ESSAYS ON CO-PRODUCTION, SOCIAL EQUITY, AND ADMINISTRATION OF

SCHOOLS

BY

MERIL ANTONY

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Dr. Gregg G. Van Ryzin

And approved by

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ABSTRACT OF THE DISSERTATION

Essays on Co-production, Social Equity, and Administration of Schools

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Co-production theory has been defined as the process by which organizations and individuals contribute to providing a good or public service that betters specific outcomes. This dissertation probes four different research questions related to understanding the co-production process in the schools. These questions are grounded in organizational theory and new public management literature, specifically organizational support, social equity, and new public service.

The first essay explores the key stakeholders, antecedents, factors, and barriers influencing the co-production process between schools and parents. Using a systematic literature review, the findings identify the key stakeholders (school, parents, community); antecedents of the co-production process (socioeconomic, cultural, social, linguistic, and institutional capital), and influence of individual level traits (social justice traits).

Using organizational support theory and path analysis, the second study used nationally representative teacher survey to examine the influence of organizational support on teacher and student outcomes. The results show support to teachers, training opportunities, and access to instructional materials improved teacher effectiveness and satisfaction with school, student learning and participation, and reduced teacher burnout.

The third essay examines the effects of parent-initiated co-production efforts with schools on student grades. The study used a pooled cross-sectional parental perception

survey and propensity score weighting for analysis. The results indicate social and cultural capital, and schools' own co-production efforts act as positive moderators between parents' co-production efforts and student grades.

The fourth essay examines whether school leaders' resonance with social equity influences administrative discretion in the workplace and school effectiveness. The study found no relationship between principals' resonance with social equity and school effectiveness using an original survey of New Jersey principals. However, schools that showed more evidence of substantive and procedural equity indicated more administrative discretion. The qualitative analysis showed that school leaders need more inter and intra-organizational support to help implement equitable and an inclusive school environment.

The results provide conceptual and empirically proven tools and measures to understand better co-production at the individual and organizational level. These findings enrich our current workings of co-production theory and provide public service organizations with apparatuses to implement programs and policies that manage such processes.

DEDICATION

To Dad,

For then, now, and forever

ACKNOWLEDGEMENT

This dissertation would not have been possible without the support, love, and encouragement of my father, Antony, and my mother, Elizabeth. My brother and sister-in-law, Austin and Melanie, friends and family, who provided unwarranted laughter and support in the fun and difficult times. My four-pawed human Trey who made sure I explored Lake Michigan and got a semblance of work-life balance.

Finally, my husband, Arvind, my partner, supporter, and everything in between, thank you for being there at every step of the journey. Thank you for believing and dreaming big for me, even when I doubted myself. Without your jokes, laughter, and love, this dissertation would not have happened.

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1. Introduction

In the last two years, the Covid-19 pandemic disrupted people's lives and work, re-configured administrator-personnel dynamics, and resulted in systemic changes, including in the public sector. In the schooling context, one of the most significant shifts in dynamics happened between school personnel and parents. As schools shifted to remote instruction in early 2020, the inter-dependency between different stakeholders became even more paramount. Parents became providers for the physical space, and physical and internet-based resources, while school administrators, including principals and teachers, had to re-work the curriculum and find alternative ways to continue teaching the curriculum. This dissertation's motivation is to re-think the school administration-parental dynamics from a public service organizational paradigm. Over the last decade or so, research on the public service paradigm has utilized co-production theory to reflect the emergence of the design and delivery of public services comprising public agencies, citizens, voluntary and non-profit organizations, and private stakeholders. The dissertation asks how such external forms of organizational collaborations lead to better outcomes, either at the stakeholder or organizational level.

This enquiry is guided by the theory of co-production of public services developed by Elinor Ostrom. Ostrom defined co-production as "the process through which inputs used to provide a good or service are contributed by individuals who are not in the same organization" (1996, p.1073). Co-production of public services implies that different

actors, such as citizens and public service professionals, contribute inputs to the production process (Ostrom, 1996). In the schooling context, however, wide variation exists in understanding the school-parent relationships, which have been researched extensively in the disciplines of sociology and education. Empirical research in these fields has shown that family-school engagement practices lead to healthier relationships among students, parents, teachers, and school administration both at school and home (Epstein et al., 2002; Gardner, Hutchings, Bywater, & Whitaker, 2010). Nonetheless, a wide disparity in school-engagement practices exists based on social class and race-based stratification (MacLeod, 2018; Aronson, 2008; Weis, Cipollone, & Jenkins, 2014, Lewis & Diamond, 2015).

One approach to understanding such variation in school-parent engagement is through co-production theory. Much of the early co-production literature focused on improving the quality and efficiency of public services (Parks et al., 1981, Percy 1984), supported by empirical evidence (Brudney, 1984, Marschall, 2004). However, limited research exists on the underlying factors that might constrain or reward citizens' participation in the co-production process.

Furthermore, the education literature has valued and emphasized 'parents' at the forefront of decision-making and engagement, while schools facilitate increased parental engagement (Gofen & Blomqvist, 2014). Education and sociological theories point to Epstein's (1987) model of overlapping spheres of influence of families and schools on student learning, emphasizing the collaborative effort of home, school, and community in supporting a student's learning and development. This model heavily utilizes school-centered partnerships, driving the school-parent and parent-teacher relationship. However, the co-production of public services assumes that the citizen is informed and, hence, can

make informed decisions (Tarko, 2016). There is wide variation in parental knowledge regarding possessing certain pre-existing conditions, such as social and cultural capital, facilitating increased co-production; schools also must make the necessary efforts by providing information and reducing barriers to co-production (Jakobsen & Anderson, 2013). Hence, parent's and student's motivation and capacity to co-produce are dependent on a variety of factors such as intrinsic motivation, peer pressure or social affiliation, relative perceptions concerning parental engagement, perception of a reward or sanction when co-producing; or the ability for decision making (Alford & Yates, 2016). Studying these factors that enable or constrain co-production could be a key to empowering the relevant stakeholders and, in effect, improving the efficiency and effectiveness of public services.

2. Roadmap of the Dissertation

One of the main limitations of co-production in schooling literature is the limited examination and acceptance of schools as public service organizations by merely looking at the individual level dynamics within a school. The vast literature encompassing school-parent-student dynamics is rooted in individual-level decisions and the power dynamics between the different stakeholders. Albeit true, this line of thought downplays the influence that schools as organizations have on such dynamics. By utilizing co-production theory as the overarching framework, the research from the dissertation argues for potentially establishing an inter-linkage between public administration and sociology of education literature in understanding the complex dynamics within a school setting.

Conceptually, under the umbrella definition of co-production theory, there is much to be unearthed- especially the mechanisms preceding and during the co-production process. In the education setting, research on co-production has focused on the individual level, ranging from specific types of co-production intervention. However, realistically, schools as public service organizations have the potential to understand the underlying organizational processes better and put supports in place to sustain such co-production mechanisms over time.

As Elinor Ostrom's theory of co-production evolved from 'governing of the common's (Sánchez & Medina, 2022), prior research has predominantly focused on individual choice and decision-making. However, co-production literature has also produced evidence linking the importance of parental involvement in school-based decisions for their child. Nevertheless, this dissertation's research expands on individual co-production efforts by analyzing the influence of different socio-economic-cultural mechanisms and how they influence the outcomes. The dissertation argues to go beyond the demographic characteristics in understanding socio-cultural mechanisms' influence on school-parent co-production efforts and how much power dynamics would impact student and school organizational level outcomes.

Another limitation of co-production in schooling literature is the lack of understanding of the individual-level attributes such as social justice leadership traits, public service motivation, or individual well-being, and how they affect individual and organizational outcomes. In this dissertation, the author de-knots a few of these conceptual ambiguities by utilizing quantitative methods using both secondary data and the original survey design. Furthermore, by conducting a systematic literature review, the dissertation

provides specific conceptual findings that were tested empirically and have the potential for future studies, linking to sustaining co-production by identifying schools as public service organizations.

Theoretically, the work from the dissertation contributes to the already extensive parental engagement literature in the education and sociology discipline. First, with a more conceptually clear understanding of the co-production mechanisms, the dissertation has the potential to link the individual-level dynamics to the organizational level. Secondly, the research helps to link the organizational support theory to co-production literature; by relying on survey data and systematic literature review, this approach has helped to empirically probe the antecedents of co-production mechanisms and their influence on individual-level well-being. Moreover, by focusing on sustaining the co-production mechanisms over time, the dissertation provides credible evidence for understanding the motivational factors in decision-making at the individual and organizational levels. Finally, testing the social equity resonance at the individual and organizational level, to which currently co-production literature has not been directly linked, also provides empirical findings that could shape future studies around some pertinent public administration questions.

2.1. Study 1: Systematic review of the literature

Q1. What types of co-production efforts exist in a school settings? And what factors or mechanisms shape the success of these efforts?

In Study 1, the author has utilized a systematic literature review to identify the precise mechanisms that will help answer how co-production can be sustained over time

and by different stakeholders such as parents, school leaders, students, and other inter-working organizations in place. A previously conducted systematic literature review by Honingh et al. (2020) focused on co-production theory in primary school settings by concentrating on the school's primary activities in facilitating the co-production process with other stakeholders. In this dissertation, the aim is to expand on the previous literature review by focusing on all levels of schooling. Using PRISMA (2020) guidelines for conducting a systematic literature review, Study 1 outlines the importance of stakeholders initiating co-production efforts, the antecedents for initiating such process, the societal barriers, and public service motivations and traits required to sustain the process over time.

2.2. Study 2: Organizational support and its effects

Q2. What is the perceived impact of different types of organizational support on school personnel work and well-being outcomes?

In Study 2, the author examines the influence of organizational support factors such as support to teachers, training opportunities, access to resources, and instructional materials, on teacher and student outcomes. Specifically, the study examines the influence of different organizational support on teacher effectiveness and teacher satisfaction with the school. The study also tests for the influence of organizational support on student learning and participation. Using a cross-sectional survey of teachers in the U.S. conducted by RAND corporation in 2020, the study applies the theoretical framework of organizational support theory and sustainable co-production to study the school's organizational support measures during the Covid-19 pandemic and its influence on teacher burnout and subsequently teacher and student outcomes.

2.3. Study 3: School-parent relationships and socio-cultural mechanisms

Q3. How can school-parent relationships effect student grades and whether socio-cultural mechanisms moderate such effects?

In Study 3, the author examines the causal impact of parents' co-production efforts in school on student grades. While many studies in education and sociology discipline have studied the causal impact of parental engagement in school on student grades, few have discussed how school co-production efforts would further moderate these relationships. Thus, in Study 3, we utilized the Parent and Family Involvement Survey (PFI) conducted by the National Center for Education Sciences (NCES) for 2012, 2016, and 2019. Using the propensity score weighting approach, the study tested whether the presence of social capital, cultural capital, and school-initiated co-production efforts moderate the effect of parents' co-production effort in school on student grades.

2.4. Study 4: School leadership and equity

Q4. Can school leaders be equitable in their policy implementation?

Study 4 aimed to probe whether school principals resonate with different types of social equity (procedural, distributive, or substantive). In doing so, a study conducted a survey with school principals in New Jersey to test principals' responses to how they resonate individually with different types of social equity and whether they believe they have implemented the same in their schools. The study also tested whether school principals' resonance with any social equity led to more discretion in the school place and, subsequently, its effect on organizational level outcomes. The need for equitable social

policies has been studied and established in public administration literature. However, less is researched on whether the individual level resonance to equity reflects organizational level workings and implementation.

3. A Foreshadowing of Conclusions and Implications

As discussed in the final chapter, these four studies provide insights into stakeholder attributes while utilizing a co-production framework in a public service organization. In particular, these insights suggest the importance of specific individual-level attributes such as the presence of social and cultural capital among individuals influencing client and organizational level outcomes. Moreover, the dissertation provides attributes that help readers understand how co-production processes work in an organization. The systematic review chapter and the following empirical chapters comprehensively understand the co-production theory in a public service-oriented paradigm. These insights have several implications for policy and practice. The findings from the chapters would pave the way for a theoretical model incorporating contextual mechanisms in co-production processes, which have previously been studied in silos. By studying the influence of contextual mechanisms in juxtaposition with the co-production framework, the dissertation has the potential to implement policies that build into culturally responsive practices and social justice action plans.

Chapter 2 Sustaining Co-Production In Schooling: Systematic Review Of Literature

1. Summary

The applications of co-production theory have been widely debated and researched in the public administration, from both normative and empirical lenses, especially in education, policing, volunteerism, among other public services. Methodologically, the studies have delved into factors affecting co-production, including demographic and socioeconomic characteristics, motivational factors, and resource availability, or the characteristics of the policy context in which co-production is attempted, impact of coproduction on stakeholder equity, and "wicked problems" such as inequality and social exclusion (Vanleene et al., 2018). Within the schooling context, extensive evidence exists on the utilization of co-production theory to establish evidence around school choice and improve school-parent engagement. However, less is discussed on how co-production can be sustained between different stakeholders such as parents, teachers, school leadership, and other inter-dependent organization, working to better another stakeholder outcome: student outcomes. Using systematic literature review of 103 peer-reviewed research articles spanning across different disciplines, the study finds significant importance of parent-initiated and school-initiated coproduction efforts on student outcomes. Moreover, findings from the review suggest school-initiated efforts also percolated into stronger informal partnerships with the parents and community, with a concerted effort to build into all parents' and students' cultural beliefs and values. The study also identified five types of barriers that further exacerbate the co-production efforts, mostly initiated at the school

level- socioeconomic factors, cultural capital and social capital barriers, linguistic barriers, and institutional barriers that schools face. Findings from the review do suggest two specific traits among leaders that attenuate the co-production mechanisms between school and parents- school leaders with a social justice perspective and the importance of public service motivation among all the stakeholders. Lastly, the systematic review highlights how schools as public service organizations need to establish and sustain a more inter-collaborative arrangement between different institutions and its subsequent effect on student and school-related outcomes (Jaspers & Steen, 2020).

2. Introduction

The theory of co-production of public services arose in the late 1970s through Elinor Ostrom's work on common-pool resources and collective action problems, defined as "*the process through which inputs used to provide a good or service are contributed by individuals who are not in the same organization"* (1996, p.1073). Researchers (Parks et al., 1981; Percy 1984, Sharp 1980, Jakobsen, 2013, Osborne & Strokosch, 2013) have since identified co-production within the realm of the varying role of citizen engagement, with an overarching emphasis on the inter-dependency between citizens and public service agents.

In the education sector, schools are critical influencers on parents' involvement, fostering strong links with parents by being more communicative, making them feel welcome at school, and being involved in children's education (Hoover-Dempsey et al., 2005; Epstein, 2001). These efforts also have substantial benefits for students. For example, helping students with homework or reading are examples of parents' co-

production behavior (Jakobsen, 2013; Jakobsen & Anderson, 2013; Pestoff, 2012). Against this backdrop, the author presents the results of a systematic literature review of co-production efforts in the schooling context and the evidence or lack of, in identifying the barriers or conditions affecting co-production efforts initiated by different stakeholders. The review also aims to shed light on building more equitable partnerships with non-dominant families, schools, and communities.

This chapter will address two research questions: *What types of co-production efforts exist in a school setting? What factors influence different types of co-production efforts?* These questions have implications on who initiates co-production in a school setting. With the onset of Covid-19 pandemic, there is new evidence highlighting the need to re-analyze the pre-cursors of the co-production process and identify the key players who will need to co-produce together to better policy outcomes. Moreover, while co-production theory has been well-outlined in the primary school context, this chapter extends the review conducted by Honingh et al. (2020) by analyzing evidence that incorporated co-production processes at different levels of schooling. Lastly, the review attempts to bridge the co-production literature that prominently exists as school engagement and parental involvement in sociology, mental health, and other sub-disciplines with public administration research.

3. Literature Review

Ostrom's initial definition of co-production focused on the joint participation of citizens and officials for implementing public services. Researchers (Parks et al. 1981; Percy 1984; Sharp 1980; Jakobsen, 2013) have since identified the role of citizen in the co-

production process, i.e., citizen participation and engagement in the production of public services. Further research by Brandsen & Honingh (2013) & Boviard et al. (2015) delineate citizen co-production into individual or collective efforts, signaling the role of community efforts, defined as an equal and reciprocal relationship between service users, professionals, and the greater community, also referred to as community co-production (Nesta 2011; Bovaird 2007). Scholars have also decomposed co-production into various stages, such as production, delivery, design, assessment, participative, or being more innovative (Nabatchi et al. 2017; Osborne & Strokosch 2013; Osborne, Radnor, & Strokosch 2016). Among these scholars, Boviard et al.'s (2013) conceptual approach to co-production involved two parameters: inputs to co-production and the benefits of co-production to differentiate between individual and collective co-production, developed by other authors. While significant strides in research have provided a more clearer and umbrella definition of co-production theory, it remains to be understood how different stakeholders implement coproduction, and whether they are influenced by their socio-cultural mechanisms, and what effects it would have on potential outcomes.

Research from other disciplines such as education and sociology also point to varied factors that affect the interactions between stakeholders such as school personnel and parents. One of the most studied factors is the influence of social class, especially among school personnel, such as teachers and administrators. Bourdieu & Passeron's seminal work (1990), *Reproduction in Education, Society, and Culture*, introduces the concepts of 'cultural capital' and 'social capital' to recognize the rising school inequalities by observing the differences in cultural and social characteristics of individuals and groups that are a reflection of social class position. Studies thereafter have broadly defined 'cultural

capital' around critical aspects of family life: time use, language use, and kin ties (Lareau 2002). Social capital is also defined by social networks and the social ties with individuals who have access to highly valued resources. The volume of social capital possessed by a given child/parent depends on the size of the network of connections a student/parent can effectively mobilize.

As a result, theoretical and empirical evidence is required to ascertain whether coproduction efforts initiated by parents can be influenced by different forms of human capital or individual resources. This is also important because, for a long time, schools were defined within a traditional provider-centric model where user participation was not emphasized. The traditional model of public goods like education delivered by public servants such as teachers and school administrators made the relevant user a passive beneficiary, with no voice or sense of participation (Brandsen & Honingh 2018). However, with a shift in a paradigm from traditional public administration to new public service, there is a higher demand for active citizen participation to promote more collaboration in implementing the public service.

Thus, using a systematic review, this chapter aims to conceptualize the different types of co-production in the schooling context, with a focus on the processes and influences around coproduction efforts. Understanding this variation is even more critical as low-income schools are more likely to face challenges in getting school leadership, staff, and the community to work together towards a shared education vision (Fung 2009). As a result, when schools reflect the class and race-based narratives of the larger society, they contribute disproportionately to the lower educational attainment outcomes experienced by students from minority and disadvantaged groups. (Carter 2003; Berkowitz et al. 2017;

Lareau 2011; MacLeod 2018). Therefore, it is essential to identify the impact of organizational barriers in a school's co-production efforts.

The answers to these research questions are relevant to public administrators, given the increased importance placed on the relevance of organizational support, and its influence on organizational outcomes. Second, the review provides a concrete outline of the different mechanisms that may exist before, during, or after initiating the co-production process between stakeholders.

4. Methodology

A systematic review of literature will be utilized to address the broad research questions *What types of co-production efforts exist in a school setting? What factors influence different types of co-production efforts?* Unlike a traditional literature review, a systematic review will identify all relevant literature through an explicit search strategy and selection. Such systematic reviews are popular in the sociology and education field and have gained similar momentum in public administration (Voorberg et al., 2015; Honingh et al., 2020).

The search strategy for this review will be developed based on Honingh et al. (2020) & Voorberg et al. (2013). The review also utilizes the PRISMA guidelines, which are more fitting for the review. Moher et al. (2009) differentiate between PRISMA and QUOROM regarding the systematic review checklist, where PRISMA differentiates between study eligibility and report eligibility criteria. According to Moher et al. (2009), study eligibility criteria include the type of participants (citizens, parents, organizations) and type of study design. Report eligibility criteria include the language in which the report/article was

written and the type of report (journal article, book, dissertation, etc.). The following search criteria will be utilized (adapted from Voorberg et al., 2013).

4.1 Study eligibility criteria

Types of studies: The studies should discuss co-production and the role of citizens in an education context, the inter-relationship between co-production and schools and parents and specific barriers to co-production: social capital, cultural capital, and race.

Topics: Abstracts and/or title should contain one or more of the following keywords: co-production, schools, involvement, partnership, participant, education, school, social capital, cultural capital, race; AND parents or parental involvement

Type of participants: The study will include citizens, parents, school administrators, teachers, and guidance counsellors.

Study design: All types of empirical design such as questionnaire, case studies, experiments, interviews will be included. Theoretical or review articles will be excluded.

4.2 Report eligibility criteria

Language: Only publications written in English will be included in the review.

Type of publication: Only peer-review journal articles, books & book chapters from academic publishers (Routledge, Oxford University, Edward Elgar, Wiley & Sons, Cambridge University, Harvard University), and dissertations included in the ProQuest database will be included.

Year of publication: All publications from year 1981 up until 2020 will be included in this study. 1981 was chosen as the starting point because it includes Elinor Ostrom's seminal

work on co-production, upon which most present studies on co-production have been written.

Reference paper: Parks, R. B., Baker, P. C., Kiser, L., Oakerson, R., Ostrom, E., Ostrom, V., ... & Wilson, R. (1981). Consumers as coproducers of public services: Some economic and institutional considerations. Policy Studies Journal, 9(7), 1001-1011.

4.3 Search Strategy

This systematic review will be an addition to the review presented by Honingh et al. (2020) & Voorberg et al. (2013), by expanding the review to middle and secondary school analysis and further examining the evidence to identify the different factors constraining the co-production efforts by school and parents. Three different initial strategies were used. First, three electronic databases namely Proquest, ERIC, and Web of Science (WoS) were searched in April 2021 using the following Boolean search query-

co-production AND ((school OR social capital OR cultural capital OR race) AND (parent OR parental involvement))

The search generated 784 results (711 in Proquest, 45 in ERIC, and 28 in WoS). The second initial strategy included the reference papers from the most recent systematic literature review. Honingh et al. (2020) article included 62 reference articles in the sample. The final initial strategy was also a manual search in top public administration journals: *Public Administration, Journal of Public Administration, Research and Theory, Public Administration Review, Public Management Review, and Journal of Policy Analysis and Management.* This last step was conducted to ensure that peer-review articles that publish high-quality research from the public administration discipline be included in the

review. The manual search resulted in 404 articles among the top five public administration journals.

4.4 Review method and coding

The search strategy for this review will be developed based on Honingh et al. (2020) & Voorberg et al. (2013). The study also utilizes the PRISMA guidelines, which are more fitting for the review. Moher et al. (2009) differentiate between PRISMA and QUOROM regarding the systematic review checklist, where PRISMA differentiates between study eligibility and report eligibility criteria. According to Moher et al. (2009), study eligibility criteria include the type of participants (citizens, parents, organizations) and type of study design. Report eligibility criteria include the language in which the report/article was written and the type of report (journal article, book, dissertation, etc.). The following search criteria will be utilized (adapted from Voorberg et al., 2013).

The author followed the PRISMA guidelines to review the final 1250 articles collected from the databases and manual search (Figure 2.1). The first step involved removing duplicate records or records not written in the English language. It resulted in the removal of 30 articles, resulting in 1220 articles for the screening process. The second step of the screening process included removing articles based on title and keywords which did not match the criteria mentioned above. The resulting articles left for retrieval were 352. The third step included retrieving the research articles for the further screening process. After excluding the articles which were unable to retrieve (22), 330 articles were further examined based on their abstract and fuller text. Finally, 103 articles were included in the systematic literature review.

The review also utilized the data extraction checklist as recommended by PRISMA and utilized in other reviews. The data extraction used an inductive methodology, whereby extraction items did not follow any pre-identified categorization. Instead, the extraction items (Table 2.1) outline the different definitions of parental involvement at school, home, or school's co-production efforts and the kind of stakeholder inter-relationship addressed in the articles.
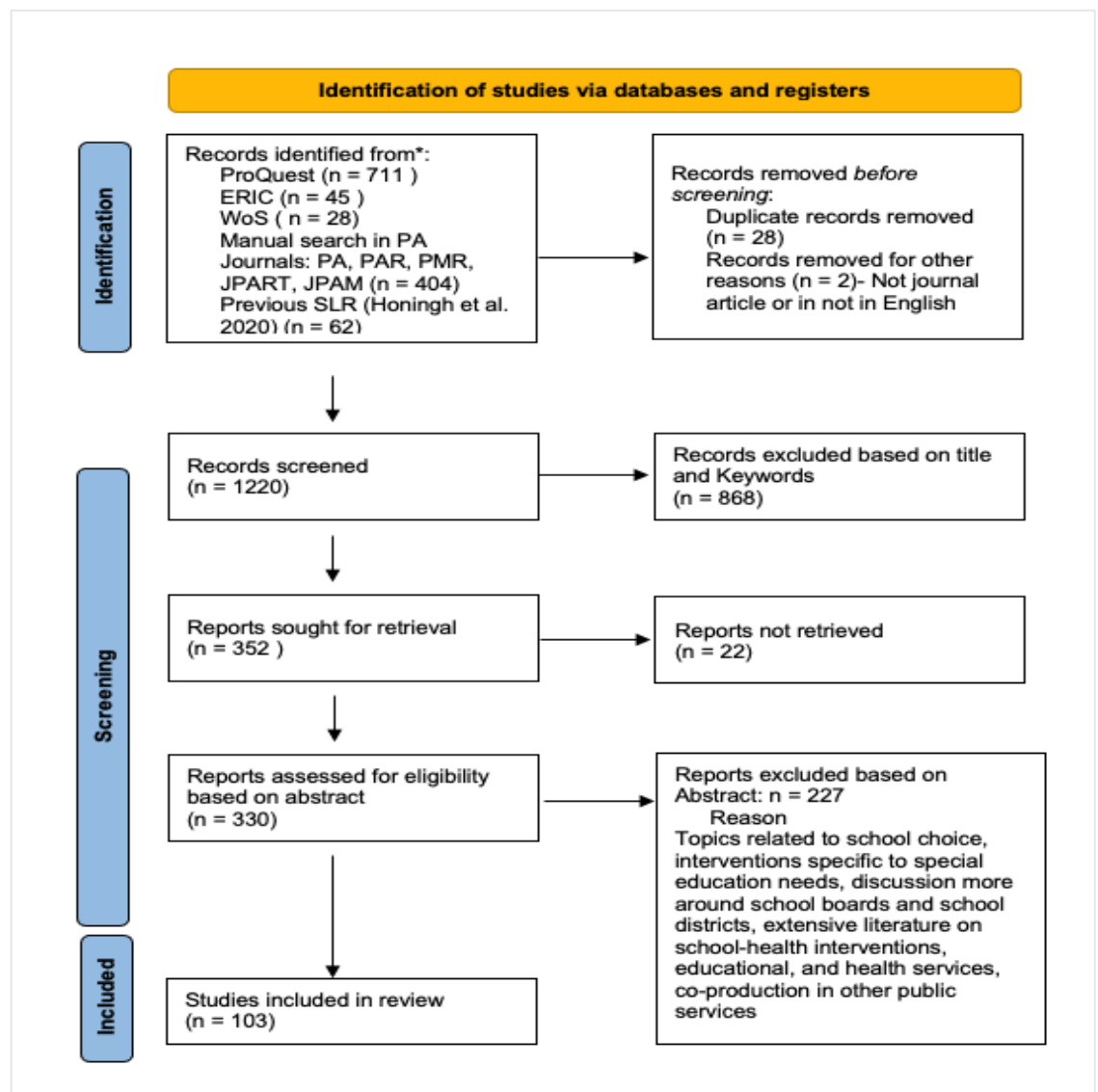
Figure 2.1 PRISMA guideline and checklist

Table 2.1 Extraction checklist

Category	Explanation
Basic Information	Author's name, publication year, journal name
Keywords	Extracted from the introductory text of article
Country in Sample	Identified and extracted from the article
Research Method	Each article was categorized into three types, those utilizing empirical designs, theoretical design, or utilizing policy review or discussion. Among the empirical designs, the articles were further categorized into quantitative, qualitative, or mixed-method research design.
Research Questions	The research questions are extracted from the abstract or the introduction or research gap section of the article.
Types of co-production	The types of co-production were extracted after reading the whole article, and outlining involvement with parents, with schools, and any other stakeholder, and specific interventions outlined in the article.
Prerequisite for co-production efforts	The prerequisite of co-production efforts was extracted from the findings of the articles which were not covered in the assumptions, historical perspective, or under other themes utilized in the review.
Factors affecting co-production efforts	The review extracted the factors by outlining the following themes in extraction checklist- any assumptions about the study or study context; any historical perspective identified in the study; influence of social capital; influence of cultural capital; influence of racial categories; and any others, not already outlined in the literature review.
Type of outcomes	The review outlined the outcomes studied in the article and further categorized into student-based outcomes, school-based outcomes, and other outcomes.

5. Analysis

5.1 Countries researched in the sample

Overall, 19 countries were analyzed in the sample. Among them (Table 2.2), most of the research was concentrated in North America, with a focus in the US being 58.2% or 53 out of 103 research articles, followed by 3 articles based out of Canada and one focused in Mexico. The second highest region studied in this sample is UK (11 articles) followed by Europe (10 articles). The remaining set of articles were spread between Australia (4.4%), Africa (3.3%) and Asia (3.3%). Thus, the research concentrated in the USA, UK, and Europe is similar to what is being seen in the previous review papers. One possible reason for this outcome could also be due to the search eligibility being reduced to the English language written articles only.

Table 2.2 Countries in sample

Region in Sample	Number of Studies	Percent
North America	57	62.6%
Britain	11	12.1%
Europe	10	11%
Australia	4	4.4%
Africa	3	3.3%
Asia	3	3.3%
Multiple Nations	2	2.2%
Total	90	100%
Not Specified	13	-

5.2 Journal publications

The 103 articles reviewed in this chapter were published in 65 peer-reviewed journals. Among the 103 articles, 32 articles were produced in high-ranking public administration journals, with most concentrated between *Journal of Policy Analysis and Management (10 articles),* followed by *Public Management Review* (8), *Public Administration Review (5), Journal of Public Administration Research and Theory (3),*

Voluntas (2), and four other journals publishing one paper each. However, majority of the articles reviewed in this chapter were published in education-based journals. Among them, *School community journal* published 9 articles, *Teaching Education* published 5 articles, and *Education and Urban Society* published 2 articles. The rest of the journals had one publication each. Among the articles published in education-based journals, majority of articles were around the areas of education research (varied empirical designs) with 20 articles, followed by journal focused on educational leadership, administration and management (16 articles), teaching (10 articles), psychology (5 articles), community and social work related (6 articles), sociology (3 articles), health (7 articles), and other focus areas (4 articles). While the journals with most publications are equally situated in public administration and education journals (Table 2.3), overwhelmingly, the education discipline has covered more topics, researching different stakeholder relationships and educational outcomes. However, the focus of PA journals is more situated around administrative systems and leadership.

Table 2.3 Top five journals with highest publications on co-production in schools

Journal	Number of Studies	Percent
Journal of Policy Analysis and Management (JPAM)	10	9.7%
School Community Journal	9	8.7%
Public Management Review	8	7.8%
Teaching Education	5	4.9%
Public Administration Review	5	4.9%

5.3 Types of studies & research method design

Of the reviewed articles (Table 2.4), 72.8% or 75 are empirical papers, with 36 articles using quantitative methods, 34 using qualitative methods, and the remaining 5 using a mixed-methods design. The majority of the quantitative research focused on the US, with national-level datasets such as the National Education Longitudinal Study (ELS), or research primarily focused on Texas and New York City's school level, administrative, and organizational performance data (Cook & Ludwig, 1997; Holt & Gershenson, 2019; Powell & Chaloupka, 2005; Sylva et al., 2008). Other studies focused on UK, Slovakia, Italy, and Australia, and one study focused on data from 20 countries.

There were also five studies using randomized controlled trials either at the school level, student level, or parental level (Campbell et al., 2015; de Bruine et al., 2014; Hands, 2013; Mazerolle et al., 2017; Pitts, 2005). For example, among the ELS studies, studies focused on student drop-out rate and student absenteeism, identifying differential effects of cultural capital between parents belonging to different socioeconomic demographics, and parental involvement in schools (Cook & Ludwig, 1997; Egbert & Salsbury, 2009; Nutbrown et al., 2015; Voorberg et al., 2015). Interestingly studies conducted in NYC used the schooling and staffing survey, and Texas data used administrative data available from the school districts. The studies looked at leadership, the role of representative bureaucracy among school personnel, school management reforms, school expenditure, and HR data on student outcomes.

Among the studies utilizing qualitative research designs similar to the quantitative method articles, most of the research is focused on the US education context, primarily looking at the parent-school, especially the parent-teacher engagement practices and intervention (Bahr et al., 2004; Clase et al., 2007).

Table 2.4 Types of studies

Type of Studies and Research Design	Number of Studies	Percent
1. Empirical studies	75	72.8%
1. Quantitative	*36*	
2. Qualitative	*34*	
3. Mixed methods	*5*	
2. Conceptual studies	13	12.6%
3. Policy review or discussion studies	7	6.8%
4. Theoretical studies	4	3.9%
5. Review papers	4	3.9%

Interestingly, only three studies utilized a case study or semi-structured interview approach with diverse stakeholders and community members. Most of the research-based in Europe (6 studies) focused on parent-teacher engagement practices (de Bruine et al., 2014; Gallagher et al., 2019; Papadopoulos, 2017; Sainz et al., 2012; Selvik et al., 2017; Vamsted, 2012; Widding, 2013; Willimse et al., 2016). One study based out of Mexico focused on incorporating socio-cultural environments in implementing literacy programs in schools (Reese et al., 2012). It is also interesting to note that there are a fair number of empirical research studies focused on the Latino population, both in quantitative and qualitative studies, as opposed to using race and ethnicity as a control variable (Egbert & Salsbury, 2009; Christianakis, 2011; Beck et al., 2017; Baird, 2015). Among the five studies utilizing mixed-methods research, four studies used randomized controlled trials (RCT) to implement intervention programs, focusing on different parental involvement, teachers paying home visits, or using role-playing to improve student learning outcomes.

Apart from empirical research articles, 12.6% focus on conceptual discussion, followed by 6.8% of articles on policy review or discussion. Another 3.9% of the articles

discuss the theoretical underpinnings of the research topic, followed by 3.9% of research articles that have previously researched review papers on the overall topic. Among the conceptual articles, the research focused broadly on the role of authority and public decision making in school level discourse practices (Boviard, 2007; Brevetti, 2014; La Placa & Coryon, 2014; Paletta, 2012; Pestoff, 2014; Pfaff et al., 2020; Price-Mitchell, 2009; Pridham & Deed, 2012; Ranson, 2011; Sheldon et al., 2010; Vinopal, 2018; Willimse et al., 2016). Uniquely, one conceptually driven reviewed article analyzed 18 studies to look at the family-school partnerships in rural schools instead of the other papers, focusing on the urban setting (Sheldon et al., 2010). Six studies delineated different school and district level policies, using either a conceptual or qualitative research-driven strategy. Four studies utilized a theoretically driven approach as their primary research method. Finally, four studies utilized a systematic review or meta-analysis as the primary research strategy. The findings from the reviewed studies are further outlined in the following sections, and inferences around the existing literature are discussed.

5.4 Types of co-production

Most of the reviewed studies discussed school-initiated co-production efforts, with few explicitly focusing on school leadership's importance with a social justice lens (Bridges, 2010; Chapman, 2019; Compton & Meier, 2016). The remaining studies focused on parent-initiated and student peer interactions, with few focused on community participation and the role community, plays in improving parental involvement at home and school (Altschul, 2011; Brevetti, 2014; Curry & Adams, 2014). Interestingly, few studies focused on minority populations such as the Latino or African American

population, with a concrete discussion on unique cultural and community values and how it shapes the definition of parental involvement at home and school. These studies, however, were also focused on low-income neighborhoods and disadvantaged populations. In addition, Boviard (2007) also pointed out the role of 'third sector such as non-profit organizations, parent groups, and community organizations, which have acted substitute for both schools based and parent-based involvement. Finally, research conducted by Auerbach (2009, 2011), Beck et al. (2017), and a few others looked at school-initiated co-production efforts, which paid attention to school administration's role and its positive and negative impact on parent and student-based outcomes (Table 5.5).

Table 2.5 Types of co-production efforts

Type of co-production efforts Total N = 93	Number of studies (percent)	Focus themes
School initiated	58 (62.4%)	Building social capital, mentoring and volunteer activity by teachers, empowering parents, resource availability
Parent initiated	29 (31.2%)	Parental empowerment, interaction and involvement in school activities, literacy projects, parent co-op services, multi-family group process
Community initiated	6 (6.5%)	Coalition or community groups advocating and advising school and parents, place-based school communication partnerships

- **School initiated co-production:** Among the studies researched on schools' own initiated co-production efforts, common themes emerging are improving communication with parents and finding ways and resources to empower parents to help them better communicate with school and students. In addition, many of the

studies utilized RCTs to understand the differential effects of such school or teacher-based intervention. More so, there is growing literature on school-based co-production efforts to help parents engage more with the school and improve the school culture to incorporate the community's growing needs.

- **Community-initiated co-production:** This review makes this distinction from school initiated or parent-initiated co-production to acknowledge the role and importance of community. Community-led efforts have similar backgrounds and cultural values in helping shape parental and school engagement practices.

- **Parent initiated co-production:** Among the studies identified, parent-identified co-production refers to different levels of parental involvement and/or engagement. Using Epstein's ecological framework, extensive literature in education, sociology, public administration, and other disciplines have defined parental involvement. Coleman's report also identifies the following as parental involvement. Previous literature also makes a distinction between parental involvement and parental engagement. The former is directly linked to participation in school and community events to be part of the larger school community. The latter refers to actively working towards helping to empower the parents through active access to resources and opportunities to be part of the network. In this systematic review, several studies have also categorized parental participation as involvement, mostly referred for participation in PTA's, volunteering for school activities, helping students with their homework, and other activities.

5.5 Pre-requisites for co-production efforts

There is consensus among the studies reviewed on how school-initiated efforts focusing on social justice leadership traits are paramount in building a 'relational trust' (McDonald et al., 2015) with the community and re-branding schools as 'community assets' (Pridham & Deed, 2012). For example, Auerbach (2009) study included semi-structured interviews with principals in the Los Angeles school district. The study showed how school leaders used poems to connect with parents from Hawain and Latino backgrounds. In contrast, another school leader used non-profit providers to help parents understand the American educational system and parental rights. This training was provided by Mexican American Legal Defense and Education Fund (MALDEF).

Similarly, a study conducted by Feiler et al. (2008) started a 'drop-in' event multiple times and days, thus allowing parents to have the flexibility to come to school at their convenience. They also hung a lot of the student art outside school premises, thus giving parents a chance to look at the student products without the pressure of too much interaction with other personnel or parents. Studies conducted by Holt & Gershenson (2019) and Ptaff et al. (2021) also discuss the role of representative bureaucracy and the role teachers and other school personnel play as street-level bureaucrats for effectively delivering the public service of quality education. Furthermore, a study conducted by Paletta (2012) in Italy argues for a polycentric model of governance, where co-production is more of a collaboration between different institutional factors. However, a significant number of articles reviewed point toward the role of effective professional development and leadership to guide, prepare and teach teachers, to understand the different facets of school-parent partnerships, and help build on their public service motivation and foster community

partnerships (Auerbach, 2009; Bartels & Eskow, 2010; Bierman et al., 2008; Christianakis, 2011; Mehlig & Shumow, 2013; Semke & Sheridan, 2012; Sun & Henderson, 2017, Warren et al., 2011). These studies indicate that school and teacher-initiated efforts will have to take precedence to achieve a level of community co-production, especially among parents belonging to disadvantaged backgrounds.

5.6 Factors affecting types of co-production

While different factors play a unique role in positively or negatively impacting the co-production efforts, five factors emerge among the articles reviewed- socio-economic factors, having a cultural capital mismatch between school-parents or lack of cultural capital, presence or absence of social capital, linguistic barriers, and institutional factors.

- **Socio-economic factors:** Among the articles reviewed, studies identified to have socioeconomic constraints have primarily referred to time as the most significant economic constraint (Altschul, 2011; Coco et al., 2007; Dawson-McClure et al., 2015, Dumals et al., 2012; McDonald et al., 2015). In addition, these studies focus on low-income populations, especially among Latino and immigrant populations, where schools face the challenge of getting parents to come to the school. Apart from the time constraints, other socioeconomic barriers include a lack of material resources such as adequate child-care or transportation facilities and the inability to provide their children with the facilities to continue their education at par with their peers (Reece et al., 2013).

- **Cultural capital factors:** One inter-related factor to be considered with the socioeconomic factors is the mismatch of cultural capital between the school and the parents. Studies by Auerbach (2011), Christianakis (2011), Gonzalez et al. (2013), and Laluvein (2010) have pointed toward a mismatch between parental beliefs and culture that determine their level of participation and those of the school's agenda. For example, some research indicates that many Latino parents consider teachers and schools to take the initiative to communicate with parents instead of vice-versa (Ramirez, 2000). Additionally, many first immigrant parents do not entirely understand the US educational policies and school-level practices, which will preclude them from being involved with school from the start (Gonzalez et al., 2013). Another form of cultural capital has been the pre-disposed definition that determines whether the parents are involved in their children's education. For example, a study by Reese et al. (2012) involving Mexican parents and teacher's literacy perspectives defines cultural capital by parent's expectations about their children's educational attainment and parental involvement at home, determined by the number of outings to bookstores, movie, or access to the internet.

- **Social capital factors:** Many of the indicators to determine social capital stem from a general expectation of 'social trust' among your networks and its cascading effects on parental involvement at home and school. For example, the paper by Compton & Meier (2016) identifies social capital to have a positive effect on a school's commitment to fostering diversity. In addition, parents are expected to be active in many community-based activities or be part of a 'collective action' process, which pre-dominantly exists

among middle-class parents (Curry & Adams, 2014). However, most of the prior research on social capital stems from the foundational work by Coleman (1988) & Bourdieu (1988), where social capital represents obligations and expectations, information channels, and social norms (Meier et al., 2016; Guryan et al., 2020).

- **Linguistic factors:** One of the biggest challenges that schools, and parents alike tend to face is the communication mismatch or lack thereof, which leads to a gap in the information and access parents and students can receive from schools, thus affecting their social capital and cultural capital resources and networks. Studies conducted by Gonzalez et al. (2013), Baird (2015), La Placa et al. (2014), Niehaus & Adelson (2014), and other studies point out the variety of language barriers, not excluding school's exclusionary practices not to share information and resources in aa multi-lingual format. These practices have cascading effects on students' peer groups, achievement levels, and a general discord or mismatch between the school personnel and parents.

- **Institutional factors:** While the previous factors indirectly discuss the role of school and how it is an essential instrument in either positively or negatively affecting the other factors, schools themselves have their agenda that may or may not include all the parent and student groups. First, Auerbach (2000) and Aventin et al. (2020) discuss that the limited involvement of parents is primarily due to the school's agenda of not being interested in fostering parents belonging to different cultures and values. Chapman's (2019) paper also discusses the impediments of 'bureaucratic hierarchies,' which leads to not a cohesion between the community and the school, but a one-way relationship,

where the school dictates the rules for effectiveness, improvement, and accountability. Second, one of the critical relationships to building co-production is the teacher-parent relationship. Studies conducted by de Bruine et al. (2014) and Egbert & Salsbury (2009) discuss how teachers are unprepared to understand and build on different levels of parental involvement. While teachers understand the barriers parents may face for their limited or no involvement at school, there is little training on how teachers can cope and bridge that gap (Sheldon et al., 2010; Hands, 2013; Mehlog & Shumow, 2013).

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5.7 Effects of co-production efforts

Among the studies reviewed, the majority of them analyzed the effects of co-production efforts, irrespective of school or parent initiated, on student academic outcomes such as early literacy outcomes (Bierman et al., 2008; Wilkins & Teriltsky, 2016), student test scores in reading and mathematics (Altschull, 2011; Bloom et al., 2020; Jeynes, 2003), socio-learning outcomes such as student absenteeism (Guryan et al., 2020; Leos-Urbel, 2014), student behavior (Holt & Gershenson, 2019; Sylva et al., 2008), or improved parental involvement with the school or community (Niehaus & Adelson, 2014). Few of the studies have also discussed the effects of co-production on building parent's role construction within the community (Auerbch, 2009; Curry & Adams, 2014; Gonzalez et al., 2013), re-designing institutional structure and dynamics to incorporate equitable practices (Bridges, 2010; Compton & Meier, 2016), and removal of environmental barriers such as more access to school resources (McDonald et al., 2015), improved cultural and

social capital (Auerbach, 2011, Chapman, 2009; Egbert & Salsbury, 2009; Gallagher et al., 2019; Reese et al., 2012).

Among the studies discussing the effect on environmental barriers, few studies also highlighted the importance of representative bureaucracy among street-level bureaucrats and other stakeholders and the intra-group effect of representative bureaucracy (Holt & Gershenson, 2019). For example, a study conducted by Huntsinger et al. (1998) looked at the variation of Chinese American parents' involvement in school and European-American parents and found that the child's liking of school subjects depended on parental involvement and much more so among the European-American students. Another study by Lim (2012) examined how Korean American parents perceived and responded to institutionalized school partnerships. The qualitative study found that ethnic solidarity and cultural bonds helped the community come together and help parents be more empowered to deliver effective parental involvement in school and home. Another study by Martinez-Coslo (2010) identified how intra-group social networks (Latino Coalition or African American Partnership) utilized social networks among bilingual educators and expanded on community resources by including parents, schools, and other community members.

Among the studies discussing the re-designing of institutional infrastructure, one of the main findings has been the importance of practical teacher training (Bartels & Eskow, 2010; Hanushek & Rivkin, 2009; Honingh et al., 2020; Mehlig & Shumow, 2013). However, almost all the studies re-enforce the cruciality and urgency of building a 'community co-production not just between different stakeholders, but also among the stakeholders' (Placa & Corlyon, 2014; Price-Mitchell, 2009). These outcomes have a

theoretical underpinning under the public service-dominant logic, built around the new public management paradigm and relational trust (Boviard, 2007; Fledderus et al., 2014).

6. Discussion & conclusion

The review provides some insights into co-production processes in public service organizations. First, this review provides much more detailed ideation of individual or collective co-production, depending on who initiates the process. In the education context, the review identified parent, school, or community-initiated co-production processes, each having unique attributes and influence on individual and organizational outcomes. For example, having school leadership and public service motivation traits within a social justice lens was shown to have a predominant effect in positively affecting parental co-production efforts at home and school. Moreover, this form of school-initiated efforts also percolated into stronger informal partnerships with the parents and community, a concerted effort to build into all parents' and students' cultural beliefs and values. Similarly, the review identifies the active role non-profits play with community members to help local schools and school personnel connect by aligning the cultural diversity between schools and parents.

Second, this chapter calls to action for considering socio-cultural attributes beyond demographic characteristics to understand co-production mechanisms between different stakeholders. The review identified five barriers that may further exacerbate or help with coproduction efforts: socioeconomic factors, cultural capital, social capital, and linguistic and institutional barriers. This review recognizes the importance of relationships between individuals and ecosystems defined by the diverse socio-cultural processes. A shift towards

the dynamic relationships between individuals, culture, environment, and organizations is needed to support a deeper understanding of co-production. These relationships will also need to be studied with robust empirical designs to test their reliability outside the education context.

Third, Public Administration has made significant strides in the public education area of interest by demonstrating the role of public management in analyzing complex education policy and organizational performance decisions (Raffel 2007; Kerr et al. 2014). However, this review shows much needs to be studied in understanding individual and organizational level attributes, such as culture, environment, different types of human capital, and community engagement, in influencing organizational level changes at the school level and beyond.

Finally, this review shows how public education as a focus area is predominantly covered in the education and sociology field of study. By ignoring the socio-cultural influences at the individual and organizational level, we ignore an area of study that could advance the key principles of Fredrickson's (2015) new public administration around equity and social justice. More research is required on how equity and social justice ideals would help sustain these collaborative arrangements between different stakeholders and their effects on organizational level outcomes. Other important areas such as the role of non-profit or third sector organizations and macro-micro relationships (district-school; school board-parents) also need to be studied in the context of socio-cultural mechanisms' influences on outcomes. Finally, this theory would need to be examined in contexts outside of public education to help identify and measure such coproduction processes.

Chapter 3 Organizational Support & The Work & Wellbeing Of Teachers And Students During The Covid-19 Pandemic

1. Summary

Organizational support is often a good predictor of employee engagement and satisfaction. The Covid-19 pandemic disruptions to education caused a fundamental shift in teachers, parents, and schools' goals, instructional methods, and roles. Teachers experienced varying levels of support from school administrators to help deal with these challenges. Drawing on theories of organizational support and coproduction and using a national survey of n=1082 teachers, this chapter examines the importance of organizational support provided by school administration to teachers and its effects on teacher burnout, effectiveness, and satisfaction as well as student participation and learning. Results indicate that organizational support alleviates teacher burnout and indirectly helps improve teachers' effectiveness at completing the academic curriculum and their overall satisfaction with the school. In addition, support, training opportunities, and access to instructional materials helped improve student participation and learning, as reported by teachers.

2. Introduction

The 2020 school year for 55 million K-12 students in the United States was profoundly disrupted by the Covid-19 pandemic, with widespread school closures and the subsequent shift to remote learning. As a result, school districts across the U.S had to make systemic changes to maintain financial stability, equitable access to digital infrastructure,

and the switch to remote instructional methods, among other challenges (Kaden 2020). By April 2020, most states shifted to remote instruction, though there were variations due to differing state-level directives, school district policies, and resource availability (Education Week, 2020a). For example, in Illinois, Belleville Township High School District 201 utilized four school buses as Wi-Fi hotspots during school hours by parking buses next to parks and YMCAs throughout the township. In Boston, more than 13,000 students were given laptops, chrome books, and other study materials to access online learning (Young & Donovan, 2020). However, one aspect of remote instruction that received less attention in the early stages of the pandemic was the new and unexpected role teachers had to navigate, in particular: connecting with students and parents online; mastering new technologies; protecting students' health; maintaining meaningful educational experiences for all students.

In the absence of physical space and learning format that teachers relied on previously, emphasis was placed on different types of support schools as an organization could provide to teachers to address current student learning needs. Research on organizational support theory has generated a growing body of evidence that more perceived organizational support (POS) provided by the public organization can result in better outcomes for employee's job performance, job satisfaction, and mental well-being (Baran et al., 2011; Jin & McDonald, 2017; Rhoades & Eisenberg, 2002; Kim, 2002). For example, organizational support perceived as favorable working conditions and inter-personal trust positively impacts job commitment (Nayir, 2012; Shore & Wayne, 1993) or job satisfaction (Eisenberger et al., 1997). However, POS is rarely studied by analyzing the indirect effect on client outcomes. Many studies have discussed the positive outcomes of

POS on employee-level outcomes, but not how these positive outcomes impact their client-based outcomes. This form of inquiry needs to be studied further as it has consequences for the well-being of the employees. Moreover, employees not being able to fulfill public service demands could result from unforeseen administrative situations, bureaucratic workload, and lack of resources (Loon et al., 2018; Wright et al., 2012, Eldor, 2018).

Drawing from theories of organizational support, this chapter analyzes the effect of different types of organizational support initiated by school administrations during the Covid-19 pandemic and its impact on teachers' burnout, satisfaction, and ability to deliver effective instruction in a remote learning format. This study's investigation into understanding the wellbeing of teachers also has social equity implications by calling to action the different types of job resources and support needed by front-line employees to deliver outcomes effectively. Furthermore, this study builds on the literature of POS by also analyzing the indirect effect of POS on student outcomes. This question has important implications as it calls to understand the effect of different types of POS on employee and client-based outcomes, thus shedding light on processes involved in delivering equitable outcomes for all stakeholders. Thus, using the October 2020 American Teacher Panel Survey provided by RAND corporation, the article aims to examine how different types of POS affect teacher burnout and indirectly affect teacher satisfaction and effectiveness. The study also probes the effect of POS on student participation and student learning, thus analyzing the indirect effect of POS on teacher burnout.

The study's underlying motivation intends to bridge literature from organizational learning, and public administration, in the context of schooling. One theoretical implication can be suggested from this study. Ostrom's (1996) seminal theory of co-production outlines

the importance of collaborative partnership between different stakeholders for the effective delivery of public service outcomes. However, the pre-cursors for co-production are seldom discussed that are required for the process to begin and sustain over time. While research on the perceived impact of co-production is extant, research is limited on the importance of co-production during external stressors such as the Covid-19 pandemic and how its outcomes can be sustained effectively over time.

3. Literature review

3.1. Organizational support as a pathway to sustainable co-production

Organization support theory (OST), first introduced by Eisenberger et al. (1986), defines perceived organizational support (POS) as the extent to which an organization values the contribution of its employees and cares about their well-being. Meta-analyses conducted by Rhoades & Eisenberger (2002) & Riggle et al. (2009) show positive outcomes if perceived organizational support is extended to employees in the form of increased commitment towards the job, reduced stress, and effort to be more invested in the organization by increasing their performance. However, it is important to note the difference between organizational support and perceived organizational support. While organizational support indicates the well-being of employees is taken into account, POS means employees are aware of how an organization is contributing towards their well-being (Nayir, 2012).

Prior evidence analyzing the consequences of POS has shown positive outcomes towards employee's job satisfaction, job performance, even employee's well-being (Rhoades & Eisenberger, 2002). There is also evidence surrounding how different types of

stressors (internal versus external to the organization) could impact POS. These studies suggest that external pressures outside the organization reduce POS by employees. In this regard, the study context of the Covid-19 pandemic as an external pressure has forced school organizations to provide POS to help make employees (teachers) and clients (students) make an effective transition from in-person to remote instruction. Among the positive determinants of POS, training and professional development indicate a form of investment made towards the employee, thus leading to more positive outcomes (Wayne et al., 1997, Rhoades & Eisenberger, 2002). Drawing from OST as the guiding theoretical framework, the author explores whether perceived organizational support (for example, training, support & guidance, resources, information) mediates the relationship between employee burnout and employee outcomes (teacher effectiveness and teacher satisfaction) (Jim & McDonald, 2017).

In this study, the author also utilizes the concept of co-production to emphasize the effect of POS on the clients, in this case, students who would be positively or negatively be impacted by the POS provided to the teacher and its subsequent effect on teacher burnout. Steen & Brandsen's (2020) concept of sustainable co-production emphasizes capacity building, and frameworks should be worked to incorporate co-production and sustain it long term. They outline three conditions for sustainable co-production. First, increased access to capacity building strategies, which are not limited to developing more frameworks for co-production, but increased access and implementation of resources such as staffing and financial requirements (Jasper & Steen, 2020). Second, the contribution must be complementary to build synergy between producers and service users. E.g., during Covid-19, parents provided the physical space (homes) and understanding to ensure

teachers could continue remote classroom instruction. Third, personal incentives, including motivation, are required to build trust relationships between producers and citizens for co-production to be sustainable (Jaspers & Steen, 2020; Ostrom, 1996).

Expanding on the first condition of sustainable co-production, the role of public leadership and response strategies becomes crucial to understand (Brokeama et al., 2019). This study attempts to merge the organizational support literature, using the co-production framework for analyzing organizational support drawn by school administration during the Covid-19 crisis. Among these, close attention needs to be paid to organizational socialization tactics such as formal training and professional development, which would help foster employee motivations and public values long enough to stride through the crisis (Steen & Schott, 2018). These have further consequences, such as retaining teachers in the profession (Tickle et al., 2011; Loeb et al., 2005; Luekens, 2004) and improving students' academic performance. This study is unique as it also incorporates dimensions of POS that emphasize on organization's equity goals (Kurtessis et al., 2017). One of the sub-categories of POS outlined by Rhoades & Eisenberger (2002) was the organizational justice dimension, where the employees recognize justice in the organization's applications. This could be viewed within the purview of providing resources equitably (Nayir, 2012). These dimensions include providing access to resources and information about different student groups, such as those who need free or reduced lunch and those facing homelessness. This form of access would help teachers make better-informed decisions about student learning goals while also reducing teacher burnout by identifying resources and information to help struggling students.

As such, *this study explores the following research question: Does the perceived impact of organizational support provided during Covid-19 improve teachers' mental health and subsequently teacher and student outcomes?* To answer the research question, the study looks at different types of support provided by school administration- a) availability of social support to address different student groups learning needs while conducting remote instruction; b) availability of training opportunities for professional development, especially those related to technology-based learning methods; c) access to resources for those students who need extra help; and d) access to instructional materials that cater to different student groups. The study researches the influence of different types of organizational support on teacher effectiveness and teacher satisfaction. The study also researches the influence of different types of organizational support on student participation and student learning. Figure 3.1 describes the conceptual model and the direction of relationship between different variables of interest. In the next two sections, the author expands on the definition and meaning of different variables we are interested in this study.
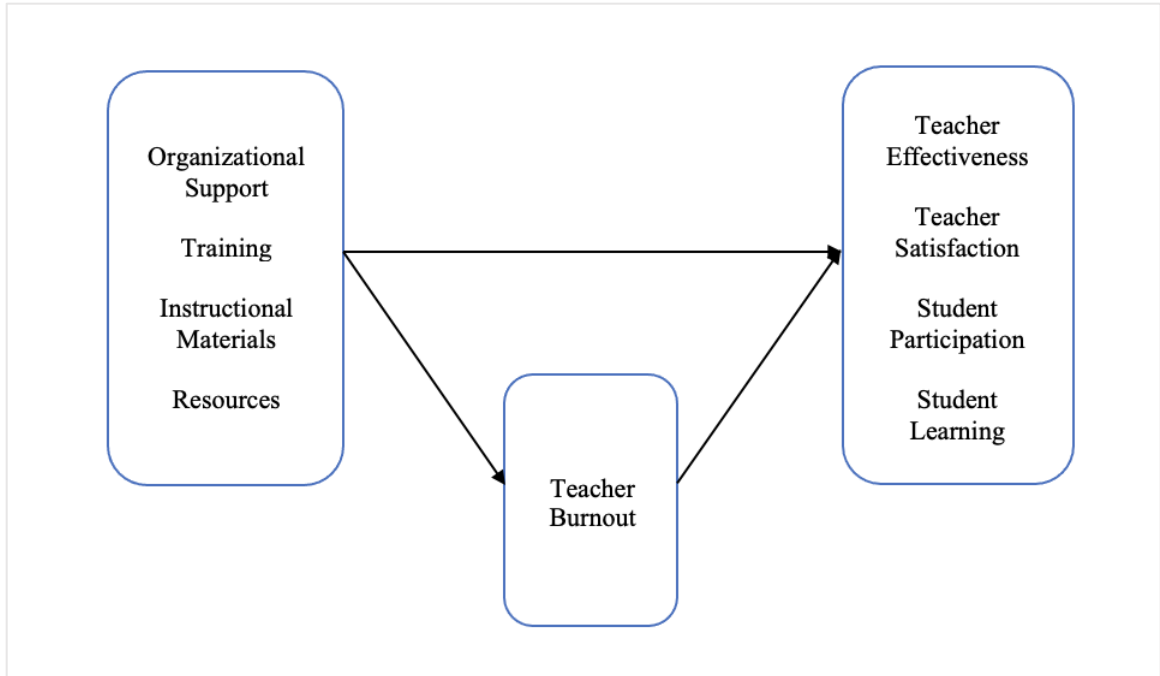
Figure 3.1 Conceptual model

3.2. Impact of Covid-19 pandemic on teachers

As schools closed in March 2020 and haphazardly prepared to switch to remote instruction, teachers had to wonder whether they could continue covering the curriculum and maintaining steady progress on students' learning gains. World Health Organization 2020 study points to the importance of understanding teachers' mental health needs, as they also prepare to tackle students' socio-economic and mental health needs, especially those belonging to vulnerable populations (Müller & Goldenberg, 2020). To develop new instructional materials and learning assessments and undergo work-related changes by being confined to working of their home while balancing their own personal and familial needs could have dire implications on their teaching (Kaden 2020). Another survey conducted during the 2019-2020 school year with 7800 teachers points to the differential effects on teachers being prepared for remote instruction (Kraft et al., 2020). Mid-career

teachers and veteran teachers were more likely to struggle with maintaining work-life balance and transitioning more seamlessly with the technological tools (Kraft et al.,2020). One of the biggest challenges school administrators and teachers face during this transition is maintaining the learning gains from the pre-pandemic period. There is a concern regarding learning loss and whether students from different backgrounds and adversities could incur a more significant learning loss once the schools re-open (Dorn et al., 2020; Kuhfeld et al., 2020). As a result, this poses a more significant question on whether teachers can work through the curriculum during the remote academic year to ensure minimal learning loss. This is a question most studies have not asked before. The study uses a measure of *teacher effectiveness* regarding the percentage of school curriculum covered during 2020-2021 as one of the dependent variables (DV).

Another issue to consider is teacher satisfaction, given the increasing work overload and ambiguity around remote instruction teachers faced in the first year of the pandemic. As such, lower levels of teacher satisfaction could have dire consequences in the form of an increased rate of retirement, lower performance, and more chances for burnout (Tickle et al., 2011; Hung, 2012). More so, teachers who work in urban schools with pre-dominant minority and low-income students would experience even more stress and lower satisfaction with their work relative to those working in rural, suburban, or students belonging to the majority of higher-income groups (Markow et al., 2006). Previous studies have examined the influence of school working conditions on teacher retention rate (Loeb et al., 2005; Luekens 2004), lower anxiety (Ho & Au, 2006; Johnson et al., 2012; Ouellette et al., 2018), but not many studies have looked at the direct influence of POS on teacher satisfaction. This study measures teacher satisfaction by combining two survey questions

asking about their satisfaction with the school, other teachers, students, and their working conditions.

3.3. Impact of Covid-19 on students

The literature discussing organizational support theory is well-established concerning the effect of POS on employee well-being. Many studies have also interchanged the role of organizations in providing support with supervisory support. For example, Bogler & Nir (2012) finds that teachers consider school administrators to be the direct representatives of school organizations and thus are responsible for all decision-making about school-based outcomes. In this regard, it is important to study the influence of POS on student-based outcomes. This is particularly important, as equitable access to resources and information from the school organization would have consequences to teacher burnout and could positively affect student engagement and learning goals (Cooggburn et al., 2020). Studies looking at the influence of POS on client-based outcomes, and not just at the employee level, are limited in nature. A study conducted with teachers and students in a public sector university in Pakistan (Ahmed et al., 2014) found the provision of POS to positively influence teachers and how best they could respond to the students. This response form also improved student academic outcomes and satisfaction with the school. Therefore, more research and empirical analysis are required to ascertain the influence of POS on client-based (students in this case) outcomes. This study utilizes the influence of POS on two student-based outcomes: student participation and student learning outcomes. To measure *student participation*, the study utilizes a survey question that looks at the percentage of students typically present (in-person or remote) during 2020-

2021. *Student learning* is measured by a survey question on how prepared most students are in grade-level work in 2020-2021, relative to 2019-2020.

3.4. Mediating effect of teacher burnout

Secondly, digital divide issues have often percolated into technical problems students and teachers face, thus causing additional stress on effectively delivering remote instruction (Simamora, 2020). A survey conducted by Košir et al. (2020) in Slovenian elementary and upper-secondary schools on teachers and school counselors points to perceived supervisor support as a better predictor of stress in the initial phase of the Covid-19 pandemic. Similarly, a study conducted by Klapproth et al. (2020) with German schoolteachers identified the need to develop teachers' digital skills and school infrastructure to better support teachers using the digital interface. Furthermore, student's low motivation, lack of support to help students, and low ability to overcome technical barriers to facilitate remote instruction, has a significant impact on teacher stress and feeling burnout and their ability to reach learning goals for students (Kember & Leung, 2006; Fruer & Boyee, 2016; Klapproth et al., 2020).

Teachers have also long reported more distress and burnout than other public sector professions (Oullette et al., 2018; Anomneze et al., 2016), which has had more psychological impact on personal relationships and mental and physical health. The reasons for high-stress levels among teachers are well-known and not limited to work overload, limited resources, performance accountability, student behavior, and student engagement (Atkins et al., 2003; Shernoff et al., 2011). Studies in psychology and education research have indicated teacher stress to be positively or negatively linked to

overt expectations about future or ongoing demands, teachers' degree of being equipped with skills, and their overall readiness to handle expectations (Dunham, 1994; MacIntyre et al.,2020). Herman et al.'s (2020) recent study also considers the administrative support, policies, and context detrimental to teacher stress. Studies by Smith & Bourke (1992) and Travers (2017) discuss the presence of job stress or burnout due to school administration by outlining workload (set of administrative, teaching, and assessment work) and teaching load to be detrimental in affecting stress caused due to job factors. Nonetheless, other studies point towards the effect of coping strategies or organizational support such as access to professional development in mitigating some burnout and improving teacher-student interactions (Jennings & Greenberg, 2009; Sandilos et al., 2018). Therefore, the study also predicts that teacher burnout will be directly affected by their access to different types of organizational support.

In this study, the author also operationalizes the effect of burnout on both teachers' ability to make progress in the school curriculum (teacher effectiveness) and their level of satisfaction with the workings of the school. The study builds on prior evidence which indicates the stressors faced at home and work front by front-line bureaucrats such as teachers impact their ability to deliver instruction and also lead to a decline in the level of satisfaction felt by working in the school (Gustems-Carnicer et al., 2013; Herman, Reinke, & Eddy, 2020; MacIntyre et al., 2020). Specifically, the study hypothesizes that teachers facing burnout will directly and negatively affect teacher effectiveness and teacher satisfaction with the school.

The perception of being supported has been shown to generate positive outcomes for the organization and employees, especially in retention, job commitment, and

involvement (Giauque et al., 2013; Riggle et al., 2009). Furthermore, in the schooling context, it would indicate that school organizational policies which help support teachers meet the parent's and administration's demands through organizational for specific tasks have a relatively more positive effect on their mental attitude (Kaden, 2020). Therefore, the study predicts that increasing organizational support will lower teacher burnout, positively affecting teachers' performance at school, especially with covering the instructional curriculum and increasing their satisfaction with the school (Figure 1).

This study also analyzes the relationship between teacher burnout and its effect on student outcomes, such as student participation rate in the classroom and student learning goals. Much of the literature around organizational support looks at its impact on employee or teacher well-being, but not much on client-based outcomes such as student outcomes. In this study, the author draws on both organizational support and co-production theory to determine whether organizational support also influences student participation and learning by mediating the level of burnout faced by teachers. Examining these relationships would have practical implications for developing and sustaining organizational support for employees over time.

4. Data and Research Design

4.1. Data collection

The author used the 2020 COVID-19 Distance Learning Survey conducted on teachers, part of the American Teacher Panel (ATP), to test the framework. This data is made available and fielded on behalf of the Bill & Melinda Gates Foundation by the RAND American Educator Panels. The ATP survey was fielded in October 2020 to gather

information on teachers' experiences regarding the availability of different instructional models and needs, supports required, and overall teachers' experiences. The survey includes a nationally represented sample of K-12 teachers yielding 1082 complete responses (49.2% response rate).

4.2. Measures

This study analyzes the relationship between different types of perceived organizational support and teacher and student outcomes. The study has developed four sub-scales to define POS, which measure whether teachers were given different types of support, guidance, instructional materials, resources, and training opportunities using a two-point scale for 1= yes, and 0 =no. Factor analysis indicates four dimensions determining POS. The dimensions and the internal coefficient alphas in the study were

- *Support Scale:* Adequate guidance and support to address learning needs of different student groups (0.9)

- *Training Scale*: Receiving training on different types of professional development opportunities (0.69)

- *Instructional Materials Scale*: Adequate high-quality instructional materials to serve different student groups (0.92)

- *Resources Scale*: Access to options available for students who needed extra help (0.85)

A complete list of survey questions, item constructs, and factor loadings have been listed in Appendix A. A confirmatory factor analysis (CFA) with varimax rotation was also conducted to evaluate the potential problem of underestimating the standard error of the four factors of POS sub-scales and reduce the probability of type I error. The data to model

fit was found to comprise of four factors for which POS was a latent variable. The model showed a non-significant chi-square statistic χ^2 (2, 1012) = 4.43, p = 0.109, indicating a model fit. The fit indices also indicate how well the model fits the population. The comparative fit index (CFI) = 0.995 and Tucker-Lewis Index (TLI) = 0.986 (CFI and TFI range from 0 and 1, where 1 is a perfect fit). The root means square error of approximation (RMSEA) = 0.035 and the population is very high at 0.649. The RMSEA value is less than 0.08 cutoff and p-value are above 0.05 cutoff, indicating a well-fitting model.

The mediating variable Burnout was measured in the study by the following question, *to what extent is each of the following a concern for you right now?* Feeling of Burnout. The answers were coded on a five-point Likert scale from 1= not a concern right now, 2= a minor concern, 3= a moderate concern, 4 = a major concern, to 5 = prefer not to say.

This study analyzes the relationship between POS, teacher burnout, two teacher-based outcomes, and two student-based outcomes. The first teacher-based outcome is teacher effectiveness. The study identifies teacher effectiveness using the survey question-*Thinking about the curriculum content you had covered by last school year (2019–20) at this time, what proportion of that content have you covered this school year (2020–21)?* The answers were coded on a five-point Likert scale from 1= none or almost none, 2 = About 25%, 3 = About 50%, 4 = About 75%, to 5 = Nearly all or all. The second teacher-based dependent variable measures teacher satisfaction. The latent variable was developed using a factor analysis of the responses to the questions *To what extent do you agree or disagree to the following statement about your work, and about your school?* The answers were coded on a four-point Likert scale from 1 = strongly disagree, 2 = Somewhat disagree,

3 = Somewhat agree, 4 = strongly agree. Factor analysis indicates one dimension using 6 survey items, with a Cronbach alpha of 0.79. Some of the sample items included *I don't seem to have as much enthusiasm now as I did when I began teaching (reverse coded), The teachers at this school like working here; I would describe us as a satisfied group*. A complete list of survey questions, item constructs, and factor loadings are listed in Appendix B.

The third and fourth dependent variables measure student-related outcomes. One of the students related outcomes is student participation. The variable was measured using the following survey item *Approximately what percentage of your students are typically present (whether remote or in-person) each school day this school year (2020–21)?* The answer is a continuous variable ranging from 0%-100%. The second student-related outcome is student learning. The survey question used to measure the variable is *How prepared are the majority of your students to participate in grade-level work this school year (2020–21), relative to their preparedness at this time last year?* The answers were coded on a five-point Likert scale from 1 = significantly more prepared than last year, 2 = somewhat more prepared than last year, 3 = about the same as last year, 4 = somewhat less prepared than last year, to 5 = significantly less prepared than last year. The answers were recoded to reflect the positive impact on student learning with 1 = significantly less prepared than last year to 5 = significantly more prepared than last year.

5. Results

The first set of results analyzes the descriptive statistics. An examination of the means of the sub-scales for POS reveal the following (from high to low): instructional

materials (M = 0.68), support (M = 0.58), training opportunities (0.57), and resources to help students (0.28) to be the lowest. Noteworthy here is also the teacher burnout means (M = 3.33), indicating that more than 80% of teachers indicated burnout as a moderate or major concern or preferred not to say. This is concerning as teacher effectiveness indicated 55% of teachers could only cover about 50% of the curriculum or less in 2020-2021, as opposed to 2019-2020. Similarly, this had a similar effect on teacher satisfaction (only 50% of teachers) about their work and school. Finally, among student-related outcomes, while student participation was high, student learning indicated 92% of the students to be as prepared or less prepared for grade-level work as 2019-2020, compared to 2020-2021.

Table 3.1 Descriptive statistics

No.	Variable	Obs	Mean	Std. dev.	Min	Max	% of Sample
1	Support	1,062	0.58	0.40	0	1	
2	Training Opportunities	1,066	0.57	0.34	0	1	
3	Instructional Materials	1,012	0.68	0.40	0	1	
4	Resources	1,068	0.28	0.42	0	1	
5	Teacher Effectiveness	1,008	3.26	1.19	1	5	
6	Teacher Satisfaction	1,078	2.67	0.67	1	4	
7	Student Participation	1,074	85.44	16.25	1	100	
8	Student Learning	1,037	2.17	0.96	1	5	
9	Teacher Burnout	1,082	3.33	0.93	1	5	
10	Minority School	1,082	0.549	0.5	0	1	
11	School Size	1,082	1.62	0.77	1	3	
	Small						17.84%
	Medium						26.34%
	Large						55.82%
12	Urbanicity	1,074	2.24	1.08	1	4	
	City						28.31%
	suburb						40.69%
	Town						9.68%
	Rural						21.32%

Note. Minority school has been defined as 1 = school with 50-100% Black, 50-100% Hispanic, and/or 50-100% FRPL students, and 0= All other schools; School Size has been coded as 1 = large school, 2 = medium school, and 3 = small School; Urbanicity has been coded as 1 = city, 2 = suburb, 3 = town, and 4 = rural.

To examine the relationships hypothesized in the path model, the study used Baron and Kenny (1986) method for testing mediation, which requires three separate regression models to determine direct and indirect effects between the independent variable(s), mediating variable, and dependent variable. The Baron and Kenny method requires first conducting an ordinary least squares (OLS) linear regression model to observe the independent variable's direct effect on the dependent variable. The second regression model will test the independent variable's effect on the mediating variable. Lastly, the independent variable is regressed on the dependent variable while controlling for the mediating variable. If the mediating variable's inclusion in the third regression nullifies the direct relationship between the independent and dependent variables, this suggests a complete mediation. However, if the independent variable's remains insignificant, but the magnitude of the independent variable is reduced when including the mediating variable in the regression, the model is considered a partial mediation. Tables 3.2 & 3.3 presents the results of association between perceived organizational support indicators, burnout, and teacher led outcomes and student-led outcomes.

5.1. Teacher effectiveness

Looking at Model 1 results (Table 3.2), three out of the four POS indicators, namely support, training opportunities and instructional materials is positively and significantly associated with teacher effectiveness. The higher the level of POS given in

any of the three ways, higher the level of teaching effectiveness. With regard to demographic variables, all four types of POS provided in a minority serving school is more likely to reduce the level of teaching effectiveness. Additionally, POS in the form of support provided in a large school is more likely to improve teacher effectiveness. Also, as expected, higher levels of burnout are more likely to reduce the level of teaching effectiveness, when controlling for other variables. When testing for teacher effectiveness mediated by teacher burnout, the effect of support, training opportunities and presence of instructional materials did lower the level of teacher effectiveness.

5.2. Teacher satisfaction

Looking at Model 2 results (Table 3.2), having access to support, training opportunities and instructional materials increases the level of teacher satisfaction. With regard to demographic variables, having access to any of the POS in a minority serving school is more likely to reduce the level of teacher satisfaction experienced. Interestingly, teachers working in a school located in a township would experience higher levels of teacher satisfaction, when provided with more resources and training opportunities. As expected, an increase in level of teacher burnout would reduce the level of teacher satisfaction. When tested for mediation, as expected, teacher burnout reduces the effect of training opportunities and instructional materials on teacher satisfaction but does not change the effect of presence of resources on teacher satisfaction. One interesting finding is the result of reverse mediation, where in teacher burnout increases the positive effect of support on the level of teacher satisfaction.

5.3. Student participation

Looking at Model 3 results (Table 3.3), three out of the four POS indicators, namely support, training opportunities and instructional materials is positively and significantly associated with student participation. The higher the level of POS given in any of the three ways, higher the level of student participation. With regard to demographic variables, all four types of POS provided in a minority serving school is more likely to reduce the level of student participation. Additionally, POS in the form of training opportunities and instrumental materials provided in a large school is more likely to improve student participation. Also, as expected, higher levels of burnout are more likely to reduce the level of student participation, when controlling for other variables. When testing for student participation mediated by teacher burnout, the effect of support, training opportunities and presence of instructional materials did lower the level of student participation.

5.4. Student learning

Looking at Model 4 results (Table 3.3), only instructional materials is positively and significantly associated with student learning. None of the other POS indicators is positively associated with student learning. With regard to the demographic variables, access to training opportunities and resources in a rural school is more likely to reduce the level of student learning. Having access to instructional materials in a minority serving school will also more likely reduce the level of student learning in the school. As expected, higher levels of teacher burnout reduce the level of student learning. However, when tested for mediation, while results were significant for support, instructional materials and resources, it does increase the level of student learning.

6. Discussion & Implications

This findings from this chapter provides important insights into identifying types of school administration's perceived organizational support and how it influences teacher and student well-being. Using a nationally representative survey of K-12 teachers in the U.S, the study identifies schooling as a new policy context to determine POS. Drawing support from previous literature, the study supports findings of an increase in perceived organizational support in the form of support to work with different student groups, training and professional development opportunities, and access to instructional materials in reducing teacher burnout. These three types of organizational support also positively improved teacher effectiveness and teacher satisfaction with the school. Even among student-led outcomes, support, training, and instructional materials positively influenced student participation and learning and was further mediated by a decrease in burnout faced by teachers. These findings corroborate with literature on teacher effectiveness and well-being. Additionally, these findings were controlled for different school characteristics, including school size, urbanicity, and whether a school is considered minority-serving or not. In all regression analyses, being in a minority-serving school did moderate the influence of POS on teacher and student outcomes.

Among all results, access to resources to help students with grade-level work did not significantly affect teacher and student-level outcomes and reversed the relationship with teacher burnout, with an increase in burnout attributed to access to resources. Even though the relationship was not statistically significant, access to resources improved student participation and student learning. Only teacher satisfaction showed a statistically

significant relationship to increased access to resources. One potential reason for this variation could be that access to resources was defined as having access to reading and mathematics specialists for students who need additional help. Intuitively, this could mean that while teachers are satisfied with the access to such resources, it does not overcome the extra work required to help such students, thus increasing teacher burnout. While it is outside the scope of this study, future research could look into student-level responses on how they perceive organizational support to help them academically and otherwise.

In the context of the study, school administrators, teachers, parents, and students came together and, with the help of different types of support, have offered to continue providing learning opportunities. One potential reason for the current findings could be that the nature of the study is cross-sectional. Since the survey was conducted in October 2020, there is a potential to underestimate or overestimate the effect of burnout on teacher and student outcomes. Utilizing longitudinal research designs could more closely determine the effect of additional organizational support on teachers' well-being and subsequently on their effectiveness and satisfaction with school. The second limitation is about generalizing the findings to different pandemic-related contexts. As the Covid-19 pandemic percolates into 2022, findings from this context might not be similar to other post-pandemic contexts or timeframes.

It is important to note here that while findings from this study are not generalizable to the early stages of a pandemic or the current remote instruction facility in 2021-2022, it sheds light on the critical organizational culture and how schools have prioritized different types of support, some being equitable. However, these findings further the discussion on crucial organizational management and administrative support requirements for teachers

and students. While previous studies have looked into school management during the crisis to minimize student learning loss, less is discussed on the core organizational values and culture that ensure that teachers' social and emotional well-being are equally prioritized. As schools continue to provide remote instruction, this study's findings have equity implications for school leaders, teachers, and students in ensuring access to resources and the implementation of the same.

The response to Covid-19 has required not just individual citizens but employees, school administrations, and local governments to adapt and change organizational patterns to sustain themselves during the pandemic. Moreover, with Covid-19 entering its third year, health experts have expressed fears of outbreaks of new Covid variants and the time for everyone to be vaccinated (Steen et al., 2020). As a result, sustainable efforts from the administration might pave the way for conclusive solutions to many policy challenges. Historically, schools have been characterized as inflexible, synonymous with being 'bureaucratic,' thus thwarting teachers' autonomy and independence (Tschannen-Moran, 2009; Hoy & Sweetland, 2001). Teachers have relied on personal experiences independent pedagogical tools without any group work effort (Sarros & Sarros, 1992; Inman & Marlow, 2004, Hinnant-Crawford, 2016; Trinidad, 2019). However, with an abrupt shift in the organizational structure and system such as the Covid-19 pandemic, teachers are expected to independently shift and adapt to newer online teaching practices while maintaining expectations from school leaders, parents, and students to provide seamless and effective instruction. Covid-19 has provided an opportunity for school administrations to be more flexible with teaching programs, loosen restrictions, and use the funding for professional

development opportunities (Steen et al., 2020), which otherwise might have been stuck in procedural or bureaucratic overload.

By drawing on new literature on sustainable co-production and organizational support, the chapter explored the role of organizational support on teachers' mental health, job performance, and student outcomes. The idea of sustainable co-production is relevant in the current times, as we see evidence of new forms of co-creation and co-production utilized to deliver public services (Steen & Brandsen, 2020). Examples include citizens voluntarily following the mask mandates during Covid-19, neighborhood associations helping residents quarantine while providing care for those not exposed, citizens creating new websites to help individuals identify nearest health care centers for testing or vaccines, or parents using their homes and resources as brick-and-mortar model for schooling. At the same time, teachers engage with students in the digital environment. These examples provide a new norm of implementing co-production of public services, implemented in unique circumstances. Steen & Brandsen (2020), while outlining the different facets of sustainable co-production, also discuss the conditions under which it would be sustainable over time. One such condition was the importance of institutionalizing processes by capacity building. While exploratory, this study examines the first condition by operationalizing the processes into four types of organizational support- support, training opportunities for professional development, access to instructional materials, and resources. Given that school administrators and teachers face a new and tumultuous reality in terms of the growing importance of such capacity-building measures, much remains to be studied about operationalizing the conditions for sustaining co-production, the efficacy of such conditions, and its implications for organizational performance culture and reforms.

Table 3.2 Relationship between POS, burnout, & teacher related outcomes

Variables	Teacher effectiveness (Model 1)		Teacher satisfaction (Model 2)		Burnout
	Mediation model		*Mediation model*		
Support Scale	0.104***	0.089***	0.219***	0.273***	-0.13***
Burnout		-0.107***		-0.346***	
School size (small school size as Reference)					
Medium	0.023	0.025	0.024	0.029	0.013
Large	0.179*	0.073*	0	-0.006	-0.016
Urbanicity (City as reference)					
Suburb	-0.047	-0.025	0.038	0.023	-0.042
Town	0.065	0.012	0.054*	0.043	-0.031
Rural	-0.059	-0.029	-0.009	-0.035	-0.077**
Minority Serving School	-0.268***	-0.117***	-0.103***	-0.12***	-0.05
R2	0.027	0.039	0.1182	0.2352	0.0232
n	995	995	1055	1055	1055
Training Scale	0.105***	0.093***	0.266***	0.226***	-0.112***
Burnout		-0.107***		-0.356***	
School Size (Small school size as reference)					
Medium	0.024	0.027	0.0139	0.02	0.019
Large	0.063	0.065	-0.04	-0.039	0.004
Urbanicity (City as reference)					
Suburb	-0.016	-0.02	0.038	0.023	-0.042
Town	0.026	0.021	0.074**	0.06*	-0.039
Rural	-0.004	-0.015	0.029	-0.004	-0.095**
Minority Serving School	-0.115***	-0.12***	-0.111***	-0.128***	-0.046
R2	0.0279	0.0394	0.0875	0.212	0.0127
n	999	999	1059	1059	1059
Instructional Materials Scale	0.142***	0.122***	0.333***	0.271***	
Burnout		-0.103**		-0.32***	-0.19***
School Size (Small school size as reference)					
Medium	0.008	0.011	0.0147	0.017	0.009
Large	0.077*	0.076*	-0.001	-0.008	-0.02

Urbanicity (City as reference)					
Suburb	-0.16	-0.021	0.518	0.037	-0.045
Town	0.026	0.023	0.057*	0.049	-0.024
Rural	-0.006	-0.016	0.01	-0.018	-0.087**
Minority Serving School	-0.097**	-0.106***	-0.055*	-0.084***	-0.088***
R2	0.0319	0.0491	0.1252	0.2262	0.0439
n	955	955	1007	1007	1007
Resources Scale	-0.005	-0.006	0.0489	0.045	-0.01
Burnout		-0.118***		-0.38***	
School Size (Small school size as reference)					
Medium	0.02	0.0239	0.007	0.0169	0.024
Large	0.068	0.069	-0.025	-0.026	-0.002
Urbanicity (City as reference)					
Suburb	-0.016	-0.022	0.035	0.019	-0.039
Town	0.023	0.0188	0.067*	0.05	-0.037
Rural	-0.014	-0.025	0.002	-0.029	-0.08**
Minority Serving School	-0.116***	-0.12***	-0.101***	-0.119***	-0.0486
R2	0.0175	0.0315	0.02	0.1643	0.0069
n	1001	1001	1061	1061	1061
Burnout	-0.118***		-0.383***		
School Size (Small school size as reference)					
Medium	0.023		0.013		
Large	0.069		-0.033		
Urbanicity (City as reference)					
Suburb	-0.022		0.025		
Town	0.018		0.054*		
Rural	-0.026		-0.027		
Minority Serving School	-0.119***		-0.123***		
R2	0.0314		0.1632		
n	1001		1070		

Note. Standardized coefficients shown. *, **, *** indicates significance at the 10%, 5%, and 1% levels, respectively.

Table 3.3 Relationship between POS, burnout, & student related outcomes

| Variables | Student Participation (Model 3) | | Student Learning (Model 4) | | Burnout |
		Mediation Model		*Mediation Model*	
Support Scale	0.084***	0.075**	0.029	0.032	-0.13***
Burnout		-0.075**		0.017	
School Size (Small school size as reference)					
Medium	-0.052	-0.05	-0.045	-0.045	0.013
Large	-0.066	-0.067	0.012	0.013	-0.016
Urbanicity (City as reference)					
Suburb	0.034	0.03	-0.025	-0.024	-0.042
Town	0.006	0.004	-0.013	-0.013	-0.031
Rural	0.015	0.009	0.024	0.026	-0.077**
Minority Serving School	-0.197***	-0.201***	0.038	0.039	-0.05
R2	0.0517	0.0574	0.0067	0.007	0.0232
n	1055	1055	1050	1050	1055
Training Scale	0.09***	0.08***	-0.007	-0.006	-0.112***
Burnout		-0.077*		0.012	
School Size (Small school size as reference)					
Medium	-0.055	-0.053	-0.046	-0.046	0.019
Large	-0.079*	-0.078*	0.01	0.01	0.004
Urbanicity (City as reference)					
Suburb	0.035	0.032	-0.024	-0.024	-0.042
Town	0.013	0.009	-0.011	-0.011	-0.039
Rural	0.029	0.021	0.025	0.026	-0.095**
Minority Serving School	-0.2***	-0.204***	0.039	0.039	-0.046
R2	0.0532	0.059	0.0058	0.006	0.0127
n	1059	1059	1054	1054	1059
Instructional Materials Scale	0.087***	0.073***	0.07**	0.074**	-0.19***
Burnout		0.074**			
School Size (Small school size as reference)					
Medium	-0.056	-0.056	-0.06	-0.06	0.009
Large	-0.074*	-0.075*	0	0.001	-0.02

Urbanicity (City as reference)					
Suburb	0.0284	0.025	-0.028	-0.027	-0.045
Town	0.004	0.0023	-0.037	-0.036	-0.024
Rural	0.009	0.0025	0.013	0.014	-0.087**
Minority Serving School	-0.188***	-0.195***	0.039	0.041	-0.088***
R2	0.0515	0.0568	0.0115	0.0119	0.0439
n	1007	1007	1003	1003	1007
Resources Scale	-0.007	-0.007	0.029	0.029	-0.01
Burnout		-0.086***		0.013	
School Size (Small school size as reference)					
Medium	-0.057	-0.055	-0.046	-0.047	0.024
Large	-0.075*	-0.075*	0.012	0.012	-0.002
Urbanicity (City as reference)					
Suburb	0.035	0.032	-0.026	-0.025	-0.039
Town	0.012	0.008	-0.013	-0.012	-0.037
Rural	0.02	0.013	0.024	0.025	-0.08**
Minority Serving School	-0.2***	-0.21***	0.043	0.043	-0.0486
R2	0.0452	0.0526	0.0067	0.0069	0.0069
n	1061	1061	1056	1056	1061
Burnout	'-0.088***		0.013		
School Size (Small School Size as Reference)					
Medium	-0.053		-0.046		
Large	-0.075*		0.01		
Urbanicity (City as Reference)					
Suburb	0.032		-0.024		
Town	0.007		-0.01		
Rural	0.011		0.027		
Minority Serving School	-0.205***		0.039		
R2	0.0536		0.006		
n	1066		1058		

Note. Standardized coefficients shown. *, **, *** indicates significance at the 10%, 5%, and 1% levels, respectively.

Chapter 4 School-Parent Relationships Broadening The Scope Of Co-Production Through The Understanding Of Social Contextual Mechanisms

1. Summary

The relationship between parental involvement in school and student grades is established, theoretically sound, and supported in the education literature but has not been explored significantly in public administration literature using co-production theory. This chapter tested the co-production effort initiated by the parents in the school helps improve student grades. Furthermore, the chapter attempted to answer whether socio-cultural mechanisms moderate the influence of parental involvement in school on student grades. Using propensity score weighting, the author calculates the Average Treatment Effect of parental involvement in school on student grades. The findings suggest that socio-cultural mechanisms, including school's co-production effort such as school's communication to parents, school providing relevant information, social capital, and belonging to a particular race group, are significant moderators of student grades. The author has discussed the implication of the findings from a theoretical and methodological perspective.

2. Introduction

Since the start of the 1980s, the concept of co-production has garnered attention by utilizing it to understand better the service quality and production efficiency of public services (Parks et al., 1981, Percy 1984); and also, by understanding the role of citizens

from formal institutionalized participation to more informal and collective voluntary actions (Marschall, 2004). Ostrom defined co-production as "the process through which inputs used to provide a good or service are contributed by individuals who are not in the same organization" (1996, p.1073). Co-production of public services implies that different actors, such as citizens and public service professionals, contribute inputs to the production process (Ostrom, 1996). In public service organizations (PSO) such as schools, a variety of services are provided whereby students are not the only immediate recipient of services, but so are parents. However, these services have never been the sole responsibility of schools. Parents play an active role in the time and effort students need to spend on education-related activities (David & Ostrom, 1991; Scardamalia & Bereiter, 1999).

The literature suggests that parents have been at the forefront of decision-making and engagement in education, sociology, and inter-related disciplines, while schools facilitate increased parental engagement (Gofen & Blomqvist, 2014). Epstein's (1987) model of overlapping spheres of influence of families and schools on student learning emphasizes the combined effort of home, school, and community in supporting a student's learning and development. However, there is wide variation in the active participation of parents due to certain pre-existing conditions, such as social and cultural capital (Laureau, 2002; Jakobsen & Anderson, 2013; Steen, Brandsen, & Verschuere, 2018). For example, the lack of social capital and resources among certain parents and students could prevent them from accessing a school's social networks or relevant information, thus reducing effective parent-school or parent-child engagement. Thus, it is essential to determine the mechanisms that could hamper the co-production efforts initiated by parents and schools.

Because parents' social and economic structures/barriers impact student-parent-school interactions, it becomes pivotal to understand how such contextual mechanisms affect co-production processes between schools and parents. More specifically, *To what extent do socio-cultural contexts (presence of social or cultural capital or school's co-production) improve school-parent partnerships and, consequently, student outcomes?* This question has implications for better situating the co-production process with relative power imbalances at the individual and institutional levels. For example, power imbalances in resources, knowledge, social connections, access to information, or even language ties could affect the co-production process by posing barriers to school-parent partnerships. Using a pooled cross-sectional secondary dataset of the Parental and Family Involvement Survey (PFI) for the years 2012, 2017, and 2019 from the National Center of Education Statistics (NCES), the study aims to examine how socio-cultural contexts at the individual and school level moderate parent's co-production efforts and influence student outcomes. Moreover, the study provides evidence to an emerging body of research on the pitfalls of co-production by understanding the perceived relevance of power dynamics parents might bring to school.

3. Literature review

3.1. *School-parent relationship and co-production theory*

The theory of co-production of public services arose in the late 1970s through Elinor Ostrom's work on common-pool resources and collective action problems. Over time, research on co-production has encompassed how engagement is identified during the co-production process, the motivations behind the processes, and the different outcomes of

co-production produced by stakeholders. Going back to the fundamental definition of co-production, outlined by Elinor, four conditions were outlined that help understand how co-production is more efficient and equitable than public services provided by citizens or government alone (Ostrom, 1996; Durose et al., 2017). The first condition of co-production is as follows '… when co-productive inputs are diverse entities and complements, synergy can occur. Each has something the other needs …' (1996, p. 1079-1082). In the schooling context, this condition would suggest that co-production brings together different stakeholders with different skills and capital, and together can efficiently contribute to the co-production process and provide both public and private value (to each stakeholder). Ostrom's second condition is as follows '… options must be available to both parties' (1996, p. 1082). In the schooling context, this condition suggests that the design and implementation of services must be heterogeneous to benefit all relevant stakeholders. It could also suggest that schools as public service organizations would have to ensure that flexibility in the design of policies and implementation of such services would need to benefit all groups or parties involved. Ostrom's third condition is that 'participants need to be able to build a credible commitment to one another so that if one side increases input, the other will continue at the same or higher levels (1996, p. 1082). This condition assumes that participants are homogenous, and a form of trust and personal accountability is built in that would ensure that different stakeholders are not unduly disadvantaged or advantaged. Ostrom's fourth condition is that incentives can be used to 'help encourage inputs from both officials and citizens' (1996, p. 1082). This condition would suggest that organizational initiatives could enhance citizen participation, i.e., parents in the co-production process. Durose et al. (2017) and Sullivan (2011) consider these four conditions

as an explicit theory of change for co-production, a way to identify the more significant benefits of co-production across different contextual settings.

While these four conditions broadly help identify co-production mechanisms, they do not outline the nature of social structures and contexts existing amongst stakeholders and how it changes the engagement in the co-production process (Eriksson, 2019; Eijk & Steen, 2016). What is also not considered more often is how stakeholders' social context, which could be cultural resources or social networks, furthers the co-production process and helps achieve policy outcomes. Both Brudney & England (1983) and Boviard et al. (2016) have made solid arguments for building collective co-production amongst stakeholders by utilizing the already established social capital. However, what happens when collective co-production from different stakeholders is in place; does the presence of already established social, cultural, or linguistic capital further moderates the effect of co-production efforts on policy outcomes. This is important to emphasize as extensive research on citizen participation notes that differences in resources or lack of access to services could indicate that the co-production process may increase inequitable relationships between stakeholders and unduly affect policy outcomes.

Additionally, understanding the effects of social contexts is gaining traction while researching public service organizations, especially in building public value creation, by including users, PSO, local communities, families, etc. (Osborne, 2018; Osborne et al., 2016; Eriksson, 2019). As public value emphasizes equity or equal access to services, this research recognizes its importance and looks to address the impact of social contexts on the PSO's outcomes. Borrowing the term 'social-context sensitive' from Eriksson (2019),

this study addresses the impact of social contexts in the co-production process and achieving policy outcomes.

3.2. *Social contextual mechanisms and its link to co-production process*

The 1966 Seminal Report on Equality of Educational Opportunity by James Coleman emphasized how family and community characteristics shape child development and, in turn, educational outcomes. Since then, empirical research in education and sociology has shown that family-school engagement practices lead to healthier relationships among students, parents, teachers, and school administration both at school and home (Epstein et al., 2002; Gardner, Hutchings, Bywater, & Whitaker, 2010). Nonetheless, a wide disparity in the school-engagement practices manifests through social class and race-based stratification (MacLeod, 2018; Aronson, 2008; Weis, Cipollone, & Jenkins, 2014, Lewis & Diamond, 2015). In Bourdieu & Passeron's (1990) Reproduction in Education, Society, and Culture, the concepts of 'cultural capital' and 'social capital' were first developed to recognize the rising school inequalities by observing the differences in cultural and social characteristics of individuals and groups that are a reflection of social class position. Since its conceptual inception, cultural capital definitions have taken many different forms, including access to student resources and strategies and those provided by the families to attain student outcomes (Davies & Rizk, 2018). In this chapter, the author looks at familial strategies that help different aspects of culture to be embedded by the parents and how they may be converted to human capital. Bourdieu's work also emphasized the role of cultural capital in developing social capital differences across groups. According to Bourdieu (1986), social capital includes social networks and social ties with individuals

who have access to highly valued resources. The volume of social capital a given child/parent might have depended on the size of the network of connections a student/parent can effectively mobilize.

To better understand the influence of social contextual mechanisms in the co-production process, it is essential to dissect the role of citizens, parents in this case, in the co-production process. While Ostrom's initial definition focused on the joint participation of citizens and officials in implementing public services, research on co-production has since then identified varying roles of citizens in the provision and implementation of public services. For example, Parks et al. (1981) describe co-production as a "mix of activities that both public service agents and citizens contribute to the provision of public services." While similar in how they approach expected outcomes, Ostrom's and Park's definitions of co-production differ in the role of citizen participation, individually or collectively (Brandsen & Honingh, 2013; Bovaird, Van Ryzin, Löffler, & Parrado, 2015, p. 19). On the other hand, Osborne & Strokosch (2013) define co-production as being interdependent between producer and citizens, contributing to the public service-dominant approach. For example, parents volunteering for school excursions or students assisting in organizing school events. However, not all citizens can or would be willing to participate either equally with the same level of motivation to implement public services. While few studies note that co-production lowers the barriers to participation (Clark et al., 2013; Boviard & Loeffler, 2015), there is also evidence pointing toward the difficulty of engaging marginalized groups in the co-production process (Barker, 2010; Holmes, 2011).

Moreover, wealthy citizens or those with higher social class tend to dominate the process and implementation of such services (Steen et al., 2018). Based on this literature

and the significance of implementing an 'equitable' public service-dominant approach to the co-production process, the study analyzes whether different forms of capital can further moderate the parent-school co-production process and affect student outcomes. Results from this study have a significant bearing on how best to utilize parents' different forms of human capital during the co-production process and potentially link it to the importance of school policies that align with the public service-dominant approach while being equitable to the larger community.

Figure 4.1 outlines the interactions between the moderating variables at the organizational, parental, and child levels. The organizational side attributes refer to policies that support the co-production effort between schools and parents initiated by schools. For example, schools create newsletters in Spanish and English to ensure all parents have equal access to information from the school. On the child side, attributes refer firstly to bio-physical characteristics, such as race and parents' income level. The second set of attributes on the parental side refers to different forms of human capital that parents might possess. This would further influence the co-production process by the presence or absence of different types of capital.
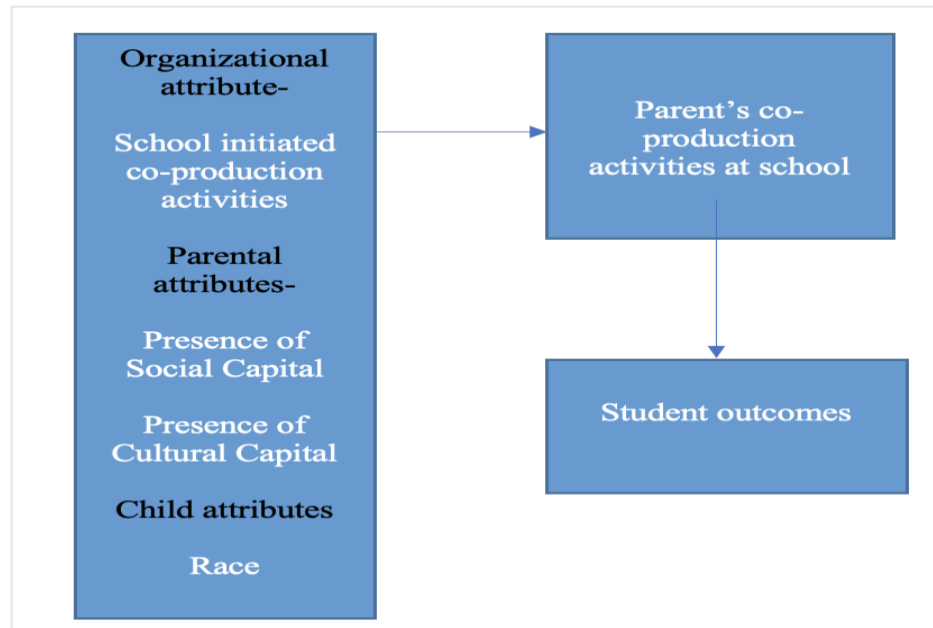
Figure 4.1 Theoretical model[1]

Co-producers, while delivering public services, are often the direct users of the service or indirectly benefit from the process (Verschuere et al., 2012). Many researchers, including Eijk & Steen (2016) & Alford (2002), have outlined personal incentives that make the co-production process more efficient. Among them is the benefit of the direct services received, which in the study refers to better student outcomes.

While existing frameworks such as Deci & Ryan's (1985) cognitive evaluation theory or Dempsey & Sandler's (2005) model on parental involvement discuss the relevance of parental role construction and motivations to improve parental involvement, less is known about organizational level framework to make such systematic

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[1] Note. Theoretical model adapted from Ostrom's framework of institutional analysis (2005) and Voorberg et al. (2014) identified influential factors of co-production.

improvements. Drawing a parallel from other service organizations, schools are public service organizations. They provide a variety of services but are not exclusively aimed at the promotion of learning in their clients, the students. (the clients are not only the students but their parents and the larger society as well, but students are the immediate recipients of most services). The co-production of education is an illustrative example of the importance of service user input for service outcomes. Family input— especially the early family environment and strategies—plays a crucial role in a child's education. Therefore, parents are essential co-producers of their children's educational outcomes (as are the children themselves).

In order to study the research question, *To what extent does the presence of social contexts (presence of social or cultural capital) improve school-parent co-production and, consequently, student outcomes?* the study utilizes Elinor Ostrom's polycentricity system governance, and Voorberg et al. (2004) identified influential factors of co-production. The polycentricity system incorporates the central tenets of a co-production mechanism, such as multiple decision units (parents and schools) with overlapping responsibility areas. These decision units are also broadly defined within formal and informal rules and norms. Thus, a polycentric system will provide an interactive and diverse way to address common problems, thus creating patterns of interaction reflecting the current race, gender, social class, and other socio-economic narratives. Expanding on Voorberg et al. (2014) work on identifying factors affecting co-production from the citizen side, the study operationalizes the influence of different forms of human capital. While some research has been conducted on the influence of social capital on accelerating the co-production process (Bovaird et al.,

2016; Voorberg et al., 2015), less is understood on whether the presence of social and cultural capital furthers the co-production engagement between the stakeholders.

4. Methodology

This section includes a description of the dataset and the final sample utilized for the study. Then, analytical methods are discussed along with the variable operationalizations and definitions.

4.1. Sample

As mentioned earlier, the study operationalizes the research question in the following way- *Are students more likely to perform well, as perceived by parents, if parents co-produce in school-related activities compared to students of similar parents who are not likely to co-produce in school-related activities?* The research question is addressed by utilizing an initial sample of 44,706 parental responses collected over the years 2012, 2017, and 2019.

The study utilized the Parent and Family Involvement Survey (PFI) survey focusing on the parent and family involvement in the students' education as reported by the students' parents. The PFI survey is part of the National Center for Education Sciences (NCES) household surveys. The PFI survey collects data about students who are enrolled in Kindergarten through grade 12 or are homeschooled for equivalent grades and asks parents questions regarding their involvement in education, such as help with homework, family activities, and attending a school or class event. The study will examine the PFI survey data from 2012, 2016, and 2019. These cross-sectional surveys were conducted as

part of the National Household Education Survey, using a nationally representative address-based sample covering 50 states and the District of Columbia. The response rates and sample sizes for the survey were 57.6% and 17,560, respectively, in 2012; 49.3% and 10,680, respectively, in 2016; and 52.6% and 16,466, respectively, in 2019. The PFI Survey randomly selects respondents—and weights the data to account for sample nonresponse— the surveys provide a nationally representative view of parents' experiences. Additional information about the dataset is in Appendix C. Survey dataset from 2012 onwards have questions measuring both parent's and school's co-production efforts and questions about potential individual and organizational barriers parents face, such as limited access to social or cultural capital. It is important to note here that the outcome, predictor and confounder variables with multiple survey items that were dichotomous in nature were recoded using the median split procedure. The utilization of median split was primarily to provide operationalization clarity and communicate the importance of analyzing the predictor variable as dichotomous. The median split procedure also provides more analytical ease and rigor, when the independent variables are also uncorrelated (Iacobucci et al., 2015).

4.2. Variables of interest

4.2.1. Outcome variable

One of the tenets of co-production theory is that parent-school co-production efforts tend to improve their child or student's academic outcomes. Therefore, the study measures the following dependent or outcome measure: whether parents perceived that their student performed well in school. The survey question utilized for the measure is *'Please tell us about this child's grades during this school year. Overall, across all subjects, what grades*

does this child get?' The item was self-reported into five groups (1- mostly A's, 2 -mostly

B's, 3 – mostly C's, 4- mostly D's). This variable was recoded and dichotomized (1 = Mostly

A's, 0 = B, C, D's). According to our sample, 21,570 (52%) performed well (mostly got

A's) in the school.

4.2.2. Predictor variable

The predictor variable used in this study was a measure of parental involvement in

school activities. Using prior literature review on parental involvement in school has shown

that being active in school activities not only improves their engagement with school

personnel, but also helps them to be more aware of the students' performance, and the kind

of opportunities and extra-curricular activities student might want to pursue. The survey

questionnaire had specific questions about parental involvement in school which were

utilized as the predictor variable. The measure used survey question with eight survey

items *Since the beginning of this school year, has any adult in this child's household done*

any of the following things at this child's school? asking parents whether they participated

in fundraising, attended parent-teacher meetings, volunteered for school activities, among

others. The full survey question wordings are in available in Appendix C. The items were

self-reported as (1 = Yes, 2 = No), which were recoded as (1 = Yes, 0 = No).

4.2.3. Confounder variables

Using previous literature review and co-production theory, the author also utilized

several confounding variables to predict the probabilities of parental involvement in the

school, using the propensity score weighting model. Among household characteristics,

variables included in the study were parents' educational qualifications (less than 8th grade to a professional degree, 11 values) and household income. Among child characteristics, variables included in the study were whether the child is Hispanic or Latino (1 = yes, 0 = no), and the child's race (Asian, Black, White, American Indian, Pacific Islander) was dichotomized (1 = yes, 0 = no).

Among school characteristics, variables included in the study were census region where the child lives (1= Northeast, 2 = South, 3 = Midwest, 4 = West); whether the school is charter or public school (1= Charter, 0 = Public); type of locality where the child lives (1= city, 2 = town, 3 = suburb, 4 = rural); and the child's level of schooling (1 = elementary, 2 = middle, 3 = high). The study also utilized the school's co-production efforts using two variables: school-initiated communication and school-provided information. While the data were limited in the survey questionnaire, the following two measures provide a comprehensive understanding of school's co-production efforts. These measures were chosen as they don't act as a joint effort with parents, but rather a co-production effort between teachers and school administration.

To measure school-initiated communication, the study utilized three survey questions on whether parents receive notes or emails, newsletters, or phone calls regarding the child's progress. The items were self-reported as (1 = Yes, 2 = No), which were recoded as (1 = Yes, 0 = No). The second measure of school-initiated co-production effort is school-provided information using five survey questions on child progress, homework help, class placement, college, and parents' expected role. The items were self-reported as (1 = very well, 2 = just okay, 3 = not very well, and 4 = does not do it at all).

Among parental characteristics, variables used in the study were the presence of social capital measured using two survey questions *Did you consider other schools for your child? and Did you move to let your child attend the current school?* The items were self-reported as (1 = Yes, 2 = No), which were recoded as (1 = Yes, 0 = No). The measure of social capital is limited as all survey items could not be utilized, due to its availability limited to one specific year. As such, the author understands the data limitation and its effect on producing more precise estimates when testing the research question.

Lastly, the second variable used was the presence of cultural capital resources by parents using seven survey questions that asked parents whether they spend time with their child by visiting the library, art gallery, religious event, sporting event, among others. The items were self-reported as (1 = Yes, 2 = No), which were recoded as (1 = Yes, 0 = No).

4.2.4. Potential moderator variables

Four sets of potential moderators were selected within the child, parental, and school characteristics that are theoretically likely to increase or decrease student grades in lieu of parental involvement with the school activities. These potential moderators included are the child's race, social and cultural capital among parents, and the school's co-production effort measured by school-initiated communication and school-provided information.

4.3. Empirical approach

In this chapter, the author utilized propensity score and weighting (PSW) methods. Since the dataset is observational and pooled cross-sectional, PSW has been known to be

a better estimate of the treatment effects with an increasing frequency. PSW has been studied for years and is considered a standard analytical approach to measuring the effect of treatment variables based on measured baseline covariates (discussed in the previous sub-section). For this study, the author followed Austin & Stuart (2015) definition of propensity score defined as 'the probability of treatment assignment conditional on measured baseline covariates (p.34)'. Over the years, many studies have begun using large-scale datasets and applying quasi-experimental methods to examine plausible causal relationships (Bishop, Leite, & Snyder, 2018). PSW can be an important tool for observing causal estimates by matching demographic and societal characteristics (Nam & Chang, 2018). While there are potential limitations to drawing causal inferences from survey data due to selection bias, PSW is a helpful tool to balance the probabilities of parent involvement and non-involvement with school activities.

For this study, the author lists the confounder variables in the previous section that influence parental involvement at school to compute the propensity score (Figure 4.2). In addition, in this study, inverse probability of treatment weighting (IPTW) rather than PS matching or stratification was utilized, as they can be included in the analyses the same way survey weights would be used, thus making the analyses compatible with survey data analyses (Bishop, Leite & Snyder, 2018).
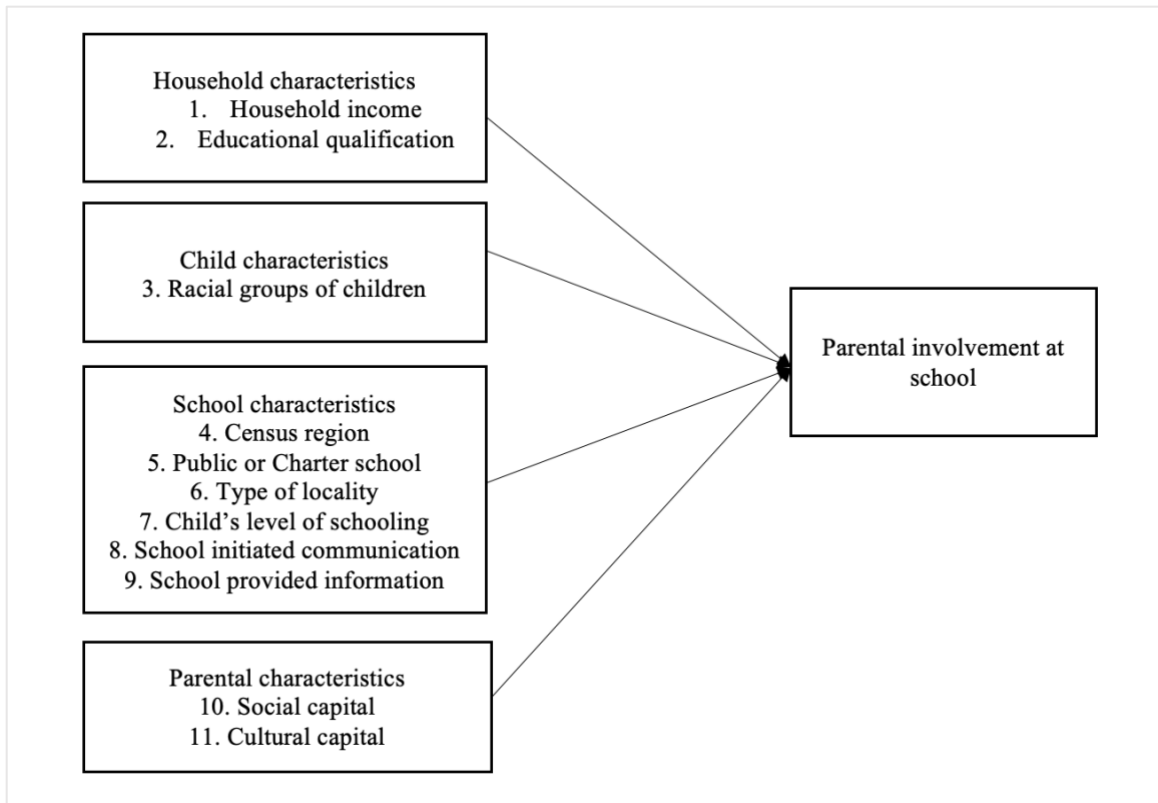
Figure 4.2 IPTW model

After computing the IPTW, logistic regression analysis was used to compute the

Average Treatment Effect (ATE) and also conduct sub-group moderation analysis to

better understand the variation in ATE (Figure 4.3).
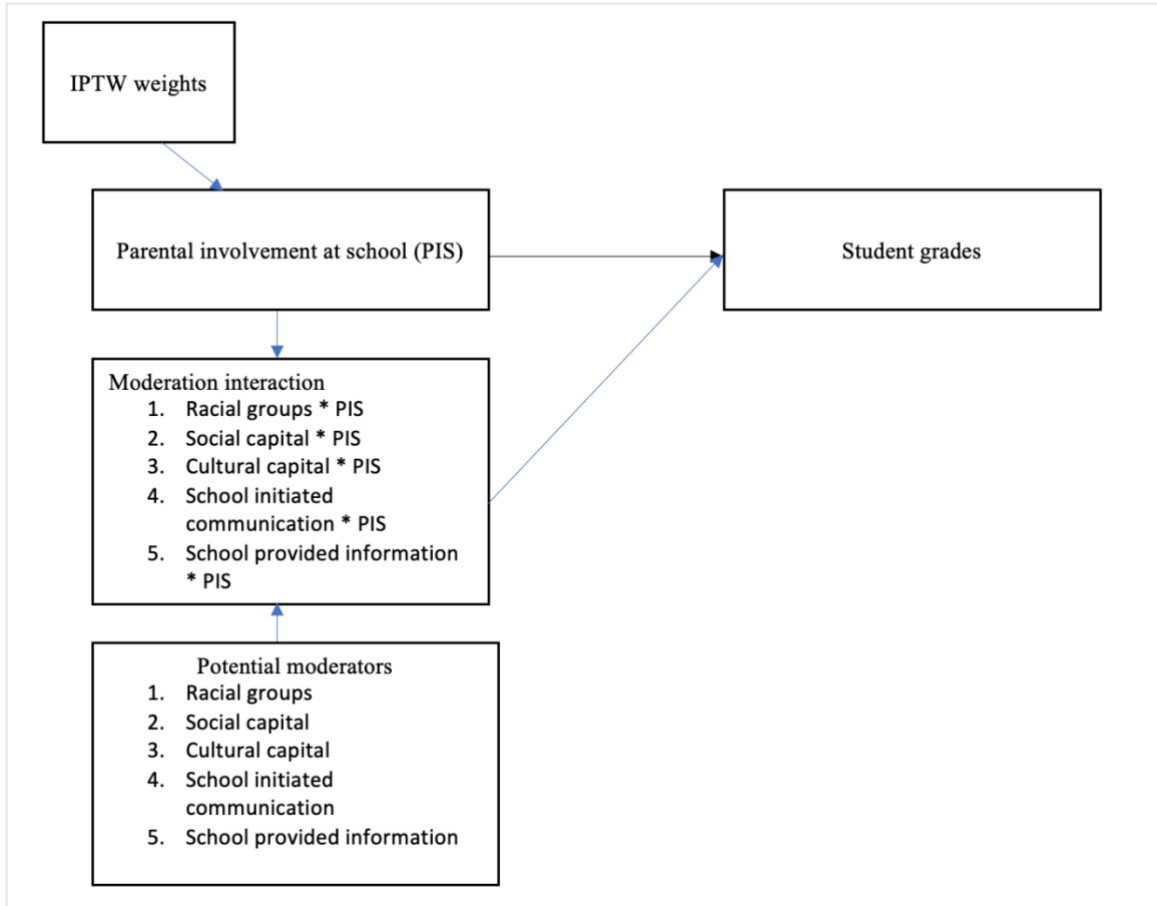
Figure 4.3 Empirical model

5. Results

5.1. *Main effects*

Table 4.1 examines the means, standard deviation, and pairwise correlations of the variables of interest. The means and SD of parental perception of student grades revealed that, overall, an equal number of students received very good grades (M = 0.524). The mean for parental involvement at school was 0.67 (sd = 0.47), which means that while 67% of parents were involved, the deviation was also quite significant.

Table 4.1 Descriptive statistics and correlation of variables before PSW

Variables	Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
(1) Student grades	0.524	0.499	1.000																	
(2) Parental involvement at school	0.67	0.47	0.120*	1.000																
(3) Parent's educational qualification	5.876	2.415	0.225*	0.205*	1.000															
(4) Household income	6.563	2.983	0.222*	0.187*	0.521*	1.000														
(5) Hispanic or Latino	0.587	0.492	-0.010	0.030*	0.039*	-0.020*	1.000													
(6) White	0.757	0.429	0.077*	0.067*	0.117*	0.226*	0.029*	1.000												
(7) Black	0.143	0.35	-0.113*	-0.007	-0.056*	-0.212*	0.051*	-0.547*	1.000											
(8) American Indian	0.032	0.177	-0.020*	-0.005	-0.043*	-0.058*	-0.010	-0.081*	0.004	1.000										
(9) Asian	0.086	0.28	0.099*	-0.029*	0.123*	0.086*	0.011	-0.366*	-0.089*	-0.020*	1.000									
(10) Pacific Islander	0.011	0.106	-0.004	-0.001	-0.015*	-0.008	-0.009	-0.077*	-0.002	0.045*	0.072*	1.000								
(11) Census region	2.526	1.034	-0.011	0.013*	-0.045*	-0.004	-0.045*	0.004	-0.113*	0.036*	0.068*	0.054*	1.000							
(12) Charter school	0.955	0.208	0.001	-0.018*	0.004	0.034*	0.031*	0.050*	-0.057*	-0.002	0.012	0.000	-0.043*	1.000						
(13) Locality type	2.184	1.068	0.026*	0.018*	-0.030*	0.033*	0.064*	0.207*	-0.134*	0.013*	-0.116*	-0.032*	-0.082*	0.109*	1.000					
(14) Schooling level	1.98	0.883	-0.116*	-0.223*	-0.029*	0.024*	0.025*	0.014*	-0.018*	-0.001	-0.024*	-0.001	0.001	0.050*	0.020*	1.000				
(15) School communication	0.937	0.243	0.044*	0.162*	0.155*	0.145*	0.004	0.062*	-0.022*	-0.017*	-0.007	-0.004	0.009	-0.013	-0.018*	-0.070*	1.000			
(16) School provided information	1.753	0.901	-0.134*	-0.196*	-0.028*	-0.028*	0.025*	0.042*	0.004	0.012	-0.035*	0.001	-0.002	0.061*	0.057*	0.122*	-0.106*	1.000		
(17) Social capital	0.452	0.498	0.056*	0.093*	0.170*	0.110*	-0.031*	-0.025*	0.028*	0.009	0.044*	0.016*	0.015*	-0.083*	-0.126*	-0.028*	0.059*	-0.015*	1.000	
(18) Cultural capital	0.259	0.438	0.099*	0.208*	0.140*	0.064*	0.017*	-0.023*	0.031*	-0.002	0.016*	0.007	-0.013*	-0.024*	-0.051*	-0.139*	0.047*	-0.132*	0.090*	1.000

*** $p<0.01$, ** $p<0.05$, * $p<0.1$.

On performing the t-test to examine the possible group difference in potential treatment groups, there was a statistically significant mean difference among parents involved in school activities ($p < .05$). Therefore, it would necessitate using propensity score weighting to equate the groups.

Using STATA 17, the author utilizeede teffects and tebalance commands to calculate the inverse-probability weighted estimators (IPW) while also incorporating the sampling weights to allow the results to be generalized for the population of interest. First, the teffects command calculates the Average Treatment Effect (ATE) on the treated, i.e., parents actively involved in school activities. IPTW uses the inverse (reciprocal) of the probability of being in the observed treatment group. These probabilities are obtained by modeling the observed treatment as a function of subject characteristics that determine the treatment group (STATA manual). Once the ATE is calculated, the tebalance command allows the author to run diagnostic tests to check the balance of the covariates across the treatment level.

In the first model, post estimation of ATE, an overidentification test was conducted to check for the balance of covariates (16 variables). Given a large number of covariates, the author calculated ATE (table 4.2) including the primary model and model with interactions. After estimating the main model without interaction, overlap and balance of covariates was checked to determine whether the model modifications would be necessary (such as adding interaction items) (William & Lawrence, 2016). From table 4.2, we can estimate it to be 0.03, significant at a 95% confidence level. On conducting the over-identification test (Ho: covariates are balanced), Prob > chi2 = 0, thus rejecting the Ho. To check the balance, we look at the covariates balance summary in Table 4.3.

Table 4.2 Treatment effect estimation: Main model (with and without interactions)

outcome	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Treatment (1 vs 0) (w/o interactions)	.031	.01	2.98	.003	.01	.051	***
Treatment (1 vs 0) (with interactions)	.029	.01	2.90	.004	.01	.049	***

*** p<.01, ** p<.05, * p<.1

In Table 4.3, the weighted standardized differences are close to zero, and the variance ratios are close to one. However, the output indicates that educational qualification (educ_qual) may not be balanced by our model. The weighted standardized difference is close to zero, but the weighted variance ratio still appears to be considerably less than one. To achieve a better model, the author has specified a richer model with interactions between educational qualification and the other covariates and looked at the resulting standardized differences. Table 4.2 also presents the result of treatment effect estimation with interactions, where ATE is estimated at 0.03, significant at a 95% confidence level. On conducting the over-identification test for the model with interactions (Ho: covariates are balanced), Prob > chi2 = 0.47, thus not rejecting the null hypothesis that the specified treatment model balances the covariates, which can also be seen in the covariate balance summary in Table 4.3.

Table 4.3 Covariate balance summary of the main model (without interactions)

	Raw	Weighted			Raw	Weighted	
	Without interactions				*With interactions*		
Number of obs =	27,286	27,286.0			27,286	27,286.0	
Treated obs =	16,594	13,561.7			16,594	13,571.2	
Control obs =	10,692	13,724.3			10,692	13,714.8	

	Standardized Raw	differences Weighted	Variance Raw	ratio Weighted	Standardized Raw	Differences Weighted	Variance Raw	ratio Weighted
		Without interactions				*With interactions (educational qualification *covariates)*		
Census region	0.014	0.008	0.966	0.980	0.014	0.009	0.009	1.005
Parent's educational qualification	0.350	-0.064	0.919	**0.883**	0.350	-0.023	-0.023	**0.988**
Household income	0.287	-0.022	0.983	1.010	0.287	-0.015	-0.015	0.986
Hispanic or Latino	0.052	0.004	0.983	0.999	0.052	-0.006	-0.006	1.002
White	0.087	-0.020	0.914	1.022	0.087	-0.016	-0.016	1.017
Black	0.048	0.042	1.101	1.086	0.048	0.051	0.051	1.106
American Indian	-0.002	-0.017	0.989	0.916	-0.002	-0.008	-0.008	0.962
Asian	-0.065	0.012	0.827	1.036	-0.065	0.001	0.001	1.004
Pacific Islander	-0.009	0.018	0.920	1.179	-0.009	0.012	0.012	1.116
Locality type	0.057	-0.017	1.030	1.021	0.057	-0.010	-0.010	1.017
Schooling level	-0.352	-0.026	1.348	1.100	-0.352	-0.028	-0.028	1.013
Charter school	-0.043	0.004	1.235	0.982	-0.043	-0.014	-0.014	1.070
Social capital	0.168	0.006	1.055	1.002	0.168	0.006	0.006	1.002
School communication	0.284	-0.001	0.398	1.004	0.284	0.002	0.002	0.993
School provided information	-0.379	0.010	0.778	1.075	-0.379	0.011	0.011	1.031
Cultural capital	0.454	0.009	1.968	1.012	0.454	0.011	0.011	1.015

5.2. Sub-group moderation analysis

The final aim of this study is to explore the relationship of potential moderators between parental involvement in school activities and parental perception of student grades. The aim is to determine whether there might be a stronger relationship between parental involvement in school activities and student grades among specific sub-groups of parents. Five sets of moderating variables were selected. To test these, an interaction item with parental involvement in school was created for each of the five sets of potential moderators. Each interaction was tested with all the covariates and including the main effect of the model. The results from the models are summarized in Table 4.4. Among the racial groups, being Hispanic, White, or Black is a significant predictor of student grades suggesting that parental involvement in school likely leads to different student grades, as perceived by parents, among the racial groups mentioned above. Among the school co-production efforts, schools providing different forms of communication is a significant predictor of student grades when also interacting with parental involvement in school activities. This holds for the school providing information on different aspects of student schooling. Finally, among parental co-production efforts through the access of social and cultural capital, only social capital, when interacted with parental involvement in school, is likely to cause different student grades among those who have access to social capital resources, as opposed to having cultural capital resources.

Table 4.4 Treatment (PIS) effect estimation: Moderator sub-group analyses

outcome	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]
PIS*Hispanic	0.032	0.013	2.47	**0.014**	0.007	0.058
PIS*White	0.027	0.011	2.38	**0.017**	0.05	0.049
PIS*Black	0.06	0.025	2.40	**0.016**	0.011	0.109
PIS*Asian	0.028	0.31	0.91	0.364	-0.032	0.089
PIS*Social Capital	0.039	0.015	2.60	**0.009***	0.009	0.068
PIS*School communication	0.024	0.01	2.32	**0.02**	0.004	0.045
PIS*School information						
Subgroup 1 (very well)						
subgroup 2 (just okay)	0.034	0.015	2.24	**0.025**	0.004	.064
Subgroup 3 (not very well)	0.028	0.016	1.74	**.082***	-0.003	0.06
Subgroup 4 (does not do it	-0.00	0.02	-0.12	0.906	-0.042	0.037
at all)	0.076	0.038	1.98	**.047**	0.00	0.152
Treatment*Cultural Capital	-0.001	.0223	-0.07	0.945	-0.045	0.042

*** $p<.01$, ** $p<.05$, * $p<.1$

6. Discussion and limitations

The present study aimed to shed light on the importance of applying co-production mechanisms to the extant literature surrounding parental engagement in school. More specifically, this study examined the relationship between parental involvement in school activities and parental perception of student grades. The author utilizes a quasi-experimental analytical approach using observational data to test the potential causal impact of parental involvement on student grades. First, by utilizing propensity score weighting analyses, the study aimed to improve the internal validity of the findings. Secondly, to optimize the external validity of the study, the author also used sampling weights and a nationally representative sample of households in the U.S. Finally, this study extended the analyses by examining a set of potential moderators of the relationship between parental involvement and student grades, thus providing more rigor to the

importance of socio-cultural mechanisms, which has not been adequately discussed in public administration literature.

While the previous studies examining the relationship between parental involvement and student grades have yielded similar findings, the present study presents a more coherent set of covariates to examine the relationship. As perceived by parents, student grades were higher when these covariates interacted with educational qualifications than when they did not interact with other covariates. Thus, the difference in educational qualification among parents as a household characteristic could account for the difference. To further account for the causal effect of parental involvement in school activities on student grades, the study utilized sub-group moderator analyses to test the effect of different socio-cultural mechanisms, thus improving the internal and external validity of the findings on a nationally representative household sample. The findings suggest that sub-groups of parents were school-initiated co-production, such as school-initiated communication and school providing information on child's progress and about their future does cause student grades to improve from parental involvement in school activities. Among parental characteristics, parental perception of student grades, on average and among sub-groups of parents with social capital, tend to improve when parents are involved in school activities. However, parents having access to cultural capital and being involved in school activities do not tend to improve student grades. Finally, among student racial profiles, belonging to White, Hispanic, Black, or Asian race can cause student grades to improve when parents are involved in school activities.

The findings from the sub-group moderator analyses add nuance to the extant literature on the importance of parental involvement in school. While understanding the

importance of school stakeholders, this research posits the importance of socio-cultural contexts such as the presence of social capital, cultural capital, and school's co-production efforts with parents, having a significant bearing on student grades when parents are involved in school. This research reflects the critical first step in going beyond demographic characteristics to understand the influence of cultural and social mechanisms and how they can be expanded upon to improve the validity of the findings. Secondly, borrowing heavily from the sociology and education literature, this study provides a steppingstone in building co-production literature that incorporates not just the importance of stakeholders initiating such effort, who the stakeholders will be, but also understanding the in-build socio-cultural mechanisms that might make such co-production efforts possible.

The present study is the first attempt to test a causal relationship between parental involvement in school activities and student grades while looking at the influence of socio-cultural sub-group characteristics on a nationally representative sample of parental households. Nonetheless, its findings are limited in several important ways. The first limitation is the missing data, as the study only utilized complete case analysis, which could lead to potential bias from potentially inadequate data from study constructs (Williams & Lawrence, 2016). In order to fully understand the influence of socio-cultural mechanisms, many moderators from the literature could not be used due to data limitations for certain years such as the presence of linguistic capital among parents (able to speak English, interpreters in school), involvement of other family members, access to transportation, among others.

In terms of methodological and theoretical approaches, this study has few implications. First, by adopting IPTW to test ATE, the author has tried to minimize selection bias and improve the validity of the findings. The confounder and moderator variables were included based on the previous literature and the systematic review conducted in chapter 1. The inclusion of sub-group moderator analyses helped build a solid theoretical argument for testing the effects of socio-cultural mechanisms beyond the demographic characteristics. For future research, multi-level analysis, which could include the school and district effects, and community-level effects, would be beneficial in building a more robust model based on the co-production efforts between different stakeholders.

Chapter 5 Managing For Equity- Are Schools Doing It Right?[2]

1. Summary

In public administration, since at least the time of Minnowbrook I and II, theory and research regarding social equity (SE) have become more widespread in the field. However, SE research remains constrained by the need for more original data and empirical investigation of how SE issues play out in particular administrative contexts. This study thus aims to situate managerial leadership within a social equity lens to understand better-existing perceptions of social equity, or what school principals believe to be equitable, and how their perceptions influence administrative decision-making and school outcomes.

Using data from an original survey of school principals in New Jersey, the chapter addresses how frontline bureaucrats (school principals) perceive SE and its concurrent effect on their perception of school effectiveness. The study also asks how school principals' perceptions of social equity affect their level of administrative discretion at the workplace and its subsequent effect on school effectiveness. The survey results indicate that the school principal's resonance with social equity is not reflected in the implementation of socially equitable policies in the school. The findings from the second research question suggest that only distributive equity policies are positively associated with school effectiveness, with no mediating effect of administrative discretion. On

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[2] The survey used for this chapter was developed and fielded with co-principal investigator, Kasny Damas, who is a PhD student at the School of Public Affairs and Administration, Rutgers University-Newark.

analyzing qualitative data, school principals clearly articulate the need for equitable practices and policy and institutional support for schools to be more socially equitable in the classrooms.

2. Introduction

Since the 1960s, significant progress has occurred in the United States toward the provision of 'equitable access to educational resources, opportunities, and achievement' or 'educational equity, having expanded schooling opportunities, whether through measures such as desegregation, affirmative action, or fiscal equalization, but also with a clear and consistent advantage for white and wealthier Americans persists (Rossmiller, 1987; Oakes & Lipton, 2002;). This, as suggested by Boaler (2002), is partly due to the American public school's reflection, at times reinforcement, of social class disparities irrespective of educators' purest intentions. Consequently, despite noteworthy progress, the realization of educational equity remains a challenge for the American public education system as patterns of inequitable academic outcomes linger, in particular, along gender, racial, ethnic, and socioeconomic lines (Wamba & Ascher, 2003; Rodriguez, 2004; Gutstein et al., 2005).

The study adds to the public administration literature by analyzing the importance of managerial and instructional leadership in sustaining educational equity. Previous research has shown that school leaders with social justice leadership traits (Theoharis, 2007) have had relatively more success in maintaining both student-level outcomes and improving school-level outcomes, such as teacher retention, professional development, and job satisfaction, among others. This area of research is also essential to study as empirical

data has so far been highlighting the challenges of educational equity. For example, the overrepresentation of African American and Latino students in the lower tails of achievement distributions and underrepresentation in the upper tails of these distributions (Rousseau & Tate, 2003); teachers' low expectations of African American and Latino students (Jones & Yonezawa, 2002); the severe underrepresentation of minority students in Advanced Placement (AP) programs (Ndura et al., 2003); and the consistent overrepresentation of African American and Latino students in special education programs (Alvarez & Mehan, 2006).

While students' socioeconomic conditions influence educational outcomes, a considerable body of research demonstrates that, when provided with the appropriate academic and social support, low-income and minority students can attain achievement gap-closing results (Alvarez & Mehan, 2006). Over the past 20 years, several educational leadership scholars have contributed significantly to how educators advocate for social justice in schools (Brooks et al., 2007). Rossmiller (1987) was the first among scholars to emphasize effective leadership's necessity. Furthermore, education research scholars emphasize that leaders who understand and implement educational equity in the core organizational and curriculum aspects of schooling can achieve social justice in the classrooms (Darling-Hammond, 2007; Johnson, 2009, Chisnall, 2010). This study thus aims to situate managerial leadership within a social equity lens to understand better-existing perceptions of social equity, or what school principals believe to be equitable, and how their perceptions influence administrative decision-making and school outcomes. The study extends beyond student outcomes to examine school administrative measures to understand how/if equitable classroom policies are implemented.

3. Literature review

3.1. What is educational equity?

Defining educational equity is difficult. Gutstein and colleagues (2005) postulate that, "In an equitable world, one should not be able to predict certain outcomes solely from examining students' race, class, gender, or other characteristics." In the education context, in particular, equity necessitates the recognition of past inequities in American school systems that must be rectified (Gutstein et al., 2005, pg. 94). A debate regarding the ultimate method by which to achieve equity thus emerged as a result. Scholars emphasized "equality as a result" or "equality as a process" since what is equitable depends significantly on the dispensers and receivers of equity (Rossmiller, 1987; Crenshaw, 1988). Guy & McCandless's (2012) seminal piece later introduced distributive, procedural, and substantive equity. *Distributive equity* emphasized providing services to those unable to obtain them through market mechanisms. In other words, since private schools are not affordable for all American citizens (or families), distributive equity allowed them an equal opportunity at a good education through public schools. This signified access. *Procedural equity* thus emphasized the fairness of the process in which education is provided to such individuals. In other words, is the method unbiased? This signifies fairness. Finally, *substantive equity* focuses on the degree of equitable impact for all served. This signifies equivalency.

Thus, social equity is a concept that results from the views of a generation of scholars who, in the late 1960s, contravened the "traditional ideas of a politics–administration dichotomy and public administration practiced by neutral competent"

(Norman-Major 2011, p. 233). Instead, they suggest that practitioners and scholars should be not only concerned about whether public agencies reach certain levels of efficiency, effectiveness, and economy but also aware of "for whom government operates" (Norman-Major 2011, p. 237). NAPA defines social equity as "the fair, just, and equitable management of all institutions serving the public directly or by contract, the fair and equitable distribution of public services and implementation of public policy, and the commitment to promote fairness, justice, and equity in the formation of public policy" (National Academy of Public Administration, cited in Gooden and Portillo 2011, p. 61–62). By this definition, advocates have proposed a model of government that is dependent on the success of transforming public officials into actors who share the goal of reducing inequities in any policy process (Cardenas et al., 2017).

The Minnowbrook Conference II in the late 1980s placed a greater emphasis on social equity, with factors still impeding the advancement of SE in the field- conceptual clarity, need for increased attention to SE in the public administration curriculum, and need for further methodological development in SE research. This chapter addresses the third factor by emphasizing the need for managing social equity to be taken precedence while simultaneously introducing social equity at an institutional level. The chapter is also methodologically relevant, as limited analytical techniques currently exist to measure SE at the institutional level to help determine how effectively SE has been implemented at the administrative and work levels. Consequently, motivated by the legacy and promise of social equity, as argued by Guy & McCandless (2012), a survey was developed with co-author and sent to public school principals in the state of New Jersey to determine to what

extent, if at all, school leaders associate the attainment of educational equity to the distributive, procedural, or substantive sense.

3.2. Influence of educational equity on school effectiveness

In the education context, a considerable amount of research exists in understanding the history of inequality in education, more specifically by looking from the lens of educational outcomes of disadvantaged children and measuring social equity using the same lens (Sammons, 2010). A study by Kyriakides & Creemers (2011) infers that schools play a central role in ensuring both cognitive and non-cognitive domains- which include areas of knowledge, skills, and affection, among others. However, recent research has paved the way to define educational equity from a social justice framework (Sammons, 2007). School effectiveness is broadly measured using two lenses- one is a student-centered approach, where implementation of social and academic inclusion is the key focus. For example, objective indicators include the percentage of low proficiency students in a school or a change in proficiency status. Another approach is to understand whether schools have adapted social equity measures. However, it is relatively unknown how the school administration perceives social equity after that implementation or whether schools as an organization can implement social equitable policies.

From a public service organizational framework, Bolman and Deal (2003) defines key facets of organizational functioning, such as structure, culture, human resources, and adaptation to the environment, and subsequently indicate what represents good and bad organizational performance. Paul Mott developed one of the pioneer studies focused on a model of organizational effectiveness in 1972. Mott defined organizational effectiveness

as "the ability of an organization to mobilize its centers of power for action-production and adaptation" (p.17). Mott's (1972) instrument was reformulated by Miskel et al. (1985) as a measure of school effectiveness in five dimensions: quantity and quality of the product, efficiency, adaptability, and flexibility. The quantity and quality of the product in school environments generally refer to student achievement and other standard measures of school effectiveness (Hoy & Ferguson, 1985). Miskel et al. (1985) defined adaptability as the ability to anticipate problems, develop solutions promptly, and utilize new processes and resources as appropriate. In contrast, flexibility is the ability to make quick adjustments, especially in emergencies. This argument shows how a clear perception of the need for social equity can lead to educational effectiveness. Thus, based on the previous literature, the study hypothesizes that school leaders having a clear perception of the three forms of social equity and its implementation positively affects school effectiveness. Therefore, the author predicts that having a clear perception of all three forms of social equity will improve school effectiveness.

From the previous literature, it can also be inferred that school leaders have significantly more discretionary power in enabling or constraining school structures, cultures, and rules (Cardenas et al., 2017; Blessett et al., 2019). As a result, public education systems become an ideal space for discerning how public officials handle moral dilemmas and how public agencies respond to specific challenges regarding the administration of public justice through the distribution of scarce resources aimed at reducing unjust differences across populations. In the evolution of public administration theory and practice, a consensus has been reached that investing discretionary power in administrative agencies is a fact of life. While public administration theorists once believed that a public

administrator's actions could be dictated clearly by legislative mandate, numerous studies have demonstrated that it is often impossible for legislators to anticipate all circumstances that may influence administrators' actions in executing public law (Lipsky 1980). As discretion is often a crucial part of public administrators' job descriptions, understanding their resonance to social equitable policies could shed light on how school leaders view their discretion to the same and its subsequent impact on school effectiveness.

A recent study by Cardenas et al. (2017) found that at least four interconnected factors may explain the effect of street-level bureaucrats' discretionary behavior on social equity: (1) the need for bureaucracies to be flexible in responding to unique situations and individual circumstances, (2) the aim of frontline workers to improve the lives of clients effectively, (3) public programs' requirement to differentiate among recipients, and (4) the workloads and limited resources of frontline bureaucrats (Lipsky 1980). To identify how discretion may result in routines that reproduce administrative evil that diminishes social equity, survey instrument measuring administrative discretion was developed using Lipsky (1980) model. To test this framework, the study hypothesizes that the presence of administrative discretion could negatively or positively affect the school's effectiveness. The discussion from the literature also suggests having a clear perception of social equity and its implementation in school can decrease the need for administrative discretion. Thus, the study also hypothesizes that having a clear perception of social equity will reduce the presence of administrative discretion among school leadership.

4. Methodology

To put the chapter in context, the study examines which types of SE (procedural, distributive or substantive) resonate most with school principals. For study context, in January 2017, the state board of education in New Jersey re-adopted Managing for Equality and Equity in Education, which outlines responsibilities for achieving and maintaining compliance with all state and federal laws governing equity in educational programs. As a result, all schools, including charter schools and renaissance school projects, are mandated to develop a three-year Comprehensive Equity Plan (CEP). Interestingly, the plan does not mention any prior training around identifying inequitable practices/or what would be considered inequitable practices. Using a self-designed state-level survey, the chapter addresses how frontline bureaucrats (school principals) perceive SE and its concurrent effect on their perception of school effectiveness.

Using an original survey of NJ school principals (n =98), this study employs path analysis to examine a) whether the intention of being more equitable in the school leads to a greater chance of effective and equitable policy implementation, and b) how intentionality of being more equitable may have a direct effect on an administrator's level of discretion and, subsequently, on organizational outcomes. The framework illustrates a dynamic relationship utilizing the school principal's intention of implementing social equity and whether it trickles down at the organizational level. This chapter aims to be a building block in intersecting social equity research with public management foundations around internal management thinking, especially strategic leadership and organizational culture.
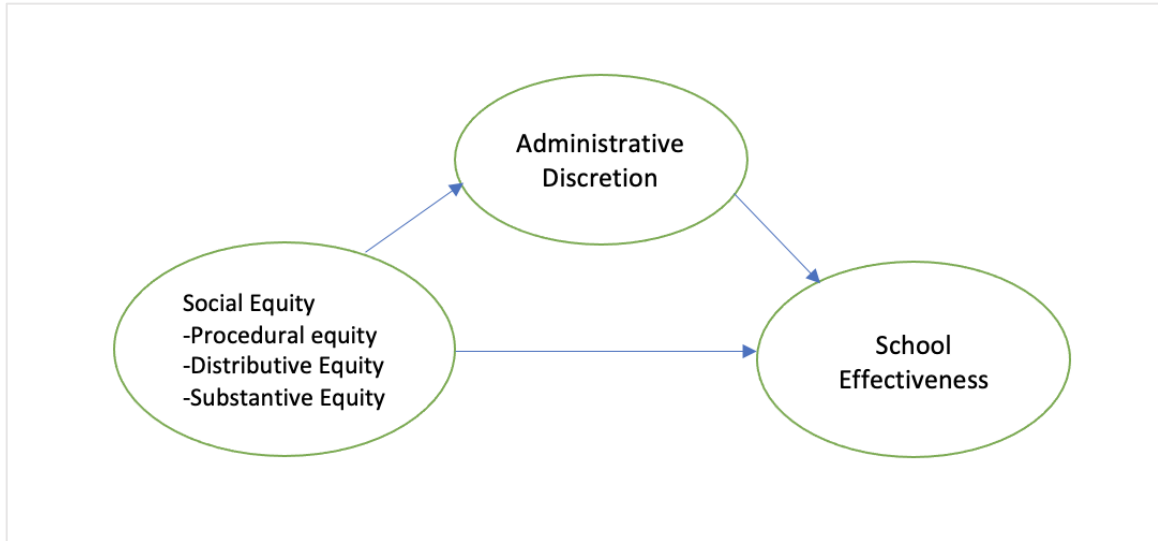
Figure 5.1 Conceptual model

5. Data and measurement

5.1. *Data collection*

The co-principal investigators used Qualtrics software to conduct an original survey with New Jersey principals from June to August 2021, following IRB approval. The cross-sectional survey included 40 questions, including demographic questions and school-related demographic questions. More specifically, using previously tested scales supported by prior literature review, the survey encompassed questions on school principals' perceptions of social equity, administrative discretion, availability of different forms of professional and administrative capacity, and school effectiveness. The survey was sent to all 2,690 NJ school principals to participate. In addition, three rounds of bi-weekly follow-up emails were sent to encourage a response. The emails for the NJ school principals were publicly available and recovered from the NJ department of education website. Although the listserv comprised several school leaders in the state (i.e., Chief School Administrator,

School Director, Anti-Bullying Specialist, etc.), targeted school principals were targeted. The consensus was that such individuals were best positioned to provide us with the information necessary to understand how school leaders perceive social equity, their level of administrative discretion, and their perception of how school effectiveness.

In total, 98 school principals completed the survey, representing a response rate of only about 4.2 percent.[3] This is a limitation of the study, as the low response rate does not allow the author to generalize the findings to the population of interest. One potential reason for the low response rate is the survey being a year since the Covid-19 pandemic, including its impact on education personnel. In addition, the mental fatigue and burnout could de-motivate school principals not to participate. Moreover, the survey does not provide any direct benefit or other incentives for completing the survey, thus potentially de-motivating from completing the survey.

5.2. Measures

This study analyzes whether school principals' perception of different types of social equity leads to implementing socially equitable policies in their schools. To analyze the first research question, the study utilizes an independent variable with the survey question *which definition of equity most resonates with you?* The question was measured as 1 = distributive equity, 2 = procedural equity, and 3 = substantive equity. The definitions of each type of equity were added to the question and are available in Appendix D. The

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[3] Among the emails sent to 2562 principals, 165 emails bounced or failed, and 70 emails were duplicate. So, the response rate was calculated by subtracting bounced or otherwise undeliverable emails from the total emails sent, which was 2327 emails.

responses were re-coded into three dichotomous variables, each measuring a different type of social equity with 1 = Yes, and 0 = No.

The dependent variables are a measure of each type of social equity. Using Guy & McCandless's (2012) work on social equity, measures for distributive, procedural, and substantive equity were developed. To measure distributive equity, the survey asks the following question *If all students do not follow the same course of study, how important are each of the following factors in deciding which courses of study students take?* The six survey options included academic performance, parental wishes, and students' wishes. The responses were coded on a 5-point Likert scale from 1 = definitely yes to 5 = definitely not. Factor analysis indicated one dimension with six survey items with a Cronbach alpha of 0.83. To measure procedural equity, the survey asks the following question *Does the school survey students (or obtain student feedback) as a source of information on teacher performance?* The responses were coded as 1 = Yes, and 0= No. To measure substantial equity, the following question was used *Is your school's capacity to provide instructions affected by a shortage or inadequacy of any of the following?* The ten survey responses included instructional materials and teaching qualifications, among others. The responses were coded on a 5-point Likert scale from 1 = definitely yes to 5 = definitely not. On conducting CFA with varimax rotation, two-factor loadings with an overlap of 2 survey items. The scale developed used all ten items for factor 1 with a Cronbach alpha of 0.9246. A complete list of survey questions, item constructs, and factor loadings have been listed in Appendix D.

The study uses the dependent variable in the previous analysis as our independent variable of interest to analyze the second research question. To analyze the relationship

between equitable policy implementation at the school level and organizational effectiveness, school effectiveness was measured using the following survey question *Teachers produce a variety of products such as lesson plans, new curricula, student learning as well as numerous services including teaching, advising, counseling, and parent conferences. Think of these products and services as you respond to each item and indicate the degree to which you agree with the following statements about your school. Answer these questions in the context of implementing or making changes to promote social equity in the classroom.* The eight survey responses were measured on a 5-point Likert scale ranging from 1 =strongly agree to 5 = strongly disagree. When conducting factor analysis, two sets of factor loadings were computed. As a rule of thumb, only those factors with an eigenvalue greater than one were considered. The scale developed using one factor utilized six survey items with a Cronbach alpha of 0.8.

In this study, the author also analyzes the influence of the mediating variable administrative discretion, measured by the following survey questions (Q12-Q15). *With regard to your school, are you primarily responsible for each of the following activities? With regard to your school, which of the following activities was performed by school personnel? With regard to your school, which of the following programs are made available to students and parents? With regard to your school, what kind of resources or flexibility is available to you?* The survey responses were coded on a 3-point Likert scale from 1 = yes, 2 = maybe, and 3 = no. The survey responses looked at what kind of administrative discretion was available regarding school personnel, professional development, and communication with parents. Only factor loadings for the first two survey questions were developed when conducting the factor analysis. While there is

construct validity, based on the prior literature, to measure administrative discretion using all four survey questions, the factor loadings for Q14 and Q15 were less than 0.5 and did not match the reliability estimates of Cronbach alpha being greater than 0.7. When CFA with varimax rotation was conducted, three scales were developed. For Q12- two-factor loadings resulted in an eigenvalue greater than one and no overlap of factor loadings.

The first scale, ad1_factor1, measures the flexibility in placing students and teachers in classrooms. The scale utilized two survey items with a Cronbach alpha of 0.7. The second scale (ad1_factor2) developed measures principals' administrative discretion in admissions and developing course content and professional development. The scale utilized three survey items, and the scale's reliability was 0.7135 (Cronbach alpha). The scale Q13 AD2_scale measures school personnel's discretion in conducting various activities. On conducting the CFA with varimax rotation, only two survey items and one-factor loading resulted measuring the discretion around communicating with parents through notes, emails, or phone. The scale developed had a reliability of 0.66 (Cronbach alpha).

Apart from the primary variables of interest, the study also collected demographic information about the student population, school-administrative data regarding years of educator experience, principal's socio-demographic information, and access to professional development. Since the motivation behind this study was to probe whether the NJ CEP was being actively implemented, we also inquired about the schools' progress in implementing the CEP.

While the study is predominantly quantitative, the survey also asked two open-ended questions to school principals regarding implementing equitable policies in the

school. The survey questions *What are the school's measurable goals around equity and inclusion? And In your opinion, what can be done to make the experience of educators and students more equitable?* could provide a more contextual understanding of the findings from the quantitative analysis. In order to analyze the responses to these two survey questions, the responses were analyzed using Corbin & Strauss (1990) grounded theory approach, where using three types of coding: open, axial, and selective, actions and issues were identified to further delineate to patterns and themes.

6. Results

6.1. Quantitative results

In order to better provide the context of the study, the first set of results (Table 5.1) includes descriptive statistics about the school principals. Among the New Jersey school principals who responded to the survey, 85% noted that their school was located in a small town or township, and 10% of the schools were located in a city in NJ. Compared with the counties in which these schools belong, most schools located in small towns or townships were in Monmouth and Union County. Similarly, the school principals' responses came from 16 of the 21 counties. Looking at demographics, on average, school principals in NJ have five years of educator experience and four years of teaching experience before they took up the school leadership position. Most of the principals who responded to the survey (43 out of 98) were principals of elementary schools, followed by middle school (23 out of 98), and 17 were high school principals. When looking at the principal's demographics, the author finds that around 54% of the principals were female, and a majority of the principals belonged to the 45-54 age group range.

Regarding academic qualifications, 85% of the respondents hold either masters or doctorate degrees. Around eight respondents were working on their doctorate degrees. When looking at the kind of support school leaders have, on average, there are two people as part of administration personnel, followed by eight employees per school, on average, for pedagogy support. Additionally, on average, each school has around 40 teachers.

Among the student demographics in NJ schools, on average, there are 102 students enrolled in school. Among these responses, schools with more than 50% male students were 60, and schools with more than 50% female students were 53 in number. Among the 98 school principals, schools with more than 50% of African American students constituted 6%, schools with more than 50% White students constituted 61%, schools with more than 50% Asian students 8%, and schools with more than 50% Latino students were 9%.

Table 5.1 Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Years as principal	89	5.213	1.556	2	7
Highest level of schooling	89	3.551	.929	1	5
Community size	88	3.761	.788	1	6
% of male students (>50%)	67	.896	.308	0	1
% of female students (>50%)	64	.828	.38	0	1
% students with disabilities (>50%)	68	.074	.263	0	1
% of ESL students (>50%)	65	.046	.211	0	1
% of Free or RPL students (>50%)	70	.314	.468	0	1
% of African American students (>50%)	67	.06	.239	0	1
% of White students (>50%)	67	.612	.491	0	1
% Asian students (>50%)	67	.075	.265	0	1
% Latino students (>50%)	65	.092	.292	0	1
No of classroom teachers	54	40.556	26.347	8	135
No of pedagogy support staff	50	8.36	12.953	0	75
No of administrative personnel	54	2.389	1.803	1	10
Gender of principal	54	.463	.503	0	1
Age range of principal	54	1.981	.714	1	4
Ethnicity of principal	54	2.593	.942	1	5
Highest academic qualification of principal	46	.457	.504	0	1
Total student enrollment in school	70	102.9	594.033	2	5000

The next set of analyses looks at the relationship between school principals' resonance with different types of social equity and school policy implementation. The study uses multivariate regression analyses to see if the principal's resonance with a type of social equity influences the type of social equity implementation in schools. Thus, the author checks whether school principals' resonance with procedural equity leads to evidence of its implementation in their schools. A similar test was conducted for distributive and substantive equity.

In Model 1-3 (Table 5.2), the author finds that the individual principal's resonance to a type of social equity has no association with evidence when measuring the presence of social equity at the school level. However, looking at the control variables, number of

administrative, support, and teaching personnel is significantly associated with the school's implementation of socially equitable policies from a procedural, distributive, and substantive viewpoint. Similarly, the number of students enrolled in school also is significantly associated with the equitable policies in school. Interestingly, looking at evidence of substantive equitable policies in place in school, the level of schooling provided by the school, the community size of where the school is located, and the number of years the respondent has been a school principal are negatively associated to the evidence that substantive equitable policies are implemented in the schools.

Table 5.2 Model 1-3 results

Variables	Procedural equity in school Model 1	Distributive equity in school Model 2	Substantive equity in school Model 3
Resonance with Procedural equity	.08		
Resonance with Distributive equity		-.829	
Resonance with Substantive equity			.424
Years as principal	-.101	-.137	-.085*
Highest level of schooling	-.341	1.287	-.088*
Community size	-.058	.643	-.081*
% of male students (>50%)	-.249	.032**	-.798
% of female students (>50%)	.531	1.361	6.244
% students with disabilities (>50%)	1.187	-2.925	7.312
% of ESL students (>50%)	-1.307	-.308	-.678
% of Free or RPL students (>50%)	.157	.045**	-.716
% of African American students (>50%)	-.217	0	.875
% of White students (>50%)	.208	.686	-1.057
% Asian students (>50%)	-1.018	.332	-3.666
% Latino students (>50%)	.753	-.592	1.359
No of classroom teachers	-.003***	-.032**	.004***
No of pedagogy support staff	.004***	.038**	.078*
No of administrative personnel	.043**	.059*	.004***
Gender of principal	.653	-.202	.542
Age range of principal	.388	.264	.541
Ethnicity of principal	.043**	-.367	.935
Highest academic qualification of principal	.171	.646	.29

Total student enrollment in school	.01**	-.033**	.01**
Constant	.518	-1.352	-4.593
R-squared	0.794	0.735	0.871
N	28	26	28

Note. Standardized coefficients shown. *, **, *** indicates significance at the 10%, 5%, and 1% levels, respectively.

In the next set of analyses (Table 5.3), the author analyzes the relationship between the evidence of equitable social policies at the school level and school effectiveness and whether the administrative discretion available to school principals mediates the above relationship.

In models 4 & 5, the author tested whether policies implementing procedural equity in school are positively associated with school effectiveness. In table 3, model 4 presents the relationship between evidence of procedural equity in school and school effectiveness. The results were non-significant. When tested for the association between administrative discretion and procedural equity, there is a negative and statistically significant association between the two. In other words, an improvement in the implementation of procedural equitable policies in the school reduces the administrative discretion a principal would have in choosing students and teachers for classroom. There was no statistically significant relationship between other aspects of administrative discretion and procedural equity implemented in schools. When testing the relationship between the different facets of administrative discretion and school effectiveness, the study finds no statistically significant relationship, thus indicating that administrative discretion might not have the stronghold in making schools more effective in equitable policies. As a result, when the study tested whether administrative discretion mediated the relationship between procedural equity in schools and school effectiveness, the hypotheses not supported.

In table 5.4, the study analyzes the relationship between the implementation of distributive equity policies at the school level and school effectiveness and whether administrative discretion mediates the relationship. Model 6 presents the results of the relationship between evidence of distributive equity in school and school effectiveness. The results were statistically significant at a 95% level of confidence. In other words, evidence of distributive equity in schools is positively associated with school effectiveness. Among the control variables, the highest level of schooling and community size is negatively associated with school effectiveness. However, the number of years served as a principal, age, and gender of the principal, and the number of administrative supports positively affect school effectiveness.

There was no statistically significant relationship between aspects of administrative discretion and distributive equity implemented in schools. However, the study found a partial mediation where the effect of administrative discretion becomes significant and the effect of distributive equitable policies on school-on-school effectiveness remains significant with an increase in its magnitude. More specifically, schools that reported greater evidence of distributive equity in schools had more discretion in two aspects, reduced discretion in flexibility in professional development and other activities and reported greater school effectiveness.

In table 5.5, models 8 & 9 tested whether policies implementing substantive equity in schools are positively associated with school effectiveness or called organizational effectiveness at the school level. Model 8 presents the results of the relationship between evidence of substantive equity in school and school effectiveness. The results were non-significant. When tested for the association between administrative discretion and

substantive equity, there is a positive and statistically significant association between the one aspect of administrative discretion. In other words, an improvement in the implementation of substantiative equitable policies in the school increases the administrative discretion a principal would have in communicating with the parents. There was no statistically significant relationship between other aspects of administrative discretion and substantiative equity implemented in schools. Finally, when tested for mediation, while statistically insignificant, an improvement in the implementation of substantive equitable policies in the school increases the discretion a principal has in communicating with parents while decreasing the discretion in flexibility a principal has for different activeness, thus decreasing the school effectiveness.

6.2. Qualitative results

The author dissects the contextual reasons behind the quantitative analyses in this section. The qualitative analyses used two survey questions- *what are the school's measurable goals around equity and inclusion? And in your opinion, what can be done to make the experience of educators and students more equitable?*

To better understand the context of the survey questions, school principals were also asked about their progress in implementing the New Jersey Comprehensive Equity Plan (CEP) guidelines. There are seven steps of implementation to be completed by the year 2022. This survey was conducted in summer 2021, and thus expecting progress made by principals in implementing the plan. Figure 5.2 presents the results of how schools have progressed.
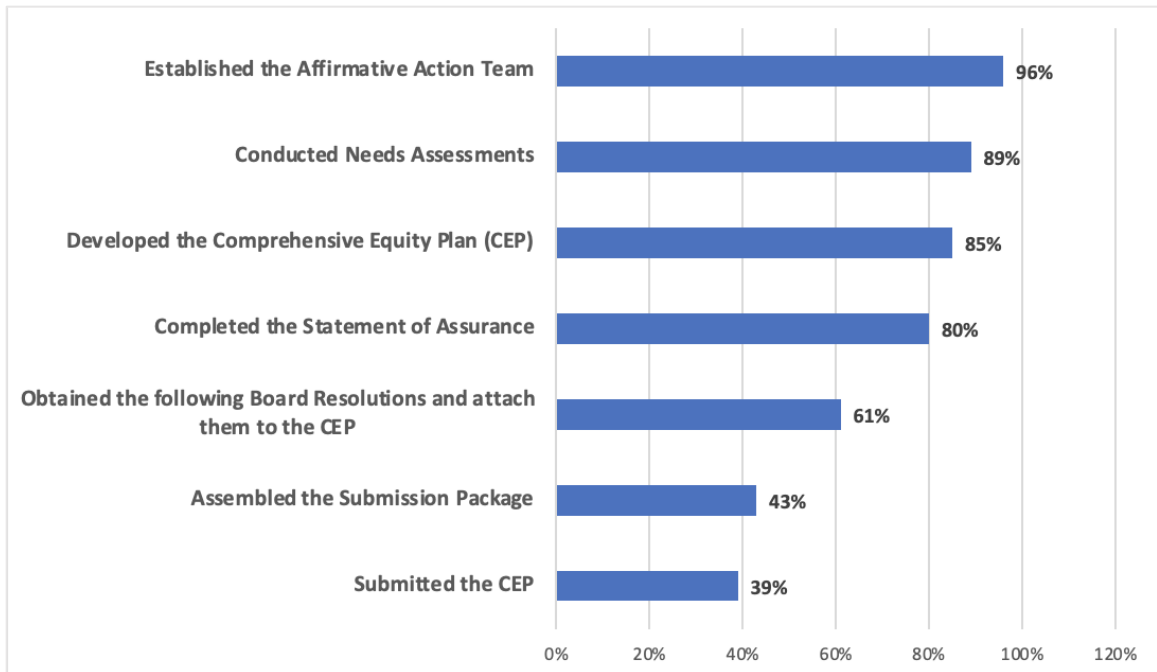
Figure 5.2 Progress in NJ CEP

Among the 46 principals who responded to the question, 96% of responses indicated the first step of the CEP plan has been followed, followed by at least 80% of principals indicating steps 2-4. The NJCEP plan was implemented in 2019, with three years given to schools to submit the final CEP plan. As per the figure, 85% of the principals had developed their CEP plan when the survey was conducted in the summer of 2021. It is interesting to note that around 32 principals also responded on how to improve the social equity measures and goals and what more is required from different stakeholders.

Conventional content analysis is used to analyze the two survey questions. However, since the survey questionnaire was theoretically framed to understand better the influence of socially equitable policies in letting schools be more effective, the author used Strauss & Corbin's (1980) grounded theory approach. As such, a deductive strategy was utilized to determine the categories and sub-categories and shed more light on some

quantitative findings. For categorizing keywords, the unit of analysis was 'string of words, which will be referred to as keywords. After highlighting the keywords, the keywords were used to identify labels for codes, and after that, labels for categories and sub-categories were used.

The initial analysis suggests that the survey questions covered a breadth of issues concerning how the principals perceive school inequity. After carefully coding into categories and sub-categories, the survey responses lead to two themes: the importance of institutional and policy support and the need for equitable practices in schools. The latter theme decomposes the need for not just practices that need to be more systemic but also for whom these practices should matter. Conversely, the former theme of giving importance to institutional and policy support identifies critical forms of support, resources, access and professional development needed through district and school to help advance the true meaning of equity and equitable practices. A diagram of the themes, categories, and sub-categories is presented in Figures 5.3 and 5.4.

For example, the first theme of institutional and policy support emerged from three categories, *policy and regulations, organizational support, and equal access to opportunities.* These categories shed light on the need for policy level and organizational level support to improve opportunities and maintain equitable access to such opportunities.

The policy and regulation category broadly defined the policies surrounding the vagueness of what equity means for different school districts and the need for better accountability from policy leaders and school district officials. One principal responded that the measure of social equity is school districts' responsibility, including providing a

clear, equitable plan for the schools. However, two principals also discussed the need for better alignment of such policies with the community and what the community would need or consider equitable plans.

In terms of concrete policies and regulations, a concurrent theme among the principals was wanting clear targeted incentives in hiring and retaining diverse instructional personnel to support the pedagogy needs of the school. The third sub-category, accountability, is about asking for more accountability from the school district officials, teachers, students, and parents to have trust amongst the stakeholders. Broadly defined, the organizational support category included the need for an overhaul of professional development, access to resources, and support for different programs, especially around building trust and relationships with other stakeholders. There was a clear consensus among principals for the professional development training for administration and teaching personnel. Even more specifically, three principals noted the need for these training opportunities to be geared towards discussion around anti-racism, implicit biases, and equity and civil rights.

The second sub-category of access to resources was broadly construed towards all stakeholders, with relatively more emphasis on parental training, especially in understanding other cultures and being more inclusive towards other parents and personnel. One principal also mentioned more coaching and training around inclusive practices geared towards teacher unions by involving other organizations such as New Jersey Education Association (NJEA) or Montgomery County Education Association (MCEA). Finally, the third sub-category, equal access to opportunities, referred to equal access to students,

teachers, and administration, but also equal access to personalized learning, different subject areas, and economic and learning opportunities for students.

The second theme, equitable practices, emerged out of two theoretically linked categories, i.e., understanding the meaning of equity, building, and culturally responsive practices. Looking at the first category of understanding equity, many principals agree there is vagueness in understanding what equity means, and this vagueness stems from the policy, individual leader's opinions, and school district guidelines. More specifically, the first and second categories are interrelated, where one of the culturally responsive practices suggested was the understanding of community context in defining an equitable plan. Other practices the principal suggested understood the systemic inequity stems from by looking more closely at the community challenges at home and using identity and location to build a community and develop an equitable plan accordingly. More concretely, there was advocacy for diverse activities, programs, and learning geared towards equity and inclusion.
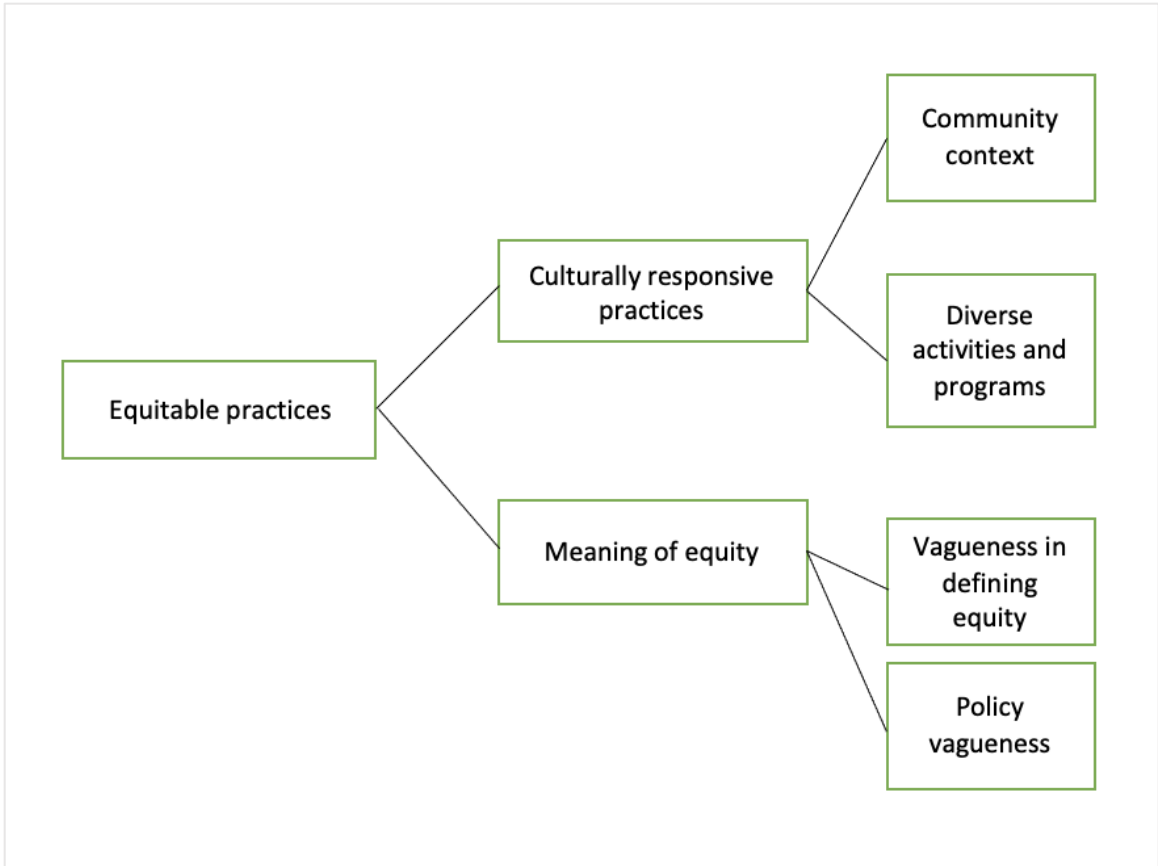
Figure 5.3 Theme 1
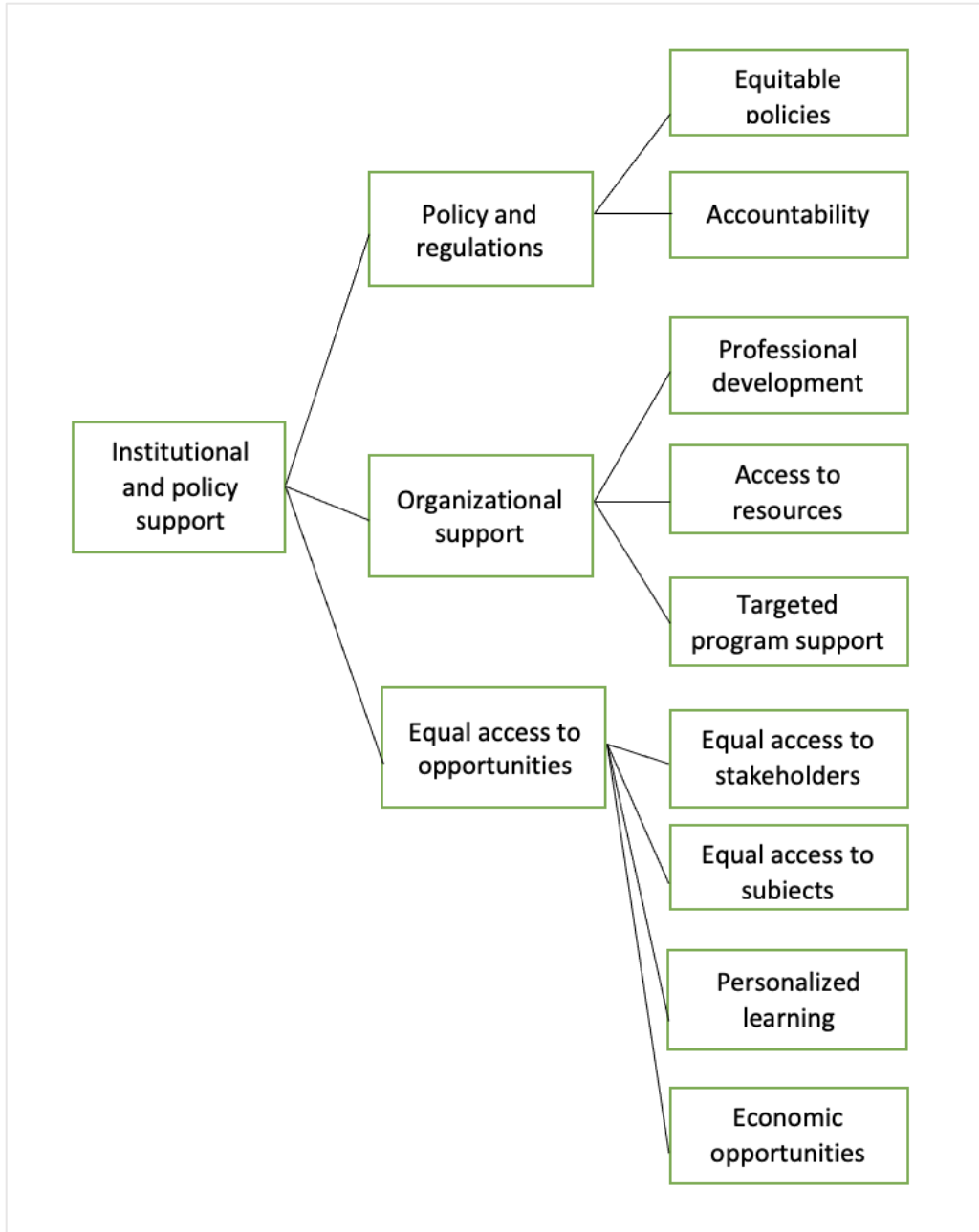
Figure 5.4 Theme 2

7. Discussion & limitations

This chapter provides some initial insights on the unexamined questions around educational equity by focusing on frontline bureaucrats' role in making schools effective from an organizational focus lens. An original survey using New Jersey school principals'

perceptions around social equity in schools shows that school principals' resonance with a particular type of social equity does not reflect how these forms of equitable practices are implemented in the school. This finding is fitting with the content analysis results where school principals delineate institutional and policy support, and equitable practices is required for educators and students to feel their school is more inclusive in nature.

For the second research question analyzing the effect of equitable policy implementation on school effectiveness, the study finds that schools with evidence of distributive equity are positively associated with school effectiveness. In other words, distributive equity in schools, which allows for an equal opportunity for a good education, is positively associated with school effectiveness. Interestingly, most control variables were also significant in the underlying association between the presence of distributive equity in schools and effectiveness. This would indicate that school principals' experiences, availability of professional support, personnel, and student demographics play a significant role in ensuring schools are still effective from an organizational, functional perspective when implementing policies geared at distributive equity.

This study also measured whether school leaders have administrative discretion and influence school effectiveness. The findings from the mediator relationships indicated that schools where procedural equity were implemented had more significant discretion in choosing students and teachers in the classroom but did not influence school effectiveness. Similarly, schools with more evidence of substantive equity in classrooms led to more discretion for school principals in communicating with parents through different means. However, this increase in did not contribute to school effectiveness.

When the quantitative analysis findings are examined in the study context, the author find that there is still more work to be done, especially in implementing equitable policies across the school. Based on the content analysis, school principals indicate that there is more need for equitable practices that are not only geared at equity and inclusion but also about practices that are culturally responsive and provide a clear and articulate definition and plan for implementing equitable practices in the classroom. From a public administration perspective, the need for institutional and policy support indicated by principals provides clear evidence to prior organization theory framework and literature review suggesting the need to re-look at organizational support and effectiveness from a social equity perspective (Starke et al., 2018).

This study was conducted in the middle of the pandemic after schools went remote for more than a year. The low-response rate and the exploratory nature of the study do not allow the findings to be generalized to the population of interest. Nonetheless, the study provides a clear call for action to re-look at schools as public service organizations with explicit organizational attributes from a social equity lens. New research on how schools fared during the pandemic has shown a clear need to reevaluate policies that alienated marginalized groups during remote instruction, especially around instruction and pedagogy support (Aguilera & Nightengale-Lee, 2020; Protonentis et al., 2021). When the study's quantitative findings are juxtaposed with the qualitative findings, the findings show a clear pattern for the need to re-examine the school policies from a social equity lens.

When social equity emerged out of the 1960's turmoil as a call to the bureaucrats to become an instrument in achieving social justice in the workplace, the emergence was backed by the New Public Administration's recognition of five normative core values,

which include responsiveness, worker and citizen participation in decision making, social equity, citizen choice, and administrative responsibility. However, much of the social equity research has focused on representation and less on how we reach that step across different institutions. Thus, more research needs to be conducted on how institutions and institutional leadership can reduce social equity barriers at the workplace and how that would affect organizational outcomes.

Table 5.3 Regression results between procedural equity, school effectiveness, and administrative discretion (Model 4-5)

	School Effectiveness (Model 4)	AD (flexibility in class)	AD (flexibility with resource devpt)	AD (communication)	School effectiveness (Model 5)	Mediated relationship
Procedural equity in school	.202	-.644**	-.364	-.04		.668
AD (flexibility in class)					0	.651
AD (flexibility in resource devpt)					-.118	-.062
AD (communication)					.962	1.707
Years as principal	.114	.004	.076	-.019	.122	.149
Highest level of schooling	-.127	-.256	-.272	-.078	-.153	.155
Community size	.037	.054	-.234	-.028	.025	.036
% of male students (>50%)	-.216	.278	.455	-.113	-.104	.186
% of female students (>50%)	.866	.364	-1.021	.263	.588	.117
% students with disabilities (>50%)	.959	1.25	-.527	.534	.607	-.8
% of ESL students (>50%)	-.687	-1.019*	-1.207	-.174	-.923	.199
% of Free or RPL students (>50%)	.576	.546**	.475	-.044	.705	.325
% of African American students (>50%)	-.259	-.918*	-.605	.077	-.447	.171
% of White students (>50%)	.606	-.161	1.484*	-.137	.953	1.036

% Asian students (>50%)	.442	-.823	2.021	-.329	.809	1.665
% Latino students (>50%)	-.059	-.346	.694	.358	-.172	-.402
No of classroom teachers	-.005	-.009*	.001	.002	-.007	-.002
No of pedagogy support staff	.014	-.015	-.015	.005	.008	.013
No of administrative personnel	.168	.015	.066	-.011	.195	.182
Gender of principal	-.113	.275	-.555	.045	-.093	-.404
Age range of principal	.292	.21	.103	.061	.322	.058
Ethnicity of principal	.262	.013	-.349	.139*	.096	-.005
Highest academic qualification of principal	-.223	.087	.055	.036	-.216	-.338
Total student enrollment in school	-.003	.02**	-.015	.001	-.004	-.019
Constant	1.103	3.114***	4.342**	.733*	1.022	-1.909
R-squared	0.90	0.94	0.7933.	0.7091.	0.90	0.9282
N	28	28	28	28	28	28

Note. Standardized coefficients shown. *, **, *** indicates significance at the 10%, 5%, and 1% levels, respectively.

Table 5.4 Regression results between Distributive equity, school effectiveness, and administrative discretion (Model 6-7)

Variables	School effectiveness Model 6	AD (flexibility in class)	AD (flexibility with resource devpt)	AD (commun -ication)	School effectiveness (Model 7)	Mediated relationship
Distributive equity in school	.353**	-.15	.045	.002		.419**
AD (flexibility in class)					0	.384*
AD (flexibility in resource devpt)					-.118	-.219*
AD (communication)					.962	1.08*
Years as principal	.125**	.066	.105	-.016	.122	.139**
Highest level of schooling	-.52**	.073	-.155	-.064	-.153	-.513**
Community size	-.212*	.187	-.238	-.027	.025	-.307**
% of male students (>50%)	-.292	-.097	.536	-.103	-.104	-.027
% of female students (>50%)	.88	.208	-1.332	.236	.588	.254
% students with disabilities (>50%)	2.191**	.256	-.994	.483	.607	1.354**
% of ESL students (>50%)	-1**	-.153	-.727	-.121	-.923	-.97**
% of Free or RPL students (>50%)	.64**	.387	.471	-.047	.705	.645*
% of African American students (>50%)	0	0	0	0	-.447	0
% of White students (>50%)	.514*	-.275	1.433*	-.144	.953	1.088**
% Asian students (>50%)	.034	-.235	2.465	-.285	.809	.971*
% Latino students (>50%)	.395	-1	.499	.332	-.172	.53*
No of classroom teachers	.003	-.01	.002	.002	-.007	.005
No of pedagogy support staff	.009	-.013	-.017	.005	.008	.005
No of administrative personnel	.159**	-.01	.056	-.013	.195	.189**
Gender of principal	.033	-.172	-.766	.021	-.093	-.091
Age range of principal	.334**	-.052	-.013	.047	.322	.301**
Ethnicity of principal	.376**	-.063	-.351	.138	.096	.174*

Highest academic qualification of principal	-.296**	.06	-.071	.025	-.216	-.362**
Total student enrollment in school	.008	.011	-.019	.001	-.004	-.001
Constant	1.091	2.792**	4.12*	.709	1.022	.154
R-squared	0.907	0.868	0.755	0.701	0.907	0.999
N	28	26	26	26	28	26

Note. Standardized coefficients shown. *, **, *** indicates significance at the 10%, 5%, and 1% levels, respectively.

Table 5.5 Regression results between Substantive equity, school effectiveness, and administrative discretion (Models 8-9)

variables	School effectiveness Model 8	AD (flexibility in class)	AD (flexibility with resource devpt)	AD (commun -ication)	School effectiv eness (Model 9)	Mediated relationship
Substantive equity in school	.01	-.088	.154	.122**		-.33
AD (flexibility in class)					0	-.081
AD (flexibility in resource devpt)					-.118	-.029
AD (communication)					.962	2.775
Years as principal	.094	.065	.119	-.01	.122	.13
Highest level of schooling	-.194	-.06	-.1	-.027	-.153	-.127
Community size	.026	.085	-.203	-.018	.025	.076
% of male students (>50%)	-.259	-.181	.662	-.012	-.104	-.222
% of female students (>50%)	.902	.593	-2.136	-.5*	.588	2.277
% students with disabilities (>50%)	1.11	1.205	-2.151	-.467	.607	2.442
% of ESL students (>50%)	-.949	-.203	-.667	-.073	-.923	-.781
% of Free or RPL students (>50%)	.617	.37	.549	.054	.705	.513
% of African American students (>50%)	-.313	-.693	-.667	-.027	-.447	-.312
% of White students (>50%)	.66	-.405	1.603*	.008	.953	.65
% Asian students (>50%)	.291	-.567	2.99	.202	.809	-.229
% Latino students (>50%)	.082	-.733	.241	.187	-.172	-.49
No of classroom teachers	-.006	-.007	.001	.001	-.007	-.009
No of pedagogy support staff	.014	-.009	-.027	-.004	.008	.023
No of administrative personnel	.176*	-.011	.051	-.013	.195	.213
Gender of principal	.012	-.091	-.885*	-.055	-.093	.131
Age range of principal	.366	-.003	-.102	-.005	.322	.378
Ethnicity of principal	.262	.067	-.512	.021	.096	.194
Highest academic qualification of principal	-.188	-.018	-.031	.013	-.216	-.226

Total student enrollment in school	-.001	.015	-.021	-.001	-.004	.002
Constant	1.256	2.424	4.688*	1.15***	1.022	-1.605
R-squared	0.895	0.847	0.782	0.905	0.907	0.919
N	28	28	28	28	28	28

Note. Standardized coefficients shown. *, **, *** indicates significance at the 10%, 5%, and 1% levels, respectively.

Chapter 6 Conclusions and Implications

1. Introduction

This dissertation aimed to enrich our understanding of co-production theory, particularly by formulating how public service organizations function, especially in its understanding of socio-cultural contexts. Using the co-production theory as the main theoretical framework, the dissertation included a systematic review of the literature to clarify how co-production efforts work and sustain in K-12 school organizations. From a public service paradigm, it was essential to delineate the socio-cultural mechanisms that would affect the co-production relationships between different stakeholders and how co-production would be implemented in the school setting. The dissertation also included three empirical studies on school co-production efforts and public service organizations' behavior. Using co-production theory, the three empirical studies focused on school leaders, parents, and school personnel, the main stakeholders in the schooling context, thus embodying the importance of citizen participation in public administration.

The empirical and systematic review studies used in the dissertation utilized novel research designs that would pave future research to understand the subtle dynamics of co-production efforts from inter and intra-organizational perspectives. A systematic review of the literature revealed relevant socio-cultural mechanisms, factors, antecedents, and co-production theory unpacked in the education context. The results from the systematic review paved the way for designing the analyses in the empirical studies. The first empirical study utilized organizational support theory in building a framework for sustaining co-production by exploring teachers' perception of the support given by school

administration using nationally representative survey data. The second empirical study utilized pooled cross-sectional national survey data to measure whether parents' co-production efforts causally affect student grades. The study utilized socio-cultural mechanisms and tested the relevance of the school's co-production effort in affecting the individual-level relationship between parents and students. The third empirical study utilized original survey data collection at the school leaders' level to understand the relevance of social justice traits in building co-production efforts and organizational effectiveness. The systematic review and the three empirical studies have important implications that enhance our understanding of co-production theory at the individual and organizational level, which has been limited in the current literature.

The following section summarizes the findings of the research questions outlined in Chapter 1. The next section outlines the methodological and theoretical limitations of each chapter. The final section discusses the contribution to the public administration literature in organizational support and co-production theory, with implications for research and practice.

2. Summary of the findings

The first study aimed to determine how co-production works at the individual level. A systematic literature review of 103 research articles identified studies that shed light on antecedents, factors, types of co-production, who initiated these co-production efforts, and public service characteristics among school leadership. As co-production is widely utilized in different contextual settings, the review provides a deeper understanding of the processes from an individual perspective. The findings from the review add more dimensions to our

understanding of co-production. By adapting Elinor Ostrom's seminal definition of co-production, "the process through which inputs used to provide a good or service are contributed by individuals who are not in the same organization" (1996, p.1073), the study contributes theoretically by identifying individual-level mechanisms in place at different stages of co-production process. Methodologically, the study utilized the 2020 PRISMA guidelines for conducting a systematic review to ensure the reliability of the findings. PRISMA guidelines have been the benchmark for conducting systematic reviews, thus providing methodological rigor to the review's findings.

The second study aimed to examine the factors affecting teacher well-being and organizational level outcomes. Using organizational support theory in conjugation with sustaining co-production in schools, the study tests antecedents for co-production to sustain in schooling. By utilizing the Covid-19 pandemic as the study context, the second study explored the types of perceived organizational level support that reduce teacher burnout and increase their effectiveness and satisfaction with schools. The study also tested the effects of such perceived organizational support on student participation and learning. Knowing these factors is essential to determining organizational outcomes and developing budgetary policies and strategies for improving schools' organizational goals.

Thus, in the second study, using a national survey conducted with K-12 teachers (n = 1082), the study developed scales to measure different types of perceived organizational support: support to teachers, training opportunities, access to instructional materials, resources to help student work. Among the four types of support, except resources, all other organizational support improves teacher effectiveness and satisfaction with the school. These three types of support also improved student learning and participation while

mediating teacher burnout. This study provided evidence on the relevance of antecedents required at the organizational level for co-production to begin and sustain over time.

The purpose of the third study was to test the effects of co-production efforts on individual-level outcomes empirically. Previous literature has developed questions measuring citizen co-production but is predominantly qualitative, especially in the K-12 schooling context. This study develops a scale that measures co-production efforts initiated by schools and parents separately. Drawing from the systematic review findings, we analyze some of the factors affecting the co-production efforts initiated by stakeholders. As such, the study used scales measuring cultural capital and social capital to test for moderation effects. The scales were developed using literature borrowed heavily from the sociology of education, especially from Bourdieu's (1986) and Laureau's (2002) work.

In this study, a nationally representative parental perception survey for 2012, 2016, and 2019 (n = 44, 706) was used to test the effects of parents' co-production efforts on student grades using a quasi-experimental analytical approach. The study's addition of moderating variables and covariates such as educational qualification, census region, and student race presents a more robust estimate of student grades when parents are more actively involved in the school. Even among the moderator relationships, the presence of social and cultural capital, the school's co-production efforts using two developed scales-school-initiated communication and school-providing information positively impact the co-production efforts by parents on student grades. Thus, this study provides theoretical justification for better utilizing socio-cultural mechanisms beyond demographic characteristics when testing causal relationships.

The fourth study examines the social justice traits among school leaders, whether it influences more administrative discretion at the workplace, and its subsequent impact on school effectiveness. Drawing on social equity literature, the study tests for individual-level characteristics among school leadership that would influence a school's organizational effectiveness. Using original survey data collection among New Jersey school principals (n = 98), the study developed scales to measure principals' resonance with procedural, distributive, and substantive equity. The study also adopted Guy & McCandless's (2012) work to develop scales that measure whether procedural, distributive, or substantive equity was implemented in schools. In addition, the study also developed scales to measure four different types of administrative discretion that school principals would have when implementing equitable policies in school. The administrative discretion scales were developed using the previous work of Cardenas et al. (2017). The dependent variable in this study, school effectiveness, was measured using Mott's (1972) adaption of the organizational effectiveness scale. To further understand the survey findings, qualitative data from school principals were also collected, discussing their perceptions on what more should be done to implement social equity policies in the school.

The findings from the study suggest that there is no relationship between school principals' resonance with any social equity and whether it gets implemented at the school. Among the equitable policies, schools that have implemented distributive equity policies are positively associated with school effectiveness. The covariates indicating principals and school-related demographic characteristics are also positively associated with school effectiveness. While none of the schools had any impact of administrative discretion on effectiveness, schools which showed evidence of substantiative and procedural equity led

to more discretion in the workplace. When combined with the qualitative analyses, these findings suggest that school leaders have suggested various programs and strategies that will help remove barriers of inequity and work with relevant stakeholders in building a more equitable and inclusive workplace. While this study's findings are exploratory, it provides clear evidence to analyze more clear administrative data that would shed light on social equity policy implementations in the school.

3. Limitations

3.1. Methodological limitations

The studies conducted in this dissertation are not without limitations. In the first study, the results from the systematic review pointed out that most of the studies in the sample were U.S.-focused, followed by studies conducted in European nations. While the broader contextual setting of the review was focused on K-12 schooling, more studies conducted in different countries would provide a more comprehensive analysis of the different stages of co-production processes in the school setting.

Among the empirical studies, one limitation has been the cross-sectional nature of the data collection. While this research design helps capture the effects of individual-level characteristics, it cannot explain how these influences would change over time. For example, in study 3, the survey utilized data from three years. However, since the survey data collection did not follow up on the same respondents, the data could not be used as a longitudinal dataset. As such, the study was not able to examine the influences of different individual-level characteristics over time.

Another limitation among the empirical studies was the unit of analysis in the surveys at the individual level. For each survey, the unit of analysis was schoolteachers, parents, and school principals. Since each study analyzed a specific part of the co-production mechanism, the survey did not allow to match the data with whom the co-production process was implemented. By collecting data from different stakeholders, future studies could conduct more thorough analyses of the effect of co-production efforts. By focusing on individual-level studies, the research could not combine data at the macro and meso levels, especially at the school organizational and district levels.

Another limitation among the empirical studies was the development of scales and assessments based on individual (parents, teachers, school principals) assessments and they may not have all the relevant knowledge and experiences in understanding co-production mechanisms.

The final limitation of the study is that the findings from the review and the empirical studies focused on the broader K-12 schooling context, thus making the findings about the co-production process challenging to generalize to other public service organizations. At the same time, the relevance of schools as public service organizations does lend the findings of the studies for potential applications in other contexts. By utilizing organizational support and social justice theories, the research design of the studies could be applied to other contextual settings and tested for external validity.

3.2. Theoretical limitations

One of the first theoretical limitations of the study is the overlap of the definition of co-production with inter-related concepts such as co-governance or stakeholder

engagement. While the dissertation provides evidence on how co-production would work in the schooling contexts, there is no empirical evidence to distinguish it from the inter-related concepts.

As mentioned in the methodological limitations, the individual level constructs in the survey data collection make the findings more prone to provide an accurate picture of the co-production process. The definition of co-production lends itself to multiple stakeholders and engagement, both in the formal and informal (volunteering) setting, which has not been studied in this dissertation. By utilizing a more sequential mixed-method design, the studies could provide a more nuanced understanding of the co-production processes and how they would sustain over time. This has further implications as both agencies and individual-level measures could pave the way for policy measures that are looking to build this form of hierarchical engagement among stakeholders.

The final theoretical limitation is that the dissertation does not delve deeper into different facets of organizational-level research. Due to the lack of organizational-level data at the school level in studies 2 & 3, the effects of organizational culture, employee motivation, and job demands were not measured, thus providing us with limited evidence on how schools act as public service organizations.

4. Implications

The findings from this dissertation provide clear evidence that co-production can be used as an overarching framework while analyzing stakeholders at any ecological level. In this dissertation, each empirical chapter utilized different stakeholders' perceptions to understand the co-production process better. As such, findings from these chapters

explored the stakeholder attributes in the co-production process, such as social justice traits of school principals in chapter 5, or parental attributes such as social or cultural capital in chapter 4. The findings also contribute to the literature exploring the co-production process's attributes. For example, in study 1, using a systematic literature review, the findings contributed to a clear reflexive understanding of how co-production would begin, the antecedents, types of co-production, factors, and potential effects. Similarly, in study 2, the importance of different types of organizational support were tested in improving teachers' well-being to help sustain co-production with other stakeholders.

Methodologically, the review research design and the quantitative methods used in the empirical studies are novel in their usage of co-production as the overarching framework. By utilizing different research methods, the dissertation provides a way to unify the analyses across different stakeholders but still utilizes a common framework to interpret the empirical results. Moreover, the findings from the studies provided uni-dimensional constructs for socio-cultural characteristics such as social and cultural capital, thus providing analytical rigor in identifying covariates beyond the household demographic characteristics. Finally, methodologically, the findings from the chapters provided empirical evidence for the findings from the systematic review of literature, thus improving the review's external validity.

In closing remarks, the dissertation chapters have given instances of how the co-production framework is explored in education and organizational analyses in public administration. Co-production theory has arguably been studied predominantly from a citizen perspective and in their motivation to co-produce without delving deeper into the contextual mechanisms that might play a role. This dissertation provides a clear framework

and outlines how contextual settings, at the individual and organizational level, would change the co-production relationships between the public service agents and citizens.

From a public administration perspective, the dissertation helps to link macro-level dynamics of co-production (schools as public service organizations) to micro-level characteristics (individual attributes). This dissertation also applied multiple theories in various fields, especially sociology and education, that would benefit public administration scholars in building interdisciplinary research. For example, in chapter 3, the research applied the social and cultural capital framework used heavily in the sociology of education field. By incorporating that framework into the co-production framework and interpreting empirical results, this study discussed co-production efforts initiated by different stakeholders and stakeholder attributes that would improve or exacerbate those efforts. This linkage is nascent in public administration literature and has excellent potential for scholars to adopt such frameworks better to understand the different facets of individual-level attributes.

This dissertation also utilized organizational support and social equity framework with a co-production framework to understand the organizational level attributes needed for employees to be effective at the workplace. By testing these theories in primary and secondary data collection, the implications of this research would pave for multi-dimensional tools for conducting empirical research in building theoretical discussion around organizational behavior and culture with a co-production framework. The findings from this dissertation have a policy and practical implications as well. The studies provide relevant tools to public administrators and organizations in implementing participative stakeholder policies and around programs and strategies required to change stakeholders'

mindsets for the processes and effects to sustain over time. In chapter 5, the school principals clearly outlined the need for more targeted equitable practices and conceptual clarity from higher organizational levels and officials to improve social equity goals and measures. These findings have relevant managerial implications linked to other inter-disciplinary work such as communication and planning, bureaucratic discretion, and public finance. By showcasing the importance of socio-cultural mechanisms in implementing co-production processes, more concrete questions need to be examined around policy implementation that would consider culturally responsive practices and community contexts at the behest. Similarly, the findings from chapter 2 provide guidelines at the management level, where resources, time, and motivating factors for employees will have to be taken into account to implement said policies.

Co-production theory is an important concept that should be discussed in public administration. This dissertation has provided theoretical and methodological insights with empirical evidence focused on individual and organizational level attributes to make the co-production efforts more effective. In addition, this dissertation will help us better understand the questions not previously considered with co-production theory by utilizing them in different fields, organizations, and contextual settings.

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APPENDIX A.

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APPENDIX B.

Survey questions, survey items and factor analysis results- Chapter 3

Construct	Survey question	Item	Response format	Factor Loadings	Cronbach Alpha
Support Scale	Q.26 Have you received adequate guidance and support (from any source in your school system) to address the learning needs of each of the following groups of students this school year (2020–21)?	q26_01 Students with mild or moderate disabilities	1= yes, 0 = no	0.7615	0.9092
		q26_02 Students with severe disabilities		0.6825	
		q26_03 English language learners		0.7328	
		q26_04 Students affected by poverty		0.8226	
		q26_05 Students experiencing homelessness		0.8102	
		q26_06 Students from different racial/ethnic groups		0.8059	
		q26_07 All other students		0.7833	
Training Scale	Q. 28 During this school year (2020–21), including summer 2020, have you received training on the following topics?	q28_01 How to provide remote instructional opportunities that are engaging and motivating to students	1= yes, 0 = no	0.6693	0.6907
		q28_02 How to provide remote instructional opportunities that support students' social and emotional well-being		0.5913	
		q28_03 How to use virtual learning management platforms and technology		0.672	
		q28_04 How to provide remote instructional opportunities that will be accessible to all students, regardless of resources at home (e.g., device or internet access)		0.5102	
Instructional Materials Scale	Q.27 Do you have high-quality instructional	q27_01 Students with mild or moderate disabilities	1= yes, 0 = no	0.8116	0.92
		q27_02 Students with severe disabilities		0.7272	

		q27_03 English language learners		0.7894	
	materials to serve the following types of students this school year (2020–21)?	q27_04 Students affected by poverty		0.907	
		q27_05 Students experiencing homelessness		0.8911	
		q27_06 All other students		0.6846	
Resources Scale	Q. 23 What options are available at your school this school year (2020–21) for students who need extra help?	q23_03 Meetings with reading specialists	1= yes, 0 = no	0.7259	0.85
		q23_04 Meetings with math specialists		0.7287	
Teacher Burnout	Q04 To what extent is each of the following a concern for you right now?	Feeling of burnout	1= not a concern right now, 2= a minor concern, 3= a moderate concern, 4 = a major concern, to 5 = prefer not to say.		
Teacher effectiveness	Q18 Thinking about the curriculum content you had covered by last school year (2019–20) at this time, what proportion of that content have you covered this school year (2020–21)?		1 None or almost none; 2 About 25 percent; 3 About 50 percent; 4 About 75 percent; 5 Nearly all or all		
Teacher Satisfaction Scale	Q08 To what extent do you agree or disagree with the following	q8_01 The stress and disappointments involved in teaching at this school aren't really worth it. (reverse coded)	1 = strongly disagree, 2 = Somewhat disagree, 3 = Somewhat	0.7192	0.7951

	statements about your work at this school?	q8_02 The teachers at this school like working here; I would describe us as a satisfied group.	agree, 4 = strongly agree.	0.6579	
		q8_03 I like the way things are run at this school.		0.7299	
		q8_04 If I could get a higher paying job, I'd leave teaching as soon as possible. (reverse coded)		0.5744	
		q8_05 I think about transferring to another school. (reverse coded)		0.5322	
		q8_06 I don't seem to have as much enthusiasm now as I did when I began teaching. (reverse coded)		0.5495	
Student participation	Q13 Approximately what percentage of your students are typically present (whether remote or in-person) each school day this school year (2020–21)?		0-100% percentage value		
Student learning	Q16 How prepared are the majority of your students to participate in grade-level work this school year (2020–21), relative to their preparedness at this time last year?		1 Significantly more prepared than last year 2 Somewhat more prepared than last year 3 About the same as last year 4 Somewhat less prepared than last year 5 Significantly		

			less prepared than last year (reverse coded)		

Source: *RAND American Educator Panels, American Teacher Panel, Fall 2020 COVID-19 Response Teacher data file, RAND Corporation, Santa Monica, CA, May 2021*

Note. For each of the scale developed *(support, training opportunity, instructional materials, resources, teacher satisfaction)*, the author utilized principal components method of extraction to determine the number of factors using the size of the eigenvalues. The author used the Kaiser criterion to determine the factors with eigenvalues greater than 1 and factor loadings greater than 0.5 (Shevlin & Miles, 1998). This was followed by varimax rotation to assess the loadings within a factor. Factor loadings results displayed in Appendix A were results of single factor for each of the variable.

APPENDIX C.

Survey items, wordings, and operationalization- Chapter 4

Variable	Survey question	Survey items	Response format	Recoded format
Outcome: Student grades	*'Please tell us about this child's grades during this school year. Overall, across all subjects, what grades does this child get?'*		1- mostly A's, 2 -mostly B's, 3 - mostly C's, 4- mostly D's	1 = Mostly A's, 0 = B, C, D's
Treatment: Parental involvement in school	*Since the beginning of this school year, has any adult in this child's household done any of the following things at this child's school?*	- Attended general school meeting - Attended meeting with parent-teacher organization - Gone to parent-teacher conference - Attended school/class event - Volunteered at school/committee - Participated in school fundraising - Served on a school committee - Met with guidance counselor in person	1 = Yes 2 = No	1 = Yes 0 = No
School co-production: communication	We're also interested in times the school contacted you without your having contacted them first. During this school year, have any of (CHILD)'s teachers or (his/her) school...	- Sent your family notes or E-mails specifically about (CHILD)? - Provided newsletters, memos or notices addressed to all parents? - Called you on the phone? -	1 = Yes 2 = No	1 = Yes 0 = No

School co-production: information	For each statement that I read you, please tell me how well (CHILD)'s school has been doing the following things during this school year:	- Let's you know (between report cards) how (CHILD) is doing in school. - Provides information about how to help (CHILD) with (his/her) homework - Provides information about why (CHILD) is placed in particular groups or classes - Provides information on how to help (CHILD) plan for college or vocational school - Provides information on your expected role at (CHILD)'s school	1 Very well 2 Just okay 3 Not very well 4 Does not do it at all	1 Very well 2 Just okay 3 Not very well 4 Does not do it at all
Cultural Capital	In the past month, that is, since (MONTH) (DAY), has anyone in your family done the following things with (CHILD)?	- Visited a library? - Visited a bookstore? - Gone to a play, concert, or other live show? - Visited an art gallery, museum, or historical site? - Visited a zoo or aquarium? - Attended an event sponsored by a community, religious, or ethnic group? - Attended a sporting event?	1 = Yes 2 = No	1 = Yes 0 = No
Social Capital	In deciding between schools	- *Did you move to let your child attend the current school?* - Consider other schools in district?	1 = Yes 2 = No	1 = Yes 0 = No
Race		- Hispanic or Latino - White - Black - Asian - American Indian - Pacific Islander	1 = Yes 2 = No	1 = Yes 0 = No
Census region	Census region where child lives		1= Northeast 2 = South	1= Northeast 2 = South

			3 = Midwest 4 = West	3 = Midwest 4 = West
Educational qualification	What is the highest grade or level of school that this parent or guardian completed?	1 8th grade or less 2 High school, but no diploma 3　High school diploma or equivalent (GED) 4　Vocational diploma after high school 5　Some college, but no degree 6　Associate's degree (AA, AS) 7　Bachelor's degree (BA, BS) 8　Some graduate or professional education 9　Master's degree (MA, MS) 10　Doctorate degree (PhD, EdD) 11　Professional degree beyond Bachelor's	Values 1 -11	
Household income	Which category best fits the total income of all persons in your household over the past 12 months?	1 $0 to $10,000 2 $10,001 to $20,000 3　$20,001 to $30,000 4　$30,001 to $40,000 5　$40,001 to $50,000 6　$50,001 to $60,000 7　$60,001 to $75,000 8　$75,001 to $100,000 9　$100,001 to $150,000 10　10 $150,001 or more	Values 1-10	
Resident locality of child	D-Zip code classification by community type	11　City - Large 12 City - Midsize 13 City - Small 21 Suburb - Large 22 Suburb - Midsize 23 Suburb - Small 31 Town - Fringe 32 Town - Distant 33 Town - Remote 41 Rural - Fringe	11-43	1- City 2- Suburb 3- Town 4- Rural

		42 Rural - Distant 42 43 Rural – Remote		
Schooling level	Indicates whether the sampled person was an adult, was enrolled in high school, enrolled in middle school, enrolled in elementary school, homeschooled for any of grades K-12, a preschooler, or an infant.	E Elementary School H Homeschooler M Middle school S Senior high	1-4	1 – Elementary school 2 – Middle school 3 – High school
Charter or Public school	D-School charter, magnet/regular public, other on CCD	1 Charter School 2 Magnet or regular public school 3 Other Public School -1 Homeschooled/private school student - -9 Missing from CCD	1-3	1- Charter 0- All public school

APPENDIX D.

Survey questions, survey items and factor analysis results- Chapter 5

Construct	Survey question	Item	Response format	Factor Loadings	Cronbach Alpha
Distributive equity resonance	Q16a. Which definition of Equity most resonates with you?	Distributive equity, which focuses on the provision of education services to those unable to obtain them through private means. In other words, since private schools are not affordable to all American citizens, distributive equity allows them an equal opportunity at a good education through free public schools.	1 = yes 0 = no		
Procedural equity resonance	Q16b. Which definition of Equity most resonates with you?	Procedural equity, which refers to the fairness of the decision-allocation process. It emphasizes a fair distributive process in which education is provided to students who cannot afford to obtain such through private or market mechanisms.	1 = yes 0 = no		
Substantive equity resonance	Q16c. Which definition of Equity most resonates with you?	Substantive equity, which focuses on the distribution of tangible and symbolic goods by focusing on policy effects in terms of cost and benefit distribution. In other words, it focuses on achieving equitable outcomes and opportunities for disadvantaged and marginalized people and groups in society.	1 = yes 0 = no		
Distributive equity measure scale	Q19.If all students do not follow the	a. academic performance	1 = definitely yes 2 = probably yes	0.7728	0.83
		b. performance on standardized test		0.6497	
		c. teachers recommendations		0.8093	

	same course of study, how important are each of the following factors in deciding which courses of study students take?	d. parental wishes	3= might or might not 4 = probably not 5 = definitely not (recoded)	0.7012	
		e. students own wishes		0.6732	
		f. curricular requirement		0.5821	
Procedural equity measure scale	Q 20. Does the school survey students (or obtain student feedback) as a source of information on teacher performance?		1 = yes 0 = no		
Substantive equity measure scale	Q18. Is your school's capacity to provide instructions affected by a shortage or inadequacy of any of the following?	a. Instructional materials (e.g., textbooks)	1 = definitely yes 2 = probably yes 3= might or might not 4 = probably not 5 = definitely not	0.7575	0.9246
		b. Budget for supplies (e.g., paper, pencils)		0.8267	
		c. Instructional space (e.g., classrooms)		0.6436	
		d. Special equipment for handicapped students		0.7427	
		e. Computers		0.8165	
		f. Computer software's		0.8265	
		g. Audio-visual resources		0.8669	
		h. Science laboratory equipment and materials		0.7	
		i. Teachers qualified to teach mathematics		0.7	
		j. Teachers qualified to teach science		0.7261	
Administrative discretion 1_factor 1 Administrative discretion1_factor 2	With regard to your school, are you primarily responsible for each of the following activities?	a. Hiring & Firing teachers	1 = yes, 2 = maybe, 3 = no		Factor 1 alpha = 0.7
		b. Formulating school budgets			
		c. Placing students in classes		0.6547	
		d. Assigning teachers to classes		0.6764	
		e. Determining teachers' salaries			
		f. Determining course content		0.6695	

		g. Approving students for admission to the school		0.7121	Factor 2 alpha = 0.7135
		h. Allocating funds for teachers' professional development		0.5984	
Administrative discretion 2	With regard to your school, which of the following activities was performed by school personnel?	a. During this school year, did teachers (or school personnel) send family notes or emails specifically about the child?	1 = yes, 2 = maybe, 3 = no		0.6638
		b. During this school year, did teachers (or school personnel) send family newsletters, memos or notices?		-0.7286	
		c. During this school year, did teachers (or school personnel) call family members of students on phone?		0.6152	
		d. During this school year, did teachers (or school personnel) send family information on how to help with child's homework?			
		e. During this school year, did teachers (or school personnel) send information to parents on why student has been placed in particular group or classes?			
		f. During this school year, did teachers (or school personnel) provide information to parents on how to help their child plan for college or vocational school?			
		g. During this school year, did teachers (or school personnel) provide parent information about their expected role in a child's school?			
		h. During this school year, did teachers (or school personnel) provide information about opportunities for free tutoring?			
School effectiveness	Teachers produce a variety of product such as lesson plans, new curricula, student learning as well	a. The quality of products and services produced in this school is outstanding	1 = strongly agree, 2 = somewhat agree, 3 = neither agree or	0.8453	0.8305
		b. The quantity of products and services in this school is high.		0.7349	

	as numerous services including teaching, advising, counseling, and parent conferences. Think of these products and services as you respond to each item and indicate the degree to which you agree with the following statements about your school. Answer these questions in the context of implementing or making changes to promote social equity in classroom.	c. The teachers in my school do a good job coping with emergencies and disruptions.	disagree, 4 = somewhat disagree, 5 = strongly agree (reverse coded)	0.7004	
		d. Most everyone in the school accepts and adjusts to changes.		0.6427	
		e. When changes are made in the school, teachers accept and adjust quickly.		0.7576	
		f. Teachers in this school are well informed about innovations that could affect them.		0.6959	
		g. Teachers in this school anticipate problems and prevent them			
		h. Teachers in this school use available resources efficiently			

Note. For each of the scale developed, the author utilized principal components method of extraction to determine the number of factors using the size of the eigenvalues. The author used the Kaiser criterion to determine the factors with eigenvalues greater than 1 and factor loadings greater than 0.5 (Shevlin & Miles, 1998). This was followed by varimax rotation to assess the loadings within a factor. Factor loadings results displayed in Appendix A were results of single factor for each of the variable except for *administrative discretion 1*, where two factors loadings were developed.