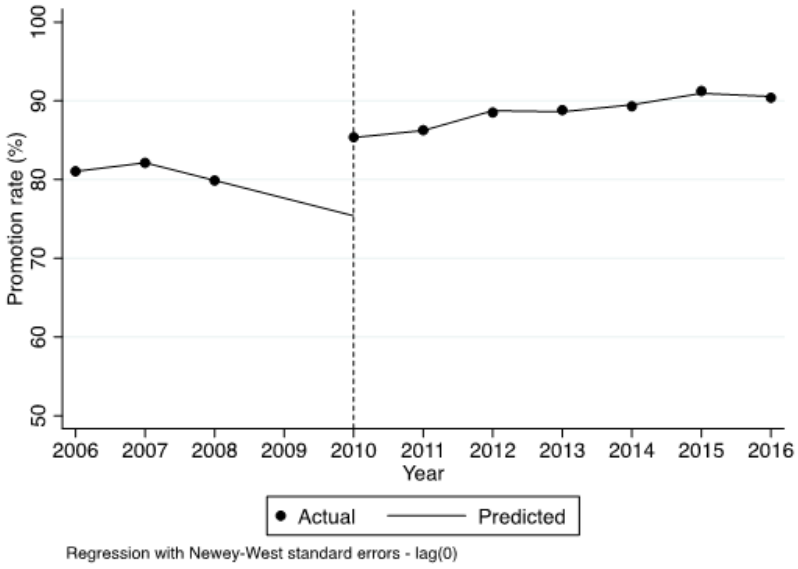
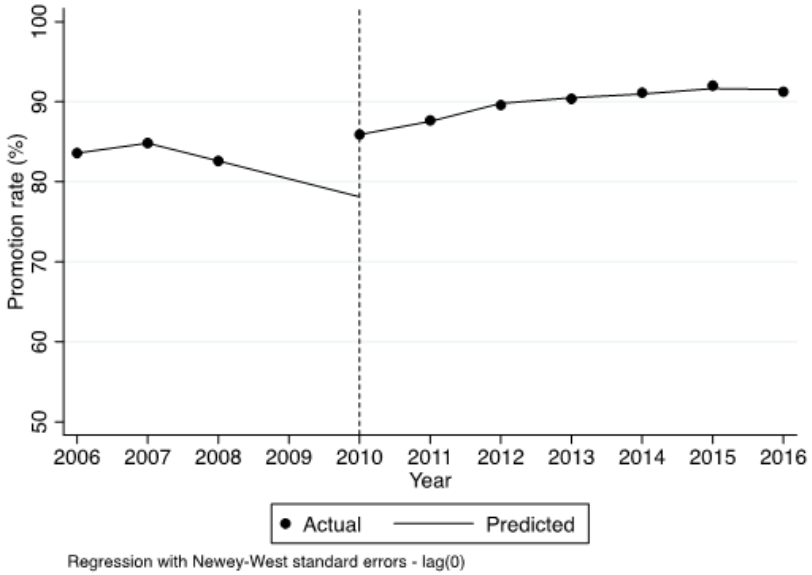


Figure A6. Change in promotion rates, pre- and post-SSRP: Secondary school



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