A Unit of Analysis: A Descriptive Analysis of Teachers Thinking in an Urban Context Based on a Select Group of Teach For America (TFA)–University Partnership Professional Development Program Participants

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ABSTRACT

For decades, the City of Detroit and the Detroit Public Schools have been engaged in citywide and federal conversations regarding the most effective and efficient management of public education; these conversations have historically been closely tied to race. Under the guise of school improvement for the lowest performing schools, Detroit schools have been subject to restructuring that has led to a position of disenfranchisement in the form of reduced: pupil enrollment, monetary aid, and teaching staff. Neoliberal approaches to school reform with a focus on human capital, however, can involve engaging community stakeholders, such as parents and community members, in school governance and decision-making.

This study sought to examine, understand, and describe teachers' most salient experiences as participants in a TFA-university collaborative professional development emergency teacher licensure program. The research questions were: (a) What do teachers experience when engaging in a TFA-university collaborative professional development emergency teacher licensure program? and (b) What characteristics of the model and approach do teachers perceive as contributing to their learning in practice?

The primary source of data collection was qualitative interviews utilized to provide a descriptive analysis of teachers' experiences as participants in the Teacher Professional Development Program. Data included 24 in person teacher-participant interviews, portfolio artifacts, and researcher field observation debriefs and memos collected at various points during the Program. Five major themes emerged from this study based upon the teacher-participant responses: (a) openness to adapting other ways and methods of teaching, (b) a quick instinct to provide solutions to issues that may arise during classes, (c) the ability to transfer the ownership of learning to the students, (d) the ability to actively engage their students to interact in the classroom, and (e) flexibility to accommodate students who cannot understand the lessons.

As indicated in previous research, and confirmed within this study, TPD represents an important opportunity to identifying teachers' specific needs within their teaching contexts, and refining TPD programs to address these needs will serve to improve TPD programs and ultimately benefit students. Additionally, TPD can assist teachers in becoming more adaptive, by providing strategies and tools to improve their ability to respond to student needs by making in-class adjustments when necessary. TPD also has the ability to help teachers learn to empower, engage, and accommodate their students' in the learning process.

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CHAPTER 1: INTRODUCTION

Introduction

During the last decade, an ongoing discussion among mathematics education researchers and others within the education research community has emerged regarding what constitutes a qualified or highly qualified teacher in the United States. Much of this debate centers solely on teachers acquiring more subject matter knowledge (U.S. Department of Education, 2003, 2006). In the post-No Child Left Behind (NCLB, 2002) era, student learning depended in large part upon states to set absolute targets for school performance and to hold schools accountable for meeting those targets (Gwmorwn, 2013). As such, the literature shows that teacher quality and practice does matter, and in fact, has been found to matter more in particular contexts (Hogrebe & Tate, 2010; Tate, 2008). Researchers have established benchmarks and characteristics for the ways in which to deepen "teachers' understanding of the processes of teaching and learning and of the students they teach" (Darling-Hammond & McLaughlin, 1995, p. 82). These benchmarks focus specifically efficacious instructional practices and the ways that might be utilized to increase those practices by teachers in the classrooms (Desimone et al., 2002). Presumably, such instruction must be enacted by effective and committed teachers who have deep knowledge of content and of the factors contributing to student learning and development. Indeed, the overall significance of a teacher's impact has a strong correlation to teacher preparedness variables and student achievement (e.g., Wayne & Youngs, 2003).

On the contrary, when students are assigned to an ineffective teacher's classroom they generally continue to underperform, even after years of superior teaching (Anderson & Tate, 2008; Sanders & Rivers, 1996; Wright, Horn, & Sanders, 1997). The analysis by the Southern

Education Foundation (2015), the nation's oldest education philanthropy reported that low-income students are now the majority in U.S. public schools comprising 51% of the student population in 2013 (National Center for Education Statistics as cited in Southern Education Foundation, 2015). In fact, the "schools with the highest levels of poverty and the largest proportion of minority students have twice as many new teachers as the best-off and whitest schools, despite the fact that experienced teachers are more effective (National Center for Education Statistics, 2000e, p. 13-14). This represents a group of primarily minority students taught in schools with the highest levels of poverty, with twice as many new teachers (Lankford, Loeb, & Wyckoff, 2002). One can discern from this research that within this context of urban and poor cities there exist disproportionately high populations of low-income and/or minority students. In such settings, researcher Linda Darling-Hammond (1997) aptly asserts, "…perhaps the single greatest source of inequity in education is [the] disparity in the availability and distribution of well-qualified teachers" (p.273).

In order to address the concerns related to the most vulnerable students and to carry out the demands of education reform, teachers must have the ability to problem-solve, communicate basic knowledge, and develop advanced thinking (Garet et al., 2001). For instance, in his research on school effectiveness, Marzano (2003a) identified three levels of factors related to positive effects on student success and achievement: (a) school-level factors (e.g., school policies, a challenging curriculum, a safe environment, parent and community involvement, collegiality and professionalism, and effective feedback); (b) student-level factors (e.g., student background, home environment, learned intelligence, motivation, and background knowledge and experiences); and (c) teacher-level factors (e.g., instructional quality, classroom

management, and curriculum design). Marzano (2003a) provided evidence that teacher-level factors are the most likely to affect student achievement positively.

According to the literature, job-embedded professional development is that which directly relates to the challenges teachers face in the classroom (Killion & Harrison, 2006). When provided by people familiar with those contexts, such professional development helps create enhanced teacher learning and instruction, thus increasing student achievement (Guskey, 2000). Furthermore, Cochran-Smith and Lytle (1999, 2009) have suggested that Teacher Professional Development (TPD) incorporating knowledge for, in, and of practice can lead to positive change for both teachers and students. According to Cochran-Smith and Lytle (2009), knowledge for practice—the catalyst for classroom reform—is produced by university-based researchers in order to improve teacher practice, and embedded in classroom practice by expert teachers. More specifically, job-embedded professional development includes strategies and practice such as professional learning communities (PLCs), practitioner research, lesson study, and school-based coaching—all new directions in TPD. This view of TPD further encourages teachers to reflect on strategies, theories, and actions while they are teaching, and to adjust their teaching based on this reflection.

Moreover, educators need "just-in-time", job-embedded assistance and significant amounts of structured and sustained follow-up after the primary set of professional development activities" (Guskey & Yoon, 2009, p. 497). Having both professional learning standards (Killion & Hirsch, 2012) and job-embedded TPD (Croft, Coggshall, Dolan, Powers, & Killion, 2010) is necessary for professional learning to occur. In urban schools, job-embedded TPD represents an ongoing process "rooted locally, aligned with the state standards, school improvement goals, and

makes a direct connection between learning and application, requiring active teacher involvement in cooperative, inquiry-based work" (Croft et al., 2010, p.2). The literature is replete with examples of effective elements of TPD (Cochran-Smith & Lytle, 2001; Darling-Hammond et al., 2009; Desimone, 2009; Garet et al., 2001; Guskey, 1995; Knight, 2004, 2006, 2007; Webster-Wright, 2009). For example, Weglinksy (2000) identified variables affecting student performance based upon data gathered from more than 15,000 math and science teachers on teachers' years of experience, postgraduate education, number of undergraduate hours in the subject taught, teaching practices, and professional development. The study found students in classes that were taught by teachers who received professional development outperformed their peer group by 40% on the National Education Assessment Program. Therefore, this research study aims to contribute to the emerging body of literature articulating effective TPD (Darling-Hammond & McLaughlin, 1995; Guskey & Yoon, 2009).

However, while research on the connection between teacher content knowledge and student achievement exists, little research exists on the role that teacher reflections, critical thinking, and perceptions during their professional development programs play in affecting teacher content knowledge and instructional practice. As Ladson-Billings contends, teacher quality is about far more than content knowledge and/or pedagogical content knowledge. Rather, teacher quality needs to encompass the beliefs and ideologies that teachers hold about their students—particularly their students of color (e.g., 1994b, 1995a, 1998b). This means that the research community will have to be willing to listen to and heed the "wisdom of practice" (Shulman, 1987, p.12) of these excellent practitioners. As such, this research study examines and

describes teachers' thinking about high quality teaching in an urban context as they participate in a Teach for America (TFA)-university partnership professional development program.

Rationale for the Study

According to Knight (2007), the worst consequence of overreliance on courses dominated, workshops and suchlike traditional forms of professional development is that poorly designed training can erode teachers' willingness to embrace new ideas. Research has further illustrated that traditional forms of professional development are only marginally effective and discount teachers' learning needs (Fullan, 2007; Knight, 2007). In November 2010, the National Council for Accreditation of Teacher Education Blue Ribbon Panel called for a national reform on how the United States prepares its teachers to educate the nation's pre-Kindergarten to Grade 12 (pre-K–12) students, recommending "sweeping changes in how we deliver, monitor, evaluate, oversee, and staff clinically-based preparation to nurture a whole new form of teacher education" (p. 6). Specifically, the Panel recommended that teacher preparation and professional development programs should be theoretically grounded in clinical practice and should include elements of academic content and professional courses. Instead of standalone conventional workshop models of professional development, scholars have agreed the most effective professional development is that which provides new information and instructional strategies combined with job-embedded learning opportunities for teachers (Guskey & Yoon, 2006; Killion & Harrison, 2006; Knight, 2007).

Research Questions

The purpose of this study was to examine, understand, and describe teachers' most salient experiences as participants in a TFA-university collaborative professional development emergency teacher licensure program. The study sought to determine the characteristics of this program approach that contributed to teacher learning and changes in practice. As such, the research questions were: (a) What do teachers experience when engaging in a TFA-university collaborative professional development emergency teacher licensure program? and (b) What characteristics of the model and approach do teachers perceive as contributing to their learning in practice?

Study Significance

This study aims to add to the current literature on TPD programs particularly in an urban context, and their effect on teacher practices in schools. In focusing on how a collaborative professional development program's job-embedded model promotes growth in teachers' experiences, beliefs, and practices, this research aims to understand teachers' perceptions of this process. An understanding of how teachers construct meaning from such experiences may suggest opportunities to enhance job-embedded approaches as a core component of TPD programs. This research will further describe how teachers' view these programs, instructional design, and the challenges that occur when simultaneously teaching. Findings from this research are relevant to teachers, schools, researchers, professional development designers, and providers interested in this method of job-embedded urban TPD. More specifically, the study's qualitative methodology afforded the opportunity to conduct in-depth analyses of teacher-participant experiences. Overall, the data collected offers a descriptive analysis, exploring teachers' thinking

about high-quality teaching in an urban context. This may contribute to a richer understanding of how and what teachers learn through professional development, and the effects of what they learn with respect to their classroom practice in urban classrooms.

Organization of this Dissertation

The chapters that follow illustrate how teachers experienced a job-embedded TPD TFA-university emergency teacher licensure program, and the characteristics of this approach that were instrumental in their learning and changes in practice. In Chapter 2, I describe the context where this research took place and provide the historical background of the policies that impacted this research. This includes the local district context as well as the larger state context. Additionally, Chapter 2 sets the stage for exploring the research question by reviewing the literature on job-embedded TPD, structural and ideological forces in urban development and education policy, principles designed to address the absence of qualified teachers in urban settings, teaching quality, and adult learning theory. In Chapter 3, I describe the theoretical perspective of grounded theory that guided this research, and the research methods related to participant selection, data collection, data analysis, trustworthiness, and limitations. The research analyses and findings are presented in Chapters 4 and Chapter 5, which are organized based on the research questions. Lastly, Chapter 5 presents the study's discussion and recommendations for future research.

CHAPTER 2: LITERATURE REVIEW

Introduction

This review encompasses two distinct yet interrelated areas of the research literature. The first area examines the intersection between educational policies, the urban education space, and teaching quality. More specifically, Part 1 of this literature review stems from Lipman's (2011) assertion that "education is both shaped by and deeply implicated in globalized political, economic, and ideological processes that have been redefining cities over the past 25 years" (p. 3). This lens affords an opportunity to better understand the unique interplay between structural and ideological forces in urban development and education policy. In Part 2, I highlight the basis of neoliberal structures, strategies, and principles designed to address the absence of qualified teachers in urban settings. Additionally, this portion of the review illustrates the widely-accepted elements of both adult learning theory and teacher professional development (TPD).

Part 1: The Interplay Between Structural and Ideological Forces in Urban Development and Education Policy

Politics as Ground to Dismantle Schools

The history of public education in the City of Detroit (especially as it relates to race) is an illustration of the unique interplay between neoliberalism and education (Apple, 2006; Hursh, 2008; Weiner & Compton, 2008). According to Apple (2006), "Neoliberals argue that making the market the ultimate arbiter of social worthiness will eliminate politics and its accompanying irrationality from our educational and social decisions. Efficiency and cost-benefit analysis will be the engines of social and educational transformation" (p. 36). This view of competition depends upon local context and how the markets are structured. Thus, the local market structure and competition cannot be "understood apart from social, political, and economic contexts in

which it is nested" (Hammer, 2011, p. 116). For the purposes of this literature review and the study more broadly, neoliberalism represents a particular

> historically-generated state strategy to manage the structural crisis of capitalism and provide new opportunities for capital accumulation. Neoliberalism champions the privatization of social goods and withdrawal of government from provision of social welfare on the premise that competitive markets are more effective and efficient. (Lipman, 2011, p.6)

This first section contextualizes Detroit's historical and neoliberal approach to public education. According to Katzman (1973, as cited in Farley, Danziger, & Holzer, 2002), Detroit's Black residents began fighting for educational opportunities when the state established White-only schools in the 19th century, leading the community to sue regarding segregated schools. The state's Supreme Court ordered the integration of schools and on "October 11, 1869, Black and White children sat next to each other in a Detroit classroom for the first time" (Farley et al., 2002, p. 38). Specific to Detroit, the U.S. Supreme Court case *Milliken v. Bradley* (1974) concerned the planned desegregation busing of public school students across district lines among 53 school districts in metropolitan Detroit. In this landmark decision, the Supreme Court ruled against remediation of racial imbalances (Taylor, 1974, p. 751). This court ruled that students could not be bused between Detroit and its suburbs. In sum, this decision represented a "Detroit-only integration plan involving busing" (Farley et al., 2002, p. 41). Yet, in 1974 by a 5:4 decision, the Supreme Court agreed with the suburban plaintiffs, ending the Federal Court's promise to fulfill *Brown v. Board of Education* (1954). Federal District Judge Roth concluded:

> Government actions and inactions at all levels, Federal, State, and local, have combined with those of private organizations, such as loaning institutions and real estate associations and brokerage firms, to establish and to maintain the pattern of residential segregation throughout the Detroit metropolitan area. (Taylor, 1974)

Since the court's decision, as Hammer (2011) explained, Detroit public schools have undergone seven substantial governance transitions: decentralization (1976), recentralization (1981), state reform board (1999), return to a traditional school board (2006), emergency financial manager (2009), emergency manager (2011), and the creation of the new Educational Achievement System (2011).

Education Policy, Urban Development, and Working Class and Low-Income Communities

Urban centers and schools are notorious for their reputed failures. Consequently, cities like Detroit, MI, Baltimore, MD, and Camden, NJ are almost always viewed through the lens of crises, economic depression, dilapidation, and/or violent crime (Noguera, 2003). Such cities are home to disproportionately large numbers of low-income, minority, and/or immigrant populations, who are often confined to the poorest of neighborhoods (Orfield, Bachmeier, James, & Eitle, 1997). This, however, is no cities and U.S. law has exacerbated urban inequities by making discrimination and marginalization legally permissible. Key examples include, but are not limited to:

- The Jim Crow laws of the South and, notably, the *Plessy v. Ferguson* (1896) decision, which legalized segregation until the *Brown v. Board of Education* (1954) ruling;
- The National Housing Act of 1934 and subsequent restrictive covenants, which made it nearly impossible for African Americans to secure mortgage loans and forbade them from living in choice areas (Fox, 2000). School and neighborhood zoning were products of this era (Massey & Denton, 1993); and
- The proliferation of White, affluent suburbs since the *Brown v. Board of Education* (1954) era. As wealthy and middle-class residents relocated and forged new schools,

> they took with them much needed tax revenue and capital (Ladson-Billings, 2006). It is important to understand that even in the (current) absence of legalized segregation, city neighborhoods and schools have become increasingly circumscribed.

Urban public schools' political structures, state management systems, and other elitist agencies now target and dictate knowledge and access through a series of regulations and funding mandates. Today, the federal government, governors' offices, and legislators have the power to decide how to fix dismal schools, school districts, and the communities they educate. These agencies have strategically instituted experimental programs/projects in schools similar to urban housing projects. For instance, NCLB prescribed five options for restructuring low-performing schools: replacing the staff, state receivership, private management, converting to a charter, or any other major school restructuring (Gamoran, 2013). The four federally-codified school improvement models[1] for low-performing or "failed schools" have yielded limited evidence on elements of successful turnaround plans (Gamoran, 2013). Syntheses of studies have identified common elements such as strong leadership, a committed staff, and a sustained focus on learning and instruction, with an emphasis on practical wisdom and case studies. While these findings are informative, they have yet to be tested with designs that rule out competing explanations for school improvement (Herman et al., 2008).

[1] First, the transformational model allows districts to address (a) developing teacher and school leader effectiveness (e.g., replacing the principal who previously led the school), (b) implementing comprehensive instructional reform strategies, (c) extending learning and teacher planning time and creating community-oriented schools, and (d) providing operating flexibility and sustained support. Second, in the turnaround model, the school replaces the principal and at least 50% of the school's staff, adopting a new governance structure and implementing a new or revised instructional program. Third, the restart model, allows school districts to close the school and reopen it under the management of a charter school operator, a charter management organization, or an educational management organization selected through a rigorous review process. A restart school is required to enroll, within the grades it serves, any former student who wishes to attend. Finally, districts and schools can select to close the school.

In Michigan for example, the legislature used the “any other major school restructuring” option (Gamoran, 2013) to establish the State School Reform/Redesign District (Reform District; see, for example, Michigan’s approved federal NCLB flexibility waiver and Race to the Top application) within the Michigan Department of Education (2009 PA 204, MCL 380.1280c) to turn around the lowest performing 5% of schools, often referred to as persistently low-achieving schools (Mason & Arsen, 2014). For Detroit Public Schools, the legislated result meant more than 40% of their schools were listed as “failing” and “in need of turnaround.” More specifically, the approved federal and state-level school reform agenda has provided the neoliberal leadership and policy developers of Detroit Public Schools to:

- Experienced more than 100 schools closed;
- Experienced a decline of over 60% in pupil enrollment (i.e., in 2000 there were 168,213 students and in 2012 there were 65,834 students);
- Experienced a loss in state net aid of more than one-third (i.e., in 2009 the district received $553 million and in 2012 the district received $363 million); and
- Experienced a loss of 55% of its teachers (i.e., in 2003 there were 18,747 teachers and in 2012 there were 8,551; Hammer, 2011, p 134-140).

Put simply, this represents an “ensemble of economic and social policies, forms of governance, and discourses and ideologies that promote individual self-interest, unrestricted flows of capital, deep reductions in the cost of labor, and shard retrenchment of the public sphere” (Lipman, 2011, p. 6). The preceding discussion places urban schools in a precarious situation. Decades of neglect and deficit perspectives have had disenfranchising effects for urban-based communities. For all of the reasons iterated above (and perhaps more), many urban schools constitute less than ideal

sites for gainful employment. This is especially true for experienced teachers with track records of success, because they are well-positioned to negotiate and explore multiple hiring offers. In the case of urban schools, wherein students have been perpetually underserved, the work of teaching can be especially demanding.

Neoliberal Forms of Governance Shaping Urban Education

During the past decade, the Detroit Public School system and other public school providers have privatized social goods and withdrawn from governmental provisions of social welfare on the premise that competitive markets are more effective and efficient (Lipman, 2011). Private companies are "hired to manage charter schools, regular public schools, and entire schools districts (p. 18)." In Detroit, led by the education-oriented nonprofit organization the Skillman Foundation, other local foundations, nonprofits, charter schools, corporations, public schools, and municipal government officials began working on a plan to improve education, forming what is now as Excellent Schools Detroit (ESD). In brief, the ESD plan calls for a system of schools to be shifted from large urban districts and, as an alternative, to be managed as a style of portfolio schools in order to respond to and address the perceived inefficiencies and poor performance of traditionally-governed urban school districts (Hill & Lake, 1997; Hill, Pierce, & Guthrie, 2009). More specifically, the proposed plan contains five key components:

1. A new governance body for the review of school performance and publication of annual school report cards to help parents become better school shoppers;
2. Closure of failing schools and targeted opening of new schools;
3. Central authority in recruiting and training teachers and principals;
4. Disbandment of the elected Detroit Public School board; and

5. A significant and ongoing role for foundations in the operation of the new system (Excellent Schools Detroit, 2010).

According to Lipman (2011), this neoliberal agenda brings "education, along with other public sectors in line with the goals of capital accumulation and managerial governance and administration" (p. 6). It is this view of neoliberalism that frames the discussion with respect to inequities apparent in urban schools. In some respects, Detroit is not substantially different from other rustbelt cities of the north (e.g., Chicago, St. Louis, Cleveland, and Pittsburgh) "as each city continues to struggle in different ways with the forces of deindustrialization and discrimination in housing, employment, and public education" (Hammer, 2011, p. 118). Furthermore, community, parent, and/or stakeholder participation are in the form of appointed advisory boards with no decision-making power and tightly regulated public hearings where the public may air grievances and opinions but decisions are made elsewhere and are based on efficiency (Lipman, 2011).

Thus, neoliberalism and education should be restructured to serve human capital development (Hursh, 2008). With a focus on human capital, fixing urban school has the most chance of all to reduce achievement disparities, but cases of successful turnaround are exceedingly rare. More importantly, impatience with improvement may be a key barrier to success, as studies of comprehensive school reform suggest that improvement may take 3-5 years to take hold (Berends, Bodilly, & Kirby, 2002; Bryk, Sebring, Allensworth, Easton, & Luppescu, 2010), yet few reforms remain in place for that duration due to staff turnover and the pressure for quick results. Given the staff turnover and students who live in poor districts, poor students or

students of color are much more likely to be taught by less effective teachers, no matter how effectiveness is defined (Darling-Hammond, 2000; Wenglinsky, 2000).

In summary, the first part of this review provided context for why a neoliberal framework is relevant to this research study. Moreover, the review illuminated the unique interplay between structural and ideological forces in urban development and how those structures have impacted urban public schools and teaching quality. In the next section, I highlight neoliberal structures designed to address the absence of qualified teachers within urban public schools. I discuss teacher inequality in a post-NCLB era. Next, I discuss the now-popular practice of Emergency Teacher Certification (ETC), which is a tactic that aims to speedily place qualified teachers in high-need schools. A third area of review is represented by the TFA organization and will serve as an illustrative case for analyzing the intricacies of this ETC program. The review of literature with respect to TFA has revealed shortcomings in TPD and certification. Consequently, I conclude this discussion of social disparities with teacher quality by looking closely at a select group of TFA-university partnership professional development program participants, which aims to supplement the resources provided by TFA to increase teacher effectiveness.

Part 2: Market-Based Principles to Supply the Demand for Qualified Teachers in Urban Classrooms

The preceding discussion articulates urban schools' precarious situation. Decades of neglect and deficit perspectives have had disenfranchising effects on urban-based communities. In city schools, these negative effects often take the form as low expectations, achievement gaps, decaying/inefficient buildings, understaffing and/or high teacher turnover rates (Darling-Hammond, 1995; Inman & Marlow, 2004). Excellent teaching would work to remedy most of

the aforementioned problems, but securing quality teachers in under resourced schools is no small feat (Goe, 2002). Here, the

> evidence with respect to teacher quality is clear regarding the positive effects of good teachers and the harm that can be done by bad ones; in one study, elementary students taught for 3 years in a row by highly ineffective teachers ended up in the 45th percentile or below on state math tests, whereas students with three particularly good teachers scored over the 85th percentile. (National Center for Education Statistics, 2000e, pp. 5–7)

As this study suggests, the impact of poor teaching can be dramatic, cumulative, and difficult to reverse. For all of the reasons iterated above, many urban schools constitute less than ideal sites for gainful employment. This is especially true for experienced teachers with track records of success, because they are well-positioned to negotiate and explore multiple hiring offers. In the case of urban schools, wherein students have been perpetually underserved, the work of teaching can be especially demanding. Scholars have argued that quality teaching in these contexts must include a level of cultural responsiveness (G. Ladson-Billings, 1995; Murrell, 2000) in addition to more traditional indicators. There is serious and urgent work to be done in urban classrooms. The next section builds upon this assertion by considering the supply and demand associated with the urban teacher workforce quality and its role in maintaining social disparities in urban areas.

Teachers As Agent: Professional and Demographic Considerations

There is a pressing need to improve the economic and political conditions of the inner city (Sampson, 2012), however this alone will not remedy teaching disparities, as individual and sociocultural factors also impact teaching. Teachers are agents who are at liberty to seek out employment in accordance with their interests. The teaching profession has historically had high annual rates of departure/transition (Ingersoll, Merrill, & May, 2014). More than 30% of teachers

exit the profession within 5 years and, the rates of attrition in high-need schools are, on average, 50% higher than in affluent ones (Darling-Hammond & Sykes, 2003). Teachers can and do choose to enter and/or leave schools as they see fit. Generally, they do so without penalty or interrogation.

Teacher background/demographics are also an important professional motivator. Although the teaching force is diversifying (Ingersoll et al., 2014), most teachers are White, middle-class women from predominantly White towns. As teachers typically seek out employment in cities nearby their hometown(s) and/or in schools which serve similar students populations, it becomes apparent that urban schools face an additional challenge with recruiting quality educators (Boyd, Grossman, Lankford, Loeb, & Wyckoff, 2006). Obtaining employment in inner-city schools would require many educators to step outside of their comfort zones. And, even when the schools are able to retain some effective educators, these teachers are less likely to have the deep cultural understanding of the students they serve. As it stands, the most highly-qualified teachers do not naturally migrate into high-need schools. In fact, quite the opposite has been the case. Teachers are more likely to leave high-poverty schools, which makes it difficult to develop a sense of community and a shared culture of learning. To stabilize the workforce in urban schools, many scholars have pushed for teacher incentive programs, reduced teaching loads, and salary increases (Darling-Hammond & Sykes, 2003). Despite these advocacy campaigns, the quality teacher shortage has endured (Ingersoll & May, 2012; Ingersoll & Smith, 2003).

Emergency Teaching Certificates and Teach for America

The preceding analyses have made evident that (a) there exists a social disparity of high-quality teachers in urban areas and (b) the factors contributing to these inequities in personnel supply are complex and difficult to change. Even in the unlikely event that there emerges a viable plan to end urban poverty and blight swiftly, there is no guarantee that these improvements alone would attract more qualified teachers—especially if the demographic of the teaching force remain comparable. Moreover, all of this would take time and resources and would do little to help the thousands of students currently enrolled in high-need schools. A more efficient solution to the urban teaching supply/demand conundrum might focus strictly on teacher development and placement. Rather than compel experienced teachers to seek employment in urban schools, districts could quickly recruit, train, and place alternative candidates with the potential and motivation to teach. Commonly, this method is termed emergency (or alternative) teacher certification (ETC) (Goe, 2002).

ETC has great promise as an intervention strategy. Despite its logic and growing popularity, ETC has fallen short in attending to the persistent disparities in teaching quality (Anderson & Tate, 2008; Murrell, 1994; Sztain, 2003; Wells et al, 2004). In fact, there is compelling evidence that ETC may be exacerbating educational inequities across geospatial arrangements. These unintended consequences are best explored via an in-depth analysis of the TFA program, whose expressed aim is to place alternatively certified teachers in underperforming urban and rural schools.

ETC is the practice of quickly recruiting and transitioning “outside” candidates into the profession of teaching. Emergency certified teachers generally do not matriculate from schools

of education and instead hold B.A. and/or B.S. degrees in other fields (Goldhaber & Brewer, 2000). Legislation in the late 1980s and early 1990s made it possible for individuals to begin to teach without being fully credentialed. After having exhausted other teacher contracting mechanisms, many urban districts have begun to support the process of ETC via the hiring and placement of alternatively certified teachers (Goe, 2002). In theory, ETC as an intervention strategy is plausible. Nationally, we face a shortage of qualified teachers and there is an urgent—and arguably desperate—need to replenish the supply. Indeed, traditional teacher preparation programs are lengthy and have produced inconsistent results. Emergency Teacher Certification fabricates a new applicant pool and streamlines the bureaucratic process to make teaching more accessible.

The proliferation of ETC in urban areas has garnered much attention and skepticism. On the one hand, have generated negative and/or inconclusive results (Goldhaber and Brewer, 2000). For example, Goe (2002) indicated that in California, when afforded an opportunity, more diverse candidates took advantage of alternative certification channels. Given the concerns raised around teacher demographics, ideologies, and cultural mismatches (Anderson & Tate, 2008), this result could be favorable. However, despite this promise, most investigations of emergency teacher certification have generated negative and/or inconclusive results. In California, the number of unqualified teachers rose dramatically with the issuance of ETC, mainly in classrooms with Hispanic, disadvantaged, or low-achieving students (Jepsen & Rivkin, 2009). Goldhaber and Brewer's (2000) study constituted one notable exception, as the authors discerned no significant differences between the mathematics achievement gains of standard and emergency certified teachers. To the contrary, Darling-Hammond, Holtzman, Gatlin, and Heilig (2005)

found that fourth- and fifth-grade teachers in Houston with full certification outperformed other teachers in reading and mathematics. Similarly, Laczko and Berliner (2002) suggested that under certified teachers are less effective than their certified peers. According to their research, students in emergency/alternative certification classrooms made 20% less academic gains and scored lower on normed assessments (Laczko & Berliner, 2002). These findings illustrate that ETC, as both policy and practice, is insufficient in addressing the supply and demand needs of urban schools for effective teachers. As Ingersoll (1995) laments, "teacher quality has been sacrificed for teacher quantity, rendering the teacher shortage invisible" (p. 9). Indeed, Ladson-Billings (2006) cautioned against movement towards short-term solutions, predicting that quick fixes would prove insufficient in response to deeply entrenched educational problems. In fairness, however, not all ETC programs fit neatly into this category. Programs such as TFA and Teaching Fellows have been situated as long-term intervention strategies. I now turn to a precise discussion of the literature related to educator effectiveness and emergency certification via the TFA program, which is the largest alternative credentialing program in the United States.

Teach for America and Its Unfulfilled Promise

Teach for America was established nationally in 1990 with the expressed aim of eliminating the achievement gap via the recruitment and placement of elite students into high-need classrooms. What began as a project with 500 corps members[2] has grown to numbers nearing 10,000 alternatively certified teachers (Maier, 2012). Teach for America's mission assumes that individuals with high leadership capacity, exceptional academic prowess, and enthusiasm also have the potential to become effective teachers (Ballou & Podgursky, 2000).

[2] Teach for America uses the terminology *corps member* to indicate acceptance into and participation in the program. All teachers certified via TFA (and their partners) are referred to as corps members.

Content knowledge and leadership capabilities are understood to directly translate, with some ongoing support, into teaching prowess.

The orientation process is as follows: after a competitive, multistage application and interview process, selected candidates participate in a 5-week intensive summer training. Training covers topics in teaching methods, lesson planning, and diversity/equity. Recruits also apprentice in local schools (typically as summer school interns) and enroll in university courses. Once corps members are placed in rural or urban schools for the regular school year, they participate in monthly professional development workshops and are observed by former corps members. The TFA commitment is 2 years, although many corps members opt in for at least one additional year (Raymond & Fletcher, 2002).

> Teach for America partners with local districts to fill workforce shortages, and actively recruits recent college graduates and mid-career professionals to commit to teach for a minimum of 2 years in high-need, low income schools throughout the country. The vast majority of recruits have no prior teaching experience, university-based courses in education, nor certification upon entry into the program. (Center for Urban & Multicultural Education, 2009, p. 1)

These partnerships afford corps members with an immediate provisional certification and concurrently fulfill professional and academic requirements. They circumvent traditional (and more lengthy) preparation programs to allow participants to become almost immediately responsible for school-aged children, many of whom have had limited access to quality teachers. This abbreviated process is unsettling to many educators and scholars who have cautioned against movement towards “short-term” solutions, predicting that quick-fixes would prove insufficient in response to deeply entrenched educational problems (Ladson-Billings, 2006). On the contrary some research findings have argued that TFA is working to the rectify disparities in

teaching and learning, which have concluded that TFA represents a viable and valuable hiring strategy in order to meet the marketplace supply and demand needs of urban schools (Clark et al., 2013). The authors further showed that TFA ETC teachers of secondary mathematics were significantly more effective than comparison teachers (Clark et al., 2013). Likewise, earlier reports issued by the Center for Research on Education Outcomes (CREDO) (CREDO, 2001) found that TFA instructors were, on average, having a positive impact in classrooms. This was especially true at the elementary and middle grade levels.

While there is some evidence in support of TFA's long-standing teacher placement strategy, the body of literature that purports contrary and/or nuanced findings is sizeable and growing (e.g., Darling-Hammond, 2000; Darling-Hammond, Holtzman, Gatlin, & Heilig, 2005; Darling-Hammond & Sykes, 2003). When Darling-Hammond et al. (2005) replicated the aforementioned CREDO (2001) study, she found that TFA teachers fared worse on all measures when compared to teachers holding full certification and, in some cases, observed negative effects. For instance, uncertified teachers, both TFA and non-TFA, did particularly poorly with Spanish-speaking students, basics of classroom management, and lesson planning. So while corps members may outperform other alternatively certified instructors, this should not be misinterpreted to mean that TFA teachers are highly effective. In an earlier report issued by CREDO (2001) TFA instructors were found, on average, having a positive impact in classrooms. This was especially true at the elementary and middle grades. However, Laczko & Berliner's (2002) findings also directly contradict those contained in CREDO (2001) and Raymond & Fletcher (2002). Although TFA teachers did outperform other under-certified teachers, they lagged 2 instructional months behind fully certified educators.

As a result, the authors concluded that TFA is a "piece of harmful public policy" that signifies a more pervasive problem. In fact, TFA teachers are placed in schools with the highest levels of poverty and the largest proportion of minority students. Thus, students have twice as many new teachers as more affluent (whiter) schools (Lankford et al., 2002), despite the fact that experienced teachers are more effective (National Center for Education Statistics, 2000e). Berliner (2002) provided us with this critical summation:

> Teach for America may be a meaningful way for young college graduates to make some money and take a few years out of the ordinary path their careers demand. But they are harming our young, vulnerable, inner-city students. . . . While the TFA program appears to be a failure, it is simply part of the larger pattern of failure that attends to the policy of hiring undercertified teachers (p. 42).

In sum, despite the 25-year concerted effort put forth effort by TFA and its affiliates, there is no conclusive evidence linking ECT and academic achievement in high-need schools (Darling-Hammond, 2001). In fact, the Center for Urban and Multicultural Education at Indiana University (2009) concluded that hiring TFA teachers does not address the persistent challenges facing low-performing students and schools. It appears that social disparities in urban teaching endure.

In the next section, I offer a brief discussion of Adult Learning Theory, traditional and emerging models of TPD, and detail the TFA-university job-embedded TPD program. This portion of the review is guided by the following two questions: (a) How have researchers begun to conceptualize teacher learning? and (b) What processes seem likely to produce teaching quality in urban areas? In the last subsection, I return to the question of how TPD is structured as a result of a TFA-university partnership for the design and delivery of urban TPD and ETC.

Part III: Evolving Considerations: Adult Learning Theories and Teacher Professional Development

Teachers—especially in urban classrooms—must be thoroughly developed and continually supported. In an effort to bridge gaps in TPD, Oji (1980) examined adult learning in TPD contexts. The author identified some points of overlap with child learning/development, but there are key distinctions. Of particular importance are the issues of facilitation and relevance. As such, one of the central aims of this research study was to develop a conceptual framework and detailed analysis of the factors teachers attribute to enhancing their instructional practices as a result of participating in TPD programs.

Teachers As an Adult Leader

In order to appreciate the importance of the proposed study, it is important to understand the ways in which research has conceptualized the adult learner (Oji, 1980; Trotter, 2006). As Trotter (2006) described:

> In [K-12] education, change is inevitable. Teachers are constantly learning, growing and adapting to new techniques, new content standards and new curriculums. Adult development theories provide a framework for understanding how adult learners are different from younger learners, while also providing insight into devising better professional development programs to meet the needs of teachers at all phases of their careers. (p. 8)

The central question of how adults learn has occupied the attention of scholars and practitioners since the founding of adult education as a professional field of practice in the 1920s (Yannacci, Roberts, & Ganju, 2006). However, Knowles' (1977) work is widely considered the most influential among these scholars because it outlined six characteristics of adult learners in relationship to professional development:

1. Adults need to know the reason for learning something;

2. Experience (including error) provides the basis and is the foundation for learning activities;
3. Adults need to be responsible for their decisions on education; they need to be involved in the planning and evaluation of their instruction;
4. Adults are most interested in learning subjects that have an immediate relevance to their work and/or personal lives;
5. Adult learning is problem-centered rather than content-oriented; and
6. Adults respond better to internal versus external motivators (Knowles, 1977; Knowles, Holton, & Swanson, 2014).

In sum, Knowles' theory of adult learners takes into account a person's need to understand how learning something new is relevant and will benefit them, how this new learning fits into their existing knowledge, and how this learning reinforces their autonomy to learn in ways that work for them. In other words, the key point is "learning for adults is always related to their real lives, their real problems, and their real issues" (Barton & Tusting, 2003, p. 32).

Building upon Knowles' work, Oji (1980) examined adult learning in a TPD context by applying adult learning theories to teacher in-service education, resulting in the identification of four key ingredients for successful adult learning (Trotter, 2006): (a) use of concrete experiences, (b) continuously available supervision and advising, (c) encouragement of adults to take on new and complex roles, and (d) use of support and feedback when implementing new techniques. Others similarly have recognized the impact of utilizing active or authentic learning experiences as a key component of successful TPD programs (e.g., Borko, 2004; Desimone, Porter, Birman, Garet, & Yoon, 2002). This brings to light the importance of a strong relationship between those

designing and leading the TPD and the adult students (i.e., teachers). Oji (1980) discussed this relationship in terms of supervision and advising. This relationship requires that those leading the TPD serve more as facilitators by actively guiding and advising participants, in contrast to simply supervising participants' activities. In this way, knowledge is seen as being shared between facilitator and adult learner, representing a more complex negotiation of shared authority and decision-making (Trotter, 2006). In this shared authority model, learner knowledge is highly valued. Therefore, TPD courses are not necessarily taught, but are facilitated through various experiences. This enables the adult learners to be encouraged to take on new and complex roles (Oji, 1980; Trotter, 2006). Thus, considering the immense demands on time, energy, and resources necessary for effective TPD (Dede, Ketelhut, Whitehouse, Breit, & McCloskey, 2008), programs must be structured in such a way to optimize the experiences of the teacher, based on the unique characteristics of this demographic of adult learners.

Directions for Teacher Professional Development

According to scholars, creating effective TPD for teachers has become integral to reforming schools, improving student learning, and establishing quality schools (Darling-Hammond et al., 2009; Desimone, 2009; Garet, Porter, Desimone, Birman, & Yoon, 2001; Putnam & Borko, 2000). Research has shown traditional approaches to professional development are only marginally effective (Bush, 1984; Fullan, 2007; Knight, 2007). Moreover, researchers posit that job-embedded TPD will improve instruction and improve student academic outcomes (Darling-Hammond, 2000; Desimone et al., 2002).

One of the most widely copied and augmented TPD frameworks used by practitioners in programs, workshops, and courses is based on the foundational work *Designing Professional*

Development for Teachers of Science and Mathematics (Loucks-Horsley, Love, Stiles, & Mundry, 2010). Accordingly, the following principles guide the design and implementation of quality TPD experiences for teachers: (a) TPD is designed and driven by well-defined images of effective classroom learning and teaching, and (b) TPD provides opportunities for teachers to work with colleagues and other community experts to continually enhance their teaching (Loucks-Horsley et al., 2010). This training model includes expert presenters from the field who demonstrate skills that are directly successful in the classroom. In short, TPD offers a context to develop and enhance teachers' professional skills and abilities in order to recognize, correct, and enhance their own students' learning (Loucks-Horsley et al., 2010).

There is an emerging body of research on effective professional development models focused on best teaching practices and improved student results (Darling Hammond et al., 2009). A critique of the aforementioned traditional professional development design is that one-stop workshops, conferences, university courses, or lectures conducted by experts in the field do little to create a powerful cadre of teachers (Darling-Hammond et al., 2009; Fullan & Hargreaves, 1996). It is important to note that those previous models of TPD were often led by unconnected outside experts, provided one-size-fits-all strategies to use, and offered no follow-up or support for classroom implementation (Killion & Harrison, 2006; Russo, 2004).

There is now emerging literature on TPD which suggest teachers need an opportunity to become leaders of their own learning, have a voice in the process, and use self-direction to guide learning practices (Cochran-Smith &Lytle, 2001; Darling-Hammond et al., 2009; Webster-Wright, 2009). Therefore, establishing a foundation for the relationship between the teachers as adult learners and TPD programs provides a unique set of complementary characteristics that can

inform the design and implementation of TPD programs for teachers in urban classrooms. Moreover, teachers learn most effectively when new knowledge is presented in authentic contexts that provide in-depth coverage of core concepts (Loucks-Horsley et al., 2010). Here, transforming urban classrooms and schools as a result of TPD programs can be accomplished by combining well-defined content and collective problem solving, rather than inserting new curriculum or programs individually (Lieberman, 1995). Continuing this discussion, the next section discusses a midwestern university-based urban TPD program that has partnered with TFA to increase the teaching quality of their corps members. The partnership between TFA and the university is formally called the Teach for America Interim Certification Program at the University of Michigan– Ann Arbor School of Education (hereafter, "the Program").

The University of Michigan-Teach for America Emergency Teacher Certification Program

The University of Michigan– Ann Arbor's School of Education has partnered with Teach for America to address the shortcomings of previous professional development approaches to training new TFA teachers. This in-service program rooted in urban pedagogy at the University of Michigan falls in line with a body of research emphasizing teacher quality and job-embedded TPD. If states are serious about ensuring that all students receive a high-quality education, they must first begin to prioritize credentialing and ongoing support procedures (Darling-Hammond, 2000). Job-embedded TPD directly related to teachers' classroom challenges should be provided by experts familiar with the context in order to create an opportunity for enhanced teacher learning, improved instructional practices, and increased student achievement (Duessen, Coskie, Robinson, & Autio, 2007; Taylor, 2008). The University of Michigan has answered this call by designing a 2-year synchronous program for teacher training that builds upon the resources

offered by TFA. Local corps members are automatically enrolled in the Program, which includes: (a) biweekly TPD organized as graduate education seminars in content methods, (b) quarterly field observations and feedback, and (c) other job-embedded opportunities (University of Michigan, 2014).

There is reason to believe that the additional coursework and guidance will be of benefit. For instance, Monk (1994) found that secondary mathematics and science teachers' performance gains were positively correlated with the numbers of preparation courses taken. Similarly, Lieberman (1995) asserted that teacher learning can be enhanced by:

1. Creating new structures (e.g., problem-solving groups, decision-making teams);
2. Working on new tasks (e.g., journal & proposal writing, learning about assessment, creating standards, analyzing or writing case studies of practice); and
3. Creating a culture of inquiry where professional learning is expected, sought after, and an ongoing part of teaching and school life.

The Program built upon the aforementioned research to do all of the above via a practice-based model. Many scholars agree that TPD will be essential in rectifying educational inequities. This is increasingly true as the numbers of alternatively certified teachers grow. Recruiting educators with potential has been a core component of the issue, because many emergency certified teachers still lack in knowledge and capacities essential to teaching in an urban context. In fact, interventions such as TFA alone have not proven effective in ameliorating this issue.

Chapter Summary

For decades, the City of Detroit and Detroit public schools have been engaged in citywide and federal conversations regarding the most effective and efficient management of

public education; these conversations have historically been closely tied to race. Under the guise of school improvement for the lowest performing schools, Detroit schools have been subject to restructuring that has led to a position of disenfranchisement in the form of reduced: pupil enrollment, monetary aid, and teaching staff. Neoliberal approaches to school reform with a focus on human capital, however, can involve engaging community stakeholders, such as parents and community members, in school governance and decision-making. To see the impact of the changes, though, as is true with all school reform, this approach would require time—three to five years—often not granted as a result of high turnover and mounting pressure for quick results.

Many highly qualified teachers choose not to work in urban, high poverty schools, which are often the more high-need schools. Therefore, these schools suffer from high teacher turnover rate, making it difficult to develop a sense of community and culture of learning. Emergency Training Certificates (ETC), such as Teach for America (TFA), emerged as a potential solution to address the teacher shortage and the need for highly qualified teachers in high-need schools. There is contention, however, about whether alternatively credentialed teachers are able to provide the same level of quality instruction as traditionally certified teachers. Researchers have found that compared to fully certified teachers, TFA teachers lack effectiveness, which serves to maintain the disparities observed in low-income, high-need schools.

One solution to the paucity of highly qualified teachers is the implementation of teacher professional development (TPD). TPD courses are designed to best suit the current knowledge about how adults learn; therefore they are often facilitated using experiences that closely relate to teacher practice. Models of effective TPD are shifting from traditional lectures or seminars with

little follow up to models that encompass self-direction and collaborative problem solving related to core concepts within the context of teaching. The University of Michigan-Teach for America Emergency Teacher Certification Program (the Program) was developed based on recent research that suggests that job-embedded TPD should use a practice-based model which includes collaborative learning structures (e.g. problem-solving groups), novel tasks (e.g. journal and proposal writing), and a culture of inquiry (e.g. an expectation of professional learning) to better prepare teachers, especially those teaching within urban contexts.

CHAPTER 3: RESEARCH METHODS

Introduction

This study aimed to answer the following two research questions: (a) What do teachers experience when engaging in a TFA-university collaborative professional development emergency teacher licensure program? and (b) What characteristics of the teacher professional development model and approach do teachers perceive as contributing to their learning in practice? An understanding of how teachers construct instructional practices from their experiences as participants in the Program may suggest further opportunities to enhance job-embedded TPD programs in urban settings. It is through repeated cycles of inquiry outside the classroom and experimentation inside the classroom that this study contributes to better understanding the ways in which teachers learn through TPD and how what they learn informs their classroom practice (Jaberg, Lubinski, & Yazujian, 2002). In the next sections, I describe the methodology for this study, including the theoretical framework, research context and setting, participant selection, data collection and data analysis, and limitations of the study. A summary of key findings concludes the chapter.

Theoretical Perspective and Conceptual Framework (Methodology)

Qualitative research is often used by social scientists to study true-to-life situations that provide a foundation for the application of other ideas and other research methods (Maxwell, 2012). Rather than looking for statistically valid, conclusive proof of hypotheses, the qualitative research method focuses on understanding a phenomenon within its context or environment, offering a comprehensive analysis of a social unit (Stuart, 2003). Thus, the qualitative research method was deemed appropriate in order to offer a descriptive analysis of teachers' experiences

and perceptions of the *Teacher Professional Development Program* and its impact on their practices.

More specifically, the qualitative method selected for this study was a grounded theory approach. Strauss and Corbin (1998) defined a grounded theory approach in which "theory derived from data is more likely to resemble the 'reality' than is theory derived by putting together a series of concepts based on experience or solely through speculation" (p. 12). This approach provided the opportunity to conduct an intensive investigation of processes and structures as a way to identify and describe basic phenomenon (Glaser & Strauss, 2009). Therefore, this approach aided in obtaining the teacher-participant experiences, thereby generating a theory of interaction that is shaped by views of the teacher-participants (Strauss & Corbin, 1998).

Many grounded theorists rely heavily on interviewing as a way to capture best the experiences of participants in their own words, which is an approach consistent with the constructivist position (Creswell, 2007). In addition, purposeful qualitative sampling affords the opportunity to (a) select people who can best help with understanding this phenomenon, (b) provide "useful" information, (c) help people "learn" about the phenomenon, and (d) give voice to "silenced" people (Patton, 1990, p.169). As a result, qualitative data was collected through interviews, artifacts, and memos taken throughout the research study. The validity of the data was addressed by using multiple sources; from the memos taken throughout the research study as well as from the interviews and artifacts collected. Data was triangulated in order to strengthen the qualitative study by checking the consistency of findings generated by different data collection methods (Patton, 1990). In the final stages of coding, I was selective in order to allow

the development of a theory based on refining the categories, in which I returned to those data as themes emerge (Creswell, 2007).

Central to this research is what effective TPD represents. According to Darling-Hammond and McLaughlin (1995), effective TPD must "focus on deepening teachers' understanding of the processes of teaching and learning and of the students they teach" (p. 82). Therefore it was imperative to explore teachers' learning experiences and examine their self-guided learning practices (Cochran-Smith & Lytle, 2001; Darling-Hammond et al., 2009; Webster-Wright, 2009). The next sections will illustrate the study's design, setting, participant selection, data collection, and data analysis.

Study Design

Qualitative interviews can give new insights into a social phenomenon and allow the participants to provide their views and perceptions much more freely compared to other methods (Talmy, 2010). The collection of data for this study used the same set of guiding questions for all participants and a standard review tool for artifact analysis and observations that allowed me to analyze how participation in the TPD program affected teachers' work in the classroom. With the initial interview (i.e. one per teacher-participant), the questions are concerned with teachers' knowledge in which teachers are provided the opportunity to demonstrate (or provide illuminating details about) their knowledge of key concepts involved with algebraic reasoning. Therefore, the pre-course interview asked: (1) what participants consider important experientially and conceptually, (2) what knowledge and skills are necessary for enhancing their understanding to teach algebraic reasoning, and (3) how they perceive their own knowledge of

these aspects impacted their instructional practices. Lastly, I conclude with asking what types of knowledge, skills, and/or dispositions they hope to experience while taking this course.

Each interview lasted approximately 25–35 minutes, while observation debriefs were approximately 1 hour (i.e., a typical instructional period for teacher participants).

Setting

This study recruited in-service teacher participants who were participating in the Program. The Program focuses on assisting teacher participants to learn the art and content of teaching (i.e., secondary mathematics), while providing teachers with an ETC. The Program aims to help in-service teachers to execute sound content-area methods and implementation of high leverage teaching and learning. The seminar course is the cornerstone component of the Program, which is required for noncertified, alternative certification participants to maintain their ETC and be able to teach in schools in Michigan. The Program for this study was a 2-year program consisting of four semesters (two fall and two winter terms), each consisting of 15 weeks per semester. The Program included a professional development graduate seminar (4–15 week seminars), field observations (four per year), and a professional portfolio (six core submissions for the entire program). When taken together, those components provided the cornerstone of the Program in mathematics. Teaching and learning methods included modeling and demonstrations, close analysis of teaching (e.g., research literature and video vignettes), as well as the program's signature pedagogies (i.e., rehearsals and instructional coaching).

Participant Selection

The in-service teacher-participants for this study were in their first, second, or third year as a classroom teacher and enrolled in the Program. Participants of the study were mainly from a

White and Anglo Saxon background with a balanced proportion between the male and female gender. More so, only those participants who expressed their willingness to participate in the study were included into the study thus no coercion existed. A total of six in-service teachers volunteered and were accepted to participate; their demographical profiles are shown in Table 1. The participants for this study were purposely selected. Purposive sampling allows for the selection of participants who can provide illuminating and useful information (Creswell, 2007). Furthermore, this sampling technique permits the intentional selection of individuals and sites that are "information rich" to learn and understand the central phenomenon (Patton, 2005). Information-rich cases are those from which one can learn a great deal about issues of central value to the purpose of the research, thus the term purposeful sampling (Patton, 2005). Here, teacher-participants represented those most closely involved in the process, and related to the goals, intent, and outcomes of the Program. The teacher-participants of this study held key insight into the TPD experiences that informed improvement in their classroom practices. Teacher-participants of the study were primarily White, and I sought balanced proportion between the male and female gender. Only those participants who expressed a willingness to participate in the study were included in the study, thus no coercion occurred. According to Mason (2010), sample sizes for phenomenological studies have ranged from 6–10 participants as sufficient to reach saturation. Creswell (2007) also noted this in his guideline, recommending a sample size ranging from 6–25.

Table 1

Demographic Profile of Participants

Participant	Gender	School/ School System	Bachelor's Degree	Subject Taught

1	Female	Reform district	Criminal Justice and Sociology	Algebra
2	Male	Charter school	Sociology degree in Advertising and Political Communication	12th grade mathematics
3	Unknown	Unknown	Unknown	Unknown
4	Female	Charter school	Psychology program and the Environment	Algebra II, geometry, and senior math
5	Male	Reform district	Spanish	First-year mathematics
6	Female	Traditional district	Mechanical Engineering	Unknown

Data Collection

For this study, a variety of data sources were used including teacher-participant interviews, field observation debriefs, portfolio artifacts, and researcher memos. The primary source of data collection was qualitative interviews (Hatch, 2002). For each teacher-participant, I conducted four interviews; each interview was in person and based on the teacher-participant's availability. In qualitative, grounded theory research, "all is data" (Glaser, 1998, p. 8), which means any kind of data can be collected. As such, all kinds of data can act as building blocks of a grounded theory, from field notes, interviews, audio recordings, observations, and to information in records and reports. However, even if this is the case, the collection of data heavily relies on its accessibility to the researcher. Moreover, according to Geertz (1973), rich data should be used for a grounded theory study. Geertz (1973) explained that obtaining rich data means the researcher should write extensive field notes of observations, collecting respondents' written personal accounts, and/or compiling detailed narratives (e.g., transcribed tapes of interviews).

I choose to invite only those participants undergoing the Program to participate as they were the best representatives to help in answering the research question. During the program orientation, I described the research question, data collection and methodology, and secured

consent forms from the volunteer teacher-participants. The exact number of study participants was determined by those willing to volunteer and consent to participation. Six teacher participants completed an oral consent, as well as a written consent to participate in the study.

The preinterview provided context and illustrated the expectations that teachers had as they entered the Program. The interviews were scheduled at each teacher-participant's convenience (e.g., before school, during a prep period, or while eating lunch). Interviewing over time affords a more in-depth study on teacher change. The semi-structured preinterviews occurred during the teachers' preparation period or immediately after school. Each preinterview was scheduled to take roughly 25–35 minutes. The focus of the interviews included questions about academic background and training in mathematics, teaching credentials and degrees earned, years of teaching experience, years of experience teaching mathematics at the middle or secondary grade level, familiarity with school mathematics curricula, and their respective experiences as learners in a TPD program. In the preinterview, the questions also illustrated teachers' knowledge of and experience with the mathematics concepts they were currently teaching.

The postinterviews illuminated the insights and experiences that the teacher-participants had in relation to their participation in the Program. The postinterview was used to determine and describe valuable elements of the TFA-university partnership TPD program. With the postinterview (one per teacher participant), the questions solicited: (a) what experiences or activities teacher-participants considered important experientially and conceptually, and (b) how they perceived their own knowledge of these aspects impacted their instructional practices. Each postinterview was schedule for approximately 30–40 minutes. Both pre- and postinterviews were

audiotaped and transcribed in order to provide a detailed record of each interview. At the end of the postinterview (i.e., the completion of data collection), teacher-participants received a $25 coffee gift card.

Field observation debriefs refer to classroom teaching observations conducted as a way to provide context for the interview and artifact analysis data, and also to provide background details and evidence with respect to the use of the TFA-university partnership TPD program information impacting the teacher-participants within their classrooms. Creswell (2007) purported that one observation is not sufficient to develop a sound description of a process or an event and it can actually provide inaccurate information on the quality of instruction. Though there is no definitive answer as to how many observations or the length considered to be sufficient in a qualitative study, researchers conducting the Measures of Teaching (Ho & Kane, 2013) found that multiple observations led to higher levels of reliability. Thus, teacher-participants were observed during more than one instance. Table 2 illustrates teacher-participants, grade, and content/mathematics topic for each of the field observations.

Table 2

Sample of Teacher Participants' Field Observations

Participant	Grade	Content	Lesson Topic
1	12	Functions	Graphing complex rational functions
1	12	Probability	Dependent & independent events
2	12	Functions/	Compound interest functions and continuous exponential growth
2	12	Functions/	Trigonometric modeling
3	9	Analyzing graphs	Slope
3	9	Exponential functions	Modeling population growth
3	12	Careers and taxes	Unit vocabulary

5	9	Proportion and percent	Introduction and notes to using
5	9	Functions	Introduction to functions and graph
6	10	Coordinate geometry	Parallel and perpendicular lines
6	10	Triangles	Triangle inequality theorem and altitudes
6	10	Similarity	Scale factor
6	10	Circles	Introduction to parts

Two field observation debrief interviews were conducted for the study and these debriefs were also audiotaped and transcribed verbatim. Field observation debriefs lasted approximately 1 hour. During the first of two field observation debriefs, the teacher-participant was asked to share their motivation and goals for their instructional lesson. Follow-up and questions that probed more deeply into the meaning of any goals stated and/or motivation were asked. In addition, teachers were asked about their thoughts regarding the lesson, what they hoped to accomplish in the lesson, and how they would decide to make changes to the lesson. The second debrief included more in-depth probing and clarification with respect to what happened during the field observations (i.e., classroom visit). The interviews were scheduled at the teachers' convenience (e.g., before school, during a prep period, or while eating lunch).

A second source of data was professional learning portfolio (PLP) artifacts that consist of materials used in the Program, including but not limited to teacher reflections and curricular materials (e.g., lesson plans, short and long term assessments, additional hand-out materials, and projects). Generally, all written material or teacher-generated handouts/worksheets were considered professional learning artifacts. Table 3 illustrates the information provided by teacher-participants with their PLP submissions.

Table 3

Sample of Teacher Participants Professional Learning Portfolio Submission

Teacher	Grade Level	PLP Submission	Lesson Topic
1	12	PLP 1: Planning and instructional design	Graphing complex rational functions
3	12	PLP 1:Planning and instructional design	Business math: Dangers of debt
3	12	PLP 3: Motivating students to learn mathematics	Precalculus: Trigonometry
3	9	PLP 2 Strategies for delivering effective mathematics instruction	Solving systems through graphing, substitution, and elimination
5	12	PLP 1: Planning and instructional design	Analyzing graphs
5	9	PLP 2: Strategies for delivering effective mathematics instruction	Algebra 1: Graphing direct variation, introduction to statistics
5	9	PLP 3: Motivating students to learn mathematics	Solving one-step inequalities and graphing solutions

The following modules represent the topic areas teacher-participants provided as records of effective practice. There are a total of five PLPs, but for the purpose of this study only three PLPs were considered relevant and pertain to strategies in improving teacher's classroom practices. These three PLPs are:

- PLP 1: Planning for engaging and effective mathematics instruction,
- PLP 2: Strategies for delivering effective mathematics content and instruction, and
- PLP 3: Motivating students to learn mathematics.

The submission of PLPs occurred in the form of a lesson plan design and/or unit plan design. For the first PLP, which focused on planning for engaging and effective mathematics instruction, each participant worked to design a lesson plan using the Understanding by Design (Wiggins & McTighe, 2005) framework to develop an assessment of student learning mathematics. Teacher-participants' submissions were in the following areas: (a) setting and communicating worthy learning goals (i.e., Specific, Measurable, Achievable, Relevant, Time-

bound [SMART] goals), (b) worthy essential questions, (c) writing meaningful and measurable daily objectives that scaffold student learning toward "big" mathematical goals, (d) teaching mathematics concepts inductively and deductively; and (e) selecting and using disciplinary texts and materials (e.g., visuals, technology, graphs, maps, etc.). The second PLP focused on strategies for delivering effective mathematics instruction, for which the collection of evidence for teacher-participants demonstrated a knowledge of how students learn the discipline of mathematics. Teacher participants' submission were in the areas of: (a) organizing mathematics instruction around meaningful questions/problems, (b) better understanding common student mathematics misconceptions, (c) how to ascertain student presumptions and misconceptions, and (d) metacognitive strategies to use presumptions and misconceptions as material for new learning. The third and final PLP focused on motivating students to learn mathematics—this represents a case study of practice by each teacher-participant. Some of the primary artifacts provided by teacher participants focused on: (a) strategies to personalize and differentiate in the discipline, (b) mathematics strategies that close achievement gaps, (c) using mathematics to continue to build relationships and rapport with students; and (d) what to do when students do not seem to want to learn/do (i.e., working with reluctant learners).

For the initial data from teacher-participants interviews, I created teacher-participant analytic memos that I used during other interviews. I wrote informal memos after each field observation and in each memo, coding emerging ideas as they related to the study's research questions. In this way, I had an ongoing dialogue with myself about the emerging theory that is the goal of a grounded research (Creswell, 2007). After each interaction with the teacher-participants or data, I used memos to elaborate on ideas about the data, coding categories and

exploring hunches, ideas, and thoughts as a way to search for and explore broader phenomena at work in the process (Creswell, 2007). For this study, I used the computer software program Researchware's HyperTranscribe and HyperResearch (Version 3.0) to ensure that transcripts from the interviews were properly stored, secured, and coded.

Data Analysis

Data was analyzed using procedures of grounded theory analysis (Strauss & Corbin, 1998). These procedures were chosen to enable me to analyze each teacher-participant's experiences inductively, and create cycles of learning from their perceptive (Hatch, 2002). All the data collected was organized and synthesized in order to create, codes, categories, and subcategories from the observation debrief interviews, professional learning artifact submissions, pre- and postinterviews, and memos. Afterwards, the interview transcripts were reviewed to learn which codes were appearing on the responses during the pre-, post-, and debrief interviews. These codes were continuously refined according to the findings from the professional learning artifacts and memos. According to Strauss and Corbin (1998), this process refers to theoretical sampling, a process whereby the researcher looks for concepts linking "incidents, events, or happenings" (p. 202) that may influence outcomes over a period of time while building codes. This procedure of creating codes first before refining them facilitated the building of theory. The analysis occurred in two phases for this study. The first set of analysis was during the data collection phase, in which each teacher-participant was viewed independently. A second analytical review occurred once all data had been completed.

Phase 1: Teacher-Participant Analysis During Data Collection

During the data collection, the first phase of analysis occurred as a continuous process. This analysis was ongoing to allow me to recognize gaps with the data sources. Within the first phase for each teacher-participant, I listened to the preinterview and transcribed notes and comments with respect to interview questions that pertained to the research questions. Each interview was transcribed in full. As part of my process, I read each transcript in order to assess important chunks of data, and to document emergent themes and teacher thinking related to my research. A second step was to generate a memo (in Microsoft Excel) of interview extracts, representing chucks of transcriptions that were relevant to the questions. In order to complete this phase of analysis, I created a summary for each participant and then followed this process for each of the next three interviews. As with Interview 1, I wrote a brief memo incorporating salient themes and quotes about what teachers' experience and perceptions as they engaged in the Program. Once the final interview and data collection were completed, I transitioned to a second phase of analysis.

Phase 2: Initial and Thematic Coding

In this phase, I reviewed the entire dataset for each teacher-participant individually, which included: transcripts from all four interviews, professional learning portfolio artifacts, and researcher memos. I reviewed interviews exclusively as a process step to be more deliberate with reducing themes to words or phrases. I used codes comprised of direct teacher-participant quotes or phrases as often as possible. Here, I selected data in large thematic units (e.g., paragraphs). This represented what the teacher-participants' experienced in their own words. Lastly, I condensed the summaries into fewer categories and created the themes based on the teacher-participant experiences.

Chapter Summary

This study utilized a grounded theory approach to provide a descriptive analysis of teachers' experiences with the Program, as well as the Program's impact on their teaching practices. Data included 24 in person teacher-participant interviews (four interviews per teacher-participant), portfolio artifacts (e.g. Lesson and Unit Plans), and researcher field observation debriefs and memos collected at various points during the Program—a total of two years, or four 15-week semesters. Teacher-participants were first, second, or third year in-service secondary mathematics teachers, who participated in a professional development graduate seminar course, received feedback from four field observations each year (eight in total), and developed a professional portfolio. Six White or Anglo Saxon teacher-participants (3 Females, 2 Males, 1 Unknown) were intentionally selected and agreed via written and oral consent to participate, based on their insight into the TPD experiences. Teacher-participant interviews and field observations were used to develop both informal and analytic memos, which were then used to identify and refine themes and codes within the data with the ultimate goal of building theory. Data were stored and analyzed using Researchware's HyperTranscribe and HyperResearch computer software.

CHAPTER 4: RESULTS AND FINDINGS

Overview of the Study

Chapter 4 reports the analytical findings of the study based on the results of the data gathering procedures. The data findings offer a descriptive analysis of teachers' thinking about high quality teaching in the urban context as they experienced the Program. Additionally, teacher-participants described the experiences most salient in enhancing their teaching during the professional development experiences. Through portfolio artifact submissions, field observation debriefs, and pre- and postinterviews, I identified five major themes from the responses of the teacher-participants: (a) openness to adapting other ways and methods of teaching, (b) a quick instinct to provide solutions to issues that may arise during classes, (c) the ability to transfer the ownership of learning to the students, (d) the ability to actively engage their students to interact in the classroom, and (e) flexibility to accommodate students who cannot understand the lessons.

Coding and Emergent Themes

Major themes emerged by having the highest number of occurrences during the thematic analysis performed on the interviews, while the minor themes are other perceptions and experiences by the participants that received lesser occurrences than the major themes per thematic label. Minor themes were still included in order to thoroughly and completely present the data without bias. In the following section of this study, the verbatim texts from the interviews are deliberated and include tables, numbers, and percentages to support the themes gathered from the six participants of the study.

Major Theme 1: Open to Adapting Other Ways and Methods of Teaching

The first thematic label that emerged from the main research question during the precourse interview (concerning teacher experiences in the Program) found that it is important to be open to adapting other ways and methods of teaching. This was drawn from six perceptions and experiences shared, which can be referred to in Table 4. The first thematic label of being susceptible to accommodating newer and more constructive ways of teachings while modifying their traditional methods is assumed to be the most significant, with five responses out of the six participants, or 83% of the total sample population (Tables 4 and 5). Overall, the first major theme is regarded by the researcher as one of the five most integral findings of the study. The theme reveals the teachers' beliefs on the saliency of the characteristic of being open-minded and flexible in adapting newer and more modern concepts for the betterment of student learning.

Table 4

Major Theme 1: Open to Adapting Other Ways and Methods of Teaching

Participant	Selected Transcription Narrative	Revealed by Participant in Relationship to First Major Theme
2	If I make that decision to try and teach grade level content, how do you spiral those prerequisite skills in effectively so it's being able to teach conceptually what a trigonometric function or teach conceptually the difference between exponential and linear growth to students who struggle, let's say, converting percentages, converting quantities between decimal and percentage form or something like that.	Acknowledged the students' knowledge and ideas is also another useful practice
3	I think having, you know, being able to complete the assignments and get feedback on them, you know, whereas like before, like last year, we didn't really… That's the thing about PD. Like they'll show you how to do something but there's no like follow through with it. You know, they'll show me how to use the smart response clickers but then after that, it's like nobody touches it again. So when you're in more of, like taking a class, you get to do something and you get feedback on it and you're getting a quantitative grade about where you're at.	Shared the importance of being open to feedback and opinions for improvement

4	So the first year, it was a lot of, we didn't do a lot of anything, kind of just like sat there and complained to our instructor and then this year, it's been more, I guess you could call it professional development. But we learned, I guess, different methods, different ways to teach and lately, we've been reviewing each other's work and giving comments and feedback on it.	Explained how she has been able to adjust and use the characteristic of being open and available for feedback

The first minor theme that followed the first major theme, deduced from the responses of two out of the six respondents or 33% of the total sample population, was the characteristic of being an effective planner and strategy designer. The minor theme pertains to having lesson plans and strategies constantly intended for and focused on students' high quality mathematics education.

Table 5.

Minor Theme 1: Effective Planner and Strategy Designer

Participant	Selected Transcription Narrative	Revealed by Participant in Relationship to First Minor Theme
1	I've also learned a lot about investment strategies and how to weave them into my teaching and backwards planning, which is very, very helpful. But one of effective teaching strategies that we talked about was bringing culturally and generationally relevant examples into the classroom to kind of have kids relate more to material. And so one thing I did was one of my assignments in class right now are, it's a persuasive writing assignment actually.	Used persuasive assignment as a strategy for kids to relate better to the math teaching or lesson
5	Just how I teach and present the content, how I introduce it. With actually teaching, you know, teaching the content to my students. One of the things that it's really helping me with, part of the education model that we're in, the students do a lot of the learning activities on their own, so when they have content introduced to them for the first time, I may or may not be there with them while that happens. I may or may not be the one who actually introduces the content to them. So it's helped me design learning activities where the students are able to learn this new content or at least get started on it without me being there as well. So being able to find ways to introduce content to them without me being there doing, doing any type of like lecture or like group instruction. I can at least get them started on learning about new stuff. It's helped out a lot with that.	Shared how effectively plans lessons and activities both individually and through groupings

The second minor theme that followed, deduced again from the comments of two out of the six respondents or 33% of the total sample population, found that math teachers should also have the susceptibility to instructional scaffolding for newer resources and knowledge to emerge. The minor theme pertains to employing instructional scaffolding for the teachers in order for them to acquire new and fresh concepts continuously in teaching mathematics and applying the approach with students.

Table 6

Minor Theme 2: Susceptibility to Instructional Scaffolding for Newer Resources and Knowledge to Emerge

Participant	Selected transcription narrative	Revealed by Participant in relationship to Second Minor Theme
2	Maybe add, you know, a particularly difficult factoring problem or who knows, or combine two ideas. And kind of create this surface level difficulty for them. I'm not sure it increases their [knowledge]; it doesn't meaningfully increase their understanding of a concept. And so what's nice is that all the discussions in this course kind of draw attention to that habit or that laziness on my part when I'm planning out lessons especially when scaffolding up and trying to make activities or make performance tasks that really are quite challenging for higher level students especially. Yeah, so maybe to say that more succinctly, I'd say the course especially has helped me develop as a teacher to scaffold.	Stated that he believes that being open to instructional scaffolding can create fresh and new ideas
5	Because my students need to have choice in how they show me that they've mastered content. So I have to give them choices outside of saying, okay, you know, do these couple of worksheets, do these problems in the book. We're going to take a quiz. I have to give them choices in how they show me they've mastered so whether it's a writing exercise, my more artistic students can actually like design posters, do things like that. So the material needs to be scaffolded in such a way where they, where they're able to discover and learn on their own as they go so there's a lot of, a lot of thought and a lot of thought that really has to go into the design of these different activities with how they're scaffolded, with what the rigor needs to be, activities.	Explained how materials are scaffolded based on the phase and level of learning of the students

The third minor theme that followed, deduced from the responses of two out of the six respondents or 33% of the total sample population, found the characteristic: preparedness for lessons and questions of the students every class time. The minor theme pertains to the characteristic of the math educators always being more than prepared for anything that students need in terms of learning and acquiring proper mathematics knowledge.

Table 7

Minor Theme 3: Preparedness for Lessons and Questions of the Students Every Class Time

Participant	Selected Transcription Narrative	Revealed by Participant in Relationship to Third Minor Theme
1	You know, I'd like to plan like almost kind of be guided along in how to plan my lessons sort of based on knowing that at any given point half my class either doesn't care about mathematics, doesn't think they can do it, the inherent phobias of math and don't even want to try. No matter how hooked they might get, at some point, they have this breakdown, I'm gonna fail. I'll deal with that on an individual basis but I feel like maybe if there were some sort of way of giving instructions. You know, like how you plan the lesson that can specifically keep some students hooked for longer. Not just necessarily out of like, oh, this is cool. This is interesting. But like really through some sort of motivation for mathematics, like how do you get kids to under. . . I don't know. It's like the big questions. How do you get them into math? How do you get them to understand it's relevant? You know, because I mean, as many examples as you bring in from the real world, I find that some of them just don't, they don't see it yet. You know, I didn't even see it. I did math in high school.	Added that planning and preparedness for lessons can also aid them in teaching the subject to the students
3	But on the large scale, I was, I was below the, like I wasn't ready for the kind of professional development that was given to me by this course last year. But I'd never taught before. I was trying to do management. I did not study math. I did not study math teaching. I did not have a math curriculum. I was making up as I went and these people are talking about backwards designing from May and it's October and I'm sitting there and I'm going, I'm prepared, I'm unprepared to have this conversation. I'm only prepared for like the next week of lessons.	Shared how prior experiences taught him to be a well-organized and prepared educator

The fourth minor theme that followed the first theme was deduced from the response of one out of the six respondents or 17% of the total sample population, with the characteristic of imaginative anticipation. The minor theme indicates the ability of the mathematics educator to anticipate and manage the issues that may emerge in the future.

Table 8

Minor Theme 4: Imaginative Anticipator

Participant	Selected transcription narrative	Revealed by Participant in relationship to Fourth Minor Theme
1	It's probably anticipating common misperceptions and kind of anticipating those and teaching in a way that avoids those.	Stated how she believes that being a great anticipator of future issues and misperceptions could be salient in modifying teaching beliefs in mathematics

The fifth minor theme that followed the first major theme was gathered from the response of one out of the six respondents or 17% of the total sample population, with the characteristic of having the flexibility of being able to plan backwards for students with special needs. This minor theme pertains to the characteristic of the educator to being able to adjust easily especially with the students who have special needs.

Table 9

Minor Theme 5: Flexibility on Being Able to Plan Backwards for Students with Special Needs

Participant	Selected transcription narrative	Revealed by Participant in relationship to Fifth Minor Theme
1	One of the things that has really helped me is backward planning and backward planning for students with special needs. Giving modifications and accommodations has been something that this class has really helped me with. And being able to rewrite exams for students that need modifications. I've actually started using backwards planning in my classroom and so I have very concrete, specific goals I want my students to get to. My test is aligned to that so I can actually see if students achieve what I want them to achieve.	Shared how backward planning has been an effective strategy as well as modifying lessons when the need arises

The sixth minor theme that followed the first major theme was gathered from the response of one out of the six respondents or 17% of the total sample population, with the characteristic of having a detailed assessment on gauging the mathematical standing of the

students. This minor theme pertains to the particularity of the teachers in assessing and measuring of the level of learning of the students.

Table 10

Minor Theme 6: Detailed Assessment on Gauging the Mathematical Standing of the Students

Participant	Selected transcription narrative	Revealed by Participant in relationship to Sixth Minor Theme
1	My assessments are aligned with my teaching, which lets me gauge whether or not students are getting what I'm actually teaching. Being more specific with my learning targets. I wasn't given a curriculum so I'm making my own and being specific with my learning targets and knowing what I want students to get out of a certain chapter has, was something that I learned in U of M which has been really helpful, again, in assessing students in the end about whether or not they got what I wanted to teach them.	Stated that thorough assessments allow them to gauge the needs and standing of the students

Major Theme 2: Quick Instinct to Provide Solutions to Issues that May Arise During Classes

The second major theme emerged from the main research question during the postcourse interview was the need to have a quick instinct to provide solutions to issues that may arise during classes. It was drawn from six of the most significant experiences and perceptions of the participants, which are provided in Tables 12 and 13. The second major theme received the highest number of occurrences for this particular thematic label with three responses out of the six participants or 50% of the total sample population (Tables 12 and 13). Overall, the theme of having a quick instinct to provide solutions to issues that may arise during classes pertains to teachers having the best characteristic of being able to take logical and rational approaches in solving issues that may arise in the process of student learning and progress in mathematics.

Table 11

Major Theme 2: Quick Instinct to Provide Solutions to Issues

Major Theme and Minor Themes	# of occurrences (# of participants who identified the theme)	% of occurrences (% of participants who identified the theme)
Major Theme 2: Quick instinct to provide solutions to issues that may arise during classes	3	50%
Minor Theme 1: Patience in providing one-on-one practices with students for a more focused method	2	33%
Minor Theme 2: Loyal and trustworthy teachers to form close relationships with the students to	2	33%
Minor Theme 3: Patience to breakdown the lessons one by one so that students can carefully analyze them	2	33%
Minor Theme 4: Generous provider of knowledge and freedom to the students	2	33%
Minor Theme 5: Openness to new and creative methods that can be of greater help to students	1	17%

Table 12

Major Theme 2: Quick Instinct to Provide Solutions to Issues That May Arise During Classes

Participant	Selected Transcription Narrative	Revealed by Participant in Relationship to Second Major Theme
2	So realizing that, you know, I messed that up, I changed or I altered course in the lesson because they weren't gonna be able to reach the goal I set for those 55 minutes if I didn't address this gap. And it was kinda like, it's kind of a Band-Aid thing to fix in the moment. I understand I kinda left open the opportunity to like leave a lot of conceptual there because essentially, if a student is sitting there and I'm trying to get them to graph this rational function, and they're telling me 2, 2/5 does not lie on a coordinate plane, that's a big, that's a big conceptual problem. So I chose for the most part to Band-Aid it that day and that is where, you remember the student who said something that, you know, in the moment, you're like, oh, my God, it's crazy. We gotta get you to remember that so you can come back and try and fill in that knowledge later. But in that day, I was just like, you know what? Convert it to a decimal because for some reason, you think you can plot a decimal but not a fraction on a coordinate plane.	Practices flexibility as a math teacher as during lessons, he can "band-aid" or fix issues on the spot when needed for the benefit of the students' learning
5	So the whole point of this lesson was to review material that we had been covering. We were going to take an exam on it the day after or two days after. So the goal was to create differentiated work for the students based off of what I perceived were their greatest review needs heading into the test. We did some whole group review together that gave a brief overview of everything, sample types of questions that would be on the test and then students worked in the areas where they needed the work most in order to prepare themselves for the test. Overall, I mean, I got mixed results on it. It's, it wasn't what I wanted it to be for that time of the year but, you know, on the whole, the lesson worked fairly well. Like we talked about the sort of things I was trying to tweak and a little differently. You know future review lessons like this. But as a whole, it went well.	Added that he also tweaks his lessons plans and strategies when the need arises
6	For instance, today, I have like different sets of problems and I give them an option. So I'm able to differentiate more, to give them more of an option to choose so students who were deficient are able to kind of work problems that aren't as complex so they can kinda get on their feet. I generally have a co-teacher in the classroom, for students who have IEPs, to help me differentiate for them, like on a one on one level. I don't believe, she might or might not have been there that day. But as far as having everybody do the same problem, I don't try to do that anymore. I try to have different problem sets and I generally give kids an option of choosing between them. And I encourage my higher level kids to do the harder ones and not just take an easy route and the lower level problems are generally kind of only a couple steps and they can kind of handle level.	Shared another practice of providing the students with different options to ensure that all issues and problems that may be encountered are well covered and addressed

The first minor theme that followed the second major theme, drawn from the comments of two out of the six respondents or 33% of the total sample population, was patience in providing one-on-one practices with students for a more focused method. The minor theme pertains to the characteristic of the participants that having a more personalized system is always more effective.

Table 13

Minor Theme 1: Patience in Providing One-on-One Practices with Students for a More Focused Method

Participant	Selected Transcription Narrative	Revealed by Participant in Relationship to Second Major, First Minor Theme
1	I have used exit slips. Exit slips are awesome except for the fact that it's not immediate. Because I'm going around and I have my eye on one specific question, I don't have to take time out of my lesson to have them do something separate, if that makes sense. With exit slips, you know, they take it, they hand it in, I have to grade it and then it's not until the next day that I know who mastered what and who gets it and who doesn't. When I'm walking around, if I have my eye on, you know, the second or third question, all the kids are getting to that question, and so I can see it right off the bat. And also in the past had kids give me either a smiley face, a frowny face or neither face in the corner of their paper and so like I can walk around and see how they feel about the material, just for that little smiley face in the corner of their paper.	Shared how she uses exit slips in order to focus on the student's' needs and check their understanding of the lesson/s
2	But anyway, they take notes and I try and be somewhat, or I try to be during that lecture and I just ask a lot of questions and I could call on students to try to make sure that they're paying attention during those 15 minutes. And then after I do a problem, students, there are, we have a set of personal white boards in the classroom that I made out of board from Home Depot, those are distributed among students along with these dishcloths that I have and personal white boards. And we did group practice in which I would give students a function represented analytically and ask them to identify continuity so find the discontinuity in this equation or to find the vertical asymptotes to determine whether there are multiple asymptotes, whether it's a slant asymptotes, what the equation is, then you kind of ask them more discrete questions that they would have to be able to answer in order to graph the whole thing.	Also added how he patiently tested different methods both individually and by group to determine the most efficient way of teaching and learning

The second minor theme that followed the second major theme, drawn again from the comments of two out of the six respondents or 33% of the total sample population, was the characteristic of being loyal and trustworthy teachers to form close relationships with the students. The minor theme very much relates to the importance of having a good relationship in order for students to have a proper foundation and motivation for learning.

Table 14

Minor Theme 2: Loyal and Trustworthy Teachers to Form Close Relationships with the Students

Participant	Selected Transcription Narrative	Revealed by Participant in Relationship to Second Major, Second Minor Theme
1	My relationship with my students has gotten a lot stronger and they are like very clearly more invested in me as a teacher and in the content. So that changed, and I'm glad that's changed. And so I guess my goals as far as behavior go, I don't have those kind of behavior problems anymore. Things have really calmed down and kids have, kids have gotten it together.	Explained how a changed and improved relationship with her students has also affected the teaching and learning ways of mathematics in the long run
2	At least you can have that conversation with a student and you can leverage kinda the relationship you build with them to get them back in the game. And generally, for the most part, they're like, they do it reluctantly and they put on a pouty face or what not. They're kind of doing it but half-heartedly and then for the most part, three guided practice problems later, they're back in it. Cuz they can't help themselves, for the most part. And in those instances where, I suppose the other path down which that situation travels sometimes trends is the kid legitimately does have a serious problem, like maybe they have a stomach ache and to the point where they actually can't focus and maybe should go down to the clinic.	Highlighted how one conversation with a student can help the child have the confidence that someone is guiding them upon learning

The third minor theme that followed the second major theme, drawn again from the comments of two out of the six respondents or 33% of the total sample population, was the patience to breakdown the lessons one by one so that students can carefully analyze them. The minor theme pertains to a very important characteristic of the teacher, which is that of exhibiting patience with students in order to carefully and slowly teach the lessons.

Table 15

Minor Theme 3: Patience to Breakdown the Lessons One By One So That Students Can Carefully Analyze Them

Participant	Selected Transcription Narrative	Revealed by Participant in Relationship to Second Major, Third Minor Theme
2	I'd literally tell students, one of the reasons why it approaches positive infinity and negative infinity because ultimately students will ask the question, why is this making such a weird shape and I say, well, it's because magnitude of the denominator is very small relative to the magnitude of the numerator. And then I continue the lesson or I walk away. Whatever would happen or what not and I never taught the idea in any, the two ways I guess students learn something really well is either break it down really, really, into very, very small scaffolds so that it's kind of this, this accumulation of knowledge. So they can reach a very high place but it takes us 20 small steps to get there.	Shared his experience of transforming into a traditional educator into a more patient and open one in order to properly teach the lessons to his students
3	Well, the word problem was about direct variation and the size of fish growing over time, and that was the second station so the first one was to explain, you know, explain what the problem's asking you. Be aware of the knowns and unknowns. And the second one, they really just had to draw a picture of it and what I was looking for was them to, like you said, draw two fish and show that over time, it had gotten, that it'd gotten bigger. And to make that connection again, that there was, there's a calculation that you can make that's either, it's not just changing and then shrinking and then getting bigger again. It's a constant relationship and there's an equation you can fit through that process. So breaking things up at the stations that way helps me, okay, this is just your problem set and then here are the white boards, can you draw it out makes it a little easier for everybody.	Added that he also believes that breaking down the lessons for the students can aid them learn better

The fourth minor theme that followed the second major theme, drawn from the comments of two out of the six respondents or 33% of the total sample population, was that educators should also be generous providers of knowledge and freedom to the students. The minor theme pertains to the trait of allowing students to learn and be trained on their own with different math problems.

Table 16

Minor Theme 4: Generous Provider of Knowledge and Freedom to the Students

Participant	Selected Transcription Narrative	Revealed by Participant in Relationship to Second Major, Fourth Minor Theme
2	Or they'll discover it. I'll be able to do some activities and projects and be able to learn it that way and it won't just be dry, you know, lecturing, practicing, reiterating, what not. And then there's 8, 9, and 10 and I've got, eventually, there's all these like one or two things where I'm like those things I think are just going to kind of arise out of the situation. Like if I'm teaching these eight things well, these last two of the ten are kind of like the connective tissue between the other eight. So if they're getting these eight, they must somehow understand these last two things and that just did not happen for that idea.	Believed that it is better for the students to discover the math solutions and problems individually
5	The one good thing about having students work in math centers is that walking around the room and checking for understanding is pretty easy cause you have a small group of students working on the same activity grouped together. So it's easy to just walk around and peek over students' shoulders and see the direction they're heading. Even doesn't have to go that far, even walk by and listen to the direction their conversation is heading, that's usually what they're talking about, they're all working together on the same thing, albeit individually, they're grouped with students working on the same assignments and will talk about, converse about it. And you can get a good sense of the direction they're headed based off that. Also the review work they turned in is a good indicator as to the level of preparedness the assessment we're getting ready to take.	Shared how math centers help the students discover and learn independently by exploring different learning and practical options

The fifth minor theme that followed the second major theme, drawn from the comment of only one out of the six respondents or 17% of the total sample population, was that openness to new and creative methods that can be of greater help to students. The minor theme relates again to the characteristic mentioned during the precourse interview concerning the need for new and more exciting concepts in teaching math in order to keep students motivated and engaged.

Table 17

Minor Theme 5: Openness to New and Creative Methods That Can Be of Greater Help to Students

Participant	Selected Transcription Narrative	Revealed by Participant in Relationship to Second Major, Fifth Minor Theme
4	Yeah, so we have these menus, it's called Hamburger Hut and it looks like a real menu from a Coney Island but it has to do with math. It comes in a book and everything. So they used, we like made different orders, different quantities and we filled in an order sheet like we were a waiter or waitress and then figured out different tips for a 15 vs. 20%. How there's different ways to get the tip, set up a proportion or you could multiply and we basically figured that out. And then so we did that for like a day or two, so they got used to what menus are supposed to look like, how to order things, different quantities and then they made their own menus and took orders from each other and figured out tax and tip. Just tip that way. Cause tax works the same way. I could tell by looking at their, so then I kinda did a quiz that was more of an assessment so I placed different orders around the room and then each student had to fill out like four of them, like take down four orders from the menu, write down the prices, double it if a quantity is two or triple it if it's three, figure out what the tip is and then what the final price would be. And I looked, most of them didn't ask for help and I looked at them afterwards and most people got it.	Explained how her openness to new methods helps in learning various mathematical models and solutions

Major Themes 3, 4, and 5: Ability to Transfer the Ownership of Learning to the Students, Ability to Actively Engage Their Students to Interact, and Flexibility to Accommodate Students who Cannot Understand the Lessons

There were three additional major themes that emerged from the main research question: the ability to transfer the ownership of learning to the students, the ability to actively engage their students to interact, and flexibility to accommodate students who cannot understand the lessons. These three themes were deduced from four of the most important perceptions and experiences shared, and all received three responses respectively out of the four participants or 75% of the total sample population (Table 19).

Table 18

Major Themes 3, 4, and 5

Major Themes and Minor Theme	# of occurrences (# of participants who identified the theme)	% of occurrences (% of participants who identified the theme)
Major Theme 3: Ability to transfer the ownership of learning to the students	3	75%
Major Theme 4: Ability to actively engage their students to interact	3	75%
Major Theme 5: Flexibility to accommodate students who cannot understand the lessons	3	75%
Minor Theme 1: Accommodate and understand the student's way of thinking before having them to do an actual exercise	1	25%

The third major theme that emerged was the ability to transfer the ownership of learning to the students. The theme relates to the similar characteristic shared during the postcourse interview, wherein the teachers realized the vitality of transferring the learning ownership of students, so that they could develop independence as they advance to higher educational levels.

Table 19

Major Theme 3: Ability to Transfer the Ownership of Learning to the Students

Participant	Selected Transcription Narrative	Revealed by Participant in Relationship to Third Major Theme
1	If you can't handle the complicated stuff, we're going to start the easy way and like work our way up. So scaffolding is one way to do that. I also now give my students, and at that time in the observation, it wasn't an option but now students get to decide between learning from me or learning from a video and so I've kind of let them take ownership of their learning and they get to decide how they want to take in the information. So that's another way of presenting information to students, I guess. I think so. I mean, I think, I kind of want to convince them to take ownership and also kind of prepare for college when they're not going to have a teacher that they can call.	Stated how another useful method or characteristic as an educator can be the ability to assign the ownership of learning to their students
2	The way that looked was I gave one example where I graphed a rational function and students took notes on the lecture for about eight minutes. And then for the remainder, probably longer than that. Probably took me about 15 minutes to get through that. So for about 15 minutes I was doing the lecture, students were taking notes in their notebook. At the end of that lecture, I generally, or at the end of any lecture, I generally post on the board from either like a doc cam or something, notes that I would've taken on a lecture. So like what I'm looking for, what I think exemplary notes would look like for things that I just said, to try and build up students' ability to learn from oral instruction cause a lot of students have difficulty taking useful notes. And then after that practice, I probably wouldn't have had time for independent practice. It probably would've been like 35 minutes in like 6 or 7 minute feedback loops. So we do a problem, we come back together, do a problem, come back together, we do a problem, come back together so there's no time for them to work independently on it. They probably do, they'd be doing their own problem but they'd be able to seek out help from the person next to them or the person in front or behind or what not and then kind of organically talking in that manner. And then at the end of the lesson, they take an exit ticket that I read overnight and give it back the next day.	Added he uses different methods in order to transfer learning independence and ownership to his students
3	I guess just because we have such a high turnaround with teachers at our school. Like I'm constantly worried about, okay, how are these kids gonna do next year if I'm not, you know, pushing them with this stuff. So I kinda want to you know, there's a lot of things with the behavior and things like vocabulary and the concepts that I want to be like an everyday thing, that just kind of gets regimented and that they hold onto regardless of what teacher they get next year or, you know, cause I taught there last year and I have the same kids this year and sometimes I feel like everything I taught them last year, it's like you don't know where it went.	Was more concerned of how the students will be after or when the teachers are not around anymore to guide and teach the students

The fourth major theme that emerged was the ability to actively engage their students to interact. The theme pertains to teachers' acceptance that students need to interact with each other in order to gain skills and concepts on how to solve math problems, and for students as classmates to help each other.

Table 20

Major Theme 4: Ability to Actively Engage Their Students to Interact

Participant	Selected Transcription Narrative	Revealed by Participant in Relationship to Fourth Major Theme
2	Students are talking to one another and I'm able to circulate around the room and check in with students individually. So there's certain students I always check in with just by default because they struggle in class so I talk to them immediately and then also students will call me over and so it's kind of, I have like, I give a problem, I have a six minute window to go do like one on one tutoring sessions with like a student. And then we come back as a class, I see how we did. If more than 70% of the students are having trouble with something, we stop and don't move on. We don't move forward. If they are getting it, then we move forward to the next thing. And so it's nice that there's a lot of formative assessment in that space in the lesson.	Shared his style of interactive learning used between his students
3	It's their sense of, they went to school for a long time and so they're pretty close to grade level. They have, you know, things they need to work on obviously but they're like closer to grade level so when they're in a class with students that are five, six like grade levels below them, they're, it's like difficult for all the teachers to, like scaffold their lessons every time and to provide alternative assignments for them.	Shared a challenge needed to be addressed wherein students from different grade levels need to be focused on better as well as their engagement for learning
6	What I would do, I generally have a group of about four that day. And I would look at the problems they'd done, kinda look around the group, to see who had done the problem right and let's say I wasn't sure everybody was on board so I pulled everybody over to a problem they hadn't done yet. And I would say, okay, let's all try this one. Stop whichever one you're doing, let's look at this one. And then I would kind of pull some of the students who I thought were kinda making mistakes and then kind of, I really sort of use questioning to try to get them to walk me through it and the kids who kinda didn't understand, were struggling, their group members would help, jumping in to help them out and then typically what I would do, we would get through a problem sort of through this whole collaborative guessing process and then I would have them start another problem and I would kinda watch them get it set up correctly and then I would go onto the next group.	Described how she engages and interacts with her students especially when the lessons are unusually difficult

The fifth and last major theme that emerged was flexibility to accommodate students who cannot understand the lessons. The theme again relates to the second major theme during the postcourse interview of flexibility and adjustability greatly helping both the students and the teachers to understand the lessons better and to move quickly forward to the next topic.

Table 21

Major Theme 5: Flexibility to Accommodate Students Who Cannot Understand the Lessons

Participant	Selected Transcription Narrative	Revealed by Participant in Relationship to Fifth Major Theme
2	The thing that was, the big adjustment that needed to be made was I wasn't prepared for the amount students would struggle with graphing fractional coordinate points. The students were okay in articulating asymptotic behavior, specifically rational functions. But they really had difficulty where if they needed to plot an additional point to figure out how the function fit to the asymptotes they draw on the graph. They had trouble, they'd sit there and go, I said, you know, I inputted 3 and I got an answer of 11/4 and I don't know where to put that on the graph. Does that go, that go somewhere between 11 and 4? And they just didn't have practice with that because we really didn't do that very much in class prior to that day. And I hadn't really thought of it as something that needed to be spiraled in, needed to be pre-taught. So I had to, at certain points, like this six minute breaks or whatever, however long they are, I identified those students who really didn't know how to do those fractional quarter points and mini lesson. Saying, either you have to come in during tutoring and figure out how to do this or you can just convert it to a decimal or actually try.	Described experiences and instances wherein both his patience and flexibility were needed in order to accommodate the students
3	And then I have other students that have, you know, grew up here, are more familiar with the topic in general and knows the vocabulary. So I kinda knew that was gonna be a problem. You know, for some people, the content would be easy and other people, it was going to be really, really difficult and I just hoped that they were activities and they were games that wouldn't bug the students as much. But if I had to do it again, I would've liked to be able to scaffold it some way to have more rigor. I put the rigor there but still had to be scaffolded so that everyone could complete the task at the station. That was something I came up with, how to fix it if we were gonna do it again.	Also added that there are still times when the lessons need to be adjusted for students with special needs
6	There was a point in the beginning, at one point in the group projects where they were all struggling and they were all struggling with one problem in particular. I think they continued to struggle with the altitude. Some of them were saying, well, there's multiple possible altitudes for a triangle and I hadn't really made that as clear as I should've. I kinda just said, you know, pick a base, pick a peak and then whatever your ground zero is, here's your altitude. It's gonna be the highest point from there. And so I kind of didn't make that clear enough and so at one point, I pulled the class back together during altitude practice and I started, taught more about the idea of what altitude meant to them airplanes and talking about like being high up and how to be high up, if you don't know where ground is. And so then we had this conversation of how each altitude is relative to the ground so when we're drawing altitude, there's a lot of possibilities but I wanted them to just go ahead, pick a ground and then I told them like another situation, you'll have different grounds in a problem.	Shared an experience wherein flexibility as an educator was needed for students to be accommodated

Chapter Summary

Chapter 4 presented the qualitative data analysis from the various data collected. The main sources of data were six participants from a TFA-university partnership TPD program. Through the responses of the participants, I analyzed their knowledge and perceptions concerning the job-embedded ETC program. Results of the qualitative data analysis are summarized as follows. Five major themes emerged from teacher-participants data: (a) openness to adapting other ways and methods of teaching, (b) a quick instinct to provide solutions to issues that may arise during classes, (c) the ability to transfer the ownership of learning to the students, (d) the ability to actively engage their students to interact in the classroom, and (e) flexibility to accommodate students who cannot understand the lessons. Within these major themes, emerged minor themes as well. Minor themes encompassed within major theme (a) include: (a1) being an effective planner and strategy designer, (a2) susceptibility to instructional scaffolding for newer resources and knowledge to emerge, (a3) preparedness for lessons and questions of the students every class time, (a4) imaginative anticipation, (a5) flexibility on being able to plan backwards for students with special needs, and (a6) detailed assessment on gauging the mathematical standing of the students. Minor themes encompassed within major theme (b) include: (b1) patience in providing one-on-one practices with students for a more focused method, (b2) loyal and trustworthy teachers to form close relationships with students, (b3) patience to breakdown the lessons one by one so that students can carefully analyze them, (b4) generous provider of knowledge and freedom to the students, and (b5) openness to new and creative methods that can be of greater help to students. Chapter 5 will offer a discussion and

conclusion to illustrate further the results of the study through a discussion of the researcher's interpretations. The conclusion of the study will be included in the final chapter as well.

CHAPTER 5: CONCLUSION, INTERPRETATIONS, AND RECOMMENDATIONS

Introduction

Chapter 5 offers a summary of the problem and the main findings in relation to the research questions: (a) What do teachers experience when engaging in a TFA-university collaborative professional development emergency teacher licensure program? and (b) What characteristics of the model and approach do teachers perceive as contributing to their learning in practice? To that end, the significance of this study was to make available a descriptive analysis, exploring teachers' thinking about high-quality teaching in an urban context. Several major themes emerged, as determined by frequency of occurrence during a thematic analyses of these data: being (1) open to adapting other ways and methods of teaching; having (2) quick instinct to provide solutions to issues that may arise during classes was needed; having the (3) ability to transfer the ownership of learning to the students; having the (4) ability to actively engage their students to interact; and having the (5) flexibility to accommodate students who cannot understand the lessons. In addition, the minor themes, which had fewer occurrences per thematic label than the major themes, represent other perceptions and experiences that the participants identified.

Findings and Interpretations

Major theme 1: open to adapting other ways and methods of teaching

Past research indicates that a strong clinical education for teacher candidates has a positive impact on new teachers' ability to promote student learning in the classroom (see, Grossman, 2010). TPD in urban programs requires clinical work that is extensively and intensely supervised by experienced teachers who model good teaching practices. In particular, Kazemi &

Hubbard (2008) have argued the need for researchers to "examine what teachers are learning during and after [professional development], looking at the co-evolution of participation between classroom practice and PD" (p. 429). In other words, they claim that the relationship between PD and classroom context should itself be a key unit of analysis. Furthermore, they attempt to explicate mechanisms that "connect teachers' work across the contexts of PD and their classrooms and around which they can develop new knowledge and ways of thinking" (p.439). They are not looking, nor advocating, for a simplistic "learn from experience" or "practice makes perfect" point of view. Instead, they envision that teachers will develop new knowledge through ongoing cycles of enactment and analysis. Kazemi & Hubbard (2008) point to the need to examine teachers' perspectives on the professional development activities in which they participate. Studies investigating teachers' perspectives will contribute to a richer understanding of how and what teachers learn through TPD. Studies investigating teachers' perspectives will contribute to a richer understanding of how and what teachers learn through TPD. Thus, teacher professional development should be an organized and focused conduit through which teachers can be actively engaged in enhancing their knowledge and skills for mathematics instruction.

More specifically, teacher-participants experienced and engaged in practices to support the development of their ability to maintain an openness to adapting other ways and methods of teaching. For example, teacher-participants most commonly stated that they experienced deeper engagement with understanding their content as an instructional strategy that would support their ability to anticipate common student misunderstandings. Another area of experience that was emphasized was that of experiencing training to further both procedural and conceptual knowledge, such that they would be able to better support and connect what they were teaching

to what their students know. One of the experiences that teacher participants engaged in was developing and providing their students with explicit expectations. Moreover, identifying these expectations was key in the many teacher-participants' ability to ensure that students had the fundamentals or basic skills necessary for success. Teacher-participants stated that this component of the Program also strengthened their ability to reduce behavior problems, increase engagement, and develop math competence within their classrooms. Finally, relative to openness and the experiences, was developing the ability to be flexible during the lessons, but no so flexible as to stray too far from that lesson. This area of experiential learning was relative to teacher-participants' ability to develop the flexibility to accommodate students who could not understand the lesson content. For example, some teacher-participants experienced the need to provide remediated lessons, which required the ability to develop instructional spiraling to scaffold lessons in order to increase the level of rigor.

In essence, a more well-defined and detailed accounting of a "practice-focused professional education" (Ball & Forazni, 2009, p. 508) within the policies impacting the urban education and the teaching quality assigned to those places is needed. These results point distinctly to the need to probe more carefully into the content of professional development and to identify curricular variables associated with teachers' learning. Hence, more in-depth research is needed to better understand the knowledge, beliefs and professional development experiences, which shape a teacher's repertoire and instructional moves in response to the needs or actions of the students (Borko and Livingston, 1989; Livingston and Borko, 1990). Therefore, teachers must be provided the opportunity to participate in professional development in order to learn from research about practice in practice (Ball & Cohen, 1999; Darling-Hammond, 2006).

Major theme 2: quick instinct to provide solutions to issues that may arise during classes was needed

Ladson-Billings (1994) and Aguirre (2007) suggest that good teaching starts with building good relationships, not only classical mathematics knowledge grounded in modern/Western intellectual thought. Here, teachers need the ability to *dig out* (Ladson-Billings, 1994) classical mathematics knowledge (Gutstein, 2006; Aguirre, 2007) to increase access and opportunities for students' to acquire the mathematical power and competencies needed to make meaning in the world (Aguirre, 2007). For instance, the teacher-participants in this study found that having a quick instinct to provide solutions to issues that may arise during classes was often a necessary tool to minimize class disruptions. Two keys instructional strategies were used to provide student with more opportunities: walking around the room and planning with the end in mind. Teacher-participants stated that walking around the room often provided more in-depth communication between a student or small group of students. More specifically, teachers need to anticipate and probe what their students think, often by listening to and interpreting their students' comments and considering their students' difficulties and needs, while appreciating their interests and motivations (Park & Oliver, 2008).

The other strategy teacher-participants referenced was planning with the end in mind, which is significant given that adult learning theory suggest that learning for adults is related to their real lives. It is this alignment of teacher learning and identifying the end goal with students that ought to be in sync. One such tangible item is the homework teacher-participants assigned their students; homework should be better aligned to the work done in class and the overall instructional goal. Such familiarity with common errors from homework or classwork and

deciding which of several errors students are most likely to make are examples of knowledge of content and students (KCS) (Ball et al., 2008). Additionally, KCS can be viewed through the work of the *Cognitively Guided Instruction* (CGI) research team (Carpenter, Fennema, Franke, 1996). CGI provided evidence pertaining to the relevance and importance of teachers' knowledge relative to students' thinking, specifically: "(a) students' typical understanding, (b) students' learning processes, (c) what is hard and what is easy for students, (d) the most common errors students make, and (e) particular students' understanding" (Carpenter et al., 1996, p.13). From their framework, CGI provided teachers with a coherent baseline for identifying "what is difficult and what is easy for students and for dealing with the common errors they make" (Carpenter et al., 1996, p.14). Although the CGI model does not specifically address how students work or planning with the end in mind (e.g. Universal Design) it provides context and situates learning for teachers in order to help them develop deeper knowledge about their students' thinking.

So what does this finding represent to leaders? Research studies have revealed gross learning opportunities of underserved students (Oakes, 1990; Oakes, Quartz, Ryan, & Lipton 2000; Paul, 2003; Diversity in Mathematics Education CLT, 2007). In order to expand the definition of achievement to encompass "building bridges or a scaffolding that meets students where they are (intellectually and functionally" (Ladson-Billings, 1994, p.96) teacher professional development programs will need to parallel that of instructional design and multiple learning environments in order to match the academic, social, and linguistic needs of students (Gravemeijer, 1994b; Cobb, 2007; Suzuki, 1984). Further, it could be that those who conduct classroom-based research and instructional design in collaboration with teachers (Cobb &

Bowers, 1999), can serve as a model for better understanding of how to improve the quality of instruction in classrooms.

Major theme 3,4 and 5: the ability to transfer the ownership, actively engage, and flexibility to accommodate students

Empowerment in Mathematics Education (Ernest, 1991) offers three distinct domains of empowerment in mathematics education (*a. mathematical, b. social, c. epistemological*). According to Ernest (1991), "empowerment is the gaining of power in particular domains of activity by individuals or groups and their processes of giving power to them, or processes that foster and facilitate their taking of power" (p.1). The first domain of mathematics concerning mathematical empowerment is the gaining of power over language, skills and practices using and applying mathematics. For example, teacher-participants stated their desire and need to have the ability to transfer ownership of learning to engage students in rich, meaningful tasks. In addition, providing purpose and motivation every day to students' was shared by teacher-participants as a guide to their classroom community's exploration of important mathematical ideas and represented a way to assess their students' understanding of these ideas (Peressini, Borko, Hilda, Romagnano, Knuth, and Willis, 2004).

In the next domain, Ernest (1991) posits social empowerment through mathematics as the "ability to use mathematics to better one's life chances in study and work and to participate more fully in society through critical mathematical citizenship" (p.1-2). For example, in his seminal work, *The Courage to Teach*, Palmer (1998/2007) suggest that students are to be "regarded as a reservoir of knowledge to be tapped, students are encouraged to teach each other, the standards of accountability emerge from the group itself, and the teacher's role varies from facilitator to

co-learner to necessary evil (p.118). Here, teacher-participants discussed their ability and need to use projects to tie lessons together and to differentiate assignments based on their students' skill level. Furthermore, Gallase (2003) posits that the social dimension plays a powerful role within a network of interactions. His research suggests that identity is important within a group of social individuals because it provides them with the capacity to better predict the consequences of ongoing and future behavior of others. In short, Peressini et al. (2004) suggest, knowledge grows more complex, and becomes useful in a variety of contexts, through the learner's participation in these different contexts. This claim is to be supported by focusing the research within three domains: personal identity, mathematic content, and mathematic pedagogy. In short, this is tightly coupled with the three successful areas of social empowerment: overcome internal inhibitions and perceptions of inadequacy, questioning the 'facts' and edicts of authority at large in society and to question the teacher, the subject, and the constraints of school (Ernest, 1991, p.8-9).

Last, is the development of epistemological empowerment of "the individual's growth of confidence not only in using mathematics, but also a personal sense of power over the creation and validation of knowledge" (Ernest, 1991, p.2). For teacher-participants, this was reflected in their ability to actively engage their students to interact in the classroom. For instance, when providing students with large-scale assignments or projects, information and exemplars should be student-friendly and easily accessible in order to expedite the process and allow for successful completion of tasks. In short, Ernest's (1991) notion of epistemological empowerment is acquired by working in an environment to understand the causes of problems, "solve ill-defined problems, and construct personal meaning" (Tate, 1995, p.169). In conclusion, this framework

operates neither wholly discretely nor unrelated in their mode to implement long-term teacher professional development programs that facilitate teachers' confidence and personal ownership of teaching students (Ernest, 1991).

Professional development programs themselves shape teachers' beliefs and habits of mind in ways that influence teachers' subsequent learning from practice (Ticha & Hospesova, 2006; van Es & Sherin, 2008; Zech et al., 2000). My research results suggest an important goal of all teacher professional development programs is to improve instructional practices. Therefore, given that professional development does not automatically build productive habits of mind, those responsible for professional development may consider directly addressing efficacious beliefs and habits of mind, such as the opportunity for teachers to reflect on and revise their instructional practice (Ball & Cohen, 1999; Darling-Hammond, 2006). It appears an important criterion for selecting the characteristics and areas of foci related to professional development program is whether these programs nurture beliefs and dispositions and build teachers' confidence that changes in their instructional methods that can improve students' learning (Perry et al., 2009). Moreover, it could be that teachers represent a unique population of adult learners who need to be actively engaged in authentic TPD experiences that optimize the relevance of those experiences to their goals. As many factors appear to influence teachers' instructional practices in the classroom, gauging the effectiveness of TPD programs can help illuminate the ways in which teachers develop their instructional practices and challenge their existing beliefs and practices (Loucks-Horsley et al., 1996). Therefore, the results suggest that teachers' perceptions should become an important focus of educational inquiry, including a

careful examination of key assumptions, and proper assessment and investigation of specific belief constructs (Harde & Sullivan, 2008; Pajares, 1992).

Limitations and recommendations for future research

There were three limitations relative to the theory that framed this work, the research study data collection, and the practice implications. According to Anderson and Tate (2008), "research targeted at finding solutions to the problems of inequality must be similarly complex and multidimensional" (p. 313). Thus, the review of research and relevant literature for this study used a complex and multidimensional lens to investigate social disparities with respect to teacher quality in an urban context. Based on this analysis and lens, this study was limited as it focused only on one level of analysis: the TPD. Yet, Anderson and Tate (2008) call for a more robust combination of the multiple factors operating within the urban context. The second limitation of this study is the sample size of research participants (six participants; see Creswell, 2007; Mason, 2010). Here, participants were recruited solely based on their willingness to participate and complete their participation in this research study. For this study, any data from teacher-participants who dropped out of the study early were omitted. The third limitation of this study concerns the practice implications for the TPD research apparatus within the urban context. In essence, this research suggests an opportunity for further research to investigate the complex relationship between teachers' perceptions and their classroom practice as a result of participation in TPD courses. In general, teacher professional development must provide its teachers with learning opportunities that allow them to continuously monitor, assess and reflect on their knowledge, skills and dispositions (Loucks-Horsley et al., 2010; Supovitz, 2002; Supovitz & Christman, 2003; Supovitz & Turner, 2000). Overall, bridging the relationship

between a teacher's classroom practice and the content of his or her TPD has been shown to have a positive effect on both the teacher's learning, as well as his or her students' learning (Borko, 2004; Lieberman, 1995). However, given the small amount of qualitative data used to provide descriptive information from this select group of participants, this study is unable to posit a practice-based theory of pedagogy and actively problem solve in classroom situations through interactive scenarios for teaching in urban settings to address the social disparities (Trotter, 2006).

Previously, Kazemi & Hubbard (2008) have argued the need for researchers to "examine what teachers are learning during and after [professional development], looking at the co-evolution of participation between classroom practice and PD" (p. 429). In other words, the authors suggest that the relationship between PD and classroom context should itself be a key unit of analysis; a recommendation supported by the findings of this study. Furthermore, Kazemi & Hubbard (2008) attempt to explicate mechanisms that "connect teachers' work across the contexts of PD and their classrooms and around which they can develop new knowledge and ways of thinking" (p.439). They are not looking, nor advocating, for a simplistic "learn from experience" or "practice makes perfect" point of view. Instead, they envision that teachers will develop new knowledge through ongoing cycles of enactment and analysis.

A second recommendation is regarding the pragmatic delivery of teacher professional development. It appears that active learning opportunities and representing authentic classroom scenarios both enhance teacher-participants TPD experiences (Borko, 2004; Desimone et al., 2002; Garet et al., 2001; Lieberman, 1995). Therefore, this research suggest it is important to have well-defined TPD curricular content that provides opportunities for teachers to

authentically engage with content that can positively impact and improve their knowledge and skill, thereby affecting changes in classroom practice (Borko, 2004; Desimone et al., 2002; Garet et al., 2001; Stein & Kim, 2009). It could be that by bridging the relationship between the teacher as an adult learner and teacher as a recipient of professional development programs affords a unique set of complementary characteristics that could inform the improvement of current teaching practices. Furthermore, teachers need to understand how new knowledge acquired through their TPD experience will benefit and add relevance to their classroom instruction. Moreover, teachers learn most effectively when new knowledge is presented in authentic contexts that provide in-depth coverage of core concepts (Loucks-Horsley et al., 2010) over a longer period of time, thus encouraging longitudinal teacher growth, and enhancing teacher knowledge by allowing for the time needed to experience and digest new ideas and practices (Dede et al., 2009; Lieberman, 1995; Wei, Darling-Hammond, Andree, Richardson, & Orphanos, 2009)? Therefore, transforming classrooms and schools as a result of TPD programs can be accomplished by combining well-defined content and collective problem solving.

As indicated in previous research, and confirmed within this study, TPD represents an important opportunity to identifying teachers' specific needs within their teaching contexts, and refining TPD programs to address these needs will serve to improve TPD programs and ultimately benefit students. Additionally, TPD can assist teachers in becoming more adaptive, by providing strategies and tools to improve their ability to respond to student needs by making in-class adjustments when necessary. TPD also has the ability to help teachers learn to empower, engage, and accommodate their students' in the learning process.

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APPENDIX A: TEACHER PARTICIPANT PREINTERVIEW PROTOCOL

Teacher _____ District _____

Date _____

Time start _____ Time end _____

First, thank you for volunteering to participate in this study. Your contribution is valued and your answers are completely confidential. As part of this study, your responses will provide educators and professional organizations with important information. I thought I would begin by sharing with you that my research questions are:

1. What do teachers experience when engaging in a TFA-University collaborative professional development emergency teacher licensure program?

2. What characteristics of the model and approach do teachers perceive as contributing to their learning in practice?

Next, I will go through each question with the interview protocol (occasionally asking additional clarifying questions). Throughout, I will ask you this at the end of the interview. Additionally, I am interested in understanding how you think about what you're learning and how you learn.

A. Teacher Professional Development Experiences

1. Can you describe mathematics education professional development courses that you have taken before?
   - Probe teacher-participant comments as they talk:
     a. What do you mean by ____?
     b. Can you give a specific example of that from that experience ___?

B. Perceptions Regarding the Teacher Professional Development

1. How do you think this course will relate to your needs in your classroom?
   - Probe teacher-participant comments as they talk:
     a. How or in what ways ____?
     b. Can you provide with a specific example ____?

2. In what ways do you think this course may affect your teaching of mathematics?
   - Probe teacher-participant comments as they talk:
     a. How or in what ways ____?
     b. Can you provide with a specific example ____?

APPENDIX B: TEACHER PARTICIPANT POSTINTERVIEW PROTOCOL

Teacher _____ District _____

Date _____ Interview taken after class session_____

Time start _____ Time end _____

Introduction

Again, thank you very much for agreeing to participate in this study. Your contribution is valued and your answers are completely confidential. As part of this study, your responses will provide educators and professional organizations with important information. Next, I will go through each question with the interview protocol (occasionally asking additional clarifying questions). Throughout, I will ask you about this at the end of the interview. Additionally, I am interested in understanding how you think about what you're learning and how you learn.

Protocol

A. Teacher Professional Development Experiences

1. How was this course similar and/or different to any previous professional development courses that you have taken before?
   - Probe teacher-participant comments as they talk:
     a. What do you mean by ____?
     b. Can you give a specific example of that from that experience ___?

B. Teacher as Adult Learner

1. Which experiences in this course do you feel were most beneficial?
   - Probe teacher-participant comments as they talk:
     a. What do you mean by ____?
     b. Can you give a specific example of that from that experience ___?

C. Perceptions Regarding Teacher Professional Development

1. How does this course relate to your needs in your classroom?
   - Probe teacher-participant comments as they talk:
     a. How or in what ways ____?
     b. Can you provide with a specific example ____?

2. Have you gained any new pedagogical perspectives that you have implemented or attempted in your classroom?
   - Probe teacher-participant comments as they talk:
     a. How or in what ways ____?
     b. Can you provide with a specific example ____?

3. In what ways do you think this course may affect your teaching of mathematics?
   - Probe teacher-participant comments as they talk:
     a. How or in what ways ____?
     b. Can you provide with a specific example ____?

D. Changes in Beliefs About Teaching Mathematics

1. What are the content-specific areas that you have learned from this course?
   - Probe teacher-participant comments as they talk:
     a. How or in what ways ____?
     b. Can you provide with a specific example ____?

2. What new mathematics knowledge and/or instructional strategies have you obtained by participating in this course, thus far?
   - Probe teacher-participant comments as they talk:
     a. How or in what ways ____?
     b. Can you provide with a specific example or experience____?

3. What are ways in which you have been challenged and achieved a level of success by being a participant in this course?
   - Probe teacher-participant comments as they talk:
     a. How or in what ways ____?
     b. Can you provide with a specific example or experience ____?

4. What are ways in which you have experienced the struggle as a participant in this course?
   - Probe teacher-participant comments as they talk:
     a. How or in what ways ____?
     b. Can you provide with a specific example or experience____?

APPENDIX C: TEACHER PARTICIPANT FIELD OBSERVATION (1st) DEBRIEF PROTOCOL

Teacher _____ District _____

Date _____ Interview taken after class session_____

Time start _____ Time end _____

Introduction

Thank you very much for agreeing to participate in this study. Your contribution is valued and your answers are completely confidential. As part of this study, your responses will provide educators and professional organizations with important information. I thought we would start by having you share your thoughts about your expectations and understanding of the lesson planning exercise, and I will ask some follow-up questions as you talk. Does that sound okay?

Protocol

1. What are your goals for this lesson?
   - Probe for explanations, rich in detail, concerning the representations they would use and their justification for the lesson plan.

2. How do you plan on accomplishing these goals?

3. Give examples of how you plan to communicate with students in a way that is nonjudgmental and encourages the participation of each student.

4. What kinds of explanations do you want to see from your students?
   - Probe teacher-participant comments as they talk:
     a. In what form?
     b. Can you provide with a specific examples____?

5. What kinds of questions do you think you'll use with your students that can take into account all the different levels in your class?
   - Probe teacher-participant comments as they talk:
     a. How or in what ways ____?
     b. Can you provide with a specific examples____?

APPENDIX D: TEACHER PARTICIPANT FIELD OBSERVATION (2nd) DEBRIEF PROTOCOL

Teacher _____ District _____

Date _____ Interview taken after class session_____

Time start _____ Time end _____

Introduction

Thank you very much for agreeing to participate in this study. Your contribution is valued and your answers are completely confidential. As part of this study, your responses will provide educators and professional organizations with important information.

Protocol

1. Can you please begin by sharing your thoughts about the lesson?
   - Probe teacher-participant comments as they respond:
     a. What do you mean by ____?
     b. Can you give a specific example of that from the lesson ___?
     c. How will you know that students learned ___? What forms of student evidence___?

2. Can you say again what you were hoping to accomplish in this lesson?
   - Probe teacher-participant comments as they talk:
     a. What do you mean by ____?
     b. Can you give a specific example of that from the lesson ___?
     c. How will you know that students learned ___? What forms of student evidence___?

3. As you reflect back on this the lesson planning activity, consider the following:
   a. Are there any areas that you alter and/or adjust (than was differently than you had planned?
   b. How and why would you decide to make that change_____?
   c. Can you give an example?
   d. Was there anything that happened during the lesson that surprised you?
   e. Was there anything that happened that you struggled with, or wish you had done differently?
   f. What kinds of responses / explanations did you get from your students?
   g. What do you think this tells you in terms of what your students understand now about (LOOK AT SYLLABUS)?
   h. Is there anything else that went differently? What do you think this tells you in terms of what your students understand now about (LOOK AT SYLLABUS)?
   i. Is there anything else that went differently?

APPENDIX E: TEACHER PARTICIPANT PROFESSIONAL PORTFOLIO DESIGN, ASSIGNMENTS, AND RUBRICS

Module 2: Lesson and Unit Plan Design

As a summative assessment of the module objectives, this portfolio tasks is intended to measure how Corp Members can design aligned and effective instruction the considers content-related ways of teaching and learning. Curriculum planning includes building measurable objectives and using multiple opportunities for students to learn the discipline, concluding with formative and summative assessments.

Directions Part 1: Lesson Plan

1. Read the indicators for Outcome 1: Designing Intentional Teaching and Learning Units on the program rubric
2. Develop and submit a lesson plan that meets the standards related to outcome #1 and that has:
    a. Clear learning objectives
    b. An engaging launch that sets the tone and expectations for learning
    c. Clearly written and planned questions for large and/or small group discussion
    d. Aligned learning activities that are student-centered and engaging
    e. A description of a formative (check for understanding) and a summative assessment
    f. A clear closing that underscores the lesson's key concepts, ideas, skills

    *2nd year corps members' lesson plans must also include the following:
    g. Thoughtfully selected disciplinary texts and materials
    h. Learning activities that involve student reading and/or writing

Directions Part 2: Unit Plan

1. Using the backward design template (http://jaymctighe.com/wordpress/wp-content/uploads/2011/04/UbD-Template-1.0.docx) or another comparable template that will afford inclusion of all of the required components listed below, develop a full unit plan for an upcoming unit of 2-6 weeks. The unit plan should align with prevalent research-based theory for the best practices of teaching the discipline/content (e.g., inquiry-based, constructivist, problem-based, process oriented, etc.). The unit plan should contain the following:
    a. Clear learning goals aligned to the Common Core, State, and/or Local Standards
    b. 3-5 essential questions
    c. Descriptions of the formative and summative assessments (paper-pencil and performance tasks) as acceptable evidence that all students mastered the learning objective
    d. A plan for learning that summarizes key learning activities that will occur throughout the unit

    *2nd year corps members' unit plans must also include the following:
    a. 1-3 significant learning objectives for the unit that center around content-area literacy skills. In other words, describe what reading, writing, and/or thinking strategies you will use during your instruction and/or that students should use to engage with the content.

b. Formative or summative assessments that are paper-pencil and performance tasks centered on content-area reading, writing, and/or thinking
c. As an addendum to the unit plan, include citations of three significant texts that are specific to your academic discipline that will be used in the unit. The texts may be a reading from a book, a newspaper article, graphics with captions, tables and charts, etc. If possible and practical, upload copies of the selected texts as a part of the addendum.
d. Write a summary paragraph of the texts that describes the texts generally and what discipline-specific content students should learn from the texts.

Rubric: Module 2 – Lesson and Unit Plan Design				
Program Outcomes		Target for 1st year CM	Target for 2nd year CM	Target for recommendation for provisional certification
	Unobserved	Emerging	Developing	Embedded
1A. Unit plans	Lessons do not appear to be part of a larger unit, or there is very little thought in how the disciplinary pieces connect to each other.	Elements of the discipline are addressed in the unit plan, though their selection or placement may be superficial.	Appropriate elements of the discipline are incorporated in the unit plan. They are revisited through the unit. Appropriate texts and other resources are included in the unit that will engage students in literacy (reading and writing) skill development, as well as thinking associated with the content area/ discipline.	The unit plan has rich elements of the discipline. The plan and its lessons are highly discipline-related and coherently integrate disciplinary thinking and content in complex, but effective ways.
	No unit plan has been created or it is missing 2 or more of the following elements of backward design: (1) learning goals/ objectives with aligned standards, (2) essential questions/big ideas, (3) assessment evidence, (4) learning activities.	A unit has been created that has clear learning objectives and related standards, essential questions or big idea, an inviting launch. However, lessons or activities and assessments are not thoroughly aligned or student-centered. The assessments are included, but are not varied (formative and summative).	A unit has been created that has clear learning objectives and related standards, essential questions or big idea, an inviting launch. Lessons or activities and assessments are well aligned and mostly student-centered. The assessments are included, and have some variation (formative and summative/pencil-paper and performance-based).	A unit has been created that has clear learning objectives written in student-friendly terms and that are highly related to relevant national/state standards. The essential questions or big ideas are compelling, rigorous, and are likely to lead to deep disciplinary thinking. There is an engaging launch that is sustained with student-centered lesson activities. A variety of assessments are included, that are both, formative and summative, and pencil-paper and performance-based.

1B. Lesson Development	Objective(s) are not stated for the lesson.	The lesson objective(s) are clearly written, but not in student-friendly terms.	The lesson objective(s) are clearly written and in terms that students can understand. Objectives represent major concepts in the discipline.	The lesson objectives are referenced throughout the lesson so that students are able to see how the activities connect to the objective. They are age- and grade- appropriate, aligned with grade-level standards, are meaningful, rigorous, and achievable.
	The lesson does not activate or engage disciplinary ways of thinking. Lesson activities are general and do not integrate ways of thinking in the discipline, or disciplinary content.	The lesson activates or engages disciplinary ways of thinking periodically. Lesson activities are somewhat discipline related, and integrate disciplinary thinking and content in basic ways (e.g., lower levels of Bloom's taxonomy/level one of Costa's Levels of Inquiry)	The lesson situates students in the activities and ways of thinking and/or doing in the discipline. Lesson activities are clearly discipline related, and integrate disciplinary thinking and content in increasingly complex ways (e.g., mid-high levels of Bloom's taxonomy/levels 2-3 of Costa's Levels of Inquiry).	The lesson immerses students in the ways of thinking and doing in the discipline. This disciplinary thinking and doing leads to deep, coherent content understanding and/or ability to apply content through disciplinary skill.
	The teacher does not create/submit a lesson plan.	The teacher creates a basic lesson plan, in which there is a sequence of activities; however, they do not relate to each other or the objective of the lesson.	The teacher creates a lesson plan that includes activities that match the objective and are logically sequenced. The lesson is developed to tap into disciplinary ways of thinking, and engage students in the content in a meaningful way.	The teacher creates a well-developed lesson plan that is sequenced in a way that taps into disciplinary ways of thinking. It incorporates multiple resources and manipulatives that allow the students to engage in the content in multiple meaningful ways.
9. Professionalism of Submission	The assignment is submitted more than 3 or more days beyond the due date. It has numerous errors in writing convention or significant omissions. Little time, effort, or care was invested to ensure that it met the basic assignment requirements.	The assignment is submitted within 2 days of the due date. It conforms to standard writing conventions with many errors or omissions. Enough time and effort needed to comply with the assignment requirements was invested.	The assignment is submitted within 1 day of the due date. It conforms to standard writing conventions with few errors or omissions. An investment of time and effort are apparent and the teacher used it as an opportunity to reflect on his/her practice.	Assignment is submitted by the due date. It conforms to standard writing conventions with virtually no errors or omissions. It is evident that thoughtful planning, time, and effort were devoted to the assignment and the teacher used it as an opportunity to examine and develop his/her practice.

Module 3: Analysis and Reflection on Teaching Practice

As a summative assessment of the module objectives, this portfolio task is intended to have you become a critical observer of your own teaching and to reflect effectively for the improvement of your own practice.

Beyond determining if a lesson/activity/strategy was "good" or "bad," effective teachers are able to determine exactly *what* worked, *why* it worked, and *how* to make improvements. As a practitioner, though, it can be difficult to notice and remember everything that happens in your classroom. Thus, the value of a field instructor, video, or any other observer is to provide you with another perspective full of information. You will annotate this data, reflecting on things that you may or may not have noticed, to inform future instruction.

Directions:

1. Read the indicators for Outcome 4: Deliver Effective Instruction that Results in Student Learning on the program rubric.
2. Select a 7-10 minutes video clip of your teaching (preferred) or the notes from your field instructor, supervisor, or MTLD from a recent classroom observation. Ideally, this video clip or field instructor notes showcases you leading a discussion or a lesson incorporating various teaching strategies.
3. Upload the clip and/or field notes to your portfolio.
4. Annotate your video or field instructor notes. Your annotations should address each of the indicators for Outcome 4 on the program rubric at the level of emerging for year 1 corps members and developing for year 2 corps members. Note areas that you accomplished successfully and how you could either make improvements/additions to that lesson so that it fit all of the tenets of effective content instruction.
5. Write a 1-2 page summary of your lesson by expounding on the following questions:
    a. What effective teacher moves did you make? Why do you think they worked well?
    b. What moves did you make that weren't as effective? Why do you think there were not as effective?
    c. What would you do differently if you were to teach the same lesson?

    *2nd year corps members' lesson plans must also include the following:
6. Respond to all of the prompts (1-5), above, and also answer the following question in your summary: Compare the lesson artifact you submitted for this assignment last year to the one you are submitting this year. What growth do you notice about your ability to use effective teaching practices?

Rubric: Module 3 – Analysis and Reflection on Teaching Practice				
Program Outcomes		Target for 1st year CM	Target for 2nd year CM	Target for recommendation for provisional certification
	Unobserved	Emerging	Developing	Embedded
9A. Reflects on Lessons and Practice	The teacher's analysis and reflection excludes two or more of the following components: (1) teacher preparation, (2) active facilitation, (3) checks for understanding, (4) instructional format, and (5) student engagement. S/he fails to reflect on the effectiveness of his/her lesson and/or does not submit a representation of his/her practice (video or field instructor observation notes).	The teacher is able to reflect on his/her representation of his/her practice, and addresses all of the following components: (1) teacher preparation, (2) active facilitation, (3) checks for understanding, (4) instructional format, and (5) student engagement. S/he does not, however, offer an analysis that suggests in-depth knowledge and understanding of reasons for effectiveness and/or substantiated ideas about how to improve challenge areas.	The teacher is able to make an accurate assessment of a lesson's effectiveness and addresses all of the following components: (1) teacher preparation, (2) active facilitation, (3) checks for understanding, (4) instructional format, and (5) student engagement. His/her analysis may lack evidence as support for his/her claims.	The teacher is able to make an accurate analysis of a lesson's effectiveness that includes: (1) teacher preparation, (2) active facilitation, (3) checks for understanding, (4) instructional format, and (5) student engagement. S/he cites specific examples to support his/her claim. Teacher clearly articulates with these claims ways to improve practice.
4A. Teacher Preparation	The teacher's reflection focuses vaguely on preparation, and does not demonstrate attention to the preparation necessary to deliver the lesson; i.e., no mention of necessary materials, knowledge of students' content-related needs, or other relevant learning factors.	The teacher marginally reflects on her/his preparation for the lesson, and makes some mention of the preparation necessary to deliver the lesson; i.e. mention of necessary materials, knowledge of students' content-related needs, or other relevant learning factors.	The teacher adequately reflects on the preparation to deliver the lesson and addresses most necessary materials, knowledge of students' content-related needs, and other relevant learning factors. S/he also demonstrates adequate preparation for the unexpected.	The teacher effectively reflects on the preparation to deliver the lesson and addresses all necessary materials, knowledge of students' content-related needs, and other relevant learning factors. S/he has considered a plan for learning differentiations, extensions, re-teaching, and the unexpected.
4B. Active Facilitation	The teacher focuses exclusively on their actions, and does not reflect on the work of the students, or the	The teacher focuses on their actions, and marginally reflects on the work of the students, or the role of	The teacher adequately focuses on their actions as it relates to the work of the students, and the role of content. The teacher	The teacher sufficiently focuses on their actions as it relates to the work of the students, and the

	role of content in the interaction.	content in the interaction.	attempts to address their questions, sufficient pacing and wait time, and how they were actively interested in student work.	role of content. The teacher addresses the role of their questions, sufficient pacing and wait time, and how they were actively interested in student work.
4C: Checks for understan-ding	The teacher makes no references to checks for understanding throughout the reflection.	The teacher references informal assessments (e.g., questions, thumbs up/down. observations), but only one or a few mentions are made.	The teacher references informal assessments (e.g., questions, thumbs up/down. observations) and discusses the degree to which students' thinking is somewhat assessed.	The teacher references informal assessments (e.g., questions, thumbs up/down) and offers a full picture of how students' thinking is understood.
4D: Instruct-ional Format	The teacher's explanation of the lesson structure is incoherent, illogical, or inaccurate.	The teacher explains the lesson structure and its activities.	The teacher explains the lesson structure and its activities. S/he accounts for the ways in which the activities build upon students' prior knowledge, and reinforce students' deep understanding of the objectives.	The teacher explains the logical sequence of lesson activities. The reflection on the activities explicates how the instruction activates prior knowledge and scaffolds student learning. The discussion takes up how the designed activities are innovative, support deep learning of the objective, and are tied to unit goals.
4E: Student Engagement	The teacher makes no references to the students' engagement in the lesson activities.	The teacher makes minimal references to the students' engagement in the lesson activities.	The teacher reflects on a mix of engagement, where some of the students are engaged (e.g., participating in discussion, answering questions, on task), while a few are attentive, but passively engaged.	The teacher reflects on a mix of engagement, where some of the students are engaged (e.g., participating in discussion, answering questions, on task), while a few are attentive, but passively engaged. Furthermore, the teacher considers what prompts the excitement and interest about the

				activities that occur in class.
9. Professionalism of Submission	The assignment is submitted more than 3 or more days beyond the due date. It has numerous errors in writing convention or significant omissions. Little time, effort, or care was invested to ensure that it met the basic assignment requirements.	The assignment is submitted within 2 days of the due date. It conforms to standard writing conventions with many errors or omissions. Enough time and effort needed to comply with the assignment requirements was invested.	The assignment is submitted within 1 day of the due date. It conforms to standard writing conventions with few errors or omissions. An investment of time and effort are apparent and the teacher used it as an opportunity to reflect on his/her practice.	Assignment is submitted by the due date. It conforms to standard writing conventions with virtually no errors or omissions. It is evident that thoughtful planning, time, and effort were devoted to the assignment and the teacher used it as an opportunity to examine and develop his/her practice.

Module 4: Student Case Study and Analysis of Student Work

This portfolio task is intended to have you think about how you use interactions with students to motivate them and increase their investment in learning the content and related skills. The assessment is also geared towards your ability to use your formative and summative assessments of your students' abilities as a tool for motivation during and after the learning event.

Directions:

1. Select **at least two samples** of a student's work products (worksheets, test scores, essays, photographs of projects, etc.) from a student who has struggled to learn. For these work samples, choose assessments or assignments that you used to assess as evidence of his/her motivation to learn and learning achievement of the identified objectives. Upload these as artifacts/records of practice to your Chalk and Wire portfolio. Be sure to remove students' names and identifiers. *Note: It may be helpful to collect samples that show the student's development toward the same learning goal(s) and or standard(s) within a unit of learning or across time.*
2. Also upload the prompt and/or directions for the assignment(s) or assessment(s), as well as a brief list of the learning objectives they are designed to measure.
3. Write a 3-5 page case study of the student in your class. In your description:
    a. Describe the students' pertinent demographics without naming him/her
    b. Describe the learning content/environment (e.g., any important details about your school, classroom, etc. that will further explain the students' learning needs)
    c. Describe the student's observable behaviors **AND** characteristics of his/her work samples that you uploaded that caused you to conclude that s/he was/was not motivated to learn content-related material or skills.
    d. Describe the research-based best practices that you attempted and over what period of time to increase/sustain his/her motivation, his/her investment, and his/her learning and achievement.
    e. Describe the results that you attained in (a) increasing/sustaining his/her motivation or investment and (b) his/her content-related skill and understanding. Reference the work samples that you've chosen and uploaded as evidence of those results
    f. Briefly analyze why you believe the practices you implemented were/were not effective.

    *2nd year corps members must also include the following:
    g. Ensure that the work samples reflect your ability to implement multiple forms of assessment (paper/pencil, performance, project-based, etc.). For each work sample, (1) describe the learning goal(s) that you were attempting to measure, (2) a description of the assessment (e.g. when it was implemented, if it was developed by you or another professional, etc.); and (3) briefly describe the conclusions you were able to draw about his/her motivation to learn and learning achievement using observable evidence from the work products.

Rubric: Module 4 – Student Case Study and Analysis of Student Work				
Program Outcomes		Target for 1st year CM	Target for 2nd year CM	Target for recommendation for provisional certification
	Unobserved	Emerging	Developing	Embedded
7a. Multiple forms of Assessments (Student Work Products)	No student work samples submitted or are not relevant.	Student work samples represent one form of assessment (formative or summative) that somewhat aligns the claims made in the case. The analysis of the student work samples demonstrates the teacher's ability to document students' performance.	Student work samples represent multiple forms of assessments (diagnostic, formative, and summative) that align to the claims made in the case. The analysis of the student work samples demonstrates the teacher's ability to gauge students' accomplishment of learning objectives.	Student work samples represent multiple forms of assessments (diagnostic, authentic, performance-based, formative and summative) that align to the case. The analysis of the student work sample demonstrates the teachers ability to accurately perform diagnostics and use formative assessments as evidence of student learning and to track the development of mastery, while summative assessments are designed to show mastery of learning objectives.
7b. Criterion for Assessment (Assignment criterion description for student work products)	There are no clear criteria for the assignment related to the student work products.	There are criteria for the assignment related to the student work products, but they lack clarity and coherence.	The criteria for the assignment related to the student work products are clear.	The criteria for the assignment related to the student work product are clear and the case study and analysis of the student work products demonstrate that the student(s) was aware of the intents, purposes, and relationship to essential questions, big ideas, and learning objectives.
3a. Positive Interpersonal Relationships	The case reveals a lack of attempt or action to get to know and/or build a relationship with student(s) (e.g., does not refer to students by name, look them in eye, ask questions).	The case reveals that the teacher's interactions are professional. S/he knows general information about the student(s) featured in the case.	The case reveals that the teacher's interactions are friendly, and generally show respect for the individual student(s) featured in the case. His/her description of his/her relationship with the featured student(s) strikes a balance between being friendly and professional.	The case reveals that the teacher's interactions are genuine, showing concern and respect for the individual student(s) featured in the case. S/he describes proactive practices within his/her class and in other areas of the school (e.g., extra curriculars, etc.) used to get to know, motivate, help and teach the featured student(s). His/her description of his/her relationship with the featured student(s) describes a balance between being friendly and professional.

3b. Student investment, interest, and autonomy (Case Study)	There is no case study, or the case study does not demonstrate the CM studied a student, or their records, in detail. There is no relationship between the artifacts and the case study. The case study shows the teacher had no knowledge of the student(s) that s/he used to encourage ambitious learning. The case articulates no specific practices or evidence from the student work samples that were used to promote student investment.	There are loose connections and brief mentions of how the artifacts relate to the case study and serve as evidence of the student's motivation to learn. The case study shows the teacher had limited knowledge of the student(s) that s/he used to encourage ambitious learning. The case articulates limited practices with limited evidence from the student work samples that were used to promote student investment. The case study provides evidence about the student's motivation to learn through anecdotal data, and interpretations based on these data. These interpretations are not connected to ideas about the student's relationship to others in the class, content, the teacher, family, and community culture. However, there are some emerging theories about the student's motivation to learn that illustrate the CM studied the student. The CM lists some research-based best practices that were attempted and what may or may not have supported the student's investment.	There are thoughtful connections of how the student work products relate to the case study and serve as evidence of the student's motivation to learn. The case study shows the teacher had general knowledge of the student(s) that s/he used to encourage ambitious learning. The case articulates a few key practices with some evidence from the student work samples that were used to promote student investment. The case study provides evidence about the student's motivation to learn through anecdotal data, qualitative and quantitative data, and sound interpretations based on these data. These interpretations are connected to ideas about the student's relationship to others in the class, content, the teacher, family, and community culture. The CM provides some highlights on the research-based best practices that were attempted and what may or may not have supported the student's investment.	There are thoughtful connections of how the student work samples relate to the case study and serves as evidence of the student's motivation to learn. The case study also shows how the teacher used specific knowledge of the student(s) to get him/her to know that they can and want to accomplish ambitious learning objectives. The case articulates effective practices with compelling supporting evidence from the student work samples that were employed (e.g. class mantras/chants, affirmative and specific praise, etc.) to get the student(s) to believe that they can and want to learn ambitious classroom material. The case study provides evidence about the student's motivation to learn through anecdotal data, qualitative and quantitative data, and sound interpretations based on these data. These interpretations are connected to ideas about the student's relationship to others in the class, content, the teacher, family, and community culture. The CM provides insightful analysis on the research-based best practices that were attempted and what may or may not have supported the student's investment.
7c. Develop-ing Data (Case Study)	There is no case study, or there is no evidence provided in	The case study is built around evidence about the student's motivation to learn from anecdotal data, and quantitative data.	The case study is built around evidence about the student's motivation to learn from	The case study is built around evidence about the student's motivation to learn collected from anecdotal data, qualitative, and quantitative data.

	the case study.		anecdotal data and qualitative.	
9. Profess-ionalism of Submission	The assignment is submitted more than 3 or more days beyond the due date. It has numerous errors in writing convention or significant omissions. Little time, effort, or care was invested to ensure that it met the basic assignment requirements.	The assignment is submitted within 2 days of the due date. It conforms to standard writing conventions with many errors or omissions. Enough time and effort needed to comply with the assignment requirements was invested.	The assignment is submitted within 1 day of the due date. It conforms to standard writing conventions with few errors or omissions. An investment of time and effort are apparent and the teacher used it as an opportunity to reflect on his/her practice.	Assignment is submitted by the due date. It conforms to standard writing conventions with virtually no errors or omissions. It is evident that thoughtful planning, time, and effort were devoted to the assignment and the teacher used it as an opportunity to examine and develop his/her practice.

Module 5: Teaching Development and Impact on ALL Children

You are invited for this portfolio task to think reflectively on your entire year of teaching and your continuum of growth since you began teaching. This assignment intends to prompt you to also think about the effectiveness of your practice for all of the children with whom you have been charged to teach. It also aspires to have you contemplate your accomplishments and opportunities for further development as an educator or one who has the opportunity to influence education and other educators.

Directions:

1. Read the indicators for Outcome 6: Making Effective Instructional Decisions and Outcome 9: Reflect on Practice and Leadership, and Contribute Professionally to the Learning Community on the program rubric
2. Review your Individual Development Plan, vision statement, and/or the areas of focus that you listed for your field visits
3. Write a reflective essay of 4-7 pages in which you do the following:
    a. Analyze the impact of your teaching on ALL students that you were charged to teach
    b. Within your analysis, evaluate and cite evidence from your practice that you accomplished the targeted levels on each of the 9 program outcomes (1-3 paragraphs per program outcome).
    c. For each outcome upload and/or link to an artifact or record from your practice that support claims about your growth
    d. Describe which program outcome you will focus on professionally, going forward to ensure that your goals for your self as a practitioner have maximum positive effect on ALL of your students

    *2nd year corps members must answer 1-3 above and respond to this fourth question:
4. Describe what you will focus on professionally, going forward to increase your own proficiency as a teacher, as well as your knowledge of, engagement with and/or influence of the profession (e.g. leadership, policy, etc.)

Rubric: Module 5 – Teaching Development and Impact on ALL Students				
Program Outcomes		Target for 1st year CM	Target for 2nd year CM	Target for recommendation for provisional certification
	Unobserved	Emerging	Developing	Embedded
9A. Reflects on Lessons and Practice	Teacher does not attempt to reflect on the effective-ness of his/her practice, or the narrative does not demonstrate any consideration of teaching ALL students.	Teacher attempts to gauge the effectiveness of his/her practice, but substantiates his/her impact on some students.	The teacher is able to make an accurate assessment of the effectiveness of his/her practice, but is only able to provide general support for his/her claims. The narrative provides evidence about the relationship of professional goals to the impact on all students. These interpretations are connected to ideas about students' needs as ELLs, Gifted & Talented students, international students, learning disabled students, and physically impaired students.	The teacher is able to make an accurate assessment of his/her practice's effectiveness, citing specific examples to support his/her claim. The narrative provides evidence about the relationship between philosophy of teaching and achievement of professional goals to the impact on all students. These interpretations are connected to research-based ideas about the students' relationship to others in the class, content, the teacher, family, and community culture, needs as ELLs, Gifted & Talented students, international students, learning disabled students, and physically impaired students. The CM provides insightful analysis on the research-based best practices that were attempted and what may or may not have supported the student.
	Submission does not include records of practice.	Submission consists of haphazardly gathered artifacts and records of practice. Those that exist, do not logically support the respective growth claims.	Submission consists of multiple artifacts of practice (e.g., videos, student work, feedback from colleagues, etc.) that are referenced as evidence of attainment of program's outcomes.	Submission consists of multiple artifacts of practice (e.g., videos, student work, feedback from colleagues, etc.) that s/he uses and references as evidence of attainment of program's outcomes and his/her evolution and growth as a teacher.
	There is no relationship between the narrative and any of the nine program outcomes.	There are loose connections and brief mentions in the narrative to the nine program outcomes.	There are thoughtful connections to the nine program outcomes and evidence from the teachers practice is provided.	There are thoughtful connections to the nine program outcomes and evidence from the teacher's practice is provided.

9. Profession-alism of Submission	The assignment is submitted more than 3 or more days beyond the due date. It has numerous errors in writing convention or significant omissions. Little time, effort, or care was invested to ensure that it met the basic assignment requirements.	The assignment is submitted within 2 days of the due date. It conforms to standard writing conventions with many errors or omissions. Enough time and effort needed to comply with the assignment requirements was invested.	The assignment is submitted within 1 day of the due date. It conforms to standard writing conventions with few errors or omissions. An investment of time and effort are apparent and the teacher used it as an opportunity to reflect on his/her practice.	Assignment is submitted by the due date. It conforms to standard writing conventions with virtually no errors or omissions. It is evident that thoughtful planning, time, and effort were devoted to the assignment and the teacher used it as an opportunity to examine and develop his/her practice.