THE IMPACT OF A COLLEGE READINESS FACULTY LEARNING COMMUNITY

by

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Bruce Bukiet, Ph.D.

and approved by

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ABSTRACT OF THE DISSERTATION

The Impact of a College Readiness Faculty Learning Community

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Teachers and stakeholders at the organizational level and the values they perceive in an urban district vary greatly in terms of their roles, titles, motivational levels and the educational reform needs. In response, school districts and universities are aligning interventions for teachers with university support. This qualitative study examined a state, polytechnic university’s effort to provide a faculty learning community (FLC) as a college readiness intervention pathway to align high school teachers with university faculty from the same discipline (math). This will better prepare high school graduates and college-bound students for the demands of the 21st century in STEM. The FLC is an educational policy strategy implemented during the recent return of local control to a district that was under 25 years of state intervention.

Data was collected pre-FLC, during the FLC, and post-FLC from participants representing four high schools using interview questionnaires, evaluations, and curricular material. The data revealed that teachers and administrators perceived greater stability in college readiness intervention. They also felt an increase in accountability at all levels of both systems and they believed university opportunities were enhanced. For example, teachers who worked at magnet and comprehensive high schools reported useful instructional strategies that included a community of practice supported by their district peers and university staff. This was prompted by the organizational changes and reform
initiatives that focused on teachers after the return to local control. The teachers’ voices suggested, with support from their administrators, that FLCs are practical in such areas of concern for high school graduates’ transition to everyday or college life.
Preface

The Urban Systems doctoral program began as a joint program between the Rutgers University–Newark (RU-N), the New Jersey Institute of Technology (NJIT), and the University of Medicine and Dentistry of New Jersey (UMDNJ), now Rutgers Biomedical and Health Sciences (RBHS). While in this program, secondary and post-secondary education stakeholders and policies were the primary research interest.
Dedication

I dedicate this dissertation to my mother, Lorraine. Thank you for being patient with me! We did it!
Acknowledgments

“It always seems impossible until it’s done.” Nelson Mandela

I thank God for heading my life and for ordering my steps in all things especially the successful navigation of this process. I was able to complete this journey with the unrelenting guidance, support, and insight from so many who have encouraged me to begin and complete this academic accomplishment. My mother has provided the ultimate encouragement through the most important moments of this journey and I am forever grateful to her. I thank my sister, Nicole for her compassionate counsel.

I would like to acknowledge my committee Chair, Dr. Bruce Bukiet whose support and encouragement helped me complete my dissertation journey. Thank you to my committee members, Dr. Jim Lipuma, Dr. Peijia Zha, and Dr. Jonathan Wharton for your guidance and support. My academic sisters — Mahako, Joya, Regina, Amor, and brothers — Ray, Amod, Lamarr, and Dwayne as we continue to stay the course and support each other—thank you. I was blessed with many friends, classmates, workmates, and mentees that I value tremendously as they marched with me on this journey. My appreciation goes to the Newark Public Schools, the New Jersey Institute of Technology and Rutgers, the State University of New Jersey Graduate School-Newark for allowing me to conduct the research that was foundational to this project. My perseverance and personal commitment to finish the program was made possible thanks to many dedicated staff members and the program directors.
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Chapter 1: Introduction and Background

Managing college readiness has seldom been the sole responsibility of schoolteachers and administrators. Academic rigor is a proven instructional means to increase student achievement for college-bound students and their classmates (Savitz-Romer et al., 2009). College attainment remains unequal for Blacks and Latinos compared to whites (Balfanz et al., 2016). They are often the underrepresented minority and low-income students enrolled in underserved educational systems and distinguished among institutions, neighborhoods, families, and individual attributes (Mac Iver et al., 2019). Lower rates of alignment from high school to college often lead to academic disengagement, loss of employment, lower lifetime earnings, and different levels of physical health (Lee St. John et al., 2018). Because lack of college readiness plagues inner-city classrooms across the nation, teachers and administrators should develop innovative strategies to help eradicate the misalignment of courses between secondary and post-secondary systems.

College Readiness Indicator System (CRIS) researchers suggest that measuring dimensions of college readiness can provide early identification and actions to help administrators, teachers, and students employ consistent college attainment strategies in the classroom. Outside the classroom, system-level strategies to address college readiness go beyond tracking or sorting students into curricular pathways or some measure of readiness or de facto tracking. The level of pathways for students into a credit-bearing general education course at a post-secondary education involves more highly qualified teachers and higher levels of rigorous instruction using specific dimensions of college readiness measures (Conley, 2007; Mac Iver et al., 2017).
Key dimensions of the CRIS framework include the following: *academic preparedness* to align high school and college entrance requirements; *academic tenacity* to assess trends across schools for post-secondary outcomes, and *college knowledge* to allocate resources and policies for these efforts at the system level (Borsato et al., 2013; Mac Iver et al., 2019; Mishook, 2013). Once operational, positive outcomes are associated with the framework by (a) using valid indicators for college readiness within accountability systems, (b) building instructional capacity for high school teachers, (c) strengthening school capacity of information sharing for low-income students about the college application and financial aid process, and (d) providing clear direction and incentives for students to encourage strong academic performance in high school while increasing positive post-secondary skills (Mac Iver et al., 2019).

With many unanswered questions regarding district-level intervention models, this study used CRIS within an urban, university setting. The purpose of this study was to explore the perceptions of educators from the same discipline from four secondary and one post-secondary institution. The educators participated in a college readiness faculty learning community (FLC) under the reestablished form of school governance and district politics.

**College Readiness Indicator System (CRIS)**

CRIS is a multi-system framework designed to spur district progress to understand indicators that can signal readiness and prepare students for success in life after high school appropriately. Three university-based partners, the Annenberg Institute for School Reform at Brown University (AISR), the John W. Gardner Center at Stanford University (Gardner Center), and the University of Chicago Consortium for Chicago
School Research (CCSR) sponsored by the Bill & Melinda Gates Foundation to fund five sites (Mishook, 2013).

CRIS is a relatively new concept operationalized in Dallas Independent School District, New Visions for Public Schools (New York), School District of Philadelphia, Pittsburgh Public Schools, and San Jose Unified School District. The novel framework from the CRIS initiative guided schools and districts to implement a system of indicators and supports for students who are off track for post-secondary success. The common outcome was to increase underrepresented students’ college-bound and to measure the context of college readiness that goes beyond student test scores and grades (Borsato et al., 2013).

According to Borsato et al. (2013),

The context captures external conditions that impact—positively or negatively—the ability of students to be college-ready. These include the current state and local education policy around college readiness (e.g., high school graduation requirements; availability, accessibility, and affordability of higher education) and the extent of collaboration across multiple sectors of the community (including those that interact with the district) to build college readiness partnerships, share data, and establish mutual priorities to support college readiness (p. 33).

College readiness systems include four key contexts: (a) community, (b) higher education, (c) local policy, and (d) state policy (Borsato et al., 2013; Mishook, 2013).

According to Mishook (2013),

Districts and schools cannot do this work alone. There is a wealth of resources and expertise on college readiness in community-based organizations, local higher education institutions, civic agencies, and the broader community that often goes untapped. But engaging and enlarging the circle of local supports can broaden the notion of “system leadership” beyond the K–12 system, as well as build mutual and shared accountability for our young people’s success in college and the workforce (p. 3).
The process of using more than one context for school reform helps to advance and monitor progress and activate support for college readiness interventions (see Figure 1).

Figure 1

CRIS Framework

Source: Borsato et al. (2013)

College readiness is defined as high school graduates who have the credits to enroll in a post-secondary institution (eligibility) but who lack the academic skills, study habits, and understanding of college to succeed (readiness). Understanding the context in which students learn and the uniqueness of the 21st century STEM-dependent society makes the language of math a heavily culture-laden subject. Many cultural concepts must be incorporated into everyday life, such as math, which has a universal language that needs to be taught with cultural awareness to enhance student capacity to enter adulthood as a productive citizen after high school or college. CRIS system leaders include a range
of elected and appointed leaders to define the college readiness agenda – based on their political, professional, or a combination of a state’s (top-down) or locality (bottom-up) approach.

The college readiness variations in the local and state’s roles in a district depend on the entity with the authority and the type of approach. Bottom-up approaches, also termed “instrumental support,” are comprised of specific actions and measures, such as collaborative policies to promote rigorous course standards from transition programs, tutoring, or developmental coursework and instruction that is often dependent on these local stakeholders (Barnett et al., 2012). The state-level stakeholders, on the other hand, according to the Education Commission of States (ECS), are benchmarked against other states. Particularly, ECS formulated a 10-point blueprint to address transitions from high school into post-secondary policies.

The states with college readiness policies that were driven by top-down approaches and takeover policies, such as New Jersey, did not achieve 10-points. The points were captured by four high school policies, four post-secondary policies, and two “bridge” policies that attempt to align secondary and post-secondary stakeholders (Glancy, et al., 2014). Accordingly, five out of ten points were achieved in the State of New Jersey, as follows:

- Two of the four high school benchmarks were adopted with the rigors of college and career readiness standards and participated in the Partnership for Assessment of Readiness for College and Careers (PARCC) consortium to assess their students’ mastery of the standards (Glancy et al., 2014).
• One of the four college benchmarks achieved progress on transfer policies, with a common system-wide remedial and course placement policy, which apply to the community colleges (Glancy et al., 2014).

• One of 35 states offers high school students access to advanced coursework, such as Advanced Placement (AP) or dual enrollment courses, with options to transfer credits from one college to another and associate degrees to four-year colleges (Glancy et al., 2014).

• One of 18 states with system-wide remedial and course placement policies used common assessments and minimum cut scores to determine the most appropriate courses for enrolling students. The policy also encourages campuses to use multiple measures, such as high school coursework or GPA, to gauge student readiness for college-level classes (Glancy et al., 2014).

New Jersey has made progress with many college-bound students. However, more needs to be done, especially in urban communities that have not benefited from the educational policies that relied on takeovers or common metrics, such as dual enrollment or advanced placement (AP) programs. Outcomes, such as ACT/SAT results, college enrollment or remediation, and industry certifications awarded, have not increased significantly. Uncommon metrics start with teachers supporting college-bound or graduating students before they need remediation. Public universities and colleges are often funded based on the number of enrolled students rather than on how many students persist and complete their degrees. High schools throughout the nation use metrics to compare their graduation or post-secondary rates—but teachers and university faculty rarely interact to compare their instructional expectations that contribute to those rates.
Moreover, traditional college readiness indicators such as GPA, class ranks, scores on assessments without assessing the type of instruction that differs in high school and college-level courses are challenging. Therefore, state or local leaders with the authority to introduce novel approaches to the college readiness problem, especially in urban communities, do challenge the norm. Looking beyond high school graduation and college eligibility aims to target college readiness before students enroll.

The CRIS framework recognizes that indicators are needed at three levels: individual (student), setting (school), and system (district). Individual-level indicators help identify students who need support. Setting and system-level indicators monitor whether the conditions are in place to promote college readiness and inform decision-making (e.g., allocation of resources, design of new policies). Ultimately, college readiness supports and the respective cycles of inquiry can serve to mobilize efforts by the district and its community partners to establish a citywide network of local stakeholders to address the need. In this study, the case district’s four critical stakeholders include the City of Newark, the New Jersey Institute of Technology, the Newark Public Schools, and the State of New Jersey (see Table 1).

Table 1

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<th>CRIS System Level – Leaders and Authority (elected*, appointed**)</th>
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<td><strong>System Level</strong></td>
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The leaders with the authority to influence college readiness educational policies focused on encouraging in-service teachers to participate in pedagogy, a summer
enrichment program, and engage in teaching-related tasks designed to enhance their preparation of students for college readiness supplemented with mentorship from current faculty and NJIT professional staff. Such policies, engaging faculty working with in-service teachers as apprentices, were limited. However, three facets of a faculty member’s job in the modern university are teaching, research, and service. Teaching high school-level courses within university settings or applied in district classrooms has been a tradition for many years, focusing on the students. As faculty roles working with both college and high school students have evolved, some faculty members within the academe can leverage their research and service as creators of knowledge and information to support teachers (Boyer, 1998).

CRIS system leader’s role as a collaborator in community, higher education, and two policy contexts, represented by the larger background rectangle, is essential for any school reform (Table 1). The four contexts capture external conditions that positively or negatively affect the district’s ability to prepare college-ready high school graduates. The impact of schools within a district and student achievement has been of great interest in the last five and half decades. In this study, school as a social and institution context plays a crucial role in urban students’ academic performance. Students usually spend most of their daylight hours at school (Coleman, 1966; Zha, 2009). While some of these contextual conditions are within the locus of control of district leaders, others are not. Nevertheless, their influence on how college readiness is defined, developed, and deployed is aligned with school governance and district politics.
Background of the Problem

The recent change in Newark, New Jersey, from a top-down, state-controlled system of school governance to a bottom-up, local control district with a board-appointed superintendent is part of a trend in several urban districts across the state and the United States. Although school governance continues to be typically a local affair, the trend to return local control to urban school districts is related to the failed quest for greater accountability and improved achievements, particularly among lower-income students and students of color. Preparing “college-ready” high school graduates, specifically from urban districts, is the subject of current debates among educators, politicians, and business leaders alike. The shifts in school governance and funding from state and other stakeholders back to local communities over time reflect fewer conflicts in educational policy values. In addition to the procedural and substantive efforts that have failed to remedy failures and shortcomings in urban education.

This dynamic was emphasized in the transformational publication *A Nation at Risk: The Imperative for Educational Reform*, which expressed that “[state] and local officials . . . have the primary responsibility for financing and governing schools (U.S. National Commission on Excellence in Education, 1983, p. 32). New Jersey as an example and in response from 1995 to 2020, seized control over NPS through governors’ offices for three reasons:

First, they could not stand by as public education failed miserably. They engaged education issues as public demands for improved education intensified. Next governors lacked confidence in local government. An increase in state aid to localities also caused governors to hold cities more accountable financially. Finally, governors took an active interest in education when they realized this issue-area directly affected their state’s economic development profile. (Burns, 2003)
Newark is the largest and most populous city in the state and is embedded within one of the most affluent counties, Essex County. Newark’s population was 281,054 in 2019. After the population and demographic growth reached 442,337 residents in 1930, the city’s decline and the exodus of white and middle-class residents (including people of color) from the 1940s would take decades to recover. Racial tension erupted during the Newark Rebellion in 1967 (Tuttle, 2009; Wright, 1988), which was the culmination of a racist dominant culture with some members in the police department.

Racism unmistakably permeated American society and Newark. By the mid-1960s, racial inequality reached a ferocious pitch in center cities as people of color came with demands for jobs, housing, and equal rights. There was also a rising expectation for the quality of life for all that challenged the white establishment’s predetermined pathways for minorities, which tracked them into menial ghetto life, unequal labor opportunities, and de facto segregated schools with low levels of achievement and high levels of dropouts (Wright, 1988).

In response, “generations of frustration boil[ed] over in the summer of 1967,” as the Newark Rebellion struck the poorest residents in the city’s Black and poor communities the hardest (Tuttle, 2009). As the poor were relegated to unfair treatment at the hands of the police department, this indelible mark was termed historically as a rebellion. However, the majority experienced it as a riot. It was sparked after a Black cab driver had a near-death encounter with a predominantly white police department, and it resulted in 26 people reported killed, 750 injured, over 1,000 people jailed, and $10 million in property damage. This pivotal moment was followed by the 1970 election of the city’s first Black mayor, Ken Gibson, who held this office until 1986.
Gibson would be the benefactor of grassroots and electoral politics, the organizers, and the Civil Rights and Black Power movements. However, the poorer Blacks and lower-income people of color remained and remain in a constant struggle for fair treatment in the community. A graduate of Newark College of Engineering, now New Jersey Institute of Technology, Mayor Gibson’s tenure coincided with the Black community putting racial equality ahead of class solidarity, or at least the view that to defeat racism, they needed to join struggles organized around economic redistribution (Mumford, 2007). His win was for many the killing of the ghost of the slave ship and the rise of the “New Ark” (Wright, 1988). However, mismanagement, inferior facilities, and substandard academic performance intensified and plagued Newark’s education system under the first Black mayor and throughout the period before the state takeover detailed in a 1,100-page state government report (Burns, 2003; New Jersey Department of Education, 1994).

The Takeover

The 1987 Takeover Law allowed the state board of education to take control of failing school districts. While urban education systems were the only districts in which the state instituted the takeover law, the city’s higher education institutions were bracing to exert influence on the local education system. The institutional leaders joined forces to establish the Council for Higher Education in Newark (CHEN) in 1971, with representation from Rutgers Biomedical and Health Sciences, the former University of Medicine and Dentistry of New Jersey (UMDNJ); New Jersey Institute of Technology, Rutgers-Newark, and Essex County College. As these institutions grew, Newark (1995-2020) was the third urban district to be under the state’s control, after Jersey City (1991-
2017) and Paterson (1989-2021). On 13 April 1995, the New Jersey Education Department ordered a takeover of Newark’s school district, citing the incompetence of the school board, among other reasons, for the takeover (Rich, 1996).

The former mayor stated that he “never lost interest, but lost the fights.” As the last mayor in the city’s history to appoint board members, he recounted in a formal statement:

I have lost three major battles in schools. The fight that was most destructive was the residency issue. Where teachers live does have something to do with the quality of schools. I will also believe the teachers who live outside the city are not concerned with quality. In my childhood, teachers lived in Newark and sent their kids to public schools. The first nail in the coffin was the permission to live outside of the city. The second fight was over whether teachers should perform non-teaching functions such as hall monitoring and staffing the playground. Teachers joined unions and now they do not perform any non-teaching duties. It was my appointee (Jesse Jacobs) who cast the deciding vote on professional duties matter. I have made him president of the board. Once you appoint them to the board, you can’t tell them what to do. (Rich, 1996)

This was a second nail in the coffin. The teachers lived outside the district and had a controversial strike under the leadership of Carol Anderson Graves who was 29 years old when she was elected president of the Newark Teachers Union in 1968. In 1970, she presided over a three-month teacher strike and spent three months in the Essex County Jail on contempt charges. Graves was defeated for re-election as president of the Newark Teachers Union in 1995 by Joseph Del Grosso by a vote of 1,809 to 1,015. In 1970, she presided over a three-month teacher strike and spent three months in the Essex County Jail on contempt charges. Graves was defeated for re-election as President of the Newark Teachers Union (NTU) in 1995 by Joseph Del Grosso by a vote of 1,809 to 1,015, after the district and all unsuccessfully opposition, including the National Association for the
Advancement of Colored People (NAACP) to block the state takeover of the Newark public school system failed.

Since the state Administrative Law Judge Stephen G. Weiss ordered an immediate state takeover of Newark Public Schools, New Jersey’s largest and most troubled district. Weiss called his reaction in response to the “abysmal” district to one imbued with evidence from the 1993 Comprehensive Compliance Investigation that described the district as a miasma of “low student test scores, high dropout rates, questionable expenditures of public funds, and crumbling buildings with health and safety hazards.” The New Jersey Department of Education issued the order to remove the district’s school board, create a state operated school district; and take such other steps pursuant to law as are necessary to implement the same, the recommendation was upheld. The state fired the Executive Superintendent and top officials and the over 4,000-member NTU decided to support a new leader to work with the incoming board members and Del Grosso retained that role through his retirement on June 30, 2015.

Mayor Gibson’s statement continued, stating:

The third fight was over the elected board. The citizens were given incorrect information on that issue. If you are told that the mayor makes all appointments and that is not fair, you would probably vote for an elected board. It is interesting that the number of people who voted to approve an elected board far exceeded the number who turned out for school elections. Of the less than 10% of residents who voted in school elections, 7% were union members. The board is completely controlled by the union. This was the third nail in the coffin” (Rich, 1996).

The coffin metaphor was symbolic of the end of an era for the Black community's involvement and influence over the education system at the time, including the added pressure from prominent organizations like the NAACP. Newark school lawyer and Raymond M. Brown a prominent civil rights leader had challenged the takeover, asking
for court hearings to review the accusations about academic troubles. The hearings could have delayed the takeover for as long as two years, but Weiss dismissed the lawsuit. Although the legal remedy was not binding, the Education Commissioner Leo Klagholz had the final say whether to take over the district. The state Education Department issued a blistering report in July saying the district's students were poorly educated in rundown buildings while district leaders with important-sounding titles stayed in comfortable offices "detached from the everyday reality of the school."

The report criticized everything from the quality of instruction in the classroom to the nutritional value of cafeteria food. "Evidence shows that the longer children remain in the Newark public schools, the less likely they are to succeed academically." The problems identified in the report included the removal of all mayoral appointed board members and control over the district. However, the dismembering and replacement of the superintendent and members from central office were unlikely to improve student achievement in high school proficiency. Although the elected and appointed officials were blamed for low test scores, and graduation rates, the subsequent problems would continue the same trend.

**The (de)Tracked**

Education was a factory system built around a tracking system that was both rigid and deterministically based on academic, general, or vocational classrooms and the reliance on one’s IQ. That system eventually gave way to a more open form of tracking—or pathways—such as private education, magnet schools, and, later, public charter schools. Oakes’ (1985) *Keeping Track* reinforced the socioeconomic backgrounds and social reproduction theories of Bowles and Gintis (1976); later, MacLeod (2009) argued
that tracking exists to maintain the existing distribution of power and privilege in society and stratifies the population to meet the demands of capitalism. Historically, tracking and ability grouping referred to ways of grouping students for instruction.

Tracking of students deliberately into classrooms without mixed ability, rather than de-tracking students has allowed for educational inequities. Across the United States, gaps of between 25 and 30 points in reading and mathematics between whites and Blacks and between whites and Hispanics have been consistent from 1992 to 2013 (Kena et al., 2014). These gaps contribute to opportunity gaps—and college readiness. According to Bryan and Atwater (2002), college readiness and teacher beliefs in urban districts regarding minority students and students from low-income families often have common misconceptions and related classroom responses that could adversely affect learning outcomes in diverse classrooms.

First, instructors with students from culturally diverse backgrounds have, overtly or tacitly, defined less ambitious learning goals for students such as offering less autonomy and interaction between students, and they tend to rely more heavily on passive teaching methods. In direct contrast, researchers have found that minority students respond most favorably to inquiry in which they have some degree of control, and they resist lessons that they perceive as being imposed upon them (Bryan & Atwater, 2002). In response, real-world problems with no clear answer and with implications for the well-being of the community are ideal for engaging a diverse class of urban students.

Second, Hispanic and Black students experience more alienation than white and Asian students stemming from teacher-centered approaches (e.g., passive lecture-based instruction) and perceived as non-relevant (Uekawa et al., 2007; Yair, 2000). Uekawa et
al. (2007) stated that Asians are the only major ethnic group that favors individual work over group work, which is a reflection of their cultural values associated with bringing honor to their family through individual achievement. The researchers also found that group work benefited learning for Latino students, more so than other groups. Black students have been found to learn best with a high level of communal setting types of activities, which is rewarded only in some school settings.

Third, urban college faculty that work with active learning in math and focus on activities that have practical applications in day-to-day activities or career preparation includes opportunities for students to make evident to the instructor what subjects, classroom structures, and skill sets they most value. This allows the student to perform individually or in groups that advocate course-related socialization and mingling. Moreover, this type of instruction encouraged students to teach/tutor each other and to incorporate their learning into future lectures and assignments (Smith et al., 2009).

Urban educators must focus on the three points as a common lens through which teachers can teach mathematics content as a gateway to everyday life and meet the demands of science, technology, engineering, and mathematics (STEM). Curricula that engages the community and/or family of urban students will more readily prepare them beyond high school for more everyday practical applications and career opportunities, although a considerable body of research (see, for example, Bowles & Gintis, 1976; Coleman et al., 1966; MacLeod, 2009) posit that the socioeconomic conditions that students bring with them to school are more influential on their academic outcomes than what happens through instruction. A larger concern is the inconsistency of expectations and school reforms.
Old Reforms

In Newark, the events and previous “old” round of school reform efforts were launched in the late 1980s. They were ostensibly sparked by the 1987 state takeover law that labeled the Newark schools as “mismanaged.” A disparate set of state officials became involved in the reform debate. They included Republican governors who sought to “reform” Newark, middle-class and inner-city parents who wanted to improve education for their children and a small number of teachers who resided in the city and wanted to see power stripped from the predominantly Black community. In 2010, Newark’s public schools remained under the state’s control instituted in 1995, while it entered the national spotlight when it was announced that $200 million in private philanthropy would be donated to reform the school district (Chin et al., 2017).

Newark’s former councilman Cory Booker ran for mayor in 2002. The race was archetypal in politics, with even a New York Times headline reading “A Political Neophyte in Newark Challenges Shrewd Incumbent.” The opening paragraph of the article solidifies this idea of David vs. Goliath, with a young, smart, polished Cory Booker challenging the old, street-smart, entrenched Sharpe James (Wharton, 2013).

After Cory Booker lost the 2002 mayoral election, he began planning his second round in 2006. Booker’s platform was based on lower crime and better schools in a city that was beginning to strike against the devastation from its past rebellion, with the renewal of new and established members of the community working alongside each other. For Booker, the two could be achieved simultaneously by cracking down on gangs, which had been finding their way into Newark’s schools and “attracting kids as young as 10 and 11” (Wharton, 2013).
Booker’s solution was to introduce vouchers into the school system. Similar to a system used by Milwaukee since 1990, parents could apply for vouchers to help pay for their children to attend private schools. Along with tax credits, the system could be used to incentivize students to look outside the education system, placing students outside the control of the Board of Education, and putting money in private hands, which also stimulated business as well. The voucher program was met with resistance. Although the Milwaukee program showed slight gains in academic performance, many Newark residents saw it as an abandonment of the public system. Booker faced off against Deputy Mayor and state senator Ronald Rice after Sharpe James dropped out of the race in March that year. Rice threw similar punches as James, calling Booker a proxy for “the white, ultra-conservative outsiders” seeking to influence Newark politics. Booker defeated the former deputy mayor of Newark Ronald Rice, receiving 72% of the vote in 2006.

On 21 September 2010, as part of a three-way arrangement, New Jersey Governor Chris Christie, Mayor Cory Booker, and Facebook CEO Mark Zuckerberg organized a deal to benefit Newark schools and aired it on the popular Oprah Winfrey Show. Chris Christie gave limited power to Cory Booker to make significant changes to Newark’s school system, and in return, Mark Zuckerberg granted $100 million. The grant, known as the Facebook grant, required the city to match the grant total over the next five years. The news shocked many residents of Newark. The details and inception of the idea caused much confusion. In the days following the announcement of the Facebook grant, a survey was conducted to ask Newark residents how to fix the school system. The survey
was conducted by the group PENewark who inspired a substantial number of volunteers, including Cory Booker, to join them.

The results were given to professors and researchers at Rutgers and New York University, but the first survey included statistically insignificant data based on questions that were poorly constructed, including many leading questions or ones that could not be analyzed easily (Sadovnik. et al., 2011). This same team developed a second, longer, and more appropriate survey tool, and the data collection was conducted again by PENewark in early 2011. However, the initial speed and carelessness found in the first survey raised questions about the ideas behind the Facebook grant. The first survey was considered a waste of funds by some in the Newark community. This posed questions about where the money was going.

In May 2011, Governor Christie appointed Cami Anderson to be Newark’s new superintendent. The decision-making process was complicated, as school board candidates according to district records would not show up, while those in attendance were sometimes met with a half-empty school advisory board for their interviews. Cami Anderson was a white woman who established herself in education reform by working in New York City’s District 79, which was an alternative high school district to help students who were “over-age and under-credited.” Although Anderson’s background in troubled school districts was not too different from the situation in Newark, she was still met with a fair amount of resistance after her appointment.

Robert Curvin, a scholar at Rutgers University and guest columnist for The Star-Ledger, received questions such as “So what does she know about our children?” and “Shouldn’t we have a superintendent who can serve as a role model? Why haven’t we
had a Hispanic superintendent?” Curvin admitted these were understandable questions for Newark’s demographic make-up. Accordingly, many of the appointees to the board by the mayor were a relatively poor selection of candidates with limited educational backgrounds. At the same time, the governor omitted a more qualified candidate who was Black, and this left Newark with a win for the battle of representation, but “The battle [they had] not won [was] against mediocrity and failure” (Wharton, 2013).

The abysmal performance outcomes of far too many urban districts are unlike universities. Newark education reforms during the past decade were financed by some of the nation’s wealthiest philanthropists using top-down approaches. Examples included the growth of charter schools, business-style accountability for teachers and their bonuses for working in hard-to-staff subjects and struggling schools, raises for some teachers and principals, and merit bonuses for top performers. These reform efforts launched under state intervention, specifically during the 2011-2012 school year under Anderson, dictated the parameters for the new teacher contract that was signed and implemented in “bad faith” (Wall, 2019). Money alone has not fixed the multitude of problems.

**New Reforms**

In 2021, the present “new” reforms and associated educational policies look quite different. The Zuckerberg money is gone; the state no longer controls the district; and a former principal, veteran administrator, Latino educator—Roger León—is now superintendent. As a new era begins, the city leaders are confronted with the reality of post-secondary outcomes documented by Rutgers University-Newark researchers in two collaborative, joint reports. The first was the Newark Schools Research Collaborative *Post-Secondary Outcomes of Newark Public School Graduates, 2004-2011: College*
Matriculation, Persistence, and Graduation (Backstrand et al., 2014), provided a detailed picture of “college going” of the city’s high school graduates leading up to 2011. The second, the Newark City of Learning Collaborative (NCLC) Post-Secondary Outcomes of Newark High School Graduates, 2011-2016, was a continuation of previous data that explored the future lives of the city’s high school graduates. Data revealed that 60% of graduates went to college but only 25% earned a degree (Backstrand & Donaldson, 2018).

The NCLC report elicited commitments from the mayor and superintendent to advance college readiness as a priority in Newark. They vowed to collaborate with major partners (such as the university and state) to increase the number of Newark residents with college degrees and post-secondary certificates by 25 percent by 2025. The ultimate beneficiaries include students tracked into traditional and magnet pathways in the district to yield achievement attainment and a college-going culture consistent with state and local vision. During the last quarter-century, the local board of education in Newark was stripped of its authority to make decisions for the district. However, when local control of the public schools was completely restored, the governor stated, “This is a historic day for Newark, and a day for celebration.” Governor Phil Murphy continued:

> For a quarter century, the local board of education in Newark has not had the full power to make decisions for their community. Today, full local control of the public schools has been restored to the people of Newark so that the local school board can address the unique needs of the school community. (Statement from Governor Murphy, 2020)

-One of the unique needs to which the governor referred was that there had been a low level of college attainment in Newark, New Jersey’s largest city. According to a recent
study, Newark high school graduates tend to enroll in college. However, 34% attended Essex County College. Rutgers University-Newark, Kean University, Bloomfield College, and Montclair State University have been the most frequently attended four-year institutions and, of all the comprehensive school graduates, fewer than 10% of the students have attended a “highly” or “very competitive” college, such as Rutgers University-New Brunswick and the New Jersey Institute of Technology (NJIT), and only 1% attended the most competitive institutions, such as Harvard or New York University (Backstrand & Donaldson, 2018). Table 2 depicts the post-secondary enrollments from 2011-2016 for the district studied within this research project.

Table 2

<table>
<thead>
<tr>
<th>University or College</th>
<th>Comprehensive</th>
<th>Magnet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essex County College</td>
<td>42.8%</td>
<td>21.3%</td>
</tr>
<tr>
<td>Rutgers-Newark</td>
<td>3.2%</td>
<td>8.5%</td>
</tr>
<tr>
<td>Kean University</td>
<td>3.8%</td>
<td>4.4%</td>
</tr>
<tr>
<td>Bloomfield College</td>
<td>3.8%</td>
<td>4.5%</td>
</tr>
<tr>
<td>Montclair State University</td>
<td>2.9%</td>
<td>5.4%</td>
</tr>
<tr>
<td>Union County College</td>
<td>5.1%</td>
<td>3.4%</td>
</tr>
<tr>
<td>New Jersey City University</td>
<td>2.7%</td>
<td>3.9%</td>
</tr>
<tr>
<td>Rutgers-New Brunswick</td>
<td>0.7%</td>
<td>7.4%</td>
</tr>
<tr>
<td>New Jersey Institute of Technology</td>
<td>1.2%</td>
<td>4.9%</td>
</tr>
<tr>
<td>William Paterson College of NJ</td>
<td>1.3%</td>
<td>3.9%</td>
</tr>
</tbody>
</table>

Source: Backstrand & Donaldson (2018)

The district and university leaders knew and understood that there were concerns with the misalignment between the high-school-to-college process, math course rigor, and the low percentage of college attainment beyond high school graduation throughout the district. Once educational and city leaders identified their respective high school-level
and college, department-level administrators, an intervention was created and planned as local policy (district-based) to support a college readiness program. The post-secondary enrollment rates in NPS fluctuated with the uncertainty under the state intervention, the superintendent turnover, and the lack of consistency and clarity from the state education agency for the local college readiness process. Due to the need for an intervention, the city leaders committed resources that would allow the NPS to participate in an intervention program based on CRIS and the FLC creation to support a more vertical alignment.

This current study examined the university faculty learning community (FLC) as a bottom-up approach with the district in which faculty members coached high school teachers on college-level instructional expectations. The city boasts the largest school system in New Jersey, serving roughly 40,000 students from mostly low-income Black and Latino backgrounds. Like other urban school districts with similar demographic characteristics, NPS is endeavoring in the face of great social and economic obstacles to prepare all of its students with the skills needed for college and future careers (Backstrand & Donaldson, 2018). In terms of high school type, the analyses documented an enormous gap in post-secondary success between the magnet high schools and the comprehensive high schools in the Newark Public School district. Graduates of magnet high schools were 60 to 70% more likely to attend college or university than comprehensive high school graduates were, and graduates of magnet high schools were also two to three times as likely, depending on the cohort, to attend a four-year college than graduates of comprehensive high schools were.
In other words, while NPS was not district-led and was, instead, under state control—before and after the Zuckerberg gift—Newark students, according to the data, still did not excel in post-secondary options outcomes. A 2016 study from Harvard University evaluated the Zuckerberg gift by assessing school data from 2009 through 2016 and compared the achievement growth of Newark’s students to that of similar schools elsewhere in New Jersey. They found Newark students improved sharply in English but made no significant progress in math (Chin et al., 2017). In addition, while mastery of mathematics is critical for students wishing to pursue post-secondary education in general, and in four-year colleges in particular, the Public-School Review (2020) found that students in NPS have an average math proficiency score of 30% compared to the state average of 42%.

The state takeover of the district and philanthropic intervention yielded some progress but not in the area of post-secondary related outcomes, especially in the enrollment of Newark students into four-year colleges or post-secondary institutions such as NJIT, the state’s public polytechnic or STEM University. NJIT has proven upward mobility success with underrepresented students and overall student populations and rankings. Forbes ranked NJIT #1 nationally for colleges with the greatest percentage of students from the bottom fifth of the income distribution who end up on the top fifth. However, only 1% of the students enrolled at NJIT are from Newark. With the state’s failures looming to provide a “thorough and efficient” system of education preparing more college-ready students from Newark, the Rutgers-Newark Institute on Education Law and Policy (Trachtenberg, 2002) formulated the provisions to return local control with the adoption of a single system accountability method, which is the NJQSAC. A
single system of accountability aimed to have clear standards and objectives that would allow for the return of various functions to the district that would lead to local control. In Newark, the New Jersey State Board of Education voted to return full local control to the Newark School District nearly 25 years to the day after the state assumed control of district operations and governance, in addition to instruction and programs. Governor Phil Murphy and Mayor Ras Baraka would become prominent advocates for the city and its district.

The city was on the rise with the vibrancy of a “college town,” and several post-secondary campuses located in its University Heights section, including NJIT, the Newark campus of Rutgers University, and Essex County College, as well as Rutgers Biomedical and Health Sciences, Rutgers Law School, Seton Hall Law School, and the Rutgers Business School. Newark is also home to the headquarters of several major corporations including Audible.com, Horizon Blue Cross and Blue Shield of New Jersey, IDT Corporation, NJ Transit, Panasonic Corporation of North America, Prudential, and PSEG. In total, more than 100,000 people commute to Newark each workday, making it New Jersey’s largest employment center.

Despite serving as a major hub for industry, transportation, and education, according to census data from 2019, 27.4% of Newark’s citizens live below the poverty line. The median household income is $35,199, and the income inequality Gini Index for Newark (which measures the degree of inequality in the distribution of family income) is 0.494, which is higher than the US national average of 0.450 (DataUSA.io). While 75.3% of Newark residents have completed high school or obtained a GED, only 15.3% of Newark residents have attained a bachelor’s degree or higher (US Census Bureau).
Approximately 24.8% of Newark’s population was under the age of 18 when this project was launched.

Between 2019 and 2021, Newark continues to grow as a beacon of rich cultural history and is home to many cultural centers, including the New Jersey Performing Arts Center, the Prudential Center, the Newark Museum of Art, the Wellness and Events Center at NJIT, the Institute of Jazz Studies at RU-N, Branch Brook Park (the oldest county park in the country, designed by Frederick Law Olmsted), the Cathedral Basilica of the Sacred Heart, and the Newark Symphony Hall. Newark is also the seat of Essex County and has the highest population of any city in New Jersey with over 281,000 citizens. Newark’s population is highly diverse, with over 48% Black residents, 34% Hispanic, and 13% white/Caucasian residents. It is important to note that other races make up less than 5% of Newark’s population.

**College Readiness Intervention**

In 2018 NPS, the school district that I studied (to be called “the case district” within this dissertation), experienced a significant change in school governance and district politics. The state restored the local control to the Newark Board of Education on a transitional basis. Roger León became the first locally appointed superintendent without the meddling of the state officials under the takeover law introduced in 1995. Superintendent León made history again as the state education agency’s two-year transitional period restored full control in 2020. The local education agency, or school district, regained its local control, lifting the educational policies and gaining prominence as a more powerful institution than the state education agency that maintained state intervention from 1995-2020. The NPS also regained authority over addressing
systematic college readiness and college access gaps faced by their historically underrepresented students (Mac Iver et al., 2017; Mac Iver, 2010).

The district administrators identified what the district lacked: academic preparedness (e.g., coursework, skills, and achievements needed to succeed at a college-level work); college knowledge (e.g., knowledge, skills, and behaviors required to access college and successfully navigate its demands); and academic tenacity (e.g. beliefs, motivations, attitudes, and behaviors needed to engage with academic challenges and college-going goals successfully). Figure 2 illustrates the overlap of these dimensions.

Figure 2

*CRIS Three Dimensions*

Source: Grady et al. (2014)

**Teachers as Apprentice Faculty**

The belief that apprentice faculty can be high school teachers is the focus. Teachers working in a university setting with university faculty is a novel solution. When teachers engage in a learning community, they essentially take on the role of a learner by
participating and internalizing the content of inquiry. As participants in college settings, the role of shared inquiry in education is beneficial. For this study, the content of inquiry for teachers working with faculty to make pedagogical changes was included in a collaborative student-learning program and focuses on teacher and faculty role in college readiness and of pedagogical change in their discipline.

In 2009, the Secondary Partnership Program in Mathematics at Central High School, in partnership with NJIT. The premise was to provide mathematics course instruction for up to 20 qualified high school students from Newark and allow them to receive a college experience that would include the benefits and rewards of a freshman college mathematics curriculum, which was designed to increase their skills and knowledge in college mathematics, as well as improve weaknesses in high school level mathematics. The program lasted a decade before the school and university collaboration evolved into a district, university, and city initiative. The SPPM was the pilot program that, like many, focused on student achievements in mathematics. Therefore, bringing high school teachers into a similar model gave rise to a faculty learning community.

Statement of the Problem

There is a problem in the current state of research about faculty learning communities (FLCs). FLCs investigated to date are comprised of a small number of faculty or faculty and students (Einbinder, 2018). This problem has negated the involvement of university faculty instructors who work on high school level courses and with high school students. A child’s academic and post-high school success depends on the quality of their teachers, high school classroom instruction, followed closely by the strength of the school leader’s support to prepare engaged citizens and meet the demands
of the increasingly complex and global economy.

This study aims to remedy the competing teaching demands and college readiness problems in the classroom and beyond within the case district. This will be achieved by analyzing a district-level, college-readiness intervention program designed to improve student success and facilitate the transition from high school into post-secondary education. Using an apprenticing faculty or high school teachers, the effort was organized under the recently regained local control environment that co-exists in a college town. In the present study, the participants who engaged in the implementation process were assessed by analyzing the impact that the educational policy values of quality, equity, efficiency, and choice had on program participants and college readiness supports and indicators of the intervention. For this case study, I examined an intervention in one district by exploring eight FLC apprentice faculty (high school teachers) and district administrators.

Finally, I explored characteristics pre-FLC, during the FLC, and post-FLC period. The FLC was located in Newark, New Jersey, and was implemented during the summer of 2019 and applied during the academic year of 2019-2020. The college readiness intervention was supported by district-level policy. I defined the intervention as a high school level instructional program with the engagement of college-level math topics and support. A strong learning community component, the curricula, and the experiences both inside and beyond the school provided participants access to college-level support and academic resources, such as certificates or a degree (e.g., master’s or higher).
Purpose of the Study

The purpose of this study was to assess how high school teachers’ backward, not forward, planning in mathematics could bring positive results to close the gap between college and career opportunities in STEM. This study investigated the CRIS to form an FLC for high school and college educators. Future projections indicate that post-secondary outcomes and educational policy value conflicts affected changing social, economic, and political factors affecting districts. I also investigated the three phases of Michael Fullan (2007) educational process of change model. The model applied to the FLC was on two change agents’ roles and strategies in a district—the teachers and administrators. College readiness problems could exacerbate urban district outcomes and impair their graduates’ academic achievement and upward social mobility.

The model consists of the three dimensions of CRIS. The overlapping variables are academic preparedness, college knowledge, and academic tenacity. The intersection of dimensions focuses on teacher’s background beliefs about their students’ college readiness. As administrators sought to address the college attainment challenge in a select group of district schools, the existing local university that would be an extension of the high school students’ learning was aligned with the educational policy values that form an FLC as a proactive, bottom-up intervention, rather than a top-down approach. The traditional and magnet high schools, in general, tracked students into different courses rather than engaging them in one group and acknowledging all students’ experiences with student-centered teaching.

Therefore, several key values were examined for the case district to manage college readiness and to improve teachers’ classroom practices. Implementing the
theories and practices associated with FLC, such as student-centered learning, was intended to enhance high school teacher awareness and the opportunities gained compared to teacher-focused instruction. There were robust reasons for believing that these college-level strategies would substantially increase support and indicators while enhancing conciliatory educational policy values by reinforcing educational conflicts. However, to reinforce this belief, it was necessary to assess the high school teachers as apprenticeship faculty with university instructional faculty within a context to evaluate the effectiveness of FLCs.

The FLC itself was the experiment between a district and a university. The NJIT FLC included a facilitation team of three university instructional faculty and a tenured faculty member from the Department of Mathematics, and three undergraduate students from the Honors College. The participants included eight high school teachers (apprentice faculty). Participants in the FLC were chosen based on a selection criterion, specifically their experience as math educators. A press conference announced the project between the city, district, and university. The university developed a learning community approach with senior-level staff from the district as well as the city, and agreements and local policies were approved.

The FLC facilitators determined the specific objectives and curricula for the intervention. Throughout the summer and academic year of FLC activity, the focus progressed from the investigation of innovative high school-level teaching to classroom instructional experiments in active learning. In mathematics, the phrases “active learning” and “inquiry-based learning” (IBL) are closely related. However, the research varies on the extent to which they are related or overlap. The approach of the FLC is to
use “active learning” to represent any classroom strategy that provides students with opportunities to directly engage with content during class, whether individually or collaboratively with peers. This was also the approach to evaluate those experiments, as well as teaching and learning literature to explore the three steps of school change from initiation to implementation and institutionalization.

The proposed institutionalization phase is captured by this research using the backward planning theory. Pre- and post-questionnaires, research/lesson study, and course recitation observations provided data for assessing the impact of the FLC and developing and delivering the institutionalization program recommendations. In contrast, the educational policy values of FLC participants provided their perceptions and data necessary to assess the district administrators’ support and indicators to support this intervention to meet the CRIS model framework. Simple comparisons were used to analyze the variety of data collected and determine the FLC’s overall impact on district administrators, high school teachers, and college-going students.

**Research Questions**

Based on these educational policy values and with the CRIS implementation framework in mind, I investigated three research questions:

1. Which values underpinned the pursuit of a College Readiness FLC between a district and university?

2. In what ways did the values regarding the pursuit to implement a college readiness intervention differ among participants in this study?

3. Which values in the larger educational policy arena faced barriers in an urban context to pursue implementing the college readiness intervention?
To this end, in August 2019, the case-study district intervention was launched with four selected high schools. Select math teachers joined the rank of instructors during the FLC with local students from their collective schools to begin to prepare and learn college-level expectations. The NJIT FLC encouraged college readiness through apprentice high school faculty working with college faculty from the same discipline to implement high school level instruction in university settings and their district classrooms. Ultimately, the objective was to increase college readiness and math success in an urban district. The program was implemented from June 2019 to June 2020, with a seven-week summer enrichment from 24 June to 9 August 2019. It took place from 8:30 a.m. to 3:00 p.m. on the campus of NJIT. The summer program continued during the 2019-2020 academic year and was embedded in the NPS.

**Significance of the Study**

To enhance college readiness, it is imperative to understand high school teachers’ and administrators’ perceptions. Together these stakeholders were engaged in and observed in the context of an FLC. Research-based tools captured their viewpoints for the effective university-based administration of FLCs. This study provided an understanding of how FLCs as a continuing education opportunity can affect high school-level instruction. It outlined meaningful collaborative opportunities for secondary school administrators to enhance teacher professional development with local resources that include situational awareness of the learning environment. It established a framework for educators with universities.

FLCs can also be informative in strengthening educational policy. Factors such as the recent return of local control after 25 years of state oversight, the high demand for
post-secondary outcomes and talent in the area that fuels the local economy and industries (e.g., STEM), and the reputation of the partner institution (e.g., NJIT) as the number one university for upward mobility in the country and located in Newark, New Jersey—inadvertently, all impact the experience of the local district.

Overall, it is significant to consider college readiness as an important factor in student success. In particular, urban disadvantaged students face even greater hardships living in racial and economically segregated communities. Math teachers are the key to improving their academic and personal chances after graduation to complement so many efforts to close the achievement and preparedness gaps. The evaluated novel solution in this study can be a valuable tool for other school districts seeking to close college attainment gaps.

**Organization of the Dissertation**

This dissertation is organized into five chapters. Chapter 1 includes the introduction and background to the study, which is presented above. In Chapter 2, I present the literature on college readiness, college-readiness indicator systems, and faculty learning communities. In doing so, this chapter establishes the problem that my study addresses. Of particular importance is the necessity of understanding district politics and school governance roles in student achievement. In Chapter 3, I detail the research methodology designed to explore the qualitative study for FLCs and the methods they employed to identify and foster college readiness in students in the NPS system. In Chapter 4, I present the study’s findings. Chapter 5 offers a detailed discussion and analysis of the study’s findings. This chapter concludes with a review of the study’s implications for educational policy, practice, and further research.
Chapter 2: Literature Review

The following chapter provides an overview of the growing literature on college readiness and college-readiness indicator systems, as well as an overview of the current literature on FLCs. These categories of literature are important to understand high school and college-level misalignment or disconnects. Examining the literature on college readiness in conjunction with the ways local public-school districts define, identify, and facilitate achievement is key to understanding the context that influenced the FLC in this dissertation study. This chapter is organized into three major sections: College Readiness, Faculty Learning Communities (FLCs), and the NJIT FLC—this study’s focus. Within each section, I have included sub-themes that help to break down and further illuminate the importance and the problems with each area, as they are relevant to my dissertation study.

College Readiness

During the 2000s, the concept of college readiness was one of seven national education priorities (Conley, 2007, 2012). While the rise in developmental programs and courses at community colleges was a historical problem, the problem continues to persist. Education is meant to be a passport for every child who aspires to attend college, granting those an opportunity to graduate high school, enroll in college, and obtain a bachelor’s degree as a means to enhance their upward social mobility (MacLeod, 2009).

Consequently, MacLeod (2009) stated that education and work have “a restricted opportunity structure clothed in an ideology of equal opportunity” (p. 214). Numerous college readiness researchers (Alderman, 2006; Barnes & Slate, 2013; Barnett et al., 2012; Callan et al., 2006; Conley, 2014; Greene & Winters, 2003; Mac Iver et al., 2019;
Zhao, 2009) have documented high school graduates as unprepared, without the knowledge, skills, and metacognitive strategies to transfer to and be successful in post-secondary institutions.

College readiness provides the foundation for student success at the post-secondary level. Local policymakers represent their communities and will always understand the context and district challenges associated with the college attainment problems. While state and federal policies emphasized the universally accepted one-size-fits-all college-readiness agenda, the results conclusively failed too many high school graduates. College readiness attempts to prepare high school graduates to enroll and succeed—without remediation—in a credit-bearing post-secondary institution (Conley, 2007; Conley & French, 2014; Reed & Justice, 2014). Reed and Justice (2014) found “that students who graduate from high school and then proceed to college can become successful and may benefit economically, politically, and socially” (p. 37). Nevertheless, Greene et al. (2003) found that of the 70% of all students in public high schools who graduate, only 32% leave high school qualified to attend four-year colleges.

**Academic Achievement**

Educational policies from all three levels of government have sought to improve student achievement. Local, state, and federal governments have attempted to increase high school graduation rates, college-readiness rates, and higher education degree attainment. However, the goal has always been predicated on competition—being advantaged over another country or an unintended consequence of maintaining an advantaged group over a disadvantaged one. Federal and ultimately state governments have oversight over public education; but one-size-fits-all college-readiness policies
linked to high-stakes standardized state tests, strict, punitive accountability measures have failed many students (Barnes & Slate, 2013; Zhao, 2006, 2009). Federal mandates under No Child Left Behind (NCLB) and Race to the Top (RTTP) both missed the mark—one was too stringent on accountability and the other on teacher evaluation—and neither system included supports to decrease the dropout rate, lessen the achievement gap, increase graduation rates, or improve college-readiness rates. As a result, college graduation rates have not improved because of federal or state policymakers’ one-size-fits-all college-readiness agenda. One essential missing tenet is the role of the district. The secondary and post-secondary institutions can reinforce college readiness with a rigorous academic curriculum that meets the needs of each system and the unfulfilled expectations of graduates with restricted real-world academic opportunities.

**District Politics**

According to Wirt and Kirst (2001), “[district] politics is a form of social conflict rooted in group differences over values about using public resources to meet private needs, and [school] governance is the process of publicly resolving that group conflict by means of creating and administering public policy” (p. 4). The Elementary and Secondary Education Act (1965) was reauthorized in 2001 as No Child Left Behind (NCLB). As part of the federal policy, states were authorized to establish accountability systems using standardized tests to measure student and subgroup proficiency rates in Math, English, and Language Arts (ELA). NCLB held states responsible for the proficiency of student subgroups, including low-income families, students with disabilities, students with limited English proficiency, and students from all ethnic subgroups. The schools that
failed to make Adequate Yearly Progress (AYP) for any subgroup were sanctioned and faced potential closure (NCLB, Title I, Part A, §1116, 2001).

In 2015, NCLB was reauthorized with many changes, including a title change to the Every Student Success Act (ESSA), which empowered states to control progress. By law, New Jersey school districts are supposed to provide a “thorough and efficient” education for all students. New Jersey has a reputation as a national leader in quality public education leading to opportunities for graduates ready to continue their education, become productive members of the workforce, and participate fully in a multicultural American democracy. However, district politics (and school governance) are based on different political ideologies of key stakeholders.

Elected leaders and other appointed governmental officials make decisions within the context of the political realities in which they operate. For example, high school graduation rates and college readiness rates continue to be a problem, especially for Black and Hispanic students who fail to graduate and attend college when compared with whites and Asians. The elected officials must follow each state’s political approach to these issues, which remains an urgent problem in education policy. Educational policies are a direct result of decision-making within the education system, in large part through district politics or a political process. The federal policies, such as the National Curriculum, school choice, high-stakes testing, and school accountability, were the result of different political views on how best to achieve a world-class education system. In the United States, 33 states have state takeover policies of school districts based on academic and fiscal reasons (Bowman, 2013; Morel, 2018).
State takeover laws prompt state involvement in public schools, outlining the ability to seize local authority and requirements to re-establish local control by terminating state takeover involvement (Bowman, 2013; Morel, 2018). While takeovers generally produce greater fiscal stability, academic achievement gains are less for a majority of the minority or Black and Hispanic students (Bowman, 2013; Burns, 2003). An effective strategy for academic achievement studied by Murphy and Hallinger (1988) identified 12 high-performing California school districts. They associated district effectiveness in academic gains with the following:

- Instructional-focused solid leadership from the superintendents and their teams.
- An emphasis on student achievement and improvement in teaching and learning.
- The establishment and enforcement of district goals for improvement.
- District-wide curriculum and textbook adoption.
- District advocacy and support for the use of specific instructional strategies.
- Deliberate selection of principals with curriculum knowledge and interpersonal skills.
- Systematic monitoring between district goals and school goals with superintendents monitoring performance through school visits and meetings with principals.
- Alignment of district resources for professional development with district goals for curriculum and instruction.
- Systematic use of student testing and other data for district planning.
- Goal setting.
- Tracking school performance.
- Generally positive relations between the central office, the school board, and local communities.
Effective districts address academic improvement in most of these school districts, but urban districts were the target in the 33 states where the laws seized control for academic and fiscal reasons (Amparbin, 2020; Bowman, 2013). State takeover laws outline factors and levels for state involvement and the extent of the state’s authority including the provisions for terminating state takeover involvement. However, the states are not held accountable, except through the state supreme courts that enforce the guidelines that all districts provide a fair and just public education system (Amparbin, 2020; Morel, 2018).

There have been district studies on academic tracking as society grows, and districts have allowed schools to train students to fill specific needs in labor markets (Anyon, 2005, 1997; Oakes, 2005). District politics have influencers from the Right and the Left, political ideologies that allowed the purpose as a reproduction function of schooling to serve and address society’s need to fulfill positions to better humanity (Anyon, 2005). With global competition and student achievement lagging, federal reform initiatives, such as RTTT, were other attempts to guide states with set goals. However, the system and system leaders, elected or appointed to carry out the plan, lacked agreement on reforms over conflicting values, and state intrusion over local public schools failed to reduce the achievement gap. Moreover, education systems were co-opted or remained corrupted with minimal student academic achievement results (Oakes, 2005).

The strengths and weaknesses of the education systems may unintentionally be taught, as Anyon (1980) found that teacher practices inadvertently reproduce social class from the language used in some working-class schools consistent with factory-style,
working-class jobs, which employed many families in the surrounding community. Technical language, with curricula rooted in rote memorization, was the norm and reinforced social class stratification. Even more subliminal was the fact that students in working-class schools were not given the same opportunities to use higher-order thinking skills, as their more affluent counterparts were (Anyon, 1980). The school replicated the social order to fill needs in society for working-class jobs or prepare new elites to manage others. In this way, schools have historically mirrored societal norms (Anyon, 1980).

The demand from all policymakers on educators is to prepare for the improvement of all student opportunities. However, the reproduction of class-based ideologies in school systems linked to workforce aspirations has proven to be a daunting task (MacLeod, 2009). Group differences and current policy that is focused on labor market-driven policies have led to conflicts over social institutions, where attainment and degrees in society are viewed as critical currencies that can be converted into a labor market value.

Federal policy framed the broader national agenda focus on education as an integral element of a strong and competitive United States economy. However, college readiness, achievement, district politics, and school governance are contributing factors to a well-educated workforce and society’s economic growth. To help build this workforce, college readiness supports and indicators need to be developed using comprehensive approaches including rigorous instruction, high school to college transition plans, and relevant teacher instructional options to prepare all students.
**College Readiness Indicator System (CRIS)**

CRIS builds on the research of college readiness using district use of data, decision-making, research on early warning indicators, and to spur district progress in this area (e.g., Arnold et al., 2012; Callan et al., 2006; Conley, 2005, 2008; Roderick et al., 2009; Zhao, 2009). Researchers from the AISR, Gardner Center, and the CCSR collaborated with five urban districts (Dallas Independent School District, Pittsburgh Public School District, San Jose Unified School District, Philadelphia Public School District, and New York City Public School District) and established a framework to refine systematic approaches to increase college readiness and success for underrepresented students.

The CRIS framework focuses on three college readiness areas: academic preparedness, academic tenacity, and college knowledge (Borsato et al., 2013; McAlister & Mevs, 2012). The academic preparedness domain refers to key academic content knowledge (measured by GPA and ACT/SAT score) needed to succeed in college-level coursework. Academic tenacity refers to the underlying beliefs and attitudes that drive student achievement, measured by attendance and behavioral data. Finally, college knowledge refers to a student’s ability to navigate college’s nuances, including the financial requirements for college (Borsato et al., 2013; Gurantz & Borsato, 2012).

Within the CRIS framework, college knowledge is often measured by the completion rates of key pre-college activities, including successful completion of college and financial aid applications and the number of college or post-secondary visits a student makes. College knowledge can also be assessed using locally developed self-report surveys that assess the student’s perception of the college-going culture within the
school and district (Borsato et al., 2013). Because the CRIS framework recognizes that
the responsibility of providing college readiness resources extends beyond the school
district, this framework also includes a “Cycle of Inquiry” that districts can utilize to
mobilize community partners (Borsato et al., 2013). The cycle of inquiry encourages
districts to explore the local and state political context around college readiness to map
out the conditions for each key indicator (Borsato et al., 2013). For example, school
districts should evaluate whether local graduation requirements are rigorous enough to
prepare students to meet admissions requirements for competitive higher education
institutions.

**Faculty Learning Communities**

FLCs were first recognizable under their parent form of learning communities in
the United States, dating back to the 1920s from the work of Alexander Meiklejohn at the
University of Wisconsin (Engin & Atkinson, 2015). Meiklejohn’s (1932) “Experimental
College” emphasized moral and civic development and the intellectual and social life of
undergraduate students using these tenets to restructure the curriculum to meet the needs
of college students, as they were understood at that time (Johnson & Romanoff, 1999).
Perhaps one of the most characteristic features of this program was the importance placed
on developing a personal relationship between the teacher and the pupil to bring more
value to the relationship (Meiklejohn, 1930, p. 487). He favored a deliberately
restructured curriculum to meet the educational objectives of a specific cohort of students
and their faculty (Johnson & Romanoff, 1999). Meiklejohn had a long-standing definition
of a learning community derived from his work in 1932, which has provided the basis for
what is commonly found in the literature.
During the 1960s, the idea of learning communities emerged again when efforts were made to humanize the learning environment on college campuses (Zhao & Kuh, 2004). However, it was not until the 1980s that the current learning communities were developed. Projects at Washington State University in the late 1980s and the Washington Center for Improving the Quality of Undergraduate Education in the 1990s were the impetus for initiating learning communities on campus (Lenning et al., 2013). The beginning stages of compiling research on these programs contributed to the emerging prominence of the learning community term in higher education institutions in the U.S.

The Boyer Commission in 1998 declared a state of crisis in American education, calling for reform and restructuring on ten points. It concluded with the instruction to create a greater sense of community (Lenning & Ebbers, 1999). It criticized American universities, specifically those that are research-intensive, for lack of integrated and focused learning opportunities (Boyer Commission, 1998). Specifically, it recommended that institutions of higher education must create an environment allowing students to feel that they are “needed and valued members of the [college] community” (Boyer Commission, 1998, pp. 34-45). Specific suggestions on creating this type of community foreshadowed the eventual creation of learning communities most commonly seen on college campuses today.

Shapiro and Levine (1999) identified four main categories of learning communities that can be used to build a sense of group identity, cohesiveness, and uniqueness, encourage continuity, integrate diverse curricular and co-curricular experiences, and counteract the isolation that many students feel. The first type of learning community focuses strictly on academics. It features cooperative learning
techniques and group process learning activities that integrate pedagogical approaches. The second type of learning community is designed around affinities such as hobbies outside their main academic interests. The third type of learning community is similar to the first two, but with a common residence hall allowing classmates to live in close proximity, thereby increasing opportunities for out-of-class interaction and supplemental learning activities. The fourth type of learning community builds on the idea of using the classroom as a vehicle for creating career alignment courses in a learning community (Shapiro & Levine, 1999). It was not until the mid-1990s that interest in structures of faculty learning communities began to grow in number, complexity, and specialty.

**FLC Learning Activities**

FLC learning activities include the purposeful integration of specific learning activities to initiate the transfer of learning to impact participants’ ability to apply new knowledge in their practice. Extensive literature relates to the transfer of learning in adult education scholarship. Caffarella (2002), whose work in program planning has given transfer of learning arguably the most significant currency, defines the transfer of learning as “the effective application by program participants of what they learned as a result of attending an education or training program” (p. 204). She notes that transfer of learning has “often been thought of in behavioral terms—that is, what is to be transferred can be specified in terms of observable changes in knowledge, skills, and attitudes” (p. 205). Brookfield (2005) offered a different definition of transfer of learning as “the process by which learners apply, in settings outside of an . . . educational setting, the skills, and knowledge they have learned within that setting” (p. 627).
Sork (2020) noted that “devising transfer of learning plans” is important in the program planning (or curriculum) process (p. 162) and credited Caffarella (2002) with bringing the concept of transfer of learning to the fore since “most (curriculum) models are silent on this important aspect of planning, or just assume that this will be taken care of when designing instruction” (Sork, 2020, p. 162). Among the numerous transfers of learning techniques that Caffarella (2002) identified are individualized learning plans, mentoring, portfolios, networking, and reflective practice, which all feature prominently in the course design for the FLC.

Most curricula intervention models do not include the transfer of learning plans as a key component in the program planning (or curriculum) process. Caffarella (2002) identified the significance and suggested that individualized learning plans, mentoring, portfolios, networking, and reflective practice are critical areas for teacher discovery and learning, and these areas are all featured prominently in the course design for the FLC (Caffarella, 2002; Sok 2020).

Wenger et al. (2002) described three elements as fundamental for FLCs: domain of knowledge, a community of people, and the shared practice that they are developing. FLC focuses on a student-centered approach, shifting away from the traditional, teacher-centered, with the potential for improved results and more efficient decision-making practices. In good communities, engaging learning processes enhance strong bonds, which withstand disagreement, with members using conflict to deepen their relationships and learning (Wenger et al., 2002). Each community has a specific means of making its practice visible through how it develops and shares knowledge. Successful practice development depends on a balance between joint activities, in which members explore
ideas together, and the production of “things” such as documents, tools, or projects. Successful practice building goes hand-in-hand with community building (Wenger et al., 2002).

**Domain of Knowledge**

People view learning communities as ways to promote innovation, develop social capital, facilitate and spread knowledge within a group, and manage existing tacit knowledge with others with a common interest in a subject or area. These individuals collaborate over an extended period, share ideas and strategies, determine solutions, and build innovations. At its core, the FLC constructed in this study is a learning community (Anderson, 2008), ideally, one that formed the basis of a community of practice (Lave & Wenger, 1991) during the program and continued after the program completion.

Lave and Wenger’s notion of “legitimate peripheral participation” (p. 29) as a way to describe the relationship when newcomers to a community begin to learn by doing “peripheral” simple activities and over time, newcomers take on more central tasks. The apprentice learns the practice, then applies uses it. Learning is ordered in a way that makes it easy to progress. High school teachers start at the last step for high school graduates to be college-ready and learn their way through backwards design to prepare their students. While an FLC engages practitioners from all skill levels and backgrounds to undertake a radical and important rethinking and reformulation of the conception of learning from practices that allows them to shift towards the center (rather than remaining on the periphery) of a community of practice.

Moreover, Lave and Wenger advised:
Rather than learning by replicating the performances of others or by acquiring knowledge transmitted in instruction, we suggest that learning occurs through centripetal participation in the learning curriculum of the ambient community. The participants and their questions must be addressed within the development cycles of that community. This recommendation creates a diagnostic tool for distinguishing among communities of practice. (p. 100)

In “Learning Communities: Creating Connections Among Students, Faculty, and Disciplines,” Gabelnick et al. (1990) described a learning community as

any one of a variety of curricular structures that link together several existing courses—or actually restructure the curricular material entirely—so that students have opportunities for deeper understanding and integration of the material they are learning, and more interaction with one another and their teachers as fellow participants in the learning enterprise. (p. 19)

The authors promoted the idea that learning communities can

purposefully restructure the curriculum to link together courses or course work so that students find greater coherence in what they are learning as well as increased intellectual interaction with faculty and fellow students [and that they] can address some of the structural features of the modern university that undermine effective teaching and learning. (Gabelnick et al., 1990, p. 5)

As a necessarily collaborative enterprise, learning communities usually incorporate

“collaborative and active approaches to learning, some form of team teaching, and interdisciplinary themes” (Gabelnick et al., 1990, p. 5).

**Communities of People (CoPs)**

Shapiro and Levine (1999) cited Astin’s (1985, p. 161) view of learning communities:

Such communities can be organized along curricular lines, common career interests, avocational interests, residential living areas, and so on. These can be used to build a sense of group identity, cohesiveness, and uniqueness; to encourage continuity and the integration of diverse curricular and co-curricular experiences, and to counteract the isolation that many students feel (p. 161).
This term was first used in 1991 by Lave and Wenger, who discussed legitimate peripheral participation. In 1998, Wenger extended the concept and applied it to other domains. Wenger (1998) defined communities of practice as groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly. Note that this definition allows for, but does not require, intentionality. Learning can be, and often is, an unexpected outcome that accompanies these social processes. As part of the social learning process, CoP includes a common learning goal, a group of learners, and shared actions or practices (Wenger, 1998). CoPs referred to groups of people who genuinely cared about the same real-life problems or current topics and regularly interacted to learn together and from each other (Wenger et al., 2002).

**Shared Practice**

Research is one of the chief characteristics of a CoP. Whether the group is formed organically or created through organizational structure may be a determining factor in the extent to which the group functions, producing collective learning outcomes (Mittendorff et al., 2006). The researchers conclude that CoPs may not be the best avenue for improving organizational learning. Even groups that function as CoPs may sometimes be resistant to change and may not externalize their collective learning. Additionally, Boud and Middleton (2003), in their research on communities of practice and informal learning, found that individuals have “explicit contacts for learning” (p. 200), some of which are informal and some of which are created through organizational structure. The concept is a helpful way to account for some of the learning phenomena embedded in the workplace.
While a community of practice can ostensibly be bounded by a specific context or educational experience (such as mathematics), the fomentation of a learning community has value and currency within this particular experience. Anderson’s (2008) characterization of a learning community as a space where members “both support and challenge each other, leading to effective and relevant knowledge construction” (p. 39) informed the program design and pedagogy of this study. Faculty learning communities have been designed in a way that purposefully leverages this, making collaborative learning—formal and informal—integral to success in the district and classrooms. In instructional design terms, the purpose of the FLC is to provide learning activities that incite, support, and leverage community and its concomitant interactions. Endeavoring to garner a richer understanding of these centripetal, ambient, and cyclical aspects of the inaugural learning community and community of practice dynamics were, therefore, a focus of this study.

**Effectiveness of FLCs**

The effectiveness of FLCs is measured by perceived educational policy values. Typically, FLC’s meet for at least six months; have voluntary membership; meet at a designated time in an environment conducive to learning; develop empathy among members; and operate by consensus, not the majority; establish their own culture, openness, and trust; engage complex problems; energize and empower participants; have the potential to transform institutions into learning organizations; and are holistic in approach (Cox, 2004; Smith et al., 2008). FLCs address many topics although they improve teacher’s pedagogy, intellectual stimulation, interactions with other colleagues who are interested in similar topics or simply fulfilling service duties assigned by a
higher institution. An FLC specifically designed as a collaboration to improve strategies and instructional practices to ensure college readiness also challenges how biases about race, ethnicity, gender, and international issues interact with how teachers’ instructional practices and classrooms support their students in critical topics (Herdeiro & Silva, 2013; Wei et al., 2009). FLCs aid policymakers and educators who recognize the importance of deepening college readiness and student preparation by adopting effective pedagogy that connects workforce or real-world activities through active learning (Smith et al., 2009).

Table 3 illustrates the many different types of FLCs and their associated effectiveness.

Table 3

**FLC Effectiveness Literature**

<table>
<thead>
<tr>
<th>Authors (Year)</th>
<th>Title</th>
<th>Type of FLC</th>
<th>Outcome</th>
<th>Effectiveness</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bond (2015)</td>
<td>Developing a Faculty Learning Community for Non-Tenure Track Professors</td>
<td><strong>Cohort:</strong> five or more cross-disciplinary professors of the same rank.</td>
<td>Viable method of professional development (PD) Support the participants' intellectual and emotional needs</td>
<td>Interviews, Evaluations after meetings, facilitators curricular materials</td>
<td>Non-tenured track faculty at a large (&gt;35,000 students) university located in southwest</td>
</tr>
<tr>
<td>Einbinder (2018)</td>
<td>A Process and Outcome Evaluation of a One-Semester Faculty Learning Community: How Universities Can Help Faculty Implement High Impact Practices</td>
<td><strong>Topic:</strong> nine to increase retention and graduation with faculty facilitators</td>
<td>1 of 10 High Impact Practices</td>
<td>Content Analysis of Participant Narratives post-FLC</td>
<td>Faculty all ranks</td>
</tr>
<tr>
<td>Nadleson et al. (2013)</td>
<td>A Journey Toward Mastery Teaching: STEM Faculty Engagement in a Year-Long</td>
<td><strong>Topic:</strong> STEM student success (one-year)</td>
<td>Increased Knowledge Best teaching practices/New pedagogical and assessment approaches</td>
<td>Pre-and post-analysis Teaching logs, observations, survey</td>
<td>Tenure-track or full-time lecturer appointments with up to 13 years of experience</td>
</tr>
<tr>
<td>Smith et al. (2008)</td>
<td>Evaluating the Impact of a Faculty Learning Community on STEM Teaching and Learning</td>
<td><strong>Topic:</strong> STEM, Teaching and Learning</td>
<td>Positive Impact Interdisciplinary Seminars, Linked Courses, Teaching Experiments, Biweekly Meeting</td>
<td>Student Evaluation Bi-weekly meetings, grades, related assignments, Students formed LC, syllabus, and other related documents</td>
<td>Tenured, Tenured Track, and Future Faculty</td>
</tr>
<tr>
<td>Tinnel et al. (2019)</td>
<td>Sustaining pedagogical change via faculty learning community</td>
<td><strong>Topic:</strong> Collaborative Student Learning Pedagogy (2-year)</td>
<td>Engineering faculty found success using CoP, PLCs, FLCs, interviews,</td>
<td>3-step process: (1) clustering the data into domains, (2) condensing the data into core ideas, and (3) cross-analyzing to extract common themes across all participants (Hill et al., 2005)</td>
<td>Urban, research university between faculty developer, an engineering faculty member, and a science education faculty member</td>
</tr>
</tbody>
</table>
Types of FLCs

There are at least two different approaches to FLCs: cohort-based and topic-based. Cohort-based FLCs address the teaching, learning, and developmental needs of an important group of faculty or staff that has been particularly affected by the isolation, fragmentation, stress, neglect, or frigid climate in the academy. The cohort-based learning communities address the teaching, learning, and developmental needs of a non-tenure track faculty (Bond, 2015). Five empirical studies investigated cohort-based FLCs, and utilized the data to establish comprised of professors at various stages of their careers Bond (2015). Four examples of cohort-based communities at Miami University are the Teaching Scholars Community for junior faculty, the Senior Faculty Community for Teaching Excellence, the Preparing Future Faculty Community for graduate students, and the Department Chairs Learning Community to support a cross-section of disciplines and support the participants’ intellectual and emotional needs (Bond, 2015).

Topic-based FLC supports a curriculum designed to address a special campus teaching and learning need, issue, or opportunity. Faculty and professional staff members propose topics to the FLC program director, who then advertises a call for applications across the university (Smith, et.al, 2008). Topic-based FLCs offer membership and provide opportunities for learning across all faculty ranks and cohorts. They also make appropriate professional staff members available to focus on a specific theme. A particular topic may be new and involve an FLC for one or many years. They end when the teaching opportunity, interest, or issue of concern has been satisfactorily addressed. Examples of topics addressed include team teaching, problem-based learning, diversity,
teaching portfolio development, department assessment, small-group learning, teaching writing-intensive courses, and first-year experience.

Using seminars, linked course opportunities, teaching experiments, and daily [biweekly] meetings, the FLC became “a continuous process of learning and reflection supported by colleagues with an intention of getting things done” (McGill & Beaty, 2001, p. 11). FLC activities and outcomes in an urban district should include three areas that can be addressed.

First, the FLC was to become an active learning approach defined as an instructional method that engages students in the learning process. In short, active learning requires students to do meaningful learning activities and think about what they are doing. While this definition could include traditional activities such as homework, active learning refers to activities introduced by teachers into their classrooms. The core elements of active learning are student activity and engagement in the learning process unlike the traditional lecture approach when teachers passively give information to their students. FLCs with this approach have been shown to be effective for initiating change (Furco & Moely, 2012). There is sparse evidence of whether these changes are sustained or sustainable beyond the FLC participation. These practices are inclusive of opportunity, racial, and learner barriers.

Second, according to Ladson-Billings (1994), there is an opportunity barrier of inequitable access—to high-quality mathematics curricula, teachers, instruction, textbooks, technology, and more—which contributes to a further widening of broader social inequities (Gutiérrez, 2008). A society that operates from the lens of whiteness in the United States reproduces subordination and widens society’s opportunity gaps in and
through mathematics education (Battey & Leyva, 2016; Martin, 2012; Snyder et al., 2012; Spencer, 2009; Stinson, 2006), particularly at the high school and college levels. This opportunity barrier ignores “systemic barriers and institutional structures that prevent opportunity and success” (Milner IV, 2012, p. 704), as well as institutional structures that facilitate opportunities and the distribution of rewards not according to merit but, instead, according to race and social background (Bowles & Gintis, 2002; McIntosh, 1988).

Third, the dichotomy between white and non-white achievement barriers in math is well documented and math teachers historically have been trained in whiteness ideologies that examine achievement through a lens benchmarked by urban students who are unsuccessful because they are disengaged students of color and are from underrepresented populations in the math and STEM disciplines. There is also a mismatch between the majority of non-white students in urban schools and a mathematics teaching force that is largely white and middle-class (Chazan et al., 2013). Despite these structural, systemic, and even personal inequalities, when school achievement falls short compared to “better” resourced schools (often white, suburban schools), differences are then typically attributed to the students, their families, and their communities for what is perceived as a lack of ability, effort, “grit,” values, or parenting (Milner IV, 2012).

Urban schools must align with better-resourced institutions to address weak results on external assessments that may reinforce deficit views about students, thus continuing a vicious cycle of low expectations for urban students and their teachers (Cabana et al., 2014). College readiness is a privilege that can also be a vehicle for poor or working-class students to upward mobility. Many students from non-affluent families
have faced injustices as barriers; these barriers have lasted over the past half-century. The educators of secondary and post-secondary students also face mobility issues based on their title which sheds a lack of fairness and perks, e.g., teacher vs. college teacher, adjunct faculty vs. instructor.

The learning community’s model can level many of these differences, as one system produced countless professional learning communities (PLCs) and the other produced FLCs. Learning communities are either PLCs or FLCs and limited research was found that brought high school teachers into college settings, even from the same discipline. PLCs and FLCs must work together to provide educators with the tools and skills to help their students overcome barriers and have access to a college education to benefit from the 11.5 million jobs that were added during the recession of 2007-2010, 99% of which went to workers with at least some college education, according to the Georgetown Center on Education and Workforce.

FLCs involving faculty evolved into a widespread reform movement embraced by over 800 colleges and universities (Matthews et al., 2012). The purpose of an FLC has traditionally been to engage faculty in “an intentionally developed community that exists to promote and maximize the individual and shared learning of its members. There is ongoing interaction, interplay, and collaboration among the community’s members as they strive for specified common learning goals” (Lenning et al., 2013, p. 7). More recently, FLCs have established goals to align college readiness and math curriculum to enhance high school instruction to promote coherence in students’ learning and increase intellectual interaction with faculty and peers (Gabelnick et al., 1990).
Teaching and learning models involve connecting to the community, its identity, meaning, and practice (Wenger, 1998). Thus, in a professional setting, an effective way for adult educators to learn is through collaboration, cooperation, and interaction on topics and issues related to their professional activities. Through these interactions, meanings are discussed, shared, negotiated, and developed. It is the discussion of the ideas and the co-construction of knowledge that makes the learning and development more meaningful. The basic premise of this approach is that knowledge is not “owned,” but “made” through social interaction (Vygotsky, 1978).

Teaching is a highly socially situated activity, and teacher development should reflect this. Wenger (1998) points out, “Even when people work for large organizations, they learn through their participation in more specific communities made up of people with whom they interact on a regular basis” (p. 1). Although FLCs are defined in various ways, structured and unstructured for this review, Cox (2003) provides the best contextual meaning as follows: “learning which helps teachers master content, hone teaching skills, evaluate their own and their students’ performance, and address changes needed in teaching and learning in their schools” (p. 7). This base definition is the guiding principle of the following interpretations of the components of an effective faculty learning community.

**Teaching and Learning in STEM**

STEM continues to be an industry in high demand with significant connections to every facet of life, and higher education prepares the majority of the STEM workforce. These institutions co-exist in cities in which lives are transformed by education when it is equitable, promotes equality, and has an intentional commitment to justice throughout the
system for all students to learn and ultimately be ready for college life or other pursuits after high school. However, the readiness gap is wide and remains even wider for students seeking to earn a STEM degree. In a 2013 study entitled “Teacher STEM Perception and Preparation: Inquiry-Based STEM Professional Development for Elementary Teachers,” the researchers conducted a year-long program that examined the compulsory background knowledge, confidence, and efficacy for teaching STEM of elementary teachers, factors that may hinder student STEM learning.

The findings included a lack of collaboration between teacher preparation and student achievement in STEM, which resulted in a professional development program to better assess K–5 teacher confidence for, attitudes toward, knowledge of, and efficacy for teaching inquiry-based STEM. The data found significant and consistent increases in pre-to post-institute assessments of teacher confidence, efficacy, and perceptions of STEM, as well as increased participant attention toward linking STEM curriculum and instruction to learning standards (Nadelson et al., 2013).

Research suggests that middle school, high school, and college STEM educators throughout the past decade have not met national, state, and local needs. The traditional teaching approaches have dominated remediation efforts, such as lectures or one-time workshops. Consequently, these approaches were already fostering the implementation of experimentation with different teaching techniques but failed to include the non-traditional methods such as active learning that begins in teachers’ classrooms with aspects of participation and realism to apply in their classrooms (Barnes, 1989; Nadelson et al., 2013). The traditional versus non-traditional methods of teaching occurred when a teacher directed students to learn through memorization and recitation techniques versus
through the development of critical thinking, problem-solving, and decision-making skills (Barnes, 1989; Sunal et al., 1994). For example, Handal (2003) pointed out in her study that most mathematics lessons in American mathematics classrooms “follow a pattern of whole-class lecturing and show and tell style of teaching” (p. 50). Even with the new movement started by the National Council of Teachers of Mathematics (NCTM), many teachers still believed that teaching and learning mathematics was more effective with traditional instruction. According to Handel (2003), this suggested a historical correspondence between teachers’ mathematical beliefs and the teaching practice characteristics of innovations and interventions that can strengthen the math gap tied to rote memorization of procedural problem-solving.

These teaching methods were meaningful for higher-level mathematics skills, which were fundamentally demonstrated in non-urban schools, in classrooms with diverse teachers with expectations that were not mired by historic trajectories that all students cannot learn, and finally elevating practices used by faculty in university settings more than secondary teachers. It is true that high school math teachers may contend with daily complex problems, interruptions, and health and food insecurities that were exacerbated by the COVID-19 pandemic. However, providing numerous students with an opportunity to gain access to college through high school level instruction, specifically ensuring college readiness and college-level math skills, affords any student, despite their zip code, an opportunity to explore, guess and even make errors as they learn to work towards a solution for a given problem. To prepare a diverse and inclusive workforce, especially for STEM, mathematics must become accessible to all students, and the perception of math as difficult must be challenged (Li & Schoenfeld, 2019).
**FLC as an Intervention**

The FLC I investigated for this dissertation study uses a topic-based format and intervention with the integration of high school teachers and college/university supporters and practitioners to address college readiness. While most programs target either pre-college or post-secondary students, there is seldom a bridge between high school teachers and university researchers and/or instructors. The unifying nature of a college readiness FLC may also provide an unknown need for additional support. The topic-based structure best describes the NJIT FLC, which focused on enhancing college readiness and STEM fields, especially in an urban district. The objective was to create and fulfill a need to attract and retain traditionally underrepresented minorities in STEM disciplines. Underrepresented students, in particular, are a disproportionately low percentage of degree recipients in STEM (NSF, 2017). Trends such as these necessitate examining programs that address low participation among underrepresented students in STEM disciplines. FLCs as an intervention was the focus of this investigation.

The documented impacts in literature was based on participant views from classroom experiments. FLCs can incorporate nontraditional, student-centered teaching methods to provide safety and support for participants to investigate, attempt, assess, and adopt new (to them) methods (Cox, 2000; Smith et.al, 2008). The NJIT FLC develops scholarly teaching in its participants through learning and teaching, reflecting upon their practice and demonstrating knowledge of effective teaching (Kreber & Cranton, 2000).

Researchers throughout the past decade have challenged traditional approaches, such as lectures or one-time workshops, and specified activities that directly improved instruction with some interest in teaching innovation (Bond, 2015; Einbinder, 2018;
In some cases, these approaches are already fostering the implementation of or experimentation with different teaching techniques (Nadelson et al., 2013). The traditional method of teaching occurs when a teacher directs students to learn through memorization and recitation techniques, thereby not developing their critical thinking, problem-solving, and decision-making skills (Sunal et al., 1994).

In another math instructional example, Handal (2003) pointed out that most mathematics lessons in American mathematics classrooms “follow a pattern of whole-class lecturing and show and tell style of teaching” (p. 50). Even with the new movement started by the NCTM, many teachers still believe that teaching and learning mathematics is more effective with traditional instruction. According to Handel (2003), this suggests a historical correspondence between teachers’ mathematical beliefs and the teaching practice characteristics of rote memorization of procedural problem-solving (Boaler, 2002, 2005, 2008a, 2008b).

However, this method is not particularly meaningful for higher-level mathematics skills, which are fundamental for many professions, particularly those in STEM. High school math teachers contend with daily complex problems while, at the same time, providing numerous students with an opportunity to read, write, and communicate an understanding of math both orally and verbally. The NCTM and the FLC allow teachers to explore, guess, and even make errors as they work towards a solution for a given problem; skills they can then implement in their own classrooms. To prepare a diverse and inclusive STEM workforce, mathematics must become accessible to all students, and the perception of math as difficult must be challenged (Li & Schoenfeld, 2019).
Based on the research literature, what is known about the perceptions of teachers who participate in FLC programs is a newer area. It is well known, in general, that science, technology, engineering, and mathematics (STEM) education seeks to produce graduates with the complex skills required for careers in science, business, politics and industry. Educators, especially secondary teachers from urban districts, have not been studied as part of a college-readiness partnership program that engaged them through an FLC (Al Salami et al., 2017; Barnett et al., 2012; Lee, 2013). Secondary school teachers believe that to capitalize fully on the STEM potential of all students.

Partnership programs must streamline and refine instructional pedagogy to adequately prepare them to teach their students for the rigors of such studies and foster more alignment with university expectations (Lee, 2013). This is especially true for teachers educating students from disadvantaged schools. Al Salami et al. (2017) advocated for grounding this education and instruction in STEM pedagogy through a collaborative approach. Based on existing research literature, teachers view four main areas as vital for programs to address STEM teacher needs. These include the areas of partnerships, curriculum, teacher preparation, and district support.

Teachers believe that partnerships are important to forge a culture of collaboration with peers. They further believe collaborative planning and decision-making are essential to a successful partnership (Bruce-Davis et al., 2014; Burrows et al., 2018; Gardner, 2011; Stohlmann et al., 2012; Wang et al., 2011). Teachers recognize the importance of partnerships with other STEM teachers and university professionals to not only create an atmosphere that enhances preparation for STEM lessons but also to model a collaborative approach to engage students and use STEM pedagogy that challenges students to
participate in solving problems. Teachers were siloed in the past, and partnerships are necessary for STEM planning and implementation, especially with university faculty in the same discipline and city, to ensure adequate preparation in all aspects of system alignment (high school to college) access to college-level resources and expertise (Bruce-Davis et al., 2014; Burrows et al., 2018).

Partnerships to align different academic institutions were especially helpful to capitalize on learning about STEM careers, experiences, and fields (El-Deghaidy, 2017). These supports abetted the teacher’s willingness to take on risks and delve deeper into STEM concepts outside their comfort area. Teachers expressed that intentional time was necessary throughout the school year to meet with partners for planning to align areas of interest (Al Salami et al., 2017) They also believed a technology-enabled network could be an effective means of collaborating between participating teachers (Bell, 2014).

Providing time and opportunities for collaborative planning and open communication between teachers may be critical to the successful implementation of such partnerships. In summary, topic-based FLCs generally follow Cox’s well-established model for implementation. Cultivating a trusting and respectful climate in the FLC is critical to its success. When faculty members feel emotionally safe, they are willing to talk about their teaching, and, consequently, they reap the benefits of the professional development approach (Bond, 2015).

FLCs as an intervention method often used a three-step process for fostering change in educational systems (Bond, 2015; Fullan, 2007; Tinnel et al., 2019). One three-step model utilizes initiation, implementation, and institutionalization, with the goal with criteria met for each step. However, institutionalization takes (more than one year) time
and depends on the initial phase’s success; and each step requires different strategies. While FLCs are initiated and determined by the strategies and their implementations vary, they are an effective research-based model (Cox, 2009).

**Initiation (Step 1)**

During the initiation phase, a few steps occur such as the designation of an intervention leader or leadership team to align the initiative to an apparent need based on the institution’s values and norms. The next step allows the designated leader or leadership team to work with the other decision-makers to establish the structures and launch the new initiative, including the selection of the affiliated participants/campus support, such as the official university department sponsoring the FLC (Fullan, 2007 as cited by Bond 2015).

The next step identifies one or more outcomes for the mission and purpose as outlined by Cox’s (2009) Faculty Learning Community Goals Inventory: (1) Building university-wide community through teaching and learning, (2) Increasing faculty interest in undergraduate teaching and learning, (3) Investigating and incorporating ways in which diversity can enhance teaching and learning, (4) Nourishing the scholarship of teaching and its application to student learning, (5) Broadening the evaluation of teaching and the assessment of learning, (6) Increasing faculty collaboration across disciplines, (7) Encouraging reflection about general education and the coherence of learning across disciplines, (8) Increasing the rewards for and prestige of excellent teaching, (9) Increasing financial support for teaching and learning initiatives, and, (10) Creating an awareness of the complexity of teaching and learning (as cited in Bond, 2015).
Implementation (Step 2)

The implementation steps include building the curriculum, setting the calendar of meetings and the timeframes, selecting topics to cover, and receiving input as needed from the team (Bond, 2015). The administration then focuses on recruitment and it makes participant decisions, and plans a successful launch and orientation. In addition to making decisions about the facilitator(s) and collaborators, the focus is on the execution of outreach and marketing efforts (Bond, 2015; Cox, 2003a, 2003b). This is followed by establishing ground rules for interactions to create a collegial environment based on safety, trust, openness, respect, and enjoyment.

To build and strengthen the relationships between educators’ connections and values, time was allocated during each meeting to socialize and share celebrations and challenges occurring in their home departments. This also promotes a more welcoming environment for newcomers in an FLC, as the participants were provided refreshments during each meeting as a part of their fellowship (Bond, 2015; Cox, 2003a, 2003b). The arranging of meetings and activities follow the same primary agenda, check-in, gathering daily materials/handouts, socializing, and interacting with other attendees for approximately ten minutes.

The facilitator began each workshop with an icebreaker activity, reviewed the workshop objectives, and conducted a pre-assessment to determine the professors’ background knowledge about the topic, which was followed by the facilitator’s formal presentation on the matter. The presentations were interactive, multi-sensory, and theory-based adult learning. After the formal presentation, the professors participated in activities that allowed them to apply the information and share it with colleagues. All
meetings were held at the university; no conferences or retreats took place at other locations (Bond, 2015; Cox, 2013).

The academics occupy a vast responsibility for their subject position. They are recognized as authors in their publications, seen as researchers on campus, teachers in classrooms, conference participants and experts and resources for government entities, and contributors through the public service mission of their respective university. Most academics. However, positions as researcher and author adds a knowledge-base that can provide relevant content as faculty to their apprentice peers before and after the meetings as a reflection activity on how they could apply the information to their teaching. It was noted that participant engagement was voluntary. Therefore, the professors’ expectations were minimal, and no formal project was required to document their engagement in the scholarship of teaching and learning (Bond, 2015). In addition, the professors’ various positions can support feedback after meetings, discussions, and respond to the anonymous written surveys (Bond, 2015; Cox, 2013).

**Institutionalization (Step 3)**

The final phase includes enablers, rewards, or other measures for participants with perfect attendance. These included a certificate of completion of the various phases or a congratulatory recognition from the university’s provost or president. Each university’s commitment varies; some provide a stipend, while others do not (Bond, 2015). According to Bond (2015) and colleagues, it is recommended that universities differentiate their professional development for various types of professors through the establishment of colleagueship and learning from others to develop their teaching skills, ability, and confidence, and to increase participants’ connections to the institution (p. 9). In
Understanding by Design, Wiggins and McTighe (2006) created a framework for designing courses and content units called “backward design.” In backward design, the FLC participants was formed as an enrichment course without predetermined assignments and activities for the teachers, but around the skills and knowledge they want and need to share with their students to hope the students gain from the experience.

College readiness as an example might have many goals. In backward design, you anchor the development of a course or curriculum around a careful articulation of the learning goals by establishing what it is that you want students to learn and work backward from there in a “forward design” manner, in other words, most teachers study the learning activities (how to teach the content), develop assessments around their learning activities, then attempt to draw connections to the learning goals of the course (Wiggins & McTighe, 2006).

In contrast, in the backward design approach, instructors consider the learning goals of the course first. These learning goals embody the knowledge and skills that instructors want their students to have learned when they leave the class. Once the learning goals have been established, the second stage considers assessment. The backward design framework suggests that instructors should consider these overarching learning goals and how student assessments will influence the teacher’s content. Therefore, the backward design is regarded as a far more intentional approach to course design than traditional methods of design (Wiggins & McTighe, 2006; Bowen, 2017).

Using Wiggins and McTighe's (2006) backward design principles for curriculum design for the final phase of the FLC allows teaching practices to reflect the 21st century and the new American dream, as it continues to evolve and change. To design lessons
with measurable results, teachers need to shift their thinking (Bowen, 2017).

Collaboration and the integration of content and technology are the methods and planning sessions for teachers. The idea underpinning the backwards design is to teach and plan towards the goal or learning point and to think about how to ensure that students are taught effectively (Bowen, 2017).

The final process is logical but takes time. Backwards design allows high school teachers to prepare their students to be college-ready. In this way, the integration of different subject matter and the use of technology become organic in the design of the unit, using four questions: What are your learning outcomes? What do you expect students to be able to do when they finish? How will you assess these learning outcomes? What learning activities will you use to accomplish these outcomes? These questions guided the final phase of the research, and from the start—the investigation started with the end in mind—how to get more students enrolled at NJIT by working with teachers from NPS.

**Summary**

Research that evaluates whether and how effective FLCs can improve student-learning outcomes and/or increase retention and graduation rates is limited but growing (Einbinder, 2018). The research, published studies, and articles have small, non-experimental samples that rely on faculty perceptions and beliefs as indicators, in addition to instances of data gathering over a short period. The findings are promising and consistently illustrate that FLCs improve student learning. They furthermore provide support for the implementation and institutionalization of FLCs to ensure their
sustainability (Einbinder, 2018). Chapter Three details the methodological selections that guided my study, which are drawn from and shaped by the literature and theory surveyed.
Chapter 3: Research Methodology

I conducted the exploratory case study detailed in this dissertation to examine college readiness in the context of the STEM secondary and post-secondary focused institutions in an urban district, specifically Newark, New Jersey by formulating a research study that whether the FLC was a positive catalyst for high schools in the case district. The FLC’s facilitators determined the specific objectives and curriculums of the FLC. Throughout the summer and academic year of FLC activity, the focus progressed from investigating innovative high school-level teaching to classroom instructional experiments in active learning. This allowed me to evaluate the experiments, teaching, and learning literature to explore the three steps of school change, from initiation to implementation and, finally, to institutionalization.

The college-readiness intervention allowed me to understand the experiments and the perceptions of the participants’ teaching and learning experiences. The three steps ultimately propose an institutionalization phase that was captured using the backward planning theory. Pre-and post-questionnaires, research/lesson study, and course recitation observations provided data for assessing the impact of the FLC and developing and delivering the institutionalization program recommendations. Comparing data was used to analyze the multiple sources collected to determine the FLC’s overall impact on district administrators, high school teachers, and college-going students.

I sought to unravel the multiple meanings and challenges associated with college-readiness participants. The varied perceptions of two stakeholders in particular—apprentice faculty or high school teachers of college-bound students, and district administrators—were fundamental to the task. Consequently, I developed a qualitative
research design guided by my central research questions. This chapter is organized as follows. First, it describes the research questions that guided this study. Thereafter, it presents the methodological approach I used and presents a research design that includes a discussion of the data site and sample, an overview of the instruments and data collection strategies, and a background on the four schools that acted as study sites, including the experience level of the teachers and administrators at the site. Next, I outline the data analysis procedures. Finally, this chapter addresses ethical issues that arose during the research.

**Research Questions**

Based on the gap identified in the literature review and with the intervention and CRIS framework in mind, I investigated three related research questions:

1. Which values underpinned the pursuit of a College-Readiness FLC between a district and university?

2. In what ways did the values regarding the pursuit to implement a college-readiness intervention differ among participants in this study?

3. Which values in the larger educational policy arena and in an urban context faced barriers to pursuing the implementation of the college-readiness intervention?

**Research Design**

The purpose of this study was to analyze whether the FLC was a positive catalyst for high schools in the case district. A qualitative case study examined the research questions. The research design followed Fullan (2007) three-step process as a novel intervention for change in educational systems: initiation, implementation, and institutionalization. I completed the first two steps, but the third presented issues for
consideration as FLCs take many years to become institutionalized in a university’s system. I collected data from participant interviews and questionnaires, evaluations completed after the meetings, and the facilitators’ curricular materials from three phases: pre-summer enrichment, enrichment, and post-enrichment. I analyzed the data using multiple data sources to determine the perceptions of teachers and administrators during one year from the summer of 2019 through the 2019-2020 academic year.

To gain an understanding of the impact of the FLC, from district stakeholders such as the district administrators, high school teachers, and college-going students, the focus does not include the students involved. The FLC assembled four high schools with various STEM disciplines to engage in daily summer enrichment seminars. The interactive seminars were led by three faculty instructors, three teaching assistants, and a tenured math educator from NJIT. The hands-on approach to college-readiness employed active learning. Schools 1 through 4 assigned teachers and the administrators enrolled students in the FLC during the summer of 2019. These teachers continued to work with the university team throughout the 2019-2020 school year.

Study Site and Sample

Study research sites were summarized and included a biographical introduction and a narrative summary of college-readiness feasibility to align teachers with university expectations on behalf of the district. In addition, the values underpinning the case district authority to enter into a partnership with other CRIS system leaders were identified. The sample descriptions characterize the individual schools from the administrators who prepared 2018-2019 district data. The data provided was the total district student population of 36,112, with 9,572 students enrolled in 9-12 (26.6%).
Schools were numbered 1 – 4 and each school was researched to determine the year the school was founded, enrollment numbers, type of school, and percentage of AP students.

**Case Study Demographics and Background**

**Schools of Interest**

The site demographic listed below in Table 4 provides background data on the schools of interest.

Table 4

*Site Demographics (2018-19)*

<table>
<thead>
<tr>
<th>School</th>
<th>Founded</th>
<th>Enrollment</th>
<th>Type</th>
<th>Percent of AP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1911</td>
<td>772</td>
<td>Comprehensive</td>
<td>3.7%</td>
</tr>
<tr>
<td>2</td>
<td>1974</td>
<td>843</td>
<td>Magnet</td>
<td>22.3%</td>
</tr>
<tr>
<td>3</td>
<td>1914</td>
<td>427</td>
<td>Comprehensive</td>
<td>13.0%</td>
</tr>
<tr>
<td>4</td>
<td>1996</td>
<td>613</td>
<td>Magnet</td>
<td>19.4%</td>
</tr>
</tbody>
</table>

School 1, Central, is a four-year comprehensive public high school serving students in ninth through twelfth grades in Newark, Essex County. It operates as part of the Newark Public Schools. As of the 2018-2019 school year, the school had an enrollment of 722 with a student–teacher ratio of 10.2 to 1. School 1 had ten high school juniors enrolled in the FLC. Two of the teachers participated in the FLC. This was the first high school to become an NJIT partner through the Secondary Partnership Program in Mathematics at Central. The implementation of math instruction in a university setting for students was discussed in 2009.

The initial program served as a pilot that had almost a decade of success working
to improve the math skills of urban students from different academic levels. The program was the brainchild of one CRIS system leader, the NJIT President Bloom in collaboration with the former principal, current mayor Baraka, and the high school guidance counselor, Eric Boating. The partnership launched during the 2010-2011 academic year to offer college courses for NJIT credit taught by university instructional staff. This program, which was in existence for nine years, would be the basis of the FLC intervention. The program was expanded through interactions with administration leaders, not unlike the initial program discussions, to establish the program in four schools including the original school, to now invest in high school teachers and engage those with a master’s degree to teach high school instruction and work on behalf of the university.

School 2, Science Park, is a magnet public high school located in the University Heights section of Newark in Essex County. The school opened in 1974 and serves students in 7th through 12th grades as part of the Newark Public Schools. The school is for college-bound students, offering many Advanced Placement and equally rigorous honors courses and, as of the 2018-2019 school year, IB classes to those who choose to apply. As of the 2018-2019 school year, the school had an enrollment of 843 students, for a student–teacher ratio of 14.2 to 1. The students included eleven high school juniors. Two of the teachers participating in the FLC are from School 2.

School 3, Malcom X. Shabazz, is a comprehensive public high school in Newark and is part of the Newark Public Schools. As of the 2018-2019 school year, the school had an enrollment of 427 students, with a student–teacher ratio of 12 to 1. There were ten high school juniors as students in the FLC. The school was reorganized into a STEM school in 2019. One teacher from School 3 was part of the FLC. On Wednesday, Dec. 4,
the district leaders and alumni were welcomed back as the Newark Board of Education, led by the superintendent, unveiled the school’s new Engineering Academy. The new program offers students an opportunity to apply the engineering design process and standards, along with math and science, to develop solutions to a variety of problems, documenting their trials and results throughout the process. In addition, students had access to 3D modeling software and printers to create solutions to present to panels of engineers. During the event, a new partnership was announced between Technology High School — the district’s magnet school — and New Jersey Institute of Technology, the higher academic partner, and the Stryker Corporation, an industry partner. This three-way partnership intends to support the teachers and administrators within the school.

School 4, Technology, is a public high school serving 613 students in 9th through 12th grades, located in the Broadway neighborhood in Newark’s North Ward. The school was integrated into the Newark Public School system in 1996 after formerly serving as a Newark State Teachers College (now Kean University) and the Center of Occupations and Education Development (COED) and is located in a building designed by Guilbert and Betelle in 1913. The school has ten high school juniors involved in the FLC. The student-teacher ratio is 12.5 to 1. Three of the teachers participated in the FLC. The two comprehensive school’s data points are lower than their magnet high school counterpoints the data on the district and schools provides a comparison of the four schools (see Appendix A and B). However, as a college-readiness intervention, the FLCs target blended teachers (and students) from all four schools. The high school students became faculty apprentices.
**Apprentice Faculty Participants Teaching Experience & Certification**

As Table 5 shows, five participants became teachers using the alternate route and the remaining two participants went the traditional route. Although there is no significant difference in the ability of teachers from either group to improve student achievement, all had a math credential and one from the humanities. One of the greatest challenges of a teacher is making mathematics easy for the students. Since mathematics subject in college is of a higher level than those introduced in the secondary and elementary levels.

The teachers in the study with certifications ranging from middle and high school to elementary, middle and high to high school alone, mathematics is difficult based delivery of Instruction by the teacher; student’s ability and experiences; and school environment. The diversity of teachers is as unique as the student’s makeup in their classroom. The race and ethnicity of the participants included five Black teachers and the remaining three teachers identified as white, Latinx, and Asian. In terms of careers outside of teaching, only two teacher participants never had a career outside of teaching.

Table 5

*Apprentice Faculty Participants Teaching Experience and Certification*

<table>
<thead>
<tr>
<th>Newark FLC Apprentice Faculty</th>
<th>Route</th>
<th>Discipline</th>
<th>Level</th>
<th>Total Years</th>
<th>In Newark</th>
<th>In High School</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>Alternate</td>
<td>Mathematics</td>
<td>Middle, High</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>T2</td>
<td>Traditional</td>
<td>Humanities</td>
<td>High</td>
<td>21</td>
<td>11</td>
<td>21</td>
</tr>
<tr>
<td>T3</td>
<td>Traditional</td>
<td>Mathematics</td>
<td>Elementary, Middle, High</td>
<td>9</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>T4</td>
<td>Alternate</td>
<td>Mathematics</td>
<td>Middle and High</td>
<td>22</td>
<td>7</td>
<td>17</td>
</tr>
<tr>
<td>T5</td>
<td>Traditional</td>
<td>Mathematics</td>
<td>Middle and High</td>
<td>3</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>T6</td>
<td>Alternate</td>
<td>Mathematics</td>
<td>Elementary, Middle, High</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>T7</td>
<td>Alternate</td>
<td>Mathematics</td>
<td>Middle and High</td>
<td>22</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>T8</td>
<td>Alternate</td>
<td>Mathematics</td>
<td>High</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>
Table 6 shows the breakdown of the participating administrators’ experience. More than half of the administrators in 2019 were in the educational profession for a period of between 9 and 27 years. All administrator participants had held positions as teachers. Additionally, one had served as a guidance counselor and guidance director, six had been supervisors, three had been assistant principals, three had been principals, and one had been an assistant superintendent. One administrator spent most of his career in this role, while others moved from non-administrator roles in the district into a central or non-central office position. Three female and four male administration leaders participated in this study. Their experience in education and Newark ranged from nine to thirty-two years in education. In the case of the administrators, the range was from four years to 24 years, specifically as an administrator.

Table 6

Administrator Participants

<table>
<thead>
<tr>
<th>Participant No.</th>
<th>Gender</th>
<th>Work Location</th>
<th>Years in Education</th>
<th>Years in Newark</th>
<th>Years as an Administrator</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>M</td>
<td>Non-Central Office</td>
<td>20</td>
<td>20</td>
<td>11</td>
</tr>
<tr>
<td>A2</td>
<td>F</td>
<td>Non-Central Office</td>
<td>23</td>
<td>23</td>
<td>10.5</td>
</tr>
<tr>
<td>A3</td>
<td>M</td>
<td>Non-Central Office</td>
<td>23</td>
<td>19</td>
<td>18</td>
</tr>
<tr>
<td>A4</td>
<td>F</td>
<td>Non-Central Office</td>
<td>27</td>
<td>21</td>
<td>15</td>
</tr>
<tr>
<td>A5</td>
<td>F</td>
<td>Central Office</td>
<td>9</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>A6</td>
<td>M</td>
<td>Central Office</td>
<td>25</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td>A7</td>
<td>M</td>
<td>Central Office</td>
<td>32</td>
<td>32</td>
<td>24</td>
</tr>
</tbody>
</table>

The study participants were coded based on their titles. The teachers were labeled as T1-T8 and the administrators A1-A7 so that their comments could be tracked during the study and paired with related data.
Study Procedure

Participating apprentice faculty members were assigned to classrooms with NJIT mathematics faculty to support students working in the topic-based FLC. The teaching experiment includes challenge time with all the students. Thereafter, they were assigned enrichment math courses and small groups for instruction and recitation. Apprentice faculty or high school teachers incorporated into the university classrooms also were engaged in peer-to-peer discussions during recitation prep and undertook independent and collective assignments to complete lesson study/project research with support from NJIT faculty in mathematics. The pedagogical application of inquiry-based instruction used reflection, journal writing, making connections, small group collaboration, guided discussions, and ambitious ideas to review for a comprehensive assessment.

During the 2019-2020 academic year, NJIT mathematics faculty and staff hosted two meetings each semester to expand on the real-world applications the apprentice faculty had learned during the summer using a combination of online and face-to-face interactions to explore mathematics pedagogy further. The program intervention sought to build a learning community or peer network for mathematics teachers beyond the summer enrichment and to develop other activities throughout the academic year, including providing credit-bearing courses towards a certificate or degree (e.g., master’s or higher). In Newark, the NJIT FLC initiative was developed as a collaborative effort based on literature from CRIS, FLC, mathematics education, and prior research experiences in the district.

This study examined, in particular, how teachers and administrators perceived educational policy values. The summer enrichment covered three mathematics courses in
algebra, pre-calculus, and calculus with the teaching instruction in mind; the participants engaged in applying, student-centered immersed with inquiry-based instruction. The faculty provided feedback and real-time application with the full support of the university staff and resources. Over the past two years, the world has changed under the global coronavirus pandemic and teaching changed. The case district worked closely with the College of Science and Liberal Arts (CSLA) Department of Mathematical Sciences at the New Jersey Institute of Technology. The college team meets frequently to form the FLC. The high school teachers and administrators received and provided technical support for the pre-FLC (orientation), FLC (summer enrichment), and post-FLC (academic year) experiences.

Data Collection/Instruments

**FLC Strategy Data**

The summer enrichment period provided high school teachers with the unique opportunity to serve as apprentice faculty in the study and to observe college-level teaching that worked with high school students from an intradisciplinary approach, which was not commonly practiced in their regular classroom settings. Teachers were able to draw upon the resources of faculty and the university staff and engage their high school colleagues to consider research questions and encourage new lines of reasoning in solving college-readiness challenges within the misaligned STEM schools. During the recitation prep time, the university team gained feedback on a number of the summer enrichment components through teacher questionnaires. I included this feedback in the analysis of this data under the Impact of High School Teacher section.
A second FLC strategy that directly affected teachers was the classroom innovation of three faculty members who engaged in instructional experiments during summer 2019. A professor of calculus, algebra, and pre-algebra implemented student-centered instruction in their classrooms, respectively. The student-centered instruction was presented and discussed in the FLC daily recitation prep meetings. The university instructors used Inquiry-based learning to teach each level of math to high school students. Instructional experiments were evaluated using research/lesson study, and a modified version of the three dimensions of CRIS was considered using teacher projects on related assignments. The impact of the High School Teacher section details the results of the instructional experiments.

The last activity undertaken by the FLC had a direct impact on the district’s professional and personal development. The professional development, implemented in the academic year of 2019-2020, provided an opportunity for teachers to form a learning community of their own in high school level mathematics through professional development. The academic year included sessions during their professional development periods, which were facilitated by the FLC’s co-director of the math curriculum, Dr. Kenneth “Ken” Horowitz. The first sessions engaged the high school teachers in implementing the skills learned in the summer sessions. In the second session, the cohort reviewed the pre- and post-test scores of the students enrolled during the summer enrichment to highlight the benefits of Active Learning. In the third session, they discussed some of the skills needed to implement online learning.

Finally, the fourth session explored additional lesson planning work to develop suitable online active learning lessons. The sessions began three months after the summer
enrichment concluded, and started on 11 November 2019, and two months later, additional gatherings were scheduled for 15 January and 11 March 2020, and then the final session occurred on 22 April 2020. The FLC team developed the FLC schedule with both the university and high school academic calendars in mind. However, the spring was abruptly interrupted when both education and life for all faced the unprecedented coronavirus pandemic. Furthermore, the academic year ends in May for the university and June for the district.

**Intradisciplinary Enrichment**

At the beginning and conclusion of the summer enrichment, pre- and post-interview questionnaires were used to assess the educational policy values of:

1. Choice by supporting the enrichment under the form of district governance.
2. Efficiency by understanding the school politics and context
4. Equity by leveraging college-readiness opportunities.

**Teaching Experiments**

Inquiry-based learning was the active learning strategy investigated with high school level mathematic instruction. Teachers provided student support and were assigned to rotate between the three-level courses facilitated by the three university instructors. Each math level provides enrichment activities after the morning challenge period to observe university faculty teach high school students from different schools and academic levels. Teachers reviewed daily lessons during recitation prep time to ensure the daily topic was clear and understandable for what worked and what did not work. The enrichment utilized two questionnaires, which discussed the active learning experience.
NPS teachers were expected to be in the designated room by 8:30 each morning of the program and actively engaged in all project activities, including:

- **Challenge Time:** work on the Challenges, observe the students, keep them on topic, and encourage them.

- **Math Class:** observe and help supervise the students as the NJIT instructor facilitates the session; the NPS teachers actively engage and work with the students.

- **Recitation Prep:** assesses with NJIT instructor’s implementation of the topics in their classes.

- **Lunch:** working lunch with the NPS teachers and NJIT participants to discuss afternoon sessions and review the next day’s Math Class topic.

- **Recitation:** apprentice faculty-led activities include working problems, helping students with homework problems.

- **Independent Study/Project:** NPS teachers worked together in small groups or individually on their study/project/research topic.

As the teaching experiments and FLC effectiveness were based on the views of the high school teachers and faculty using a teacher-based focus group, in addition to individual and group interviews and questionnaires balances their interpretations of their experiences. The administrators also completed questionnaires to express their perceptions on the impact on teachers involved in the FLC. The administrator responses were organized as follows:

The summer enrichment included teachers from four high schools: two magnet and two comprehensive schools.

- Q1: Position (s) held in education (current position listed first)
- Q2: Number of years in Education
- Q3: Number of years in Newark
• Q4: Number of years as an administrator position (s) held in education (current position listed first and/or resumes)

• Q5: How do you describe your role in FLC?

• Q6: What are the strengths and weaknesses of the NJIT FLC for math teachers to support college readiness to pursue post-secondary outcomes (i.e., career/education in STEM)?

• Q7: What university supports may help high school math?

• Q8: Do you have any recommendations about the program?

**Data Analysis**

It is important to note that the approach to the analysis used in this study was not designed as a case-by-case study of individual participating schools from the district or of individual participants per se. However, the sampling process for the target schools and the documented variations in individual participant characteristics did allow for a consideration of the implications of contrasting responses for both individual and school differences through the narratives provided in the interviews and school-level documents reviewed (Byrne, 2001; Miles et al., 2014). These differences are noted in the report of findings (Chapter 4) and discussion of the study (Chapter 5). All interviews included keyword association to underpin values present in responses as they corresponded to one of the four values: Choice, Efficiency, Quality, Equity, or to enhance the understanding of ways in which societal conditions and personal characteristics interact in producing valued qualities (Fraenkel & Wallen, 2009; Marshall et al., 1989).

Therefore, interviews and other data were collected to determine the perceived effects of the college-readiness FLC to address college readiness in Newark Public
Schools from people with intimate knowledge (administrators and teachers). In addition, document data were also collected to determine the perceived effects of the education policies developed, in general, and from 1985-2021 to address the institutional progress from documents written during that period reporting on various things happening within the district.

**Multi-Step Coding Process**

Using Fraenkel and Wallen's (2009) multi-step process to analyze the contextual data in this study was replicated as follows:

1. Identify keywords or codes within the interview transcripts and the documents (e.g., college readiness, local control, etc.).

2. Align the keywords or codes from the interviews and documents with broader themes related to the research questions (i.e., system alignment, impact of governance, college-readiness barriers). In this study, the larger themes were the three college-readiness indicator system variables from the conceptual framework: academic preparedness, college knowledge, and academic tenacity. All of the individual codes were placed on Post-It notes and placed under each college-readiness variable as they related to each educational policy value cited in the research question. This portion of the data analysis created theory about college readiness in Newark Public Schools and determined whether Newark Public Schools valued the FLC. This coding process also created the sub-finding for this study (e.g., district politics, school governance).

3. To ensure a reliable data analysis, this process was repeated two additional times with several minor changes to the original analysis, major findings, and sub-findings.
4. All of the interview and document data were coded, aligned, analyzed, and placed into the findings section of this study found in Chapter 4.

The interview and document information were placed into a Grounded Theory coded format to generate a theory grounded in the data from the participants’ experiences and document analysis concerning the research questions (Fraenkel & Wallen, 2009). Even though this is not a grounded theory study, the coding technique was used for the data analysis purposes to generate findings and sub-findings from the participants and document analysis (Fraenkel & Wallen, 2009). This grounded theory coded format process was used to shape an explanation for the college-readiness FLC in Newark.

**Data Analysis**

Document analysis is a technique that enables the study of human behavior indirectly through an analysis of written communications with codes and themes using both manifest content and latent content to improve both the reliability and validity of the study (Fraenkel & Wallen, 2009). Specifically, to this qualitative study, content analysis triangulated several themes to examine the interviews and document analysis. As documents were gathered and interpreted to give voice and meaning around the topic several common themes corroborating findings across data sets to support and strengthen this research. Document analysis was utilized as a method of data collection to complement the other methods and add supplementary research data useful and beneficial.

The chart below illustrates and explains the study’s methodology (i.e., data sources, methods of data collection, and purpose) to offer a clearer understanding of where this information came from, how the information was collected, and the reasons
for collecting the information. Although the selected documents were not created with data research agendas, they provide some of the necessary information to address the research questions. Table 7 provides information regarding the related research question, data sources used, data collected, and the data analysis.

Table 7

<table>
<thead>
<tr>
<th>Related research question</th>
<th>Data Source</th>
<th>Data Collected</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 1</td>
<td>Document analysis was conducted using the open-coding process</td>
<td>Orientation Biographical Information Interview, Pre-Post Questionnaire Interview, Focus Group Interview, and Physical Artifacts</td>
<td>To collect information on the impact of school governance, the impact of college readiness, and the impact of teaching barriers in NPS.</td>
</tr>
<tr>
<td>Question 2</td>
<td>Document Analysis was conducted using open-ended coding process</td>
<td>Document Analysis was conducted using open-ended coding process: Evaluation Interviews and Curricular Materials</td>
<td>To triangulate themes from the interview. In addition, to gain an understanding of impact of school governance, the impact of college readiness, and the impact of teaching barriers in NPS.</td>
</tr>
<tr>
<td>Question 3</td>
<td>Interviews of central office administrators, building administrators, and teachers from Newark Public Schools, 2019-2021</td>
<td>Interviews were recorded and then transcribed for data analysis using voice software. An open-coding process was used to analyze the interview data</td>
<td>To triangulate themes from the interview. In addition, to gain an understanding of impact of school governance, the impact of college readiness, and the impact of teaching barriers in NPS.</td>
</tr>
</tbody>
</table>

Source: Fraenkel & Wallace (2009)

The data analysis plan utilized three sources: semi-structured interviews (e.g., in-person or written questionnaires) documents (e.g., written assignments), and physical artifacts (i.e., syllabus, agendas). First, the orientation conducted with the teachers
introduced the CRIS framework to the participants. This provided an opportunity to probe the participants’ perceptions of their role in college readiness. Next, to gain teachers’ perceptions of the FLC and reasons for joining the group, daily recitations preparation engaged the teachers in group activities, recitations, and lesson studies—both in theory and in practice, including the collection of demographic information (Appendix C). The theory assignments were group assignments, and each individual rotated through the three levels of math courses taught to high school students, using “backward planning,” and semi-structured interviews (Appendix D).

The written assignments were also ways to determine the opportunities and challenges facing the FLC as an intervention. After the last FLC meeting, I gathered the teachers for a video-recorded focus group (Appendix E). Later, I transcribed their comments, but parts were inaudible. Simultaneously, the administrators attended program meetings and university team meetings, and they provided reflections and observations throughout the process; I paired these observations with their interviews and created themes.

The questions raised followed the planning documents for FLC (Cox, 2007). They engaged participants’ perceptions along the way on the experience and questions they wanted to answer during the next meeting. Third, I used the facilitators’ curricular materials, program documents, and handouts in the analysis. These physical artifacts allowed the comparison of the participants’ verbal and written comments with the information exchanged during the FLC. I employed a within-case analysis and a cross-case comparison of the data from each participant (Miles et al., 2014).
The steps included (a) reading through the collected data from the FLC and writing marginal notes on them, (b) identifying emerging patterns and labeling concepts, and comparing the patterns and concepts to the physical artifacts, (c) organizing labeled concepts into matrices, and (d) identifying themes. The researcher used a constant comparative method to identify emerging themes from the transcripts, evaluations, and FLC curricular and contest documents (Corbin & Strauss, 2015). The FLCs facilitators’ curricular materials for the enrichment, included the syllabus and online source materials, were used in the analysis. These physical artifacts allowed me to compare the participants’ verbal and written comments with the information intended to transfer to learners.

I employed a within-case analysis and a cross-case comparison of the data from each participant (Bond, 2015; Miles et al., 2014). I used the comparative method as the data method to examine and reexamine the emerging themes from the participant data collected (Corbin & Strauss, 2015). To ensure trustworthiness, I conducted member checks with the university team after the FLC to triangulate the themes across data sources and maintained a journal to record responses and thoughts about the research methodology.

Potential Ethical Research Issues

**Threats to Validity**

The study was limited to the school district of interest. Therefore, the information could be informative for other school districts, and all districts may not cohesively show the same results. However, for participants who could not speak freely, then there may be
a threat to validity. On the other hand, the study assumed that all data provided honest intentions.

**Ethical Procedures**

This study’s adherence to NJIT and Rutgers-Newark IRB’s ethical procedures was approved (Appendixes F-G). Upon approval, NJIT’s ethical review process included providing evidence for a series of questions and the study’s methodology. These materials indicated that participation in this low-risk study would be voluntary and that participants’ identities would remain confidential throughout the process and would be shared only with the researcher’s dissertation committee chair. The application specified that all data would be maintained and discarded appropriately.

With permission approved by the school district, the principals were invited to participate during an in-person group meeting. The principals gave school-level support and recruited math teacher participants who had played a role in FLC. As an NJIT employee and district liaison, I was able to work with the case district administrators with ease and coordinate the dissemination of FLC materials according to the sample selection. Once individuals had agreed to participate, relevant background information was collected during the orientation and each teacher completed an orientation form.

Using the information gathered allowed the full interview time to focus on collecting content data rather than biographical data. All participants were given a copy of their orientation responses before their interview and invited to check their answers; none of the participants indicated any changes in responses. The application of a cultural framework for studying values in policymaking afforded a comparison between responses and narratives (Merriam, 1988). This approach garnered an understanding of
the values that aligned with the high school and university. Interview notes were kept by the researcher during all interviews and used in the analysis of interview data.

**Limitations**

There were several limitations of this methodology, including the size of the NPS system, gaining access to a representative sample of teachers not engaged in the FLC, an inability to establish a direct correlation between reform efforts and college readiness, and a lack of clarity and consistency in how “college readiness” was defined in the interview protocol. While this study was designed to establish a researched-based analysis of a college-readiness FLC, it was impossible to demonstrate a direct correlation between college readiness and the FLC. At best, the data identify themes from secondary school teachers and administrators that can evaluate the impact under the current school governance form and the reforms of the case district.

This is consistent with Chatterji’s statement that “the mission of evaluation researchers today has broadened to an extent where ‘impact evaluations’ involving generalized causal inferencing are just one of many models that are viewed as useful in addressing critical social problems” (2005, p. 14). Newark’s educational system is the oldest in New Jersey, and the district maintains the third oldest high school within its multiple high school system in the nation. The superintendents are the gatekeeper to school reforms managed through the central office. Improving public education in Newark, New Jersey has been profoundly affected by the interaction of school governance and district politics. If the history of Newark’s delivery of education services was placed on a graph, the decline in the quality and delivery of education could be
pegged to the decline from political and social conditions during various points in the city’s history, from the period just after World War II up to the present.¹

In the end, the investigator relied on social capital and persistence to align a unique secondary ad post-secondary intervention under the leadership of three system leaders. This is an important distinction that would be valuable to understand from the educator’s perspective and it should be asked in follow-up research.

**Summary**

This chapter discussed the methodology that was undertaken to investigate the relationship between college readiness and an FLC as a positive catalyst for instructional change. It also explored high school teachers and their administrators’ experiences, from their perception of the FLC, and the high school to college alignment of how to teach a magnet or comprehensive high school with the student-centered instruction to meet college-level expectations. The chapter began with the sampling methodology, data collection and concludes with a presentation of the research questions. Chapter 4 explains the findings of my study and presents my data analysis.

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¹ Essential to any discussion of public education is public funding, which relies heavily on local property taxes. That formula is devastating to urban education systems, like Newark. The history of funding the district experienced episodes of very high property depending on the tax base. The white flight associated with suburbanization and fleeing Newark also impacted the decline of commercial and residential corridors of the city creating the hardships of funding a quality public education impossible. These factors were combined with the systemic practice of “redlining” which featured depressed housing values, severely restricted mortgage and business loan financing and limited employment opportunities.
Chapter 4: Impact of a College-Readiness FLC in Newark and Results

This chapter discusses the CRIS dimensions—academic preparedness, academic tenacity, and college knowledge. It discusses participating teachers’ and administrators’ perceptions of the usefulness of FLC. Data were drawn from the period of pre-FLC, during the FLC, and post-FLC periods. This chapter presents the major strengths and weaknesses under the current structure of school governance in NPS, and it suggests implications and potential solutions to the college-readiness problem all within the context of politics to support college-readiness policies.

CRIS Model Indicators

Perceptions of Teachers

CRIS aims to develop and study the implementation of a system of signals and supports to significantly increase the number of students who graduate from high school ready to succeed in college (Gurantz & Borsato, 2012). According to Asch (2010), “college prep has become a one-size-fits-all approach to secondary education, and some students simply do not fit” (p. 35). Therefore, building the capacity of educators – especially teachers regarding college readiness is a novel solution using the three dimensions.

Academic Preparedness

The academic preparedness pillar is key to the CRIS model. It is defined as the academic knowledge and skills students need to succeed in college. These include content-area proficiencies and key cognitive strategies that span content areas, such as the ability to formulate and solve problems, conduct research, and construct an argument or complete tasks with precision or accuracy (Conley, 2008).
Five teachers perceived test scores and transcripts as important indicators of student academic preparedness, although two teachers noted that such indicators were insufficient. T6, a teacher with eight years of mathematics instruction in Newark high schools, stated, “I would identify their transcripts, GPA, and college-readiness assessment that are normally given to see their level of readiness.” T2, a highly experienced teacher with 21 years in the classroom, similarly stated, “SAT\ACT math scores as well as their high school transcript are important indicators for academic preparedness as it will show the level of content students know or [were] exposed to [in high school].”

However, T5, a teacher with three years of experience teaching mathematics, noted:

The student needs to have the ability to comprehend and manipulate problems to make sense out of them. GPA and SAT/ACT math scores are good indicators up to a certain degree. The student’s work habits, as in how do they handle a problem they are having difficulty with or are not sure of how to begin to solve it, could indicate if a student may be academically prepared.

For T5, the students’ transcripts and other test scores were indicative of academic preparedness only within the context of the whole—that is, test scores must be contextualized for teachers and administrators to fully understand the students’ abilities.

Educators, educational leaders, and policymakers in high schools need to recognize their roles in ensuring that students are prepared for some sort of post-secondary education. Efforts to encourage such preparation could occur through their classroom instruction and working with post-secondary institutions.
*Academic Tenacity*

The CRIS model sets academic tenacity alongside academic preparedness as two of the core values necessary for student achievement. Academic tenacity is defined as the “underlying beliefs, attitudes, values . . . and accompanying behaviors that drive students to embrace and engage with challenging work, and to pursue academic achievement,” and is key to students’ academic success both before and throughout college (Conley 2008). While all the high school instructors expressed that academic tenacity was a characteristic of the individual student, two instructors also stated that students’ parents played an important role in students’ development of academic tenacity. T7, a highly experienced teacher with 22 years in the classroom, stated, “Tenacity drives students’ willingness and propensity to strive through difficult content. If students believe academic success is achievable, they will attempt any task, regardless of difficulties.”

T8, who had fifteen years of experience, on the other hand, stated that college tenacity is dependent “on the education of parents, ambitions of parents.” Similarly, T4, a teacher with 24 years of experience, said:

> The ideal indicators for me that influence a student’s tenacity is the amount of support that the students are getting from their parents and the quality of work that the teachers are putting to improve understanding mathematics. If the parents are not putting much importance on the numbers and let their kids be challenged, I think that the student’s appreciation and understanding [of] Mathematics will [be] improved.

However, T4 also expressed that teachers played an important role in developing students’ academic tenacity. Teachers who set low expectations for their students harmed those students’ development of academic tenacity. T4 stated:

> On the teacher side, if the teachers will not filter the rigor to the type of students they have, then the students will not be exposed to more challenging math
problems that will later help them in future mathematics. In my experience, there was one time that my colleague told me that she can’t teach adding algebraic expressions with different denominators because none of her students would be able to understand it. If the teachers think the same way as her, then we are hurting those kids who will be going to college and will take further math than Algebra 1.

Policymakers, educational leaders, and classroom teachers, either knowingly or unknowingly, have implied that a college degree equals success, and all secondary students, regardless of post-secondary aspirations are required to complete the same rigorous coursework, where success is measured by grades and standardized test scores. However, the cognitive skills and strategies teachers can provide to their students from rigorous coursework could also improve metacognitive skills or the way one thinks as teachers and students regarding college success. By establishing academic and non-academic alignments understood by all stakeholders on how to enter and succeed in post-secondary institutions can help build a college readiness agenda (Barnes & Slate, 2013).

**College Knowledge**

The final pillar of the CRIS model is College Knowledge, defined as the knowledge base and contextual skills that enable students to successfully access and navigate college. Examples of college knowledge indicators are students’ knowledge of the financial requirements for college and high schools’ promotion of a college-going culture (Borsato, Nagaoka & Foley, 2013). Teachers in this study had confidence that their students could meet the challenges of acquiring college knowledge. Building relationships with teachers and administrators and other young people who have succeeded were cited as important factors in developing college knowledge. T5 focused on the roles of teachers and administrators, saying:
The Newark Public Schools could give more opportunities for students to apply what they learn to the real world and push expectations higher. The students will meet the expectations when their teachers and [the] administration demonstrate[s] that they believe the students can meet them and do not give up on them.

Meanwhile, T3, a teacher with nine years of experience, put more emphasis on the students and their families, echoing the parental role in building student tenacity. T3 stated:

NPS can invest time and resources on building the social and emotional stability of the students and their families. In addition, create opportunities for students to dialogue and become acquainted with others, both children who have successfully navigated similar paths as themselves and young adults who have also successfully attained degrees in STEM. Then students will have the confidence to persevere, once trained, through solving rigorous math problems and the like.

College knowledge captures the ability to gain access to post-secondary institutions as well as successfully navigate through college. These “contextual skills and awareness” enable students to, among other actions, apply to college and for financial aid, develop appropriate relationships with peers and professors, and be resourceful learners and self-advocates (Conley, 2008). Similarly, in this study, NPS administrators and teachers identified “these dimensions” to be related to the important contexts for teaching, learning, and ultimately improving academic preparation, college knowledge, and academic tenacity.

Teachers’ Perceptions of CRIS

In examining the impact of college-readiness dimensions, the external factors can impede chronically underperforming schools and districts (Gewertz, 2009). In recent years, considerable federal resources have been devoted toward this end and the State Board and the Commissioners of Education have had the authority to take control of schools and districts that fall into the lowest performance level. Educators and schools
have been the target of more accountability. However, the outcomes related to the lack of progress did not improve more under “state control” or federal interventions that were too often disconnected from teacher’s roles (Ryan 1971). Outside of a few teachers who cited their student demographics and an increased amount of testing, which could be related to federal regulations under NCLB or RTTT, the majority of the teachers in this study cited only internal factors that are preventing their schools and the NPS from being more aligned with college-level expectations.

This chapter discusses teachers’ perceptions of the CRIS dimensions. Similarly, in this study, Newark administrators and teachers identified “educational policy values” as conciliatory, not in conflict when considering the FLC. Kirst and Writ's (2001) research was designed to understand the “values” typically in the conflict in school reforms. They sought to “inform education policy from the bottom, or the inside, of the system—asking not how school sector or size or reform policy affects teaching, but what contexts matter for teachers and teaching” (p. 3). The educational policy values were in alignment to improve academic preparedness, academic tenacity, and college knowledge. The college-readiness dimensions confirm issues previously identified by CRIS.

**Faculty Learning Community Perceptions**

*Pre-Summer Enrichment (Step 1)*

The Pre-Summer Enrichment consisted of three systems leaders, six university administrators, three district administrators, and two city administrators. The post-secondary attainment and challenges drew concerns as the district shifted the control from the state education agency to the local district leadership over the next two years provided an opportunity to foster new articulation policy agreements among the city,
district, and university. The vision and reform focus for all mathematics education in Newark at the time FLC began included supporting math educators that aligned with college expectations, comprehensive teacher support, and continuous improvement. Along with national state mandates, these expectations or goals can influence the policy agenda. The teacher’s perceptions of challenges to students’ interest in STEM courses were often not associated with teachers’ roles as seen in Table 8. The responses are shows recorded from 1 (most) to 5 (least) challenging.

Table 8

Challenges to Student Interest in STEM Courses

<table>
<thead>
<tr>
<th>Question Responses</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
<th>T7</th>
<th>T8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack the self-confidence pursue STEM fields</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>School programs are not designed in ways that appeal to students</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>2</td>
<td>5</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Students nowadays naturally tend towards subjects that are more social and humanistic</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Students consistently experience negative messages subtle, sometimes subconscious, sometimes more overt that sway them away from STEM study</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Students who do enjoy STEM subjects are in the minority, making them feel discouraged, or uncomfortable continuing in STEM</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

Summer Enrichment (Step 2)

The Summer Enrichment was seven weeks and focused on student-centered learning. Participants were also asked to rate their level of preparedness of teacher-centered learning and student-centered learning, before and then after participating in the FLC. As indicated in Table 9, there was a significant increase in the number of participants who felt qualified to teach according to both teacher-centered and student-
centered methods. There was also an increase in the number of participants who felt prepared to teach only student-centered after attending the summer enrichment. The number of participants who felt prepared for teacher-centered instruction changed at the end of the summer.

Table 9

*Instructional Type Comparison*

<table>
<thead>
<tr>
<th>Summer Enrichment</th>
<th>Student-Centered</th>
<th>Teacher-Centered</th>
<th>Both</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Questionnaire</td>
<td>2</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Post-Questionnaire</td>
<td>1</td>
<td>0</td>
<td>7</td>
</tr>
</tbody>
</table>

*Post-Summer Enrichment (Step 3)*

Post-summer enrichment the teachers returned to their respective magnet or comprehensive school contexts and classrooms. Table 10 describes content provided by the teachers regarding the looming college-readiness problems, event with their renewed views on blending more student-centered, teaching into their classrooms. The teachers cited the students’ financial situations, colleagues’ lack of awareness and encouragement to provide their students with the confidence to master mathematics that is a universally accepted language throughout the world. They did offer that providing real-work applications did enhance students they observed during the summer interest through using resources and supports beyond textbooks. Another notable observation was that the teachers did not associate the stakeholders or the partners from the community, industry, or region as assets to connect linkages to their students for future intern opportunities and overall gain access to careers that may improve their life chances.
Kirst and Writ's (2001) research was designed to understand the “values” typically found in conflict and improve high school teaching by taking the perspective of teachers who were grappling with the challenges of preparing their students for after they graduate. They sought to “inform education policy from the bottom, or the inside, of the system—asking not how school sector or size or reform policy affects teaching, but what contexts matter for teachers and teaching” (p. 3). In education, quality captures the improvements of the participants involved in the FLC and those who benefit from the participants’ involvement. For example, T1 stated:

I do think that this collaboration with Newark high school teachers, working together to discover what strategies will best serve their students’ needs will yield better result[s] than basing concept[s] of students’ preparedness only on studies done with other people. I am a strong believer that one shoe size does not fit all.
Curriculum development as more than a one-size-fits-all model is particularly important to teachers. The FLC was formed to align a successful secondary to post-secondary educational program and drive the needs from the current demands of the culture, the society, and the expectations of the population being served. Curriculum development and the educational reform process can be challenging, therefore the involvement of all stakeholders, especially individuals who are directly involved in student instruction, are a vital part of curriculum development. The importance of teachers’ involvement in curriculum development should not be understated for a few reasons.

First, teacher’s ideas and opinions during the FLC was merged into the curriculum development process since the teacher was an intricate part of the learning environment that was affected. Hence, teacher involvement is important for successful and meaningful curriculum development because they are the implementers. With their knowledge, experiences and competencies, teachers are essential to any curriculum development plan. As more teachers become more knowledgeable about the new trends and practices of teaching, they can be more inspired to introduce the “research-based” curriculum in the classroom.

Second, the teachers’ involvement in the curriculum development process is essential in addressing the urban education needs and of society. The process of curriculum development requires teachers to act and reflect the needs of the population they serve during every stage of the development process. Nevertheless, sometimes this process which teachers are requested to follow are unclear or not inclusive of the experiences they face. As teachers involved in the intervention goes beyond professional development as an FLC the teachers were an important factor in contributing to the
success of curriculum development and implementation. Thus, their ideas should be included and administrators can consider what extent teacher continuing education programs are needed for in-service teachers to study curriculum development. This means teachers should have engagement and involvement along the pathways in the developing the curriculum; more than focusing solely on students’ outcomes.

Third, the teachers involved in an FLC had many roles and responsibilities; like the faculty. All teachers want to enjoy teaching and watching their students develop interests and skills in their interest area. The teacher may need to create lesson plans and syllabi within the framework of the given curriculum since the teacher's responsibilities are to implement the curriculum to meet student needs. Many studies support empowerment of teachers through participation of curriculum development. For example, Fullan (1991) found that the level of teacher involvement as a center of curriculum development leads to effective achievement of educational reform. Therefore, the teacher is an important factor in the success of curriculum development including the steps of implication and evaluation.

Teachers can contribute by collaboratively and effectively working with curriculum development teams and specialists to address the coherence of textbooks and content. Teacher involvement in the process of curriculum development is important to align content of curriculum with students needs in the classroom (Newmann et al., 2001). In terms of providing a coherent basis for constructing shared understandings of the curriculum and shared principles, there was limited data on curriculum coherence as perceived by different stakeholders. A few studies have implied that teachers’ perceptions of school-level coherence are related to pupil achievement and those perceptions of
coherence between policies, goals, and activities within and between schools. T3 envisioned the following improvements resulting from the FLC, stating that:

It would create opportunities where high [school] students can become familiar with college students, professors, and the expectations of incoming college students. Perhaps build relationships with high schools at their locations before inviting students into the college environment. Doing so would allow high school students to develop familiarity and a level of comfort, which would reduce their level of fear and anxiety that comes along with experiencing college for the first time.

Such results imply that more clarity, interaction, collaboration, and shared high school and college student engagement are needed to construct even more widely shared understandings, especially about the broader expectations of the intended direction of the possibilities after high school. In addition to focusing on more engagement within the secondary and post-secondary systems to promote both individual and shared sense-making in the learning communities, focusing on building shared understandings about the potential effects and benefits is needed to investigate across both levels of the educational system.

The definition of efficiency in an FLC reflects its economic impact and accountability. Teachers focused on the efficiency of the partnership and what NJIT from the FLC. T5 stated:

NJIT and other universities can assist in letting students know what the expectations are and how they are similar/different from high school expectations. They can show where their graduates with STEM degrees are working after they graduated from college to help them get a better picture of STEM majors and how they can be used. They could assist students in understanding how STEM courses apply to their major, or what the students’ academic plan for the next 4 or 5 years would look like if they were to pursue certain degrees.
While many teachers were certified, the data on teaching staff in 2012-13 was similar to the characteristics in the case district and in NPS schools as the racial profiles of the two sectors differ significantly. The 2012-13 staffing file from the New Jersey Department of Education (NJDOE) shows the characteristics of the race/ethnicity and highest degree earned in both public elementary and secondary schools nationally.

Figure 3

*Teacher Educational Levels in Teaching Profession*

Source: NCES

According to the National Center for Education Statistics (2019), the percentage of teacher educational levels is a high higher among Asian teachers (50 percent) and White teachers (48 percent) than of Black teachers (45 percent), American Indian/Alaska Native (40 percent). However, Hispanic teachers (39 percent) more often earned a master’s degree as their highest degree. The percentages are consistent with the case district. The ability to have access to an institution that offers degrees is considered a benefit for all teachers, regardless of race and ethnicity. T4 similarly stated that NJIT or any other universities can …co-exist as a district and university on their own (without using the textbook) that will cater to both their manipulative and critical thinking skills.
The teachers in the program were predominantly Black. However, the need for more training on teaching styles for math educators universally was an area that needs further exploration. The teaching style should not involve too much time or be boring (e.g., cooperative learning, for instance, is boring and some students lose interest in learning or being engaged). The teachers sought to incorporate simple math research into their FLC. The summer enrichment responses highlighted addressed the values of equity and choice.

**Overall Faculty Learning Community Perceptions**

After the FLC, several teachers expressed increased confidence that they could directly and positively affect students’ college preparedness in mathematics. The educators gained ways of approaching classroom instruction as student-centered with the support of the district-level policy. The implementation of these approaches in their assigned classrooms went beyond traditional teacher-centered approaches. T3 stated, “I am hoping to assist students in navigating the college environment, improve their math acuity, as well as their ability to use and communicate evidence and math theories which support their conclusions.” Similarly, T5 said, “Teachers should feel more confident that we are preparing the students for college and feel confident that they are going to college with a stronger understanding of mathematics.”

Interestingly, T8 stated that a teacher’s job eventually should become unnecessary because students should be taught “to learn on their own.” T6 saw the impact of new ways of teaching math to increase students’ understanding would influence and encourage student learning and engage them to explore college better prepared and more aware of math applications to use in different ways. The engagement brings the student to
real-life applications to understand math in everyday life. I hope to learn how to assist students in being motivated for college more than now, as well as teaching a higher level of math.

Several participants reinforced this sentiment of innovative teaching practices. T2 said, “The outcomes teachers should be able to observe is that they have enhanced their pedagogy and willingness to try them in their classes.” T4 similarly stated, “Teachers should be able to teach math in different ways other than lecture approach.” T3 mentioned “the ability to conceptualize math concepts. Students need to have various methods of exposure to concepts in various modalities.” By innovating instructional practices, teachers could begin to address the equity gap and ensure their students were prepared to enter college and take on the challenges of student-centered learning.

**Administrator Perceptions of Teacher Roles**

Administrators in the study assessed the teaching components and college-readiness support of the FLC: pedagogy learned, classroom challenges, university resources provided, and future concerns and recommendations. All of the fifteen participants spoke highly teaching supports of the FLC. However, only seven of the eight teachers (one resigned from the case district) completed the final assessment. All seven of the administrators were supportive of teachers in the FLCs. The administrators perceived a solid and helpful relationship with the NJIT faculty as well their engagement with other CRIS system leader teams that worked on behalf of the FLC. For the most part, the administrators described their teachers, overall, as being more prepared and confident in their delivery of math pedagogy, assessing student learning, lesson planning, and classroom management.
One administrator acknowledged that, based on college-readiness intervention, they would like to expand the partnership to include more teachers and possibly other academic disciplines, which reflects the values of choice and efficiency. The participants expressed feeling that the FLC was an intervention that deserved future support from the district, university, and city leaders that created it. Concerning aspects of the FLC seen as strengths or weaknesses, the interview data revealed the participants identified strengths and weaknesses related to the FLC structure and curriculum. The strengths included teachers working collaboratively alongside the college professors as they prepared rigorous mathematics instruction from qualified experts in mathematics to design inquiry-based learning, reinforcing the value of quality. T1 stated:

This is an enrichment program from which not only students but from which all teachers would benefit. Although we participated in student support, we also experienced enrichment in our craft of teaching. From the standpoint of curriculum development, the importance of knowing and planning the learning of key concepts needed for the next courses is invaluable. It positively affects the level of future achievement of the students. I experienced effective teaching and planning strategies and then asked endless questions to gain insight and understanding. All the professors welcomed questions. I was impressed and fortunate to have them share their wealth of knowledge and enthusiasm for math education.

T3 concurred, stating, “It is important . . . to experience the college learning environment. It sets expectations for what is expected of students, as well as addresses the fear of the unknown.” This was particularly the case for disadvantaged students; experiencing the college environment and addressing their fears speaks to the value of equity.

The FLC enhanced teachers’ math skills through the delivery of appropriate high school to college math curriculum and using resources provided by the district. Lesson planning and assessment included a direct link to how prepared the teacher participants
felt in the classroom. The teachers thought that they spent the appropriate amount of time preparing and discussing lesson plans in FLC. They acknowledged that taking time to plan lessons was important. As T4 said:

The inquiry-based learning teaching style was the hook for me, for I was only interested in exploring many strategies that I will adapt and use in my classroom to enhance my teaching students to meet their different needs. I came in so excited with a primary goal and expectation to gain experience with math application and Pedagogy that I will adapt and take back to my school as well as infuse it into my classroom lessons.

The teachers also identified assessment as a vital component exploring open-source materials and other mechanisms that are often not provided. They expressed that they felt prepared to assess their students well and appropriately. However, they did acknowledge that assessing students was difficult and always needed attention and revision. The administrators identified several key benefits of the FLC: student-centered pedagogy, lesson planning, managing diverse learners at different academic levels, and magnet and comprehensive teachers were involved working side-by-side, collaboratively in one classroom and rotating into three additional levels assigned to university faculty.

They also valued the level of preparation the teachers gained from the faculty applying real-world topics and the option to enroll in continuing education courses to expand their knowledge and skills. The summer enrichment was described as a strength by all participants. All the teachers and administrators stated that there was no difference in the treatment of comprehensive and magnet teachers throughout the FLC. The FLC was described as informational and educational throughout the three phases: pre-summer enrichment, enrichment, and post-enrichment.
A few administrators expressed that their role was purely administrative because the university handled the instructional and professional development aspects of the FLC to fully support the teachers involved. Findings showed that even though administrators described the FLC program as having value, some administrators wanted their roles to be valued. FLC administrators participated and expressed that they would support future engagements with the university. FLC’s collaborative nature and the CRIS initiative was a research-based pedagogy that moves beyond the one-size-fits-all model and was applicable to different levels of educators and schools.

Most teachers involved maintained informal contact with their administrators but gained a non-district ally to support their teaching from the university. The administrators described their primary role as selecting participants from their school and ensuring the FLC district’s function complemented the university’s role to align teaching strategies. One administrator suggested more attention should be given to the certificates and degree options for the district teachers, administrators, and staff.

In short, an FLC allowed the district and university to alter teaching and learning that welcoming to all participants and free from criticism of teachers, and filled effective with self-empowering roles and responsibilities to engage teachers with faculty. Secondary and post-secondary education should be viewed as a process by which meeting student needs leads to improvement of student learning. In addition, it cannot be stagnant. College readiness must be infused throughout the curriculum, including mathematics that is in constant flux as a discipline hard to learn. Only then will the goals of the community and its leaders be able to be an effective change agent to address the associated challenges. The college readiness journey comes in many phases,
where collaboration and feedback are important. Administrators must comply, gather and collect data, reflect with dialogue, and make informed decisions together. Problems and conflict do happen, but the secondary and post-secondary organizations do benefit from working together to create a reasonable solution or solutions. Finally, for schools to be successful with college readiness, they must believe that creating a culture of continuous improvement is the way to adapt to changing needs and conditions. Schools need to continuously assess themselves, their teachers and the local environment. Thus, schools are never perfect or self-actualized.

**Perceptions of Readiness in the Political and Policy Context**

As Morel (2018) inferred, school politics is city politics and when participants were asked whether there was an impact from a college-readiness FLC in Newark, most teachers presented responses related to their general level of knowledge about their role as teachers, how much they pay attention to politics and policies, and post-secondary readiness. The historical arguments of the state takeover of Newark schools led to multiple school reform efforts under state administrations. The related source of conflict between states and the local district during the 25-year process to “return local control” and board appointment of its first superintendent transitioned when district politics and school governance was inherently connected under elected and appointed leaders. Morel (2018) found that in New Jersey and other states that served mostly Black students and where many municipal leaders were Black, states would seize control as a policy option.

In 1989, New Jersey became the first state in the country to exercise the policy when it took over the Jersey Public Schools. By 2016, 100 school districts were under state control and hundreds more were susceptible to losing control under the state laws.
As of 2020, 33 states have takeover laws, and 22 have seized control of public school districts. The scholarship on state takeovers of local school districts has focused on poor academic performance and fiscal solvency. Because of these takeovers, numerous court cases have been initiated over more funding for high-poverty districts. However, the focus on the educational implications of state takeovers is narrow and insufficient (Amparbin, 2020; Morel, 2018)

**The Politics of College Readiness**

The participating teachers and administrators expressed that they supported local control, and they understood the history and dynamics of the political battles surfacing between Democratic cities, such as Newark, with Black mayoral leaders versus conservative state administrations. Participants who favored local control criticized the NJQSAC reporting mechanism as laborious and a poor measure of student achievement, citing that it only measures metrics such as graduation rates and state test scores. While the NJDOE revised its accountability system in 2018 to include metrics of student growth rather than hard data, districts across the state still find that the requirements place an undue burden on staff. Unfortunately, teachers referred to college readiness in terms of student deficiencies, and no formal question on the interview protocol probed this perception.

**Policies to Support College Readiness**

While universities and urban school systems that co-exist in the same city are often impacted by similar external factors, school systems face additional internal factors that cause conflicts in the system or organization. Moreover undergoing decades of reforms, an organization such as the NPS has experienced many sources of conflict, both
internal and external. In debating the educational policy sources of conflict, the college-readiness policy agenda for educators and education researchers has attempted to define just what it means to be college-ready. Previous research suggests that being ready for college means having the academic content knowledge and skills needed to pass college-level courses (Conley, 2007). With the exception of a few teachers who cited student deficiencies and home environments, the majority of the teachers and administrators in this study cited only internal factors or barriers that prevent their students from being college-ready.

Summary of Findings

The analysis of administrator perceptions suggested that an FLC could bring teachers and faculty together in a bottom-up, conciliatory environment and yield results for a pathway for college readiness for urban districts through strengthening high school teachers. This study thus adds to the body of knowledge that exists but does not end the conflicting information in the literature about which preparation program is best. Additionally, the following components of the FLC were found to contribute significantly to the teacher participants’ preparation for the profession and should continue:

1. Core courses (algebra, pre-calculus, or calculus for high school instruction)
2. Research project or lesson study held during the summer of the FLC classes and applied throughout the school year
3. The elements of the FLC that most prepared the teachers were course assignments that focused on real-world applications, lesson planning, and assessment methods
4. The NPS participants identified the NJIT team as the significant connection to their classrooms between the purposes of the FLC to prepare students for college readiness and college-level math, as well as continuing education for teachers.

This section synthesizes the findings for the four cases, resulting in the overall findings for this study. In both the magnet and comprehensive schools, the reflections by the participants and review of district-level documents identified primarily two central values—quality and efficiency—as aligning the decision-making by leaders at the district. Administrators, a combination of district and school leaders, acknowledged a consideration of each of the four policy values in FLC, the most notable of which was the value of choice. NPS administrators mentioned the value choice in their interviews. In the final analysis, the overall decision-making at the district level to collaborate and create an FLC was beneficial.

The value of quality was anticipated, given the type of intervention and the current educational policy context pushing districts toward reforms related to college readiness. Unanticipated findings included aligning this through the FLC, which provided a means for the district, university, and city leaders to promote greater district-level autonomy within the historical and current policy reforms that emanate from policy actions at state and national levels in U.S. public education.

Teachers’ and administrators’ perceptions of educational policy values to improve college readiness in Newark public school systems are impacted by multiple internal and external factors that typically cause conflicts within the system or organization. In undergoing various reforms, an organization such as the NPS has experienced many sources of conflict, both internal and external. External factors may include changes in
the form of the school system governance in predominantly urban districts with high concentrations of poor and/or minority populations in state takeover compared to local controlled school systems (Borsato et al, 2017, Marshall, 1990). Internal factors, such as academic preparation (aligning secondary and post-secondary institutions), college knowledge (leveraging college opportunities), understanding the district politics and contexts (academic tenacity), and the issues around the teaching and learning role for teachers, are not frequently cited when discussing and evaluating urban school system policies (Borsato, 2017).

In examining the impact of college readiness and the role of high school instruction issues that teachers face, many consider the external factors influenced by the school system type of governance can impede chronically underperforming schools and districts that have always been an elusive goal (Gewertz, 2009). In recent years, considerable federal resources have been devoted toward this end and the State Board and the Commissioners of Education have had the authority to take control of schools and districts that fall into the lowest performance level. Educators and schools have been the target of more accountability.

However, the outcomes related to the lack of progress did not improve under “state control “or federal interventions that were too often disconnected from teachers’ roles (Ryan 1971). With the exception of a few teachers who cited their student demographics and an increased amount of testing, which could be related to federal regulations under NCLB or RTTT, the majority of the teachers and administrators in this study cited only internal factors or values that are preventing their schools and the NPS from being more aligned with college-level expectations.
Similarly, in this study, Newark administrators and teachers identified “educational policy values” as conciliatory (i.e. not in conflict) when considering the FLC as a possible solution, which they deemed important within the context of teaching and learning, and ultimately improving college readiness. FLC participants identified issues that were conciliatory areas, which they perceived as “educational policy values” that supported their efforts to improve academic preparedness, college knowledge, academic tenacity, and issues related to the CRIS framework. Other significant attributes mentioned by participants were lack of parental involvement, lack of quality professional development, fewer collaborations with universities, and limited access to universities (for continuing education). The college-readiness dimensions confirm issues previously identified by districts in the CRIS research in five cities.
Chapter 5: Summary, Conclusions, and Action Plan

Chapter 1 opened with the argument that research studies on college readiness on the district level have not been adequately addressed at the system level through educational policy. While state laws have increasingly affected public schools, the influences of local policies geared toward college readiness have not resulted in substantial results. District-level implementation studies tend to focus on what takes place during and after a reform process, only secondarily considering what drives the purpose or underlying value of that policy. Therefore, policy research that isolates and studies policy decisions under local control is needed to understand the alignment of values of educational policies in a district-level context. Such an understanding might lead to more clearly conceived sustainable and successful district-level reforms.

Chapters 1 and 2 discussed college readiness, the college-readiness indicator system (CRIS), and the environment and background information that influences district-level reforms. As discussed in Chapter 3, this study was conducted in a process-oriented rather than a product-orientated manner, focusing on the decision-making process under the district superintendent collaborating with the city mayor and polytechnic university president. The policy value analysis used in this study was not undertaken as a case-by-case study of the individual schools or individual participants per se as the reforms in the distinct were not singular (Chin et al., 2017). I used interview notes to report and discuss the findings pre-FLC, during the FLC, and post-FLC perceptions. Chapter 4 analyzed keywords from CRIS according the teachers as representatives in four schools with a STEM-focus. In addition, teachers’ and their administrators’ perceptions in a single district within one-year for the first two phases from 2019 to 2020. Next, the operational
phases associated with the FLC, and the last section gleans insights on the political and policy context to elicit four policy values of choice, efficiency, quality, equity (Marshall et al., 1986).

Marshall et al. (1986) provide the framework to assess four fundamental values in educational policymaking, as defined by the analysis of data from questionnaires, focus groups, semi-structured interviews with district-level personnel, and document analysis. Marshall and colleagues contended that educational policies do not form in isolation but, rather, are created from within a larger societal context. Numerous studies on values in educational policymaking led to the development of the theory utilized in this study concerning the values aligning a district-level decision to pursue a partnership and ultimately form a novel FLC with faculty and apprentice faculty (Marshall et al., 1989; Wirt et al., 1988). The application of this theory in this study was both an extension of and isolation of that cultural values theory by applying it to a district-level context to identify the values aligning the decision to pursue an FLC.

The first value of choice follows the leaders and stakeholders with authority according to historic and contemporary observations in the planning of the FLC. The need to address college readiness independent of the multiple demands placed on them from national and international metrics is crucial to confront while addressing external policy pressures.

The second value of efficiency focuses on teachers and their administrators’ perceptions on the context and the rationale to support in-service teachers. Continuing education, when efficiency is achieved by working with all teachers from different schools, not the same administrators that typically are the middle-level implementers of
policies, not universities. Marshall et al. (1989), when describing efficiency in referring to human actions, viewed it “as a university goal, as in, ‘We intend to make this program the most efficient’” (Wirt et al., 1988, p. 272). Efficiency can be defined in two forms: economic and accountability.

- The primary form of efficiency, the economic form, reflects the effort to minimize costs while maximizing gains to optimize program performance. This usage is an economic surrogate for the ratio of work-to-energy definition. In the local partnership, economic efficiency may appear as a partnership agreement to determine local support of a policy goal by specifying the resources that will be needed to accomplish specific units of work.

- The secondary form of efficiency is accountability. With decision-makers or policymakers in an institutional governance role or a context they are influenced in this state by “home rule” political dynamics. The value of efficiency is widely applied in policies and is a standard in many aspects of public life in the United States, often imposed on districts and their graduates. Aligning both forms of efficiency is the political value of popular sub-line, a doctrine in political theory that states that government is created by and subject to the will of the people.

The third value quality goes beyond the appropriateness or success of the policy decision to implement the FLC with apprentice faculty or high school teachers and faculty. The reflections by participants showed marked similarities in value perceptions about the need of the district to collaborate with the university and the potential benefits and challenges of the FLC. Any differences regarding the perception of support for the FLC in a coeducational setting was not questioned in terms of the quality of the
alignment. Rather, the local control district with its superintendent, mayor, and university president provided resources and support to cover the cost of this FLC and incentivized the viability as a benefit for teachers using monetary stipends. FLCs challenge the status quo to engage the university community to support the district and provide access to teacher career achievements, such as a master's or stackable credential that could result in a certificate or a higher degree.

The fourth value is equity using the building blocks of core courses. The aim and scope of this study was to assess FLC participants’ and their awareness of the external policy influences that affected the district was subtle by sorting students. While this did not negate the pursuit of the FLC while addressing the college readiness gap or urban school reform. Leveling the pathways through core courses by identifying educational policy values is indeed affected by school governance and district politics as defined by each local community. The local community assets can, at times, also be a liability. Teachers are often in a silo, similar to university faculty. In the U.S., silos in education too often occur as the large institutional structures that maintain compartmentalized quality and equity challenges made reforms difficult.

**Conclusions**

An FLC deconstructs high school curriculum development and coherence demands place states and local education reformers are on one side or another, as conflicts arise over what schools should do (Wirt & Kirst, 2001). Urban education has long been guided, funded, and critiqued at the level of the local community. The historical influences on public schools, when overlooked, can indeed dictate many educational challenges and obstacles faced within a district. For example, bottom-up
approaches such as teachers collaborate and work together, children work more in collaborative learning situations, and cross-curricular connections may not be the focus from the state leaders with top-down approaches. The latter approach happens more often under state interventions but can also become a problem under local control when leadership fails to work collaboratively. Historically, the silos in education have been set up as follows: one teacher per room, every subject assigns a teacher or two (especially in some urban classrooms) with their own class or timeframe and spaces.

In contrast, contemporary American education is guided as much by state interests and influence as local. On average, the funding of American schools is a portion of local and state dollars. With the recent surge of state curriculum frameworks and assessments, the state plays a significant role in selecting the courses taught in local schools. The earliest schools had minimal state or federal influence and relied on interested local citizens to prioritize and gather resources for their local schoolhouse. Previously, education was based on basic literacy, numeracy, religious doctrine, and morality to ensure strict discipline and order.

While significant challenges regarding which values or values can drive changes to augment educational policies, the shift to decrease state control continues. College readiness and post-secondary outcomes should be handled locally by stakeholders, yet questions remain regarding who should be an intended target of school reforms – the students or students and teachers. The values of choice, efficiency, quality, and equity, can be conciliatory, and lessons can be learned:
Impact on choice can inherently oppose all values because nothing in the other values compels one to select them. The exercise of choice could reject quality and equity programs in education (e.g. state-appointed superintendent reforms).

Impact of efficiency, on the other hand, reinforces all values except choice because it is designed to realize all quality and equity program goals. An example of this is the de facto option to separate students, which was heavily oriented to efficiency, which sought compliance with state policy goals.

Impact on quality opposes all but efficiency; the latter usually reinforces quality, as noted, but quality is unrelated to questions of what should be equitable and what should be chosen.

Impact on equity leverages the political authority to redistribute critical resources required for the satisfaction of human needs—from the availability and allocation of resources to close the gap through connected student-centered aligning high school and college courses.

Many educational experts and school reformers are convinced by the urgent necessity of their innovative mission. They believe that the central office and high school's non-central office administrators or principals and teachers can be reform recipients. Nevertheless, these ambitious ideas rarely engage teachers in the proposed innovative changes. Various state or federal political leaders drive school-based and some local programs address pedagogical practices without including teachers. The Secondary Partnership Program in Math (SPPM) at Central provided best practices that were proven successful as a collaboration between the university and district students.
The effectiveness of the SPPM was the support for students, and the FLC was twofold—students and their teachers. The initial program ten years earlier focused on students alone to add math and college-readiness with a rigorous college-level course, it can be a winning strategy. The FLC included teachers in this process as the eyes of those at the shop-floor level, to be an apprentice who could witness firsthand how they could implement proven practices. From different academic classes, schools, and backgrounds as the apprentice faculty, they participated in classrooms led by faculty with students from their schools and others within the district.

The challengers—scholars, activists, disenchanted practitioners, and outsiders—call attention to the values conflicts that educational administrators and policymakers too often avoid. If the managers and policymakers merely pull together good defenses and quick fixes in response to the critical dilemmas posed by the challengers, they will miss the opportunity to identify dilemmas and seek solutions with the assistance of the challengers. Specifically, these five recommendations have emerged because of this study.

The first takeaway from this study was the focus on 15 participants enrolled in an FLC. Therefore, this study should be replicated with additional FLC participants (teachers and their administrators) from different high schools. Another takeaway is that the FLC study should be expanded by focusing on teachers from middle school grade levels and their academic disciplines. The additional studies could focus on particular disciplines to identify and understand any differences that might exist. The information produced would allow college-readiness educators to modify the program. Fourth, having identified in this study that skills learned during the FLC should evaluate the college-
readiness interventions for high school-level instruction. Finally, this study should be expanded to include the role of students in the FLC. Additional research is needed on the effects of student success in both pre- and post-FLC for college readiness and the math gap to clarify that the conflicting values are aligned based on this study and in the literature.

**FLC: An Action Plan**

An action plan given each context was formed using a comprehensive approach with executive, middle, and operative level system leaders.

1. *Community Context:* Many local education professionals believed politics should have no role in their profession. However, educational policy is grounded by school governance and politics, and the mayor’s role to support workforce needs through the educational systems can be paramount.

2. *Higher Education Context:* The goal of the American high school has changed from sorting and selecting to preparing all students for post-secondary opportunities.

3. *Local Policy and State Policy Contexts:* School governance is ultimately the process of publicly resolving group conflict by creating and administering public policy, and politics is a form of social conflict rooted in group differences over values about using public resources to meet private needs (Wirt & Kirst, 2001). FLC integrates high school teachers with faculty to consider novel program and policy recommendations. From a programmatic perspective, the development of a college-readiness blueprint should be aligned to state recommendations. However, when this is not the case, the alignment of curriculum expectations between secondary and
post-secondary system educators is beneficial. The following aspects must be addressed: setting individual and collective goals amongst teachers and faculty, identifying funding for pedagogical workshops to train teachers including providing certificates and/or pathways for teachers to earn their Master’s degree, and providing educational conferences based on lessons learned for all stakeholders involved and/or interested in FLCs.

As educators engage other policymakers through decisive, collaborative partnerships that overcome deficiencies in their system, real change is possible. From legal and structural disparities that have left far too many students disadvantaged, the empowerment of teachers to be part of school reforms and support their development through the process requires more study. The facts that support this recommendation is a process that include the conciliatory educational policies with aligned systems and its stakeholders. Using the FLC as a college-readiness intervention, where groups of educators work collaboratively at the university level to improve high school classroom outcomes, was a novel approach supported by system leaders.

FLCs start from a simple idea that learning activities with high school teachers can provide a domain of knowledge, communities of practice, and shared practices for its participants. Among the numerous transfers of learning techniques when the district educators work together with a university and in the case district through phases to completed learning plans, mentoring, portfolios, networking, and reflective practices, which all feature prominently in the course design for the FLC.

First, the initiation phase is characterized by the choice value engagement of collaborative partners. Second, the implementation phase is marked by the two values.
The quality value prepares teachers and administrators to gain access and navigate co-educational settings. The efficiency value then provides teachers with continuing education after the summer enrichment and the academic year. Finally, the implementation phase would incorporate the equity value by providing clarity for the longer haul among educators on curriculum expectations. Within the CRIS model, the four contexts also were aligned by the FLC. The key elements of the “FLC 5 Cs” framework include the following: collaborative partners, coeducational setting, continuing education, core courses, and CRIS. These elements described the model.

Figure 4

*FLC Framework*
Collaboration Partners (e.g., Choice)

The first component is collaboration. As authorized by the state, collaboration means having the choice of whom to select as reform partners. Teachers perceive local school district support, guidance, and flexibility as more essential than state involvement. In particular, school district support was cited as the number one factor for the establishment of a transfer from teacher to student achievement for success in STEM in two studies (Bruce-Davis et al., 2014; McMullin, 2013). Other studies found similar results about the importance of districts in such efforts (Holstein & Keene, 2013; Park et al., 2016). A supportive middle-level or school-based team is important as an administrator or central office team is directed by the district’s executive or strategic leaders/partners. They assign or enlist teachers to participate in an intervention, such as the one described here: an FLC with a college-readiness focus as its goal developed as a means to explore secondary to post-secondary pedagogy.

Teachers believe that guidance by, and constant dialogue with, administrators executing a district directive are needed to successfully implement STEM preparedness programs (El-Deghaidy, 2017; Holstein & Keene, 2013; McMullin, 2013). All the participants involved in this research were from STEM-focused secondary or post-secondary institutions. Teachers believe their school districts must allow flexibility for them to expand the curricula and instruction beyond national and state standards so that they can offer problems that meet student interests, talents, and academic needs (Bruce-Davis et al., 2014). In addition, the K-12 traditional curricular framework or scope and sequence should be restructured to allow STEM programming to mirror post-secondary classrooms (Herro & Quigley, 2017; Park et al., 2016).
FLCs are unique and can be tailored to specific needs and disciplines, and the perceptions of educators are common among participants in these types of STEM-focused partnerships (Ouhbi et al., 2015). Educators in these college-level partnerships with a STEM focus illustrate shared experiences independent of the teacher’s age, gender, experience, and perceived value of STEM education. The influences on district-level support and enthusiasm to focus on their pedagogy from these engagements with universities are valued. Secondary teachers, in particular, seem more likely to perceive collaborative partnership, college readiness, and STEM programs with universities as an opportunity to engage in what they believe to be high-impact learning opportunities that are untraditional and seldom implemented. Programs between a district and university may require substantial shifts in traditional pedagogy, curriculum, assessment, support, and training. Teachers’ voices in these programs are limited. However, the engaging and authentic nature of programs can be beneficial for teachers and, ultimately, the underrepresented students they teach who, historically, do not pursue college or careers in STEM.

*Continuing Education (e.g., Efficiency)*

The second component, continuing education, is the value of efficiency connecting high school instruction to future expectations individually and globally. Teachers perceive that the availability of a continuing education to support their students and themselves increases their self-efficacy and their confidence to teach STEM (Burrows et al., 2018; Venezia et al., 2003). The STEM curriculum and resources for high school level mathematics has not been explicitly and closely connected to the theory of active learning. High school teachers who participate in college-level mathematics
projects aligned with Barnes’ (1989) seven key principles of active learning were as relevant then as they are today. These principles are:

1. Purposive (the task is seen by the learner as relevant to his/her concerns)
2. Reflective (the learner reflects on the meaning of what is being learned)
3. Negotiated (the teacher and learner negotiate the goals and methods of learning)
4. Critical (the learner appreciates different ways of interpreting learning)
5. Complex (the learning tasks reflect real-life complexity)
6. Situation-driven (the learning task arises out of the need of the situation), and
7. Engaged (the learning activities reflect real-life tasks).

The first four principles are aspects of participation and the last three are aspects of realism (Kyriacou, 2001). High school teachers as apprentice faculty desire specific, ready-made problems or access to open-source online materials that they could use in their classrooms immediately, not complicated mandates driven by educational standards (Wang et al., 2011). Moreover, there must be trustworthiness in the implementation of the curriculum such that the teachers utilize the expectations and goals intended by the curriculum designers, which extends beyond a one-day training but includes continuous education built around a learning community model (McMullin, 2013; Stohlmann et al., 2012).

**Coeducational Settings (e.g., Quality)**

The third component is a coeducational setting to provide every learner (teachers and students) a valued education in any setting (including urban). A teacher’s essential road to success with all groups depends on their preparation and the development of a culturally relevant curriculum (Ladson-Billings, 1994). According to research,
partnerships need to consider that teachers need assistance to know how to appropriately incorporate cultural responsiveness into their curriculum (Freire & Valdez, 2017). For partnerships that address issues that plague marginalized and non-marginalized communities, it is important to be cognizant of asymmetrical power dimensions around access, privilege, and whiteness (Freire & Valdez, 2017; Fullan, 1993; Ladson-Billings, 1994).

There is no doubt that co-education settings can advance in-service education to address the power dynamics created by the changing society between pre-service education and teacher’s effectiveness in the world of work. Teachers’ will be regularly exposed to innovations in their profession as an integral part of continuing teacher education. No matter the origins of the pre-service training provided to teachers through traditional or alternate route, there will always be areas of inadequacies. In-service education of teachers will continue to fill these gaps in urban areas. Thus, the need for in-service education of teachers cannot be underestimated. It is a necessity in enhance work performance and motivation of teachers in the field. Absence of in-service training of teachers will limit professional growth and opportunities.

FLC activities that may include seminars, workshops, conferences, classes, exhibitions that are designed to develop and improve employees in an organization from the initial employment stage to retirement has become an imperative to explore how lesson study activities to integrate within their curriculum (Bandura, 1997). This all happens while researching and focusing on increasing their content knowledge and experiences with STEM. Research indicates that these factors directly influence teacher practice and student learning (Nadelson et al., 2013; Venezia et al., 2003).
**Core Courses (e.g., Equity)**

The final component is the core courses in math (algebra, calculus, pre-calculus) that are universally taught and could reproduce a clear agenda and produce the value of equity. Equity in academic disciplines requires establishing systems to ensure that every child has an equal chance for success. Equity is essential in math education as the support must be vast and varied and allow every student to be successful, and urban school districts alone do not have all the resources available in a university setting. Therefore, teachers believe that partnerships with universities form a culture of collaboration and viable relationships. They further believe collaborative planning and decision-making are essential to a successful partnership (Bruce-Davis et al., 2014; Burrows et al., 2018; Gardner, 2011; Herro & Quigley, 2017; Margot & Kettler, 2019; Stohlmann et al., 2012; Wang et al., 2011).

Teachers recognize the importance of partnerships with colleagues and university professionals to not only create an atmosphere that enhances preparation for their lessons, but also to model a collaborative approach to engage students and use relevant pedagogy that challenges students to participate in solving problems. Teachers had been siloed in the past; the opportunities for collaborative planning and implementation, especially with university faculty from the same city, discipline, and similar student population (at least those from the community enrolled in the district and later college). Partnerships should ensure adequate preparation in all aspects of system alignment (high school to college) and access to college-level resources and expertise (Bruce-Davis et al., 2014; Burrows et al., 2018).
The framework enhances teachers’ willingness to accept risks, delve deeper into disciplinary concepts, and embrace the connections to college readiness that may appear beyond their comfort area. Teachers shared views on the siloed nation, with them in one box or on one level. Schools and universities can be categorized as professional bureaucracies with three levels of influence and authority, namely the executive or strategic level, middle-level, and the operative level, where teaches are operational (Mintzberg, 1987). Teachers were convinced that the better college-readiness partnerships with a STEM focus (such as the high schools and university in this study) align and leverage all three levels.

Moreover, executive leaders (i.e., university/city leaders and central office school administrators) were engaged in collaborative processes from planning through implementation and ongoing refinement. Middle-level leaders, such as university-based project directors and school principals, collaborated to implement key functions: providing technical expertise and support to schools to ensure they contribute to stronger results for changed practices. Finally, operatives were the faculty, mentors, trainers, coaches, and schoolteachers whose collaborative planning, decision-making, and implementation were closest to students and most likely to affect project results.

High school teachers often believe that in order to capitalize fully on the academic potential of all their learners, FLCs must streamline education and refine instructional pedagogy to adequately prepare students for the rigors of academic studies and foster more alignment with university expectations (Lee, 2013). This is especially true for teachers educating students from disadvantaged schools. Gomez and Albrecht (2013)
advocated for grounding this education, instruction, and pedagogy through a collaborative approach.

**College Readiness, Educational Values, and the Framework**

College-readiness agendas and the four educational policy values need to become aligned for educators to perceive an impact. The values can bridge the social divide that allows some communities to thrive while other communities languish in some disciplines, such as math. College readiness—that is, high-school-to-college support for teachers—is often driven by unequal tools and teaching resources (Al Salami et al., 2017; Bell, 2014; Johnson, 2006). One significant concern is that disadvantaged students from urban districts often find themselves (like their math teachers) challenged to fully engage the rigors of gateway courses (algebra, calculus, pre-calculus) with so many other competing demands. With these thoughts in mind, and considering that federal and state governments attempt to support local education to meet the demands for college and career readiness standards and assessments, officials of both K-12 and, increasingly, post-secondary institutions should explore effective high school teacher strategies and interventions.

Teachers and students should be constantly challenged and prepared to improve the college access of students at risk. Urban school districts must improve high school graduates’ pathways, especially for students of color, students from low-income families, first-generation college students, and women (ACT Aspire LLC, 2018; Honey et al., 2014; Lotkowski et al., 2004). Thus, there is a need to infuse interventions that are proven educational reforms to enhance teaching using the system level’s three dimensions of CRIS:
• *Academic preparedness* refers to teacher’s preparation (beyond teacher certification) and some professional development that is top-down, without local input.

• *Academic tenacity* refers to communicated expectations and professional development that promote these practices.

• *College knowledge* refers to the resources that support college-going culture/knowledge and communicated support.

The lack of system-level supports for college access continues to challenge the U.S. Department of Education to focus on leadership, policy, and school reforms that ensure every student graduating from U.S. high schools is prepared for college and a career.

**Summary**

This study’s overarching contribution is important for higher education and public schools as well as all the stakeholders. An analysis of prior literature on college readiness reveals a small but growing theoretical area informed by research on partnerships between post-secondary institutions and secondary schools. According to the ACT and College Board research, the role of post-secondary institutions through policies and practices affecting college readiness is critical. However, we know little about how both secondary and post-secondary institutions teachers and administrators working with universities collaboratively in larger numbers improve college readiness, math success and access to polytechnic universities, particularly for disadvantaged students (Lotkowski et al., 2004).
This study focused on the perceptions of participants in an FLC with a local university to better prepare students for success in college and, in particular, STEM-focused disciplines. The theoretical framework applies four values in educational settings as defined and refined by Kirst and Wirt (2009): Choice, Efficiency, Quality, and Equity, integrates the variables of Academic Preparedness, Academic Tenacity, and College Knowledge. It is important to explore this university, city, and district FLC with STEM institutions and programs. Despite 25 years of state interventions in Newark, the college readiness and associated challenges are a concern. In fact, even more students are not college-ready, based on the students’ background characteristics, initial intended majors, type of institution, and where students initially enroll (Eagan et al., 2014).

**Future Implications**

Marshall et al.’s (1986) four definitions of policy values were worthwhile and supported the system-level partnership explored. As teachers from the two types of high schools returned to their respective school environments, they had been enriched by the FLC. Additional in-district analysis would be an added research capability in the light of the Covid-19 school closures and virtual teaching and learning environments. Other important considerations include expanding the study to accommodate the experiences with virtual teaching and adding more participants. Research is needed on whether similar data can be replicated in another location, at different educational levels, for example, middle-levels, or in other disciplines with teachers.

The teachers perceive that the collaborative partnership includes educational policy values. At the same time, the present study indicates that work is still needed to remedy past political decisions and school governance matters that demand interventions...
that target teachers and their students. Implementation analysis can track teachers’ perceptions of and reactions to a policy—their decisions to participate or not to participate in a program, and their efforts to have their interests reflected in the decision outcome (Bacharach & Mitchell, 1985). The present study offers a model for other college-readiness interventions in the form of an FLC. The values conflicts, which are typical in educational policy arenas with different stakeholders, can be levers to improve educational management and policymaking or stifle it.

Policy actors that make decisions know that the decisions must be based on values, but they usually work out compromises so that the value conflicts do not impede the needed interventions, such as scaling up college readiness interventions. At all levels, policy actors make decisions about directions for college readiness and gateway courses, such as math, that are too often homogeneous groupings based on sorting or testing. Such strategies have not produced more college-ready students from urban areas. However, policy actors may not understand teacher barriers, how homogenous grouping may lead to ethnic and racial segregation, and other factors affected by their actions.

Educational administrators and policymakers at all levels face significant challenges from people who want to enhance the system’s historic failures in school reforms. The old school reforms and methods of teaching mathematics have not benefited all students, and too many in especially urban schools lag behind their peers. Merely fine-tuning the system and sidestepping values conflicts to align them sets forth functional outcomes (including combatting disenfranchised, disenchanted community members and improving the morale of the educator workforce, enhanced excitement and achievement in classrooms, and improved legitimacy of the education system. FLC assists in a lively
practice for methods to gain legitimacy, integrity, and support for the education system, and it can help educators confront the fundamental dilemmas to undo dysfunctional patterns.

Some support-based areas to consider would be to include more interventions to support high school teachers in designing lessons that progress towards and meet the rigor of post-secondary mathematics education. Moreover, it would be beneficial for high school teachers to observe college-level mathematics classes. This experience would then lead to professional development and discussions around any observed learning gaps and the necessary steps to address them. In this study, the structure and program were interdependent; each supported the other. The teacher and administrator participants identified strengths that provided the link between theory and practice.

The four educational values (Kirst and Wirt, 2009) were seen in the NJIT framework as complementary and identified as strengths. The class time was described as indispensable and allowed the FLC participants to find immediate support for what they were experiencing in their classroom during the academic year. Teachers became reflective practitioners, able to solve their problems and those of their colleagues. The weaknesses related to the FLC structure were the time commitment and lack of a continuing education experience. While all teachers and administrators understood that time was needed to achieve mastery of teaching practices, the teacher participants were forced to go to school each week at the same time while trying to meet competing demands. The summer enrichment was a solid foundation for most of the teacher participants.
FLCs can be novel tools for decision-makers under the right conditions. As discussed above, with aligned values and support in addition to the willingness to invest system-based resources, many high school teachers as apprentice faculty members gained enough benefits from their inclusion of collaborative student learning strategies, which they continued to use in subsequent iterations in their district courses. For some, this has simply become an “awakening”, which suggests that this pedagogical change is likely to endure indefinitely. Therefore, if a year-long FLC can support high school teachers engaged with university faculty in making changes they are interested in making, there may be ongoing long-term changes when the secondary to postsecondary experience provides sufficient positive feedback in terms of benefits for their students and themselves.

FLCs target collaborative partnerships as a means to improve student learning through pedagogical techniques gained from university faculty, the long-term results would be independent of the specifics of the pedagogical change. These results are widely applicable to others who may wish to enable structures for pedagogical change through an FLC model. Based on this study, others may be encouraged to use the FLC model not only to introduce but also to include a college-readiness system such as CRIS. While math teaching was the context of this study, the pedagogical changes for high school teachers (and their students) working with university faculty could be just as applicable in any discipline.
References


Amparbin, K. A. (2020). Has the State takeover of the Newark Public Schools reformed, repaired or impaired the district and influenced graduation rates? https://prism.ucalgary.ca/handle/1880/111525


Asch, C. M. (2010). The inadvertent bigotry of inappropriate expectations. Education Week, 29(35), 35.


Census Data (n.d.)


Appendix A: District Summary

The Newark School District is the largest and one of the oldest school systems in New Jersey. Its origin dates back to 1676. Barringer High School, in Newark’s North Ward, is the third oldest public high school in the nation. The racial and ethnic diversity of the city provides a rich educational experience for pre-kindergarten to secondary school students. The district continues to revise its services to meet the changing needs of students. The information below came from the New Jersey Department of Education and summarize the most recent publicly available data. These data sources enable comparison with all other districts in the state of New Jersey. Newark students served outside of the district are not included in the data.

### Number of Schools

<table>
<thead>
<tr>
<th>Number of Schools</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional Public Schools</td>
<td>64</td>
</tr>
</tbody>
</table>

### Student Enrollment

<table>
<thead>
<tr>
<th>Grades</th>
<th>Enrollment</th>
<th>Percent of Total Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-K</td>
<td>2,049</td>
<td>5.6%</td>
</tr>
<tr>
<td>K-8</td>
<td>24,491</td>
<td>67.8%</td>
</tr>
<tr>
<td>9-12</td>
<td>9,572</td>
<td>26.6%</td>
</tr>
<tr>
<td>Total</td>
<td>36,112</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

### Student Race & Ethnicity

<table>
<thead>
<tr>
<th>Race &amp; Ethnicity</th>
<th>Enrollment</th>
<th>Percent of Total Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>15,508</td>
<td>42.9%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>17,060</td>
<td>47.2%</td>
</tr>
<tr>
<td>White</td>
<td>3,044</td>
<td>8.4%</td>
</tr>
<tr>
<td>Asian</td>
<td>544</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Native Hawaiian Pacific Islander</td>
<td>72</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Native American</td>
<td>81</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Two or More Races</td>
<td>*</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Total Enrollment</td>
<td>36,112</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

* Categories with fewer than 10 students are suppressed for privacy

---

Newark Board of Education

District Summary 2018-2019
Appendix B: School Summaries, 2018-2019

School 1

School Summary 2018-19

Central

<table>
<thead>
<tr>
<th>Principal</th>
<th>Ward</th>
<th>School Type</th>
<th>Grades offered in 18-19</th>
<th>Student Enrollment 18-19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sharee Brown</td>
<td>Central</td>
<td>Comprehensive</td>
<td>9 - 12th</td>
<td>772</td>
</tr>
</tbody>
</table>

Note: Student Enrollment based on October 2018 ASAA Submission

Student Demographics as of 10/15/2018 (Numbers displayed as percent of student body)

<table>
<thead>
<tr>
<th>Race</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>42</td>
</tr>
<tr>
<td>Hispanic</td>
<td>42</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
</tr>
<tr>
<td>White</td>
<td>72</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th>Percent</th>
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</thead>
<tbody>
<tr>
<td>Female</td>
<td>33</td>
</tr>
<tr>
<td>Male</td>
<td>67</td>
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<table>
<thead>
<tr>
<th>Free Lunch</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited English</td>
<td>3</td>
</tr>
<tr>
<td>Migrant</td>
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</tr>
<tr>
<td>Self-Contained</td>
<td>0</td>
</tr>
<tr>
<td>Special Education</td>
<td>0</td>
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</table>

School Resources and Programs

Bilingual Programs Offered 18-19

<table>
<thead>
<tr>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>French</td>
</tr>
</tbody>
</table>

Special Ed. Programs Offered 18-19

<table>
<thead>
<tr>
<th>Disability</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autism Learning Disability</td>
<td>3.7%</td>
</tr>
<tr>
<td>Mild/Moderate/Severe</td>
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</table>

Percent AP Participation 3.7%

Teacher and Class Information

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<thead>
<tr>
<th>Measure</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent Teachers with five or more years of service in CPS</td>
<td>78.0%</td>
</tr>
<tr>
<td>Percent of effective and highly effective teachers retained (17-18 to 18-19)</td>
<td>83.7%</td>
</tr>
<tr>
<td>Percent Instructional staff missing 4 days or fewer</td>
<td>6.0%</td>
</tr>
<tr>
<td>Student-Teacher Ratio</td>
<td>10.2 to 1</td>
</tr>
<tr>
<td>Average Section Size K-3</td>
<td>NA</td>
</tr>
<tr>
<td>Average Section Size 4-8</td>
<td>NA</td>
</tr>
<tr>
<td>Average Section Size 9-12</td>
<td>18</td>
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</table>

Attendance and Student Mobility

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<thead>
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<th>Period</th>
<th>Percent Chronically Absent</th>
<th>Average Daily Attendance</th>
<th>Student Mobility Rate</th>
</tr>
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<tbody>
<tr>
<td>16-17</td>
<td>60</td>
<td>0</td>
<td>60</td>
</tr>
<tr>
<td>17-18</td>
<td>60</td>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td>18-19</td>
<td>60</td>
<td>5</td>
<td>18</td>
</tr>
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</table>

State Assessment Performance 2018-19

<table>
<thead>
<tr>
<th>Subject</th>
<th>Percent Proficient</th>
<th>Math Percent Proficient</th>
<th>ELA Scaled Score</th>
<th>Math Scaled Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-17</td>
<td>75</td>
<td>46</td>
<td>71</td>
<td>72</td>
</tr>
<tr>
<td>17-18</td>
<td>80</td>
<td>50</td>
<td>70</td>
<td>75</td>
</tr>
<tr>
<td>18-19</td>
<td>80</td>
<td>50</td>
<td>70</td>
<td>75</td>
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</table>

Graduation and Postsecondary Outcomes

<table>
<thead>
<tr>
<th>Graduation Rate</th>
<th>Overall Postsecondary Enrollment 17-18</th>
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</thead>
<tbody>
<tr>
<td>16-17</td>
<td>76</td>
</tr>
<tr>
<td>17-18</td>
<td>77</td>
</tr>
<tr>
<td>18-19</td>
<td>78</td>
</tr>
</tbody>
</table>

Two-year and Four-year Postsecondary Enrollment 17-18

<table>
<thead>
<tr>
<th>Two-year</th>
<th>Four-year</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>75</td>
</tr>
</tbody>
</table>
School Summary 2018-19
Science Park High School

Principal: Kathleen Tierney  Ward: Central  School Type: Selective Magnet  Grades offered in 18-19: 9 - 12th  Student Enrollment in 18-19: 843

Note: Student Enrollment based on October 2018 ASSA Submission

Student Demographics as of 10/15/2018 (Numbers displayed as percent of student body)

<table>
<thead>
<tr>
<th>Race/Category</th>
<th>Male</th>
<th>Female</th>
<th>Free Lunch</th>
<th>Limited English Proficient</th>
<th>Self-Contained</th>
<th>Special Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>45</td>
<td>35</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Hispanic</td>
<td>17</td>
<td>39</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
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<tr>
<td>White</td>
<td>42</td>
<td>55</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

School Resources and Programs

<table>
<thead>
<tr>
<th>Bilingual Programs Offered 18-19</th>
<th>Special Ed. Programs Offered</th>
<th>Percent AP Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>RCI/RCO</td>
<td>22.3%</td>
</tr>
</tbody>
</table>

Teacher and Class Information

<table>
<thead>
<tr>
<th>Measure</th>
<th>Result</th>
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<tbody>
<tr>
<td>Percent: Teachers with five or more years of service in NPS</td>
<td>79.0%</td>
</tr>
<tr>
<td>Percent of effective and highly effective teachers retained (17-18 to 18-19)</td>
<td>92.0%</td>
</tr>
<tr>
<td>Percent instructional staff missing 4 days or fewer</td>
<td>11.6%</td>
</tr>
<tr>
<td>Student-Teacher Ratio</td>
<td>14.2 to 1</td>
</tr>
<tr>
<td>Average Section Size K-3</td>
<td>NA</td>
</tr>
<tr>
<td>Average Section Size 1-8</td>
<td>NA</td>
</tr>
<tr>
<td>Average Section Size 6-12</td>
<td>22</td>
</tr>
</tbody>
</table>

Attendance and Student Mobility

<table>
<thead>
<tr>
<th>Percent Chronically Absent</th>
<th>Average Daily Attendance</th>
<th>Student Mobility Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>92</td>
<td>98</td>
</tr>
<tr>
<td>37</td>
<td>98</td>
<td>98</td>
</tr>
<tr>
<td>38</td>
<td>98</td>
<td>92</td>
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State Assessment Performance 2018-19

<table>
<thead>
<tr>
<th>BLA Percent Proficient</th>
<th>Math Percent Proficient</th>
<th>BLA Scaled Score</th>
<th>Math Scaled Score</th>
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<tr>
<td>67</td>
<td>72</td>
<td>79</td>
<td>706</td>
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<tr>
<td>60</td>
<td>72</td>
<td>83</td>
<td>706</td>
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Graduation and Postsecondary Outcomes

<table>
<thead>
<tr>
<th>Graduation Rate</th>
<th>Overall Postsecondary Enrollment 17-18</th>
<th>Two-year Postsecondary Enrollment 17-18</th>
</tr>
</thead>
<tbody>
<tr>
<td>98</td>
<td>64</td>
<td>98</td>
</tr>
<tr>
<td>99</td>
<td>64</td>
<td>98</td>
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Two-year and Four-year Postsecondary Enrollment 17-18

<table>
<thead>
<tr>
<th>Two-year</th>
<th>Four-year</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>4</td>
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</table>
School Summary 2018-19
Malcolm X Shabazz

<table>
<thead>
<tr>
<th>Principal</th>
<th>Ward</th>
<th>School Type</th>
<th>Grades offered</th>
<th>Student Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naused Gifted</td>
<td>South</td>
<td>Comprehensive</td>
<td>9 - 12th</td>
<td>427</td>
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</tbody>
</table>

Note: Student Enrollment based on October 2018 ASSA Submission

Student Demographics as of 10/15/2018 (Numbers displayed as percent of student body)

School Resources and Programs

<table>
<thead>
<tr>
<th>Bilingual Programs Offered 18-19</th>
<th>Special Ed. Programs Offered 18-19</th>
<th>Percent AP Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>Behavioral Disability, Learning</td>
<td>13.0%</td>
</tr>
<tr>
<td>Disabled-Mild/Moderate</td>
<td></td>
<td></td>
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</table>

Teacher and Class Information

<table>
<thead>
<tr>
<th>Measure</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent Teachers with five or more years of service in NPS</td>
<td>71.0%</td>
</tr>
<tr>
<td>Percent of effective and highly effective teachers retained (17-18 to 18-19)</td>
<td>72.75%</td>
</tr>
<tr>
<td>Percent instructional staff missing 4 days or fewer</td>
<td>5.5%</td>
</tr>
<tr>
<td>Student-Teacher Ratio</td>
<td>12 to 1</td>
</tr>
<tr>
<td>Average Section Size K-3</td>
<td>NA</td>
</tr>
<tr>
<td>Average Section Size 4-8</td>
<td>NA</td>
</tr>
<tr>
<td>Average Section Size 9-12</td>
<td>23</td>
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</tbody>
</table>

Attendance and Student Mobility

State Assessment Performance 2018-19

Graduation and Postsecondary Outcomes

Overall Postsecondary Enrollment '17-'18

Two-year and Four-year Postsecondary Enrollment '17-'18
School Summary 2018-19
Technology High School

Principal: Edwin Reyes
Ward: Central
School Type: Selective Magnet
Grades offered in 18-19: 9 - 12th
Student Enrollment 18-19: 613

Note: Student Enrollment based on October 2018 ASSA Submission

Student Demographics as of 10/15/2018 (Numbers displayed as percent of student body)

School Resources and Programs
- Bilingual Programs Offered 18-19: None
- Special Ed. Programs Offered 18-19: Auditory Impairment, RCI
- Percent AP Participation: 19.4%

Teacher and Class Information

- Measure
- Percent Teachers with five or more years of service in NPS: 62.6%
- Percent of effective and highly effective teachers retained (17-18 to 18-19): 83.3%
- Percent instructional staff missing 4 days or fewer: 14.5%
- Student-Teacher Ratio: 12.5 to 1
- Average Section Size K-3: NA
- Average Section Size 4-8: NA
- Average Section Size 9-12: 23

Attendance and Student Mobility

- Percent Chronically Absent: 16, 17, 18, 19
- Average Daily Attendance: 94, 94, 95
- Student Mobility Rate: 1, 1

State Assessment Performance 2018-19
- ELA Percent Proficient: 59, 63, 66, 69
- Math Percent Proficient: 88, 85, 81, 74
- ELA Scaled Score: 772, 761, 752, 751
- Math Scaled Score: 751, 761, 761, 751

Graduation and Postsecondary Outcomes

- Graduation Rate: 94, 93, 92
- Overall Postsecondary Enrollment '17-'15: 73
- Two-year and Four-year Postsecondary Enrollment '17-'18: 16, 23
Appendix C: Demographic Survey

Date: __________________________

Name: _______________________________________________________________

1) What grade(s) and subject(s) do you teach?
_____________________________________________________________________

2) For how many years have you been teaching? Total: ______________ In NPS:
_________________

3) Did you go through a traditional teacher certification program or through alternate
route certification?
_____________________________________________________________________

4) Gender: Circle MALE or FEMALE

Email Address: ________________________________________________________
Appendix D: Semi-Structured Interview Protocol

Questions for principals and teachers engaged in the Professional Development (PD):

1. Tell me about the PD experiences at your school/district, and specifically in this program.
2. What, if any, were the positive experiences that you had in this PD?
3. What, if any, were the negative experiences that you had in this PD?
4. If you could change anything about how this PD was structured, what would it be?
5. What impact do you think this PD had on in-service teachers?
6. If you could choose a different PD, what would you choose?
7. Tell me about anything that you wanted to get or learn through this PD but didn’t.
8. Tell me about any reasons you believe in-service teachers should or should not keep participating in this PD?
Appendix E: Focus Group Interview Questions and Protocols

Interview Questions and Protocols for the Study Entitled:

“Influences on Practices by Mathematics Professional Development”

Date/time: ________________________________

No. of Participants: __________________________

Researcher(s) conducting session: ___________________

My name is ___________________ and I will be facilitating this focus group interview along with my colleague(s) _____________. The goal of this project is to discover the extent to which various college level mathematics learning as well as specific teaching methods are likely to be successful. As high school teachers, we value your opinions and insights. We want to know what works and what does not. Ultimately this study will enhance the ability of urban schools to attract and maintain a college readiness partnership program with a university by addressing critical questions related to mathematics. The information gleaned from this effort will be shared with wide variety of community stakeholders throughout the region including elected officials, civic leaders, and university staff. You were selected through a purposeful sampling where your name was obtained through the involvement in teaching mathematics in the district.

Prior to the interview, you completed paperwork in the district to participate in the collaborative partnership program. The focus group interviews will take approximately 80 minutes and will follow a designed interview protocol. As an incentive to attend, each person will receive a small gift.

Did each of you complete the district paperwork to represent the district and this study? Does anyone have any questions? If there are no further questions, let’s get started with the first question.

[Note: the researcher will use phrases such as “Tell me more,” “Could you give me an example?” “Could you explain that?” as prompts to solicit more detailed information when needed.]

1. To get started, let’s introduce ourselves. In your introduction please tell us who you are, the school where you currently teach as well as the schools that you taught secondary classrooms?
2. How did you discover this partnership program? **Probe:** Did any of you visit the university or attend any programming prior to this program?
3. Describe what attracted you to this program? **Probe:** How did the university with a STEM focus play a role in that decision?
4. Is the university what you expected?
5. Were any of you former alumni of this university? Can you tell me more? **Probe:** Have you attended a similar university before, and if so, where?
6. As a teacher in the program, did you feel welcomed? Explain. Please describe several ways the university could help you feel welcomed.
7. Are you currently involved in university activities? [If someone says yes] can you give me an example. For those that are not involved, do you wish to be? If yes, how would you like to be involved? Were you active at your previous partnership programs?
8. Was there one dominant reason for joining? If so, what was it and why?
9. When you were thinking about the summer, what issues/situations pushed you from your working in the district to the university? what issues/situations pulled you to this area? Universities are now using a variety of tactics to attract new students, including working with their teachers. I am going to pass out a list to each of you with some common and not so common challenges. Please individually look at the list and circle the degree of influence (high to low) There is also a line for you to add challenges as well. I will go down the list and if you have any questions or need clarification, please let me know. Then I would like you to pass the cards forward and we will tabulate the results and discuss each one. [Note: Lists are distributed, and the researcher goes down each challenge and offers detail if needed. After participants have finished, the challenges are shown on a flipchart and tallied. Then participants are asked to explain the responses, focusing on those items that will influence their perceptions.]
10. What will keep you here? Universities are also equally interested in retaining teachers as adjuncts once they have met all the qualifications. I am going to pass out a list to each of you. Please individually look at the list and circle the degree of influence (high to low) you perceive each action or opportunity would have on your decision to stay in the program. There is also a line for you to add an action as well. I will go down the list and if you have any questions or need clarification, please let me know. Then I would like you to pass the cards forward, as we did before, and we will tabulate the results and discuss each one. [Note: Lists are distributed, and the researcher goes down each tactic and offers detail if needed. After participants have finished, the tactics are shown on a flipchart and tallied. Then participants are asked to explain the responses, focusing on those items that will influence their decision.]
11. What could push you away from this program?
12. What advice would you give to universities in developing strategies to attract and engage secondary teachers?
Appendix F: IRB

NJIT IRB

Institutional Review Board: IHHS FWA 00003246
Notice of Approval
IRB Protocol Number: F002-20

Principal Investigator: Angela Garretson
Title: Influence on Leadership Practices by Mathematics Professional Development
Performance Site(s): Off-campus
Type of Review: FULL [] EXPEDITED [X]
Type of Application: NEW [ ] RENEWAL [ ] EXEMPT [X]
Approval Date: January 21, 2020 – Exempt Study

The proposed project titled “Influence on Leadership Practices by Mathematics Professional Development” has been reviewed and based on the information provided the study is found to be exempt from further IRB review. The research includes survey procedures and the data is recorded in such a manner that the identity of the human subjects cannot be easily ascertained.

Eric Hetherington
Co-Chair
Appendix G: eIRB

Rutgers eIRB

Rutgers eIRB: IRB Approval Issued for Study # Pro20200002625 by Angela Garretson

DHEC Federal Wide Assurance Identifier: FWA00009913
IRB Chairperson: Beverly Tepper
IRB Director: Michelle Wallinson
Effective Date: 12/10/2020

eIRB Notice of IRB Determination

STUDY PROFILE

Study ID: Pro20200002625

CURRENT SUBMISSION STATUS

<table>
<thead>
<tr>
<th>Submission Type</th>
<th>Submission Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Request for Determination of Non-Human Subject Research (including Quality Assurance/Quality Improvement)</td>
<td>Approved</td>
</tr>
</tbody>
</table>

Submission Date: 12/10/2020
Expiration Date: N/A

The activities described in this application do not meet the regulatory definition of human subjects research provided in 45 CFR 46.102. Therefore, this project does not require approval by the IRB as submitted. Please note that changes to the project must be submitted to the IRB for review prior to implementation to determine if the changes incorporate elements of human subjects research activities which require IRB oversight.

ALL APPROVED INVESTIGATOR(S) MUST COMPLY WITH THE FOLLOWING:

1. Conduct the project as submitted to the IRB.
2. Amendments/Modifications/Revisions: If you wish to change any aspect of this project, you are required to obtain IRB review and approval prior to implementation of these changes unless necessary to eliminate apparent immediate hazards to subjects.
3. Unanticipated Problems: Unanticipated problems involving risks to subjects or others must be reported to the IRB Office (45 CFR 46.21 CFR 312.181) as required, in the appropriate time as specified in the attachment online at https://irb.rutgers.edu/irb
4. Protocol Deviations and Violations: Deviations/ violations of the project must be reported to the IRB Office (45 CFR 46.21 CFR 312.813) as required, in the appropriate time as specified in the attachment online at https://irb.rutgers.edu/irb
5. Completion of Study: If your study requires, notify the IRB when your study has been stopped for any reason.
6. The investigator(s) did not participate in the review, discussion, or vote of this protocol.
# Appendix H: Chronology

## Chronology: Newark and New Jersey Education Reforms 1970 – 2020

<table>
<thead>
<tr>
<th>Year</th>
<th>Date (s)</th>
<th>Event</th>
<th>CRIS Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td></td>
<td>Kenneth Allen Gibson was elected, begins his first of 16 years, four terms, as the first Black Mayor of Newark</td>
<td>Community</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Newark Teachers Strike</td>
<td>Local Policy</td>
</tr>
<tr>
<td>1971</td>
<td></td>
<td>Newark Teachers Strike</td>
<td>Local Policy</td>
</tr>
<tr>
<td>1985</td>
<td></td>
<td>First, Abbott v. Burke Supreme Court finance ruling leads to identification of 31 disadvantaged “Abbott districts” filed by the Education Law Center first of many amendments by the state courts (several subsequent cases).</td>
<td>State Policy</td>
</tr>
<tr>
<td>1986</td>
<td></td>
<td>Sharpe James elected, begins his first of 20 years, five terms, as Mayor of Newark</td>
<td>Community</td>
</tr>
<tr>
<td>1987</td>
<td></td>
<td>State Takeover Law</td>
<td>State Policy</td>
</tr>
<tr>
<td>1995</td>
<td></td>
<td>State takes control of Newark schools, Beverly Hall appointed as the Superintendent</td>
<td>State Policy</td>
</tr>
<tr>
<td>2006</td>
<td></td>
<td>Cory Booker wins, first term as Mayor of the City of Newark, served 2nd term until 2013, became the US Senator.</td>
<td>Community</td>
</tr>
<tr>
<td>2007</td>
<td></td>
<td>Governor Jon Corzine appoints an advisory committee to identify new state appointed superintendent</td>
<td>State Policy</td>
</tr>
<tr>
<td>2008</td>
<td>July</td>
<td>Dr. Clifford Janey Recommended by Committee and appointed by Governor Jon Corzine</td>
<td>State Policy</td>
</tr>
<tr>
<td>2009</td>
<td></td>
<td>Superintendent recommended” Great Expectations Plan” to community</td>
<td>State Policy</td>
</tr>
<tr>
<td>2010</td>
<td>September</td>
<td>$100 million Start-Up: Education donation from Mark Zuckerberg announced on Oprah Winfrey Show with Cory Booker and Governor Christie</td>
<td>State Policy</td>
</tr>
<tr>
<td>2011</td>
<td>May</td>
<td>Governor Chris Christie appoints Superintendent Cami Anderson</td>
<td>State Policy</td>
</tr>
<tr>
<td>2013</td>
<td></td>
<td>Superintendent releases NPS Universal Enrollment “One Newark”</td>
<td>State Policy</td>
</tr>
<tr>
<td>2013</td>
<td></td>
<td>Charter enrollment share surpasses 20%</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>September</td>
<td>Ras Baraka elected and re-elected in 2018, his second term, as Mayor.</td>
<td>Community</td>
</tr>
<tr>
<td>2015</td>
<td></td>
<td>First Common Core Alignment with PARCC exam replacing NJASK in New Jersey</td>
<td>State Policy</td>
</tr>
<tr>
<td>2016</td>
<td>Summer</td>
<td>State announces plan to fully restore local control of NPS by 2017-2018</td>
<td>State Policy</td>
</tr>
<tr>
<td>2018</td>
<td></td>
<td>Newark Board of Education regains local control, appoints Roger León</td>
<td>Local Policy</td>
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<tr>
<td>2020</td>
<td>July 1</td>
<td>Full local control returned to the district</td>
<td>Local Policy</td>
</tr>
<tr>
<td>2020</td>
<td>September</td>
<td>Superintendent Roger León and the Newark Board of Education released an unprecedented 10-year strategic plan titled, The Next Decade: 2020-30.</td>
<td>Local Policy</td>
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## Appendix I: FLC Intervention Overview

<table>
<thead>
<tr>
<th>Session Name</th>
<th># Sessions</th>
<th>Date</th>
<th>Time Period</th>
<th>Agenda</th>
<th>Person Delivering</th>
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<tbody>
<tr>
<td>Orientation</td>
<td>1</td>
<td>5/2019</td>
<td>1.5 Hours</td>
<td>Welcome and Introduction, Intervention Overview, Clarification of roles and responsibilities, Pre-Intervention survey, Questions &amp; Answers</td>
<td>Program Lead</td>
</tr>
<tr>
<td>Summer Enrichment</td>
<td>28</td>
<td>Summer 2019</td>
<td>Full Day</td>
<td>Inquiry-Based Learning</td>
<td>Three University Faculty</td>
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<tr>
<td>Professional Development</td>
<td>4</td>
<td>Academic Year 2019-2020</td>
<td>2 Hours (Total 8 Hours)</td>
<td>Skills, Data Review, Online Learning, Lesson Planning</td>
<td>FLC Math Co-Director</td>
</tr>
</tbody>
</table>