Attending to the Problem of Professional Learning: A Mixed Methods Study

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Executive Summary

Educational reform efforts have increasingly turned to school-based professional development (PD) and the role of instructional coaching in driving improvement. As facilitators of PD, instructional coaches support teachers through content-focused work, leading discussions about instructional practices, and constructing a community of professional learners. Yet, many well-intended PD programs fail to make advances in teacher learning or to produce changes in teacher practice at all. Challenges to implementing effective PD programs are most pronounced in educational environments that overwhelmingly promote rigid, rote, and highly generalized professional learning opportunities as part of some exclusive, prescriptive, and underdeveloped PD program.

This study explores the nature of PD opportunities available to teachers at one urban charter school in hopes of equipping its leaders with insight to produce powerful professional learning, instructional improvement, and, by extension, higher student achievement. I used an explanatory sequential mixed methods design, which involved collecting survey data first followed by a focus group, to address the following three research questions:

1. In what ways do teachers describe the features of teacher PD opportunities offered at the school in 2021–2022, and during the 2021 summer, and how do these descriptions compare to the literature standard of effective teacher PD?
    a. In what ways do teachers describe the features of teacher PD opportunities offered in the 2021–2022 school year?
    b. How do the features of PD opportunities offered in the 2021–2022 school year compare with descriptions of teacher PD opportunities offered during the 2021 summer?
    c. In what ways do 2021–2022 teacher PD opportunities described by teachers align with criteria for effective teacher PD?

2. In what ways do teachers describe contextual factors as impeding their perceptions of learning in teacher PD opportunities?
3. In what ways, if any, do teachers' expectations of student success against grade level standards change over the course of the school year?

I found that teachers reported spending the most time in formal PD opportunities, which they described as one-off and sparse, and they perceived a disconnect between the PD approaches and their classroom practices. Teachers in this study also described their experiences in summer PD as too intensive and not coherent with their learning in PD during the school year. Most teachers also reported that they regularly participated in some type of team-based collaboration, however, there was wide variation in the types of opportunities that were offered, and teachers described some of these activities as more or less helpful than others. Accordingly, the majority of teachers reported a neutral level of satisfaction towards the professional learning offered at the school, while they also described the topics of PD as being irrelevant to their classroom practice.

I found that many of the PD opportunities described by teachers in this study were traditional, one-off workshops, and they reported that the content taught in these opportunities was mostly ineffective. These teachers also perceived the PD opportunities as lacking coherence, both in terms of structure and degree of connectedness to their daily work. This is supported by data from teacher surveys and findings from the focus group discussion, which indicate that lack of access to consistent, high-quality instructional support impeded teachers' learning in PD opportunities offered by the school. These data also indicated that the misuse of teachers' planning time posed a barrier to teachers' learning in the PD opportunities offered. In addition, the majority of surveyed teachers were found to have low expectations for all learners, and the expectations scores of teachers in the post-survey were lower than, but not significantly different from, those of teachers in the pre-survey.

Based on these findings, I recommend that leaders at this school redesign the current PD opportunities by offering more coherent and engaging job-embedded learning activities that promote teachers' active learning and enable their collective learning. To achieve this redesign, leaders must first attend to structural and contextual barriers that teachers in this study described as challenging their professional learning. In this capacity, I recommend that leaders at this school protect teachers' individual planning time, decrease the number of administrative positions, and hire more teachers and substitutes instead. Approaches for instructional coaching would also benefit from a complete redesign, and I recommend starting this work by holding instructional coaches to a consistently higher standard of practice. Finally, I offer two recommendations – sizing up the context of the learning environment (i.e., teachers' needs and affordances) and establishing professional learning communities among teachers – to enable all teachers to hold high expectations for all students.

Introduction

This study aimed to understand middle school teachers' participation experiences in school professional development (PD) opportunities at a public charter school located in New Haven, Connecticut. The purpose of this study was to explore these teachers' beliefs, perceptions, barriers, and local support needs in the context of their school's PD offerings. Using an explanatory sequential mixed methods design, I collected quantitative data using surveys and collected qualitative data using a focus group session with teachers. I analyzed these data using descriptive statistics and a deductive approach to content analysis; I integrated the quantitative and qualitative findings using joint displays focused on four deductively identified contextual factors (internal and external) that challenge teachers' learning in PD settings: school leadership, curriculum, school policy, and teachers' characteristics (Borko, 2004; Bryk et al., 2015; Darling-Hammond et al., 2017; Desimone, 2009; Desimone & Garet, 2015; Opfer & Pedder, 2011; Penuel et al., 2007; Telese, 2012). I found that teachers at the school participated in mandatory school-based PD, mostly through one-off workshop events. Most teachers perceived these sessions as irrelevant and disconnected with the realities of their work at this school. Moving forward, the leaders of this school would benefit from developing a deeper understanding of teachers' needs relative to PD opportunities, primarily through closer inspection of the school's implementation capacity and restrictions in this learning environment.

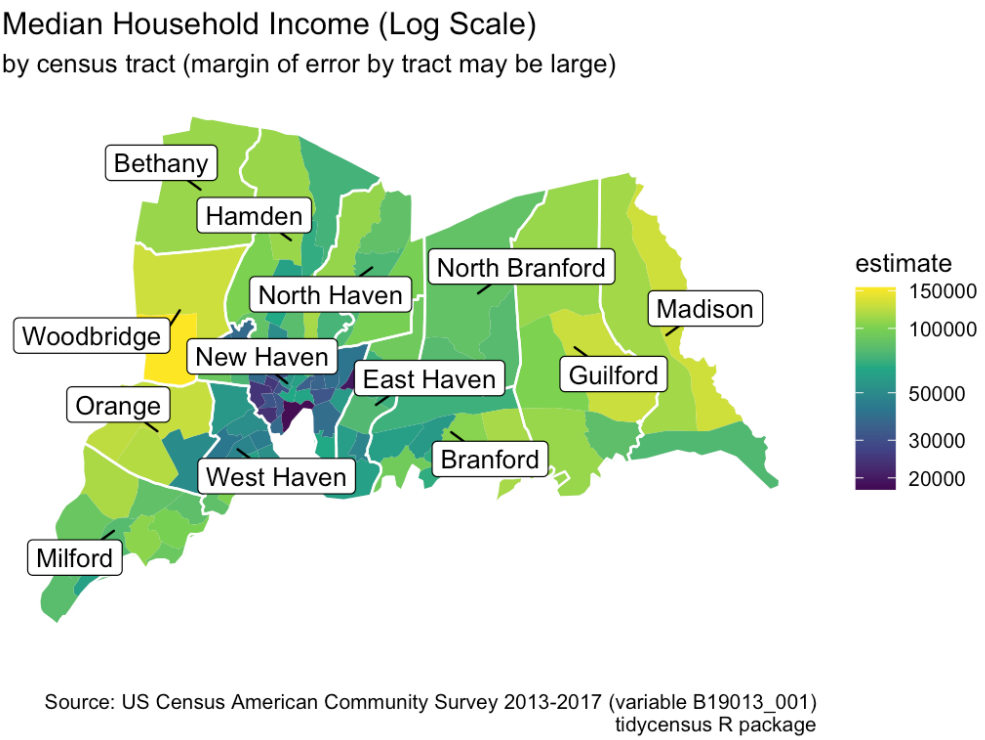
Organization Context

This capstone project centers on a public charter school in New Haven, Connecticut, referred to as New England Charter School (NECS) in this paper. Regarded by many as perhaps one of the first in New Haven to adopt the philosophy of a strong commitment to serving the community, NECS prides itself on its inclusivity and high-quality instruction for all students (NECS, 2020). Like other charters across the state, NECS must not only follow the Connecticut State Department of Education (CSDE) charter school accountability procedures and performance standards, but also provide the state School Board of Education with annual evidence of satisfactory performance relative to these standards, including quantitative and qualitative evidence of promoting equity and effectively attracting, enrolling, and retaining targeted populations of students.

Enrollment in the 2019–2020 academic year was 420 students in grades K–6, with the majority (83%) residing in the midsize city of New Haven (CSDE, 2020). To matriculate a diverse and representative student body, NECS gives enrollment preference to students residing in New Haven's Dixwell and Newhallville communities (NECS, 2020), which are historically Black neighborhoods that have been under-resourced and where, consequently, much poverty is concentrated (Neighborhood Residents and Youth, 2019; Terry, 2007). Wealth and income vary significantly across the 13 towns and cities forming a region referred to as Greater New Haven (GNH; Abraham et al., 2019). NECS is situated within this region and, as Figure 1 shows, there are income disparities that exist in the communities where students reside. For example, compared to New Haven County's poverty rate of 11%, the poverty rate in Newhallville and Dixwell is nearly double, with 29% of families living below federal poverty levels and 62% of families constituting low-resource households (U.S. Census Bureau, 2019).

Figure 1

Income Disparities Across Greater New Haven, 2017

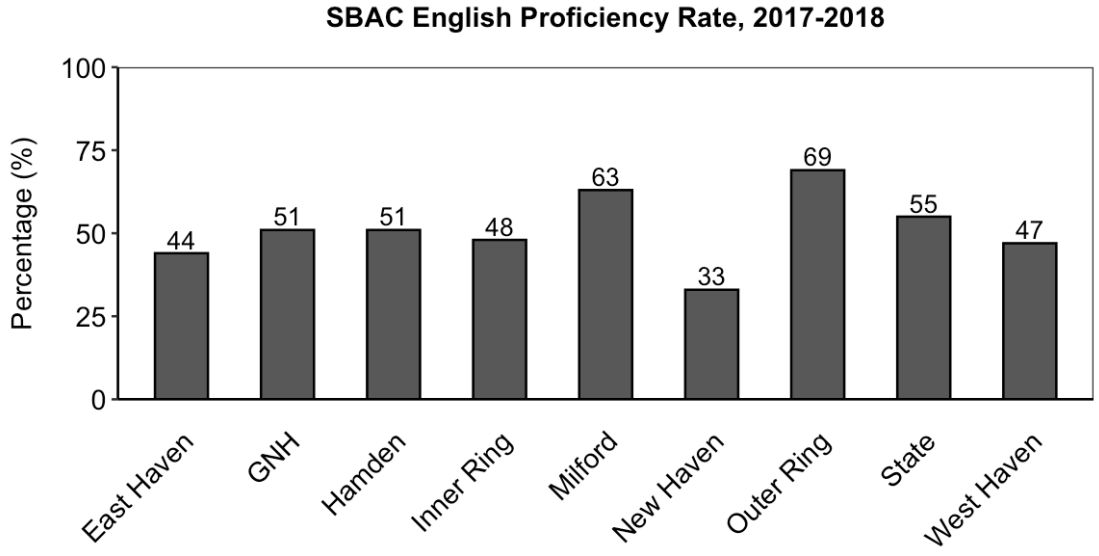


The percentage of public K–12 students meeting achievement levels on Connecticut's Smarter Balanced Assessment Consortium (SBAC) test – the latest measure of student achievement and growth toward Connecticut's Core Standards – reveal wide differences in scores across GNH school districts. Specifically, “the inequities imposed on children by their home, neighborhood, and peer environment are carried along to become the inequalities with which they confront adult life at the end of school” (Coleman et al., 1966, p. 325). Such disparateness is most apparent in both Dixwell and Newhallville, where a historically disproportionate population of Black, Indigenous, and People of Color (BIPOC) students have low levels of academic proficiency and are eligible for receiving free and reduced-price lunch (NECS, 2020). According to data from the 2017–2018 school year, the New Haven School District, which educates 68% of Black students in the region, had an SBAC English proficiency rate of 33%, roughly 18% lower than the region average and 9% lower than the next lowest percentage among the GNH regional school districts (Figure 2). Moreover, the pass rate for White students (66%) was nearly

double that for Black (31%) and Latino students (34%) on the English Language Arts (ELA) SBAC (Abraham et al., 2019).

Figure 2

Achievement Gap in Greater New Haven School Districts



Note. Data is from *Share of Public K-12 Students Meeting Achievement Measures, 2017-2018*, by Abraham et al., 2019.

Student outcomes at NECS appear to be no different than those reported by other school districts in GNH. Under Connecticut's Next Generation Accountability System, each public school is assigned an Accountability Index based on 12 indicators, including measures such as ELA, math and science performance, chronic absenteeism, and physical fitness. As shown in Table 1, NECS's 2018–2019 Academy Accountability Index was well below the state's average school Accountability Index of 74.2% (CSDE, 2020).

Table 1

Next Generation Accountability for NECS, 2018-2019 (Without Identifying Points Earned)

Indicator	Index/Rate	Target	Points Earned	Max Points	% Points Earned	State Average % Points Earned
ELA Performance Index - All Students	66.6	75		50		90.2
ELA Performance Index - High Needs Students	64.7	75		50		77.5
Math Performance Index - All Students	64.1	75		50		84.1
Math Performance Index - High Needs Students	62.4	75		50		70.2
Science Performance Index - All Students	61.3	75		50		85
Science Performance Index - High Needs Students	59.6	75		50		72.2
ELA Academic Growth - All Students	42.3%	100%		100		59.9
ELA Academic Growth - High Needs Students	42.9%	100%		100		55.1
Math Academic Growth - All Students	41.7%	100%		100		62.5
Math Academic Growth - High Needs Students	40.8%	100%		100		55.2
Chronic Absenteeism - All Students	12.2%	≤5%		50		78.3
Chronic Absenteeism - High Needs Students	14.8%	≤5%		50		55.7
Physical Fitness (estimated participation rate = 100.0%)	58.5%	75%		50		70.6
Accountability Index				850		74.2

Note. This table includes data from the 2018-2019 school year and only includes grades K-5. Reproduced from *Next Generation Accountability, 2018-19 [New England Charter School] (Grades: K-5),* by Connecticut State Department of Education, 2020. [Connecticut Department of Education Website]. In the public domain.

The NECS student body also mirrors its community (i.e., Newhallville and Dixwell) demographics, and in 2021–2022, BIPOC students constituted 97% of the population, with Black students constituting 83.4% of the student body. Furthermore, in giving preference to students from under-resourced

families, each year, NECS enrolls on average 82% of students deemed eligible to receive free or reduced-price lunch (CSDE, 2022). Given the diversity of its students, the school's 2021–2022 reopening plan included a commitment to providing inclusive and equitable instruction. For instance, although U.S. education is built upon a history of exclusionary practices exemplary of racial inequality, NECS refuses to ignore the status quo (NECS, 2021). NECS distinguishes itself from other schools in the neighborhood relative to its vision. To improve the academic achievement of BIPOC, NECS employs culturally responsive instruction that validates students' backgrounds, experiences, and identities (Mensah, 2021).

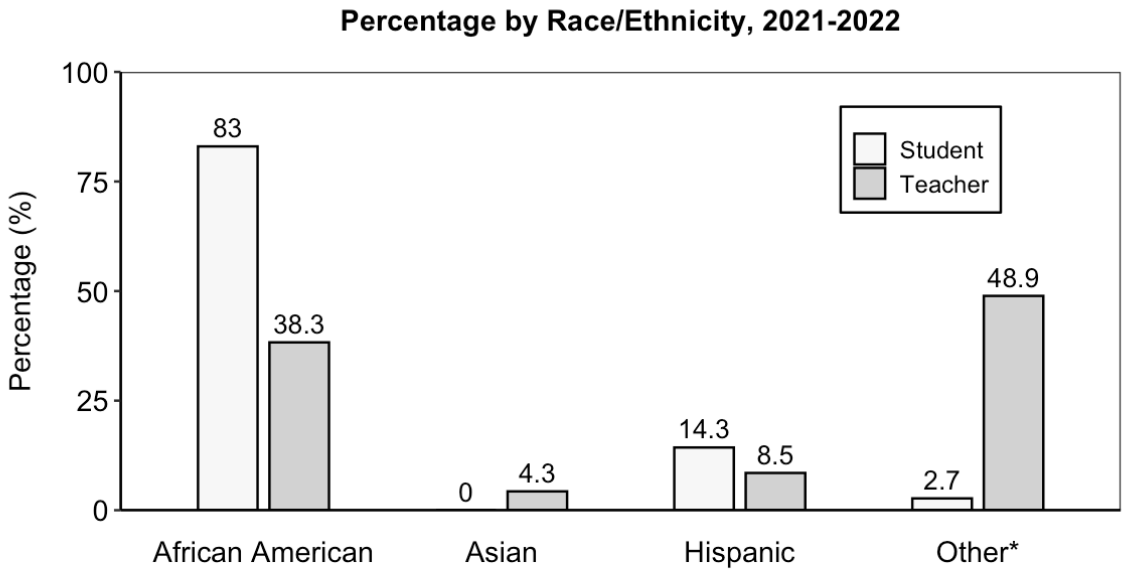
Since its inception, NECS has operated from a framework of ambitious instruction, or instruction that is aimed at teaching every student to learn academic subjects and to use this knowledge across academic domains when solving relevant, authentic problems (Lampert et al., 2013). This mission aligns with research that states that for students from diverse groups to succeed in school, they must engage in authentically complex intellectual work at the same time as learning the basics and developing proficiency (Lampert et al., 2011). Leaders at NECS operate in accordance with this literature, attributing maleducation to teachers' lack of access to culturally responsive instructional strategies. The school's instructional philosophy describes the academics at NECS in terms of "a highly structured curriculum that sets high expectations and provides individualized monitoring to assist Scholars in attaining ambitious goals for achievement" (NECS, n.d.). To ensure teachers are well-equipped to provide culturally responsive instruction, NECS offers professional development (PD), or targeted training expected of people employed across certain professions (APA, n.d.-b). The rationale is that teacher PD contributes to higher quality teaching, which in turn, results in stronger student achievement (Patton, 2011; Villegas & Lucas, 2002).

Despite NECS's commitment to student diversity, its faculty and staff are predominantly White. In the 2021–2022 academic year, 28% of NECS teachers were Black, and only 8.5% were Hispanic or Latino (CSDE, 2022). The proportion of Black teachers at NECS is remarkably higher than the national

teacher average, with Black teachers comprising only 7% of the nation's public-school teachers in 2017–2018; at the same time about 36% of teachers were Black in schools where the majority of students were also Black (Spiegelman, 2020). Figure 3 presents a comparison of the race or ethnicity of teachers and students enrolled at the school for the 2021–2022 academic year.

Figure 3

Comparison of Student and Staff Demographics for New England Charter School



* The category termed "Other" is a catch-all term and includes teachers who self-identified as White and students who identified as White or Biracial and whose data points are suppressed by CSDE EdSight (2021–2022) to ensure confidentiality.

Given the demographic differences between faculty and students, leaders at NECS intentionally train teachers to academically support a diverse, and often marginalized, population of students. For this reason, NECS has adopted dialogic approaches to teacher training based on challenging dominant and deficit orientations pervasive in the education of BIPOC. Since 2018, leaders at the school have been organizing Courageous Conversations about Race (CCAR), a program based on facilitator-led discussions.

The workshops support the school's vision of inclusion and excellence by gradually positioning teachers as change agents, helping students navigate the deeply embedded inequities that persist in the communities to which they belong (Ladson-Billings, 1990, 1992; Webb-Johnson, 2002). Workshops that engage teachers in cross-racial discussions about race and racism can uncover and address personal biases, which leads to better quality instruction for all students (Courageous Conversation, n.d.). This program is emphasized in NECS's reopening plan for 2021–2022, which in part, describes an educational philosophy that seeks to uplift school culture and support high-quality instruction through the continuation of CCAR as a protocol for recognizing and addressing teacher-level biases that otherwise might antagonize the enactment of culturally responsive instruction with students in the classroom (NECS, 2021).

While the school's use of discussion-based workshops (i.e., CCAR) has proven fruitful in engaging teachers in cross-racial discussions, the Executive Director expressed growing concern over an increasing number of new, inexperienced teachers in need of structured guidance and expert support. According to them, the Chief Academic Officer and instructional leaders at the middle school were eager to implement a new approach to teacher learning with greater emphasis on content and opportunities for teachers to rehearse, or practice, what they learn alongside their peers and expert coaches. They wanted to begin implementing instructional coaching as a new, job-embedded form of teacher PD.

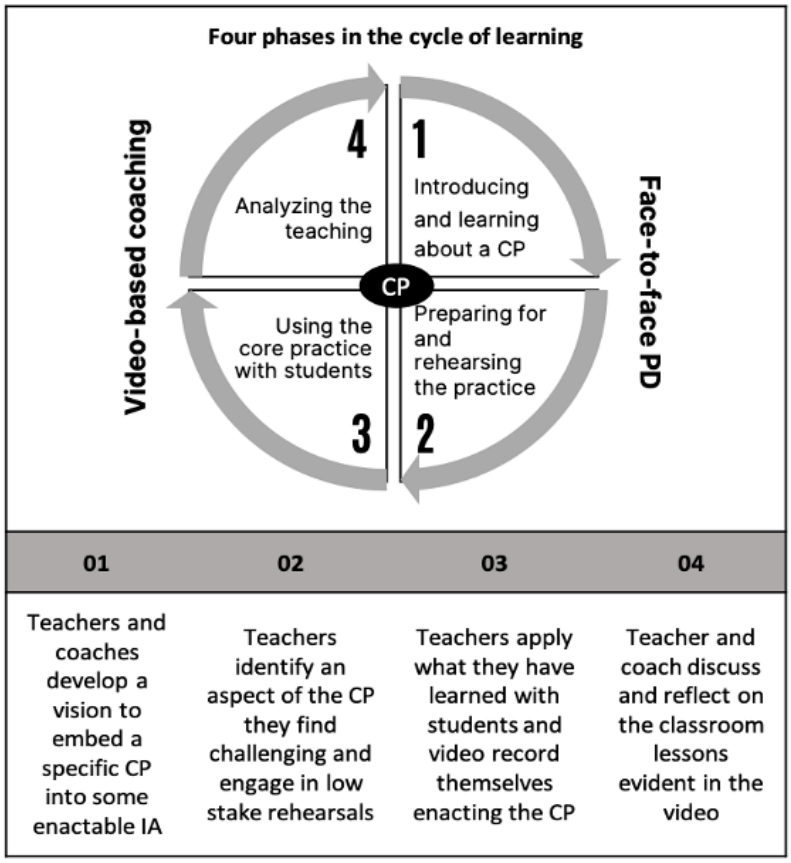
Having just completed a leadership training on leveraging instructional coaches as a means of improving teacher practice,[1] the Executive Director was intent on bringing the same reform initiative to NECS. Developed from a framework for enacting core practices, the cycle of learning is an approach that provides guided assistance to all teachers, regardless of their tenure, to develop particular practices thought "to improve the learning opportunities available to students of color, low-income students, and

[1] Referred to in this paper as *the cycle of learning.*

English language learners" (McDonald et al., 2013, p. 378). According to the Executive Director, the cycle of learning involves specific, routine aspects of teaching, referred to as core practices (CPs), which call for exercising professional judgment and creating a meaningful, academic, and social community of learners. More specifically, the hope was that leveraging instructional activities (IAs) as a tool for designing and delivering episodes of authentic teaching poised around a specific, intentional CP, could accelerate teacher education and classroom instruction for diverse learners (Stanford Graduate School of Education, n.d.). Figure 4 shows the learning progression of the four phases in the cycle of learning that the school would implement in the 2021–2022 school year.

Figure 4

Cycle of Learning, Stanford University Center to Support Excellence in Teaching (CSET)



Note. Adapted from *Our Approach,* by the Center to Support Excellence in Teaching (CSET), n.d. (https://cset.stanford.edu/about/our-approach) Copyright by Stanford University.

The phases of the CSET model are intended to provide a common framework and vision of professional learning to offer all teachers opportunities to learn, which, through practice and sustained participation, shall promote an interactive community of learners poised to aggregate pedagogical knowledge (Stanford Graduate School of Education, n.d.). To this end, CPs act as conceptual tools for supporting novice teachers in developing their own repertoires of high-quality instruction that provokes meaning among all learners in the classroom (McDonald et al., 2013). In conjunction with including context appropriate IAs, this approach offers a viable theory of action in which authentic teaching episodes are constructed around CPs for the purpose of driving observable and significant changes in teacher practice (Kavanagh, 2017). Specifically, the Executive Director shared that many of these CPs would overlap with the topics discussed in the CCAR workshops for teacher PD at the school. These CPs are based on five dimensions of multicultural education (Banks, 1995). With the approval of the Executive Director, I searched the literature for frameworks of instruction based on the five dimensions of multicultural education. The framework we chose is shown in Table 2.

Table 2

Dimensions of Multicultural Education (Banks, 1995) Reconceptualized as Core Practices (Kavanagh, 2017)

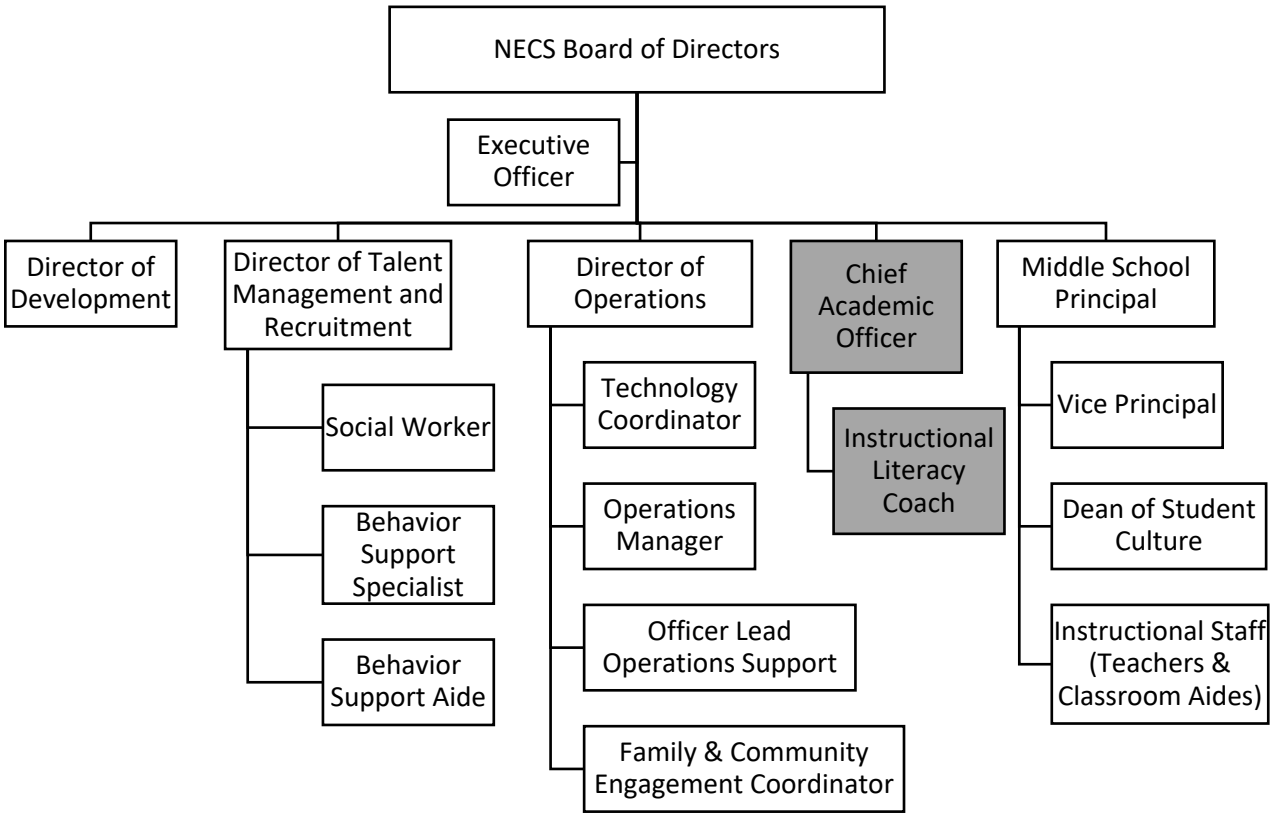
Core practice	Description	Example of teacher practice
Integrating content	Integrating content that is representative of historically marginalized student populations	Realizing that the curriculum is devoid of works by African American authors and selecting a book whose author and protagonists are Black.
Posing alternatives	Posing alternatives to hegemonic social narratives and the underlying assumptions that produce them	Calling students' attention to the title of their textbook and uncovering the underlying biases and assumptions that the title carries with it.
Leveraging patterns	Leveraging students' cultural patterns of participation to	Leveraging Boykin's (1986) nine dimensions of African American culture

	increase opportunities for student participation	to teaching a lesson on adding fractions.
Interrupting patterns	Interrupting students' cultural patterns of participation in situations where it hinders opportunities for student participation	Recognizing that ELL students tend to congregate at the back of the class and avoid having to participate during small group work.
Interrupting prejudice	Foreseeing and responding to instances of prejudice	Taking up informal conversations with students to model an inclusive attitude towards students who speak a language other than English.
Empowering students	Advocating with and for historically marginalized student populations	Noticing the disproportionate number of Black students referred to alternative school settings, the teacher proposes that leaders at the school review and revise the current disciplinary policy.

The Executive Director shared that the school leadership team intended to implement all phases of the learning cycle with high fidelity with teachers at the middle school in 2021–2022. To ensure suitable forms of coordination and control were in place, NECS promoted an experienced teacher to instructional coach for English Language Arts (ELA) and delegated the role of instructional coach for Math and Science to the Chief Academic Officer prior to beginning the 2021–2022 school year. As the teacher educators, or facilitators, the instructional coaches would guide teachers through the cycle of learning and support them not only individually when selecting, learning, and rehearsing a CP but also on a group level when discussing and reflecting on what they learned in the process. Figure 5 is an organization chart of the school in spring 2022 and highlights the two instructional coaches.

Figure 5

Organizational Chart and Coaching Facilitators of Teacher Professional Development Program



Note. The color gray is used to highlight the facilitators of PD as identified by the Executive Director during planning for the 2021-2022 school year. The chart has been updated to reflect changes made over the school year (i.e., establishing the role of vice principal).

Problem of Practice

In our earlier conversations, the Executive Director indicated that student scores on standardized achievement tests, which fell well below previous years, may have reflected the variation in quality of instruction as well as expectations for students across classrooms at the middle school. The Executive Director believed that one way to elevate student outcomes could be to provide teachers with more opportunities for effective professional development (PD) and access to high-quality instructional coaching. The Executive Director explained that because most teachers at the middle school were new to the classroom entirely, they needed additional training to learn core practices and regular coaching to enact changes in the classroom. More specifically, the leaders of the school wanted PD to effectively

change teachers' beliefs about student learning and equip teachers to establish high expectations for their students. According to the Executive Director, teachers' low expectations of students are a pervasive problem in low-income, minority-majority school settings.

The Executive Director had good reason to believe that teacher PD at the middle school was an area in need of improvement. The Executive Director and principal invited me to a three-day curriculum cadre in June where leaders and select middle school teachers would review student data from the current school year, reflect on possible explanations for the data, and generate recommendations for the following school year. On the first day, leaders of the curriculum cadre emphasized the importance of teachers' expectations, and presented the following statements as part of the school's philosophy of instruction:

1. [Educators] can't teach at their [students'] performance level and expect them [students] to catch up
2. All students need to have access to grade level content [per the state standards]
3. When "students can't" … students don't catch up
4. If we [educators] don't believe, they [students] won't have to

Teachers proceeded to analyze reading data together and determined that students were performing well below expectations. What stood out to the teachers and leaders in the cadre was the percentage of students reading at or above benchmark in the spring (fifth grade, 17%; sixth grade, 38%; seventh grade, 24%). Teachers offered several reasons, shown in the box below, to explain these data:[2]

Support	● Equity across classrooms - first year teachers needing more support
	● Training for academic assistants (AA) and new teachers
	  ○ Onboarding
	  ○ Need differentiated training
	● Risk taking – support for teacher decision making
	● Systems/roles and responsibilities – guidance and support

[2] This information comes from the leadership team's meeting notes. The information has been re-organized and summarized to suit the purpose of this project.

	○ Quality of support provided ● Need for additional support personnel at the middle school level ○ Targeted support; need for trained tutors; focus on intervention
Feedback	● Equity across classrooms - lack of feedback given to teachers/guidance/direction/vision ○ Teachers need feedback throughout the year/check ins ● Training for academic assistants (AA) and new teachers – need feedback ○ Need feedback, link to PD ● Risk taking – feedback for how kids are responding to instruction and how to adjust ○ Need for teacher feedback to correct or self-correct
Observation	● Training for academic assistants (AA) and new teachers – observation, link to PD ● Risk taking – support for how kids are responding to instruction and how to adjust ● Moved away from teachers observing others- need to see it- what does it look like?
Clarity	● Need clear structures and procedures ○ Need to be outlined in the summer ○ Need to be strategic with new hires about what works ● Training for academic assistants (AA) and new teachers – clarity about role ● Systems/roles and responsibilities – clarity

From this list, the team decided that three of their practices were not beneficial; they concluded that these practices needed to stop entirely to support students' reading outcomes at the middle school: (1) changing expectations/procedures during the year; (2) having designated meetings for ELA and math every week; and (3) using technology as a substitute for teaching/materials. In addition to stopping these practices, they decided that several new practices, listed in the box below, should begin the following school year:

Walkthrough	● Coaching – increased walkthroughs ○ Follow up with feedback/follow through ● Professional development - use walkthrough, observation data to determine needs
Checklists and rubrics	● Coaching - using SEED rubric to individualize support and "push" to the next level so they don't flatline ● Differentiated professional development- more intentionality about needs, roles ○ Checklist to make sure each role has received the appropriate trainings for their role
Observations	● Coaching ○ Having observations of teachers who are strong in an area and discussing afterwards ○ Use observations from previous years and use to goal set for the next year- target feedback for teachers

Communication and accountability	● Coaching - checking/holding accountable/making sure everyone is pulling their weight ● Communication ○ Checking/holding accountable/making sure everyone is pulling their weight ○ Have multiple modes of communication/ consideration for time of day/teaching time ○ Having clear lines of communication when decisions are made
System and procedures	● Professional development - having a system for AA training and supervision so needs are met ● Lesson study ○ Have teachers write plans for new curriculum so everyone can get to know it - provide time for this to happen ○ Use Lesson Study for collaborative lesson planning ○ Define the purpose and procedures of Lesson Study

The following day, teachers analyzed math data together and similarly concluded that students were performing well below expectations. What stood out was the percentage of students at or above the math benchmark in the spring (fifth grade, 11%; sixth grade, 14%; seventh grade, 31%). Once again, teachers offered several reasons to explain these data, which are listed in the box below:

Capacity and coaching	● Growth of organization - coaching capacity ● Intentional training at the beginning of the year and throughout the year ○ Need to build capacity of the staff ● Urgency needs to "be resurrected" ○ Some people take initiative/some don't ○ Less focus on "optics"; need focus on teacher practice (coaching) ○ Differentiated coaching/feedback
Training and practices	● Intentional training at the beginning of the year and throughout the year ○ Time to teachers to meet with AA's (need to bring that back) ● Urgency needs to "be resurrected" ○ Less emphasis on data in both reading and math ○ Less analysis of data ○ Less collaborative conversations and coming up with a plan to make sure there is equity across classrooms ○ Lack of attention to detail for teachers and students ○ New administration needs training in our system and our way of doing things (Leadership Institute)
Feedback	● Urgency needs to "be resurrected" – feedback needed on teaching ○ Need to get back to giving urgent, applicable feedback on teacher practice as opposed to "room set up" ○ Feedback not given/no real guidance given/ needed support and "it wasn't there" ○ Need to stress the importance of all teachers getting feedback even when some need more than others

	○ Asking teachers what would like feedback about when come in ○ Timeliness of feedback- something to work on in the moment ○ Need for protocol for feedback that gives grows and glows immediately/within 24 hours- nothing fancy ● Need follow through with AA's with feedback as well as teacher
Walkthroughs	● Urgency needs to "be resurrected" – walkthroughs needed ○ Walkthrough focus was building wide, not differentiated ○ Frequency of walkthroughs (and transparency of this) ○ Intentionality of walkthroughs ● More walkthroughs- feedback for AA's as well as teacher
Fidelity, structure, and accountability	● Fidelity of systems/structures - data team structure; schedules/routines- lost; new staff with growth; a lot is falling on the team leads ● Urgency needs to "be resurrected" – accountability needed ○ Need to be held accountable ○ Need for structure
Pushing teachers	● Urgency needs to "be resurrected" – need to push teachers to potential ○ Pushing teachers from where they are (as an evaluator) to get to the next level on the SEED rubric ● Use people's strengths- build teacher leadership/distributed leadership

From this list, the team decided that the school could improve students' math outcomes if they renewed their fidelity across the board. In addition, they devised a list of new practices to start next school year, which is shown in the box below:

Feedback	• Simple individualized written feedback based on teacher goals/growth plans • Consistency with feedback
Professional learning communities (PLC)	• Data Teams - having schedules for data team and having it be much more focused • Lesson study - use Lesson Study time to plan lessons for new curriculum ○ Have intentional, solid roll out of new curriculum • Common planning time (CPT) - need time to collaborate and share best practices with teammates • Time is sacred - use of PLC time for what they are intended for
Mentorships	• Mentorships so keep improving craft

On the third day of curriculum cadre, the team contemplated what the school could do moving forward based on what was discussed about reading and math. Together, teachers and leaders developed a project grid for each schoolwide need to assist in the planning and scheduling of tasks and resources next school year. Like the Executive Director, the team identified needs in both PD and instructional coaching, as shown in the partial project grid provided below. While the purpose of the

cadre was to discuss all aspects related to student outcomes and learning, the initiatives identified in the project grid appear exclusively targeted at teachers.

Schoolwide Need	Who is Responsible	By When?	Resources Needed
Consistently provide teachers with simple individualized written feedback based on teacher goals/growth plans	Coaches Principal Evaluator	Within 24 hours of observation; SEED within 10 days	Ample personnel Teacher lesson plans SEED goals access for all responsible Observations from previous years
Time for meetings for teachers and evaluators to plan purposely/goal set	Evaluators Teachers	Oct 2021	SEED Rubric
PLC time is sacred and blocks need to be utilized for what they are intended	Principals Dean Coaches Team Leads Teachers	Aug 2021	Calendar Schedules Curriculum Coverage Assessment Map
Implement Common Planning Time with fidelity so teachers can collaborate and share best practices with teammates	Team Leads Teachers Principals	Aug 2021	Time Coverage
Provide mentorships (beyond TEAM) for staff so they can keep improving their craft	Principals Teachers Director of Talent Management	Nov 2021	Process and procedures Teacher individual growth plans
Have differentiated professional development with more intentionality about needs, roles	Principals Coaches Dean Teachers	Aug 2021	Observation data SEED PD survey- needs
Implement structured observations of teachers who are strong in particular areas and provide time for a debrief afterwards	Teachers Coaches Deans Principal	Oct 2021	Time Coverage
Define purposes and procedures for Lesson Study and use time for collaborative lesson planning	Academic Leadership Team	Aug 2021	Curriculum maps Assessments Data Protocol(s)

Based on the project grid, teachers signaled that they had worries regarding the state of professional learning within the school. The needs identified by the curriculum cadre were also reinforced in my discussions with the Executive Director about the cycle of learning approach and the vision of

implementing it with teachers at the middle school. The consensus was that if teachers participated in effective PD opportunities and received instructional coaching, then they would improve their knowledge and instruction, which would lead to better student outcomes in reading and math. Specifically, elevating teacher expectations would raise student achievement.

What remained unclear in either the curriculum cadre or my discussions with the Executive Director, was a theory of action that might explain why they thought that PD would impact teachers' practices in this specific context, or why it would cause them to have higher expectations of students leading to better achievement outcomes. Furthermore, it was unclear, given the school's context, how they intended to go about supporting the type of learning that could change teachers' beliefs and practices, as well as with developing the structures, supports, and norms that would foster conditions for learning at both the individual and organizational levels.

Literature Review

The following literature review begins with an introduction of a *situated learning perspective* and what is known about teacher learning, and by extension, human learning. Next, I introduce the concept of a professional development (PD) system and its application as a framework for mapping the multiple elements that operate in support of teacher learning. I also synthesize key claims from a major body of literature on the core features of effective teacher PD programs. To close, I describe what has been theorized about the relationship between effective PD, changes in knowledge and instruction, and student performance.

Situated Learning Perspective

In stark contrast to strictly cognitive views of learning as acquisition and internalization of knowledge, Sfard (1998) summarizes the *participation metaphor*, an alternate school of thought wherein individuals progress from newcomer to old timer as a function of practice and participation through interaction and exchange of knowledge. As part of the conceptual shift from an acquisition

metaphor to a participation metaphor, the terms ‘learning’ and ‘knowing’ are operationalized as less about the individual and more about the community as a whole (Lave & Wenger, 1991). In effect, the idea of learning-as-participation is rooted in sociohistoric tradition, such that any analysis of learning through participation must come with careful consideration of the historical, cultural, and symbolic aspects embedded in the organization and/ or activity itself.

Lave and Wenger (1991) outline a “situated framework on learning by considering the trajectories of individuals' participation as they become members of a community of practice,” wherein newcomers gradually progress from peripheral participation toward full participation as they learn through participating in the practices of the community (as cited in Greeno & Gresalfi, 2008, p. 170). Ultimately, the premise of *legitimate peripheral participation* (LPP) suggests that learning transpires as one's participation becomes “increasingly similar to that of experienced old-timers” such that “learning is considered as a process in which individuals participate more proficiently in practices that have structure” (Greeno & Gresalfi, 2008, p. 171). In turn, learning becomes possible through participation in social and cultural practices, the social structure, its power relations, and its conditions for legitimate membership. This inspired other sociocultural perspectives surrounding *communities of practice* (CoP), or “groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly” (Wenger-Trayner & Wenger-Trayner, 2015, p. 1). Thus, learning is first and foremost described as the process by which individuals migrate from newcomer to old timer through participation in not only the building of community relations but also the sociocultural practices surrounding them (Lave & Wenger, 1991).

When learning is conceived as participatory, it becomes a function of the broad social, historical, political, and cultural forces that are understood through engaging in practices of community discourse. The *funds-of-knowledge* perspective thus acknowledges “that recognition of students' multi-stranded relationships within their families and communities could contribute to a deep transformation of the

relationships between schools and communities, and that these transformations might begin with respectful dialogical interactions" (González et al., 2011, p. 483). This perspective also defines cultural identity in relation to an organization's educational structures and practices. More specifically, it provides "an understanding of the cultural system necessary to build constructive relationships…which are needed to improve the educational quality, and equity," within learning organizations (González et al., 2005, p. 48). Together, these arguments constitute both a transformative model and an activity model of learning that supports a sociocultural perspective – that knowing is becoming and learning is a constant process of becoming.

As it turns out, learning or failing to learn is often accounted for by underlying relations of LPP. In this respect, LPP "can itself be a source of power or powerlessness, in affording or preventing articulation and interchange among communities of practice" (Lave & Wenger, 1991, p. 36). Specifically, LPP is easily complicated by social structures and power dynamics that serve to restrict opportunities for learning and ultimately isolate newcomers from participation and entry into a CoP. This reinforces the notion of learning as a change in social practices, whereby all learning is socially and culturally situated. In turn, learning organizations are those that focus on people's *repertoires of practic*e, or "the ways of engaging in activities stemming from participation in a range of cultural practices, as well as the learning that occurs in the development of those repertoires" (Gutiérrez & Johnson, 2017, p. 251), as these apply to notions of culture and are used in learning practices.

Ecology of the Situated Learning Environment

Situative theorists have conceptualized teacher learning as a complex process emerging from reciprocal interactions between the components comprising PD systems; I describe more on this later (Borko, 2004; Desimone, 2009; Greeno & Engeström, 2014; Opfer & Pedder, 2011). As such, the situated learning environment is viewed as a CoP wherein novices are afforded with opportunities to learn from old-timers in pursuit of mastery of knowledge and tasks (Lave & Wenger, 1991). At a macro level, this

implies an *ecological approach to learning* wherein a learner's actions are understood as inherently connected to their willingness or motivation to engage with others, and with the environment, and the various constraints and affordances available within the learning context and related social practices (Rogoff et al., 2002). Therefore, rather than an individual process of acquisition, teacher PD can be conceptualized as a system of interdependent persons drawing on available affordances to participate in particular social practices.

Elements of Professional Development Systems

Much of the literature on teacher PD programs emphasizes that while a coordinated PD system comprises multiple different system agents, most PD events are narrowly targeted at teachers for the purpose of driving student outcomes (Gallucci et al., 2010). Acknowledging that teacher learning occurs in context and in relation to the social systems within which they are participating, Borko (2004) proposes four key elements constituting a PD system: facilitators, teachers, context, and PD program. Depending on the researcher and setting, many of these elements are referred to in the literature by a variety of interchangeable terms. In this capstone study, *teacher PD* is used to refer to any sustained, long-term PD program or opportunity designed to improve teachers' professional knowledge and classroom practice, which would in turn bolster student learning across diverse school settings (Veen et al., 2012). Similarly, *facilitators* are those teacher educators, or instructional leaders (i.e., coaches), in charge of facilitating the PD program and working directly with various levels of stakeholders. Lastly, *coaching* is a specific form of embedded teacher PD that is supported by an instructional facilitator (Gallucci et al., 2010).

Facilitators

The facilitator is one element of a PD system and can be fundamental to the success of the PD program (Borko, 2004). Educational reform efforts have increasingly turned to school-based PD and the role of instructional coaching for driving school improvement (Atteberry & Bryk, 2011). In fact, research

studies have established the benefits associated with hiring instructional coaches, including advances in teacher learning and changes to teacher practice at the classroom level (Bryk et al., 2015; Galey, 2016; Russell et al., 2020). In this capacity, coaches facilitate changes that promote student participation, apply the funds-of-knowledge perspective to all learners, and set high expectations in terms of rigor and classroom instruction (McDonald et al., 2013). Interestingly, a follow-up study by Borko et al. (2014) reported that most studies of effective PD events had overlooked the role of facilitators in teacher PD.

According to research-based findings, the efficacy of coaching initiatives largely relies on how these coaches are chosen and trained and the role defined for coaches in schools (Coburn & Russell, 2008). Nevertheless, despite the growing prevalence of coaching, the literature lacks a clear consensus for a standard model or definition to describe the role of coaches across different school settings (Galey, 2016). Therefore, the fact remains that despite careful selection and rigorous training, many coaches remain an untapped resource in schools (Bryk et al., 2015; Russell et al., 2020). Moreover, this limitation in praxis becomes compounded by issues relating to cultural discontinuity in settings where authoritarian control of a school and micromanagement run rampant.

Context

PD effectiveness is subject to contextual factors such as teacher and student characteristics, state and federal policies on education and curriculum, and aspects of school culture related to principal leadership (Telese, 2012). Thus, researchers and practitioners should incorporate their own contextually and culturally relevant factors as a launch point for understanding what makes certain PD programs more or less effective; they must situate learning within teachers' classroom culture and the overall school culture (Desimone, 2009). Specifically in urban public schools, high principal, staff, and student turnover, as well as teacher attrition, is an unfortunate and persistent reality. With respect to the role of school leaders in building instructional capacity, “teachers are more likely to use ideas and strategies from PD when they are aligned with leadership practices” (Desimone & Garet, 2015, p. 257). In the same

vein, policy-level factors may also control the curricular materials promoted in PD and therefore influence the success of a program for professional learning.

Professional Development Program

The extent to which a teacher PD program is adaptive or specified determines, to some degree, the facilitator's role, and teachers' perceptions about the instructional coaching they receive. A highly adaptive teacher PD program provides facilitators, and therefore teachers, with great flexibility in enacting it in a classroom. An adaptive teacher PD program is amenable to active learning strategies that not only engage learners, but also facilitate a deeper understanding of the core features of effective teacher PD (Penuel et al., 2007). Facilitators of highly adaptive teacher PD programs, by virtue of the agency they are afforded, are well positioned to make changes aligned with the school's goals (Boles et al., 2020; Jacobs et al., 2017) and subsequently boost teachers' knowledge and drive improvements in their classroom practice (Koellner & Jacobs, 2014).

Core Features of Effective Professional Development

Lately, social scientists have been in increasing agreement about which aspects of teacher PD spark actual changes in teacher practice (Desimone, 2009; Desimone & Pak, 2017; Hu & Veen, 2020; Little, 2006; Tournaki et al., 2011; Veen et al., 2012). A large-scale empirical study analyzed the effects of different teacher PD features on teacher learning and classroom practice (Garet et al., 2001). In this study, the researchers identified three critical features – content focus, active learning, and coherence – and three structural features – form, collective participation, and duration – of teacher PD which significantly influenced teacher learning. These findings are substantiated by empirical data to suggest that there is a *consensus* on the set of features for characterizing teacher PD as being effective and resulting in teacher learning (Desimone, 2009, 2011; Hammer, 2013; Sims & Fletcher-Wood, 2021; Timperley et al., 2007; van Driel et al., 2012; Wilson et al., 2017).

The consensus, as articulated by Desimone (2009) based on professional learning research by Garet et al. (2001) and others, identifies core features common to successful teacher PD which are shown to be effective in altering teachers' practices and enhancing student outcomes (Darling-Hammond et al., 2017; Hawley & Valli, 1999). These core features include (a) *content focus* – basing activities on subject-specific content and directly informed by the ways in which students learn; (b) *active learning* – developing prospects for teacher learning through observation and high-quality feedback; (c) *coherence* – aligning curricular content and overall goals with the school's mission and federal and national demands; (d) *sustained duration* – ensuring PD activities are continuous, rather than episodic and disjointed; (e) *collective participation* – forming, as with active learning, a community of learners who, through interaction and collaboration, build a collective knowledge bank of instructional strategies that work (Darling-Hammond et al., 2017; Desimone, 2009; Desimone & Garet, 2015). In the following subsections, I synthesize a vast body of research that supports a core set of features – duration, content focus, active learning, coherence, and collective participation – common to effective teacher PD.

Content Focus

Some researchers have speculated that content focus could be the strongest influencer of effective teacher PD, as it both increases teachers' knowledge and improves instructional practice, thereby influencing student learning (Desimone et al., 2013). The first serious discussions and analyses of teacher knowledge and learning emerged during the late 1980s; Shulman (1986) first distinguished between two categories of teacher knowledge – *content knowledge* and *pedagogical knowledge*. In practice, effective teacher PD produces effects through some combination of the two. This overlap, referred to as *pedagogical content knowledge*, defines the point at which the two domains of teacher knowledge converge to produce gains in student learning and achievement. Pedagogical content knowledge therefore represents the body of practical content knowledge that acts as an enabler of

changed teacher instruction in the classroom (Little, 2006). In addition, content focus primarily involves learning opportunities to increase teacher content knowledge and pedagogical content knowledge (Yang et al., 2020). For example, through conducting a randomized control trial, Garet et al. (2008) found that content focus significantly influenced teacher knowledge, further substantiating its importance when evaluating any stage of teacher PD.

Since earlier conceptions of teacher knowledge in practice, many researchers have empirically explored possible associations between teacher content knowledge, pedagogical knowledge, and pedagogical content knowledge and student outcomes; however, their findings are widely disparate. These discrepancies are most prevalent across studies examining the course of action between effective teacher PD and changes in teacher knowledge in relation to measurable changes in student learning. For example, an exploratory study (Olfos et al., 2014) reports no significant associations of teacher content knowledge with student knowledge or achievement. Conversely, in a study examining the relationship between teacher content knowledge and student learning outcomes in particular, Yang et al. (2020) report the exact opposite. Nonetheless, other studies have reported a positive relationship between teacher content knowledge and student outcomes as measured through standardized assessments. For example, in a study measuring pedagogical content knowledge in relation to student learning, teacher pedagogical content knowledge and student learning gains appeared significantly correlated, and teacher's pedagogical content knowledge and student achievement also revealed a significant association (Olfos et al., 2014).

Active Learning and Collective Participation

Within the field of K–12 teaching and learning, educators and instructional leaders alike have widely come to accept active learning as a superior pedagogical approach to instruction. Common sense and studies on the topic of adult learning show that adults benefit from active learning, too. Teacher PD is no exception to this rule, such that *active learning*, defined as "opportunities for teachers to become

actively engaged in the meaningful analysis of teaching and learning," is consistently documented in studies of effective PD programs (Desimone et al., 2002, p. 87). To form an inclusive learning community, educational leaders should engage groups of teachers assigned to the same grade level, content area, or school in PD activities and present them with multiple opportunities for active learning. For example, rather than passively listening to lectures, teachers should be given chances to participate in activities such as observing other teachers and receiving or giving feedback, reviewing student work samples, and presenting to other teachers (Desimone, 2011).

Collective participation is closely related to active learning and includes joint PD efforts based on grade-level or subject-specific group work. It promotes collaborative discourse among educators at a school (Garet et al., 2001; Veen et al., 2012).

Coherence and Duration

Several studies have found that effective PD programs are of sufficient duration, as measured by both their time span (i.e., period over which the learning activity occurs) and the actual number of hours involved (Veen et al., 2012). However, many schools continue to rely almost exclusively on day-long, discontinuous teacher PD opportunities in the form of workshops or episodic training programs (Gómez Zaccarelli et al., 2018; Little, 2006; Veen et al., 2012). Therefore, above all else, teacher PD programs ought to not only interact with instructional practice, but also habitually afford teachers with the space and capacity to make deep and meaningful changes in the classroom. In other words, closely aligning PD with enactment shall ensure coherence, and thus continuity, across knowledge and practice (Penuel et al., 2007).

Theory of Action for Professional Development

The uncertainty surrounding how to study PD effectiveness calls attention to two central aspects for studying PD effectiveness. First and foremost, empirical studies can identify critical features exclusive to effective teacher PD efforts. Second, they can operationalize theories explaining the mechanism of

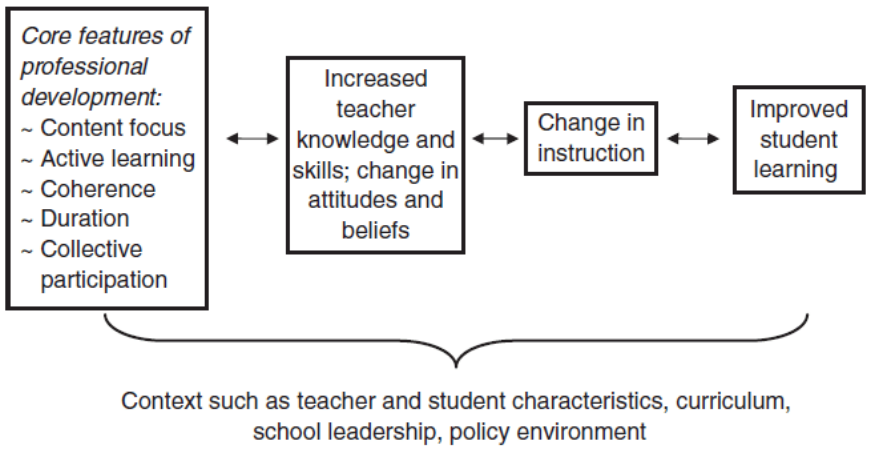
action between participation in teacher PD and changes in teachers' knowledge and practice, which leads to enhanced student learning. These aspects are addressed by a “core conceptual framework” based on a core theory of action for PD that takes place in four steps (Desimone, 2009, 2011; Desimone et al., 2013).

1. Teachers participate in learning opportunities and receive effective PD.
2. Participation in effective PD leads to improvements in teachers’ knowledge and skills and is oftentimes accompanied by changes in teachers’ attitudes and beliefs.
3. With these improvements in knowledge and beliefs, teachers make improvements to their instructional practice within the classroom.
4. These changes in instruction and practice lead to improved student learning.

This conceptualization, along with the set of core features identified for effective PD, gave rise to the causal path model proposed in Figure 6 (Desimone, 2009).

Figure 6

Desimone’s (2009) Proposed Core Conceptual Framework



Limitations of the Core Features Model

The assumptions of this model are twofold; effective PD activity consists of a set of core features, and effective PD is causally linked to improved student learning. Several studies (i.e., Desimone

& Garet, 2015; Rutten, 2021; Veen et al., 2012) have conceived of the theory of action for effective PD as the product of two separate but related theories: (1) the *theory of (teacher) change* which looks at PD's effectiveness as a function of changed teacher practice; and (2) the *theory of instruction*, which involves studying student learning as a function of the observable change in teacher practice. Both theories are arguably vitally important in the study of PD effectiveness, such that if either theory fails, so will the effectiveness of teacher PD (Willegems et al., 2017). Yet, the utility of these theories and their models remains challenged in two ways: (1) there are inconclusive findings on the pathway of action demonstrating causality between all of the core features and changes leading to improved student learning; and (2) there is a lack of clarity as to how teacher beliefs should be conceptualized and operationalized in this model (Desimone, 2009; Yang et al., 2020).

Lack of Causal Evidence. An overwhelming number of studies on effective teacher PD have adopted the core features as a framework and explored the relationships between these features and the effectiveness of teacher PD on knowledge, teaching, and student outcomes (Desimone, 2009; Roth et al., 2018; Telese, 2012; Veen et al., 2012; Yang et al., 2020). The results of these studies are somewhat mixed (Desimone & Garet, 2015). For instance, while the core features of PD have been supported by a cross-sectional study (Garet et al., 2001), a longitudinal study (Desimone et al., 2013), and a literature review of empirical studies (Desimone, 2009), a smaller subset of studies (e.g., Garet et al., 2008) have been unsuccessful at demonstrating causality between all the core features and effective teacher practice. A failure to produce the same effects across studies and contexts suggests that the replication differed in some important way (Hu & van Veen, 2020).

Over the last decade, the randomized control trial by Garet et al. (2008) and others like it have drawn criticism for testing the effectiveness of a highly specified teacher PD intervention and using an absence-versus-presence measurement of core features (Opfer & Pedder, 2011). The problem is that this tendency to focus on the core features of PD as the causal conditions that directly influence teacher

learning, are most often at the expense of other factors that are just as likely contributing to the creation of affordances for teachers' learning in this specific context. Though a wide range of educational, philosophical, and political movements have affected modern approaches to teacher PD, published accounts of effective teacher PD primarily draw from studies that overlook their practical applications. This is important because implementations of these models are fundamentally intertwined and overlap across the literature on high-quality teacher PD. Given the various nature of PD programs, and the complex process that is learning, it appears that focusing on salient design features is only marginally productive for studies investigating PD effectiveness, and that focusing on the program's underlying theories of action likely constitutes a more productive approach (Kennedy, 2016).

Lack of Theoretical Clarity. Viewed through the lens of situated learning theory, Desimone's (2009) core features model reveals subtle differences related to fundamental views about the knowledge base for teaching and how individuals learn. Specifically, the issue with the core features conception of teacher effectiveness is that its underlying theories of action often fail to capture the complex nature of teaching and learning by establishing a direct linkage between teaching and student performance on standardized assessments (Skourdoumbis & Gale, 2013). Such differences likely contribute to the lack of consensus regarding the criteria of effective teacher PD (Randi & Zeichner, 2005) and are likely caused by the "reductionist epistemological positioning of much of the teacher learning literature" (Opfer & Pedder, 2011, p. 381). As I described above, Desimone's (2009) model of PD, which lacks theoretical explanation for why or how the process of teacher learning and change transpires, contributes to this literature in the sense that it adds a one-size-fits-all approach that has limited explanatory power.

Whereas the premise of the linear, causal path models (i.e., Desimone, 2009; Guskey, 2002) is that student achievement is associated with quality of instruction, and that teachers' quality of instruction increases with more PD, this simplistic conceptualization of teacher PD overwhelmingly fails

to account for the embedded and situated nature of teacher learning; given that each case of PD is unique, generalizing the same model for all PD is contraindicative (Lewis et al., 2015). This oversight is important and worth clarifying, as there is surmounting evidence of the need for approaches to PD that target teachers' beliefs, expectations, and deficit theories as a means of enhancing their expectations of what students are capable to achieve (Higgins & Parsons, 2011). The literature reports that teacher beliefs and instructional practice are not only connected and related to one another but also strongly influence student achievement. For example, it has been demonstrated that deficit assumptions about students' learning capacities moderate the implementation of curricula (Harris, 2012).

Professional Development as Situated Learning

While there exists a vast body of research that supports a core set of features – duration, content focus, active learning, coherence, and collective participation – common to effective teacher PD, the application of a core features framework has yielded mixed results in my review of the literature. This is because teachers' professional growth is substantially impacted by the situated learning environment, or the context in which they work. Thus, the empirical efforts have failed because they have failed to account for these factors.

> The school context can impinge on a teacher's professional growth at every stage of the professional development process: access to opportunities for professional development; restriction or support for particular types of participation; encouragement or discouragement to experiment with new teaching techniques; and, administrative restrictions or support in the long-term application of new ideas. (Clarke & Hollingsworth, 2002, p. 962)

The complexity of this process is difficult, if not impossible, to comprehend by studying *nonrecursive* relationships between components in discretion from one another. Rather, unpacking the reciprocal *recursive* relationships between these components using situated learning theory would facilitate a

deeper understanding of not only how a PD program functions but also what makes them more or less effective as vehicles of teacher change (Jacobs et al., 2017).

Conceptual Framework

Holistically addressing the problem of practice required developing a conceptual framework that would situate teacher professional development (PD) at NECS within a larger system and thereby conceptualize teacher learning in terms of the whole activity system. In my attempt to contextualize PD implementation and understand how teachers perceived their opportunities to learn, I focus on *activity systems*, or "complex social organizations containing learners, teachers, curriculum materials, software tools, and the physical environment" (Greeno & Engeström, 2014, p. 79). From a situative perspective, the elements of these activity systems represent potential mediators and moderators of PD and learning.

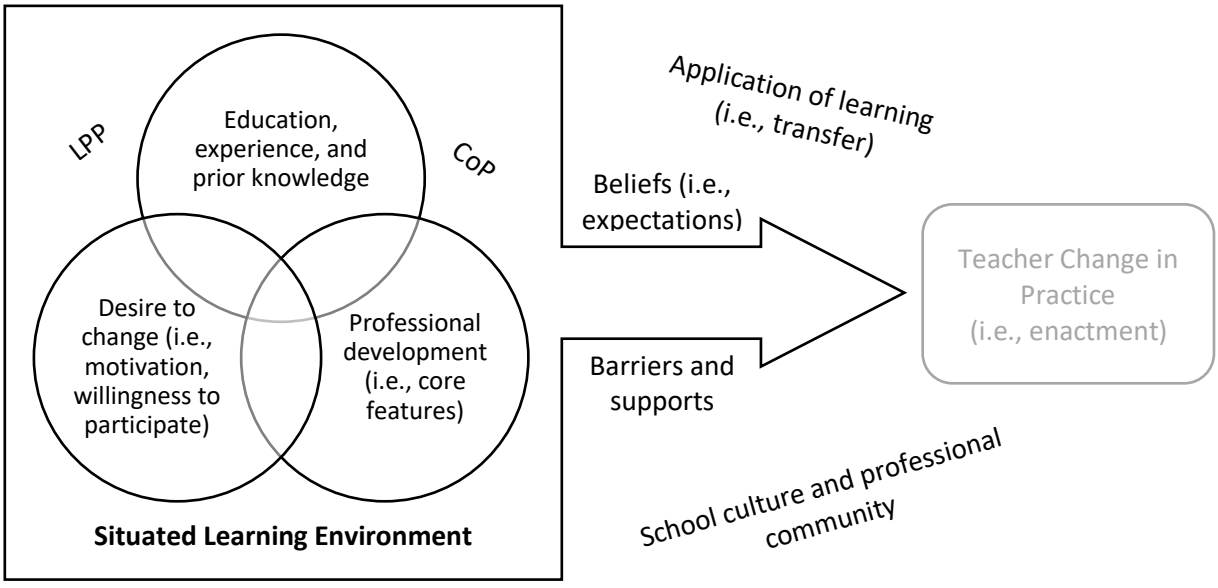
> From the situative perspective, all socially organized activities provide opportunities for learning to occur, including learning that is different from what a teacher or designer might wish. We study learning when we choose to focus our observations and analyses on changes over time and experience in people's activities. The study of learning in activity requires us to develop concepts and principles that can explain how and why activities in a setting result in changes in what people can do. Use of the situative perspective in designing learning environments focuses on characteristics of activity systems that can result in learners increasing their capabilities for participation in ways that are valued. (Greeno & Engeström, 2014, p. 80)

To develop this study's conceptual framework, I drew both from the literature review and my own understanding of the school's context and what they were hoping to achieve this year through teacher PD. Thus, rather than bound this study to isolated categories of effectiveness (i.e., Desimone, 2009), I used Lave and Wenger's (1991) analytic framework of situated learning to connect both individual cognitive processes and group social practices as a means of comprehending the complexity

of the phenomenon and to examine how teachers perceive their lived experiences in PD. To better understand *how* teachers' learning changed through PD, I adapted the conceptual framework for this study from the model by Lewis et al. (2015), which corresponds with situated learning by considering the multiple levers that influence changes in teachers' learning and instruction. The framework, illustrated in Figure 7, provides a structure for not only reporting this study's findings, but also developing a plan for collecting, analyzing, and interpreting the data leading to these findings.

Figure 7

Conceptual Framework of Teacher Learning and Change Through Professional Development, Based on Lewis et al. (2015)



To optimize the results of a process, one must first seek to understand the process. Thus, to support teachers' professional learning, we must first understand the process by which they learn professionally and the environment in place to enhance or impede this progress (Clarke & Hollingsworth, 2002). By breaking down an activity system into individuals and their tools (i.e., affordances of learning), the conceptual framework I offer uses a situative perspective to study the activity system at the level of individuals and tools, and then reconcile these explanations back together

to form an explanation of the entire activity system (Greeno & Engeström, 2014; Greeno & Gresalfi, 2008).

Research Questions

By capturing teachers' perspectives of the professional learning opportunities at NECS, this study will investigate the ways in which specific teacher professional development (PD) initiatives shaped teachers' learning at the school. With this study, I hope to inform the school's leaders of their success in enacting and implementing professional learning opportunities that teachers perceive as effective for their learning and practice. I used findings from my literature review and the conceptual framework to devise three central research questions for this capstone project:

1. In what ways do teachers describe the features of teacher PD opportunities offered at the school in 2021–2022, and during the 2021 summer, and how do these descriptions compare to the literature standard of effective teacher PD?
    a. In what ways do teachers describe the features of teacher PD opportunities offered in the 2021–2022 school year?
    b. How do the features of PD opportunities offered in the 2021–2022 school year compare with descriptions of teacher PD opportunities offered during the 2021 summer?
    c. In what ways do 2021–2022 teacher PD opportunities described by teachers align with criteria for effective teacher PD?
2. In what ways do teachers describe contextual factors as impeding their perceptions of learning in teacher PD opportunities?
3. In what ways, if any, do teachers' expectations of student success against grade level standards change over the course of the school year?

Project Design

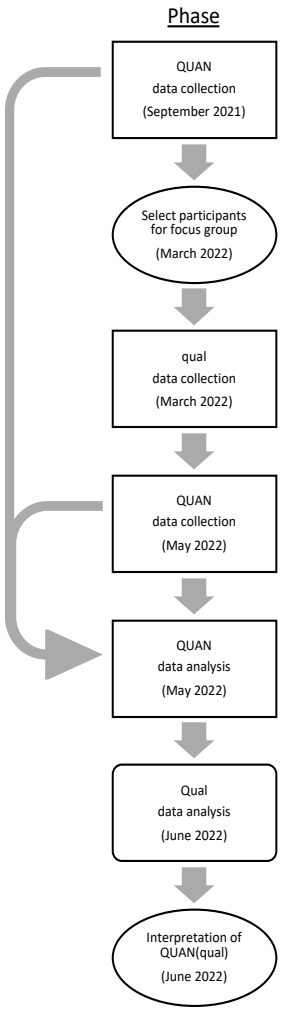
The purpose of this study was to understand teacher professional development (PD) opportunities at the school from the perspectives of teachers, with a focus on explaining contextual factors that mitigate whether or not participation in a teacher PD program could lead to a change in teachers' beliefs, knowledge, and perceptions of practice. To conduct this study, I collected both quantitative (i.e., aggregated, less specific measures) and qualitative (i.e., personal, descriptive experiences) data. Therefore, this study employs a mixed methods design, which includes "at least one quantitative method (designed to collect numbers) and one qualitative method (designed to collect words), where neither type of method is inherently linked to any particular inquiry paradigm" (Greene et al., 1989, p. 256). Specifically, I chose a *sequential explanatory design*, wherein a researcher:

> Begins by conducting a quantitative phase and follows up on specific results with a subsequent qualitative phase to help explain the quantitative results. The qualitative phase is implemented for the purpose of explaining the initial results in more depth, and the name of the design – explanatory – reflects how the qualitative data help explain the quantitative results (Creswell & Plano Clark, 2018, pp. 168-169).

The multiphase approach for this study featured a sequential design comprised of a qualitative phase occurring between the two quantitative phases (Creswell & Plano Clark, 2010; Ivankova et al., 2006). A procedural diagram for this study is shown in Figure 8. Arrows are used to indicate the flow of the research activities, connections between the different phases, and the point of final integration.

Figure 8

Procedural Diagram for the Multiphase Sequential Mixed Methods Study Design



Use of Data	Procedure	Product
• Pre-measure of teachers' levels of participation and expectations for students	• Qualtrics: administer pre-survey to all middle school teachers (*N* = 17)	• Numeric data (frequency statistics of features of teacher PD and teacher expectations scores)
	• Select a convenience sample for focus group	• Focus group interview protocol
• Understand how teachers perceived PD opportunities offered by school	• Zoom: online focus group with middle school teachers (*n* = 12)	• Transcript
• Post-measure of teachers' levels of participation in PD and expectations for students	• Qualtrics: administer post-survey to all middle school teachers (*N* = 14)	• Numeric data (frequency statistics of features of teacher PD and teacher expectations scores)
• Compare group means and explore trends across survey responses	• R: descriptive statistics and group comparisons for pre- (*n* = 11) and post- (*n* = 8) surveys	• Descriptive statistics and group comparisons
• In vivo quotations connecting and elaborating survey findings	• ATLAS.ti: inductive and deductive coding and thematic analysis of focus group transcript	• Codes and themes (content analysis) and thematic analysis of perceived barriers
	• Integrate qualitative and quantitative findings using joint displays	• Comparison of quantitative and qualitative findings, and meta-inferences

Note. Format adapted from "Using Mixed-Methods Sequential Explanatory Design: From Theory to Practice" by N. V. Ivankova, J. W. Creswell, and S. L. Stick, *Field Methods, 18*(1), p. 16. Copyright 2006 Sage Publications.

Data Collection

Data collection through surveys and a focus group discussion yielded valuable information about each of the components in the conceptual framework for this study: core features of teacher PD, barriers related to the school context, and change in teachers' beliefs (i.e., their expectations of students). Following the study's approval, I commenced data collection by inviting all middle school teachers at NECS to complete a self-assessment of their professional learning at the school, including

opportunities for formal teacher PD, one-on-one support, and collaborative activities with teaching colleagues, as well as a self-assessment of their current expectations for students' success against grade level standards. After collecting all completed pre-surveys, I recruited teacher volunteers to participate in a focus group session to discuss key issues and topics affecting teacher learning and to share their experiences from participating in teacher PD opportunities offered at NECS. Subsequently, I assessed teachers' impressions of teacher PD opportunities at NECS to gain descriptive insight into shifts in teacher practice and changes at the student level and within the classroom. Table 3 provides an overview of the data collection tools I employed to address the central questions of this project.

Table 3

Research Questions Linked to Data Collection Tools

Research question	Data to answer the question	Data collection tool
RQ1: In what ways do teachers describe the features of teacher PD opportunities offered at the school in 2021–2022, and during the 2021 summer, and how do these descriptions compare to the literature standard of effective teacher PD?	Amount of time teachers engage in professional learning and the scope of activities they participate in; general level of teacher satisfaction and perceptions of learning from participating in these opportunities	Teacher pre- and post- surveys Focus group interview
RQ2: In what ways do teachers describe contextual factors as impeding their perceptions of learning in PD opportunities at the school?	Group opinion and perceptions of contextual factors that function to enhance or impede demonstrations of high-quality instruction by teachers and therefore changes with students in the classroom	Focus group interview Teacher post-surveys
RQ3: In what ways, if any, do teachers' expectations of student success against grade level standards change over the course of the school year?	Measure of teachers' expectations of student success against grade level standards and identify group-level shifts in teachers' expectations for students at the start and end of the school year	Teacher pre- and post- surveys

Quantitative Data Collection

The pre- and post-surveys used in the quantitative strands of this study included a portion of items adapted from the 2020 Tennessee Educator Survey (TES) teacher professional learning module designed by the Tennessee Department of Education (TDOE) in collaboration with Vanderbilt University's Tennessee Education Research Alliance (TERA), and a portion of items taken from the 2018 Teachers' Expectations Survey designed by The New Teacher Project (TNTP). To address the features of PD opportunities, contextual factors, and teachers' expectations of student success in the context of their classrooms, I combined the two surveys (the TES and the Teachers' Expectations Survey) to create a pre-survey (Appendix A) with 17–23 questions[3] (15 closed-ended and two open-ended) and a post-survey (Appendix B) with 31 close-ended questions. On both survey instruments, general demographic and background variables included items such as gender, race/ethnicity, and job and career tenure. Responses to these items helped validate similarity between the pre- and post-survey samples.

The core features of PD refer to duration, content focus, active learning, coherence, and collective participation (Desimone, 2009), while contextual factors include teacher and student characteristics, state and district policies regarding education and curriculum, and aspects of school culture related to principal leadership (Telese, 2012). Portions adapted from the TES (TDOE, 2020) assessed school leadership and the principal, availability of curricular materials provided by the district, professional learning opportunities for teachers, individual support through one-on-one professional relationships, opportunities for collaborative teacher activities, and fulfillment of needs for PD. I measured teacher expectations of student's success against grade-level state standards using a composite score and items taken from the Teachers' Expectations Survey (TNTP, 2018). I describe each of these constructs in greater detail below.

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[3] Teachers identifying as veterans at the school were redirected to a separate set of six questions about their previous experiences with professional learning at the school.

Survey Measures for Research Question 1. The first research question asks, "In what ways do teachers describe the features of teacher PD opportunities offered at the school in 2021–2022, and during the 2021 summer, and how do these descriptions compare to the literature standard of effective teacher PD?" Teachers' responses were measured using items from the 2020 Tennessee Educator Survey – specifically the professional learning teacher module (TDOE, 2020). I selected 12 items to capture constructs of duration, content focus, active learning and collective participation, and coherence. I describe these items below; these items are adapted from the TES unless otherwise noted; a summary of these constructs and sample questions is provided in Table 4.

Table 4

Survey Constructs and Sample Questions: Research Question 1

Construct [1]	Example survey question
Coherence/ Duration	About how much time have you spent engaging in each of the following types of professional learning: formal PD opportunities, individual support through one-on-one mentoring, and collaborative activities with other staff
Content Focus	For each of the following, how would you rate your experiences with professional learning at the school: PD focused on curriculum and/or instruction, PD focused on social and emotional needs of students (SEL), and PD focused on culturally relevant instruction (CRI)
Active Learning/ Collective Participation	How often have you participated in the following professional learning activities: grade-level team collaboration, subject-area team collaboration, reviewing student data, plan a lesson with another teacher, share instructional feedback, and observe another teacher's classroom

Note. These survey questions were adapted from ones on the 2020 TES (TDOE, 2020).

[1] Some of these constructs were assessed together using the same survey questions. For these constructs, I relied equally, if not more, on qualitative findings collected from a focus group with teachers.

Measures of Duration. I used three items to measure duration, or the total contact hours and span of time over which an activity occurred, on both the pre- and the post- survey as a means of comparing the quality of PD during the summer and throughout the school year. An example item for duration is an interval scale question that asks, "About how much time have you spent engaging in the

following types of professional learning?" Using an ordered response format, teachers indicated the number of contact hours spent engaging in formal PD, individual support, and collaborative activities by selecting a response ranging from 0 (*Not at all)* to 4 (*More than 40 hours).*

Measures of Content Focus. I used three items on the post-survey to measure content focus, or how well an activity focused on developing teachers' content knowledge. An example item is a Likert-type question that asks, "For each of the following, how would you rate your experience with professional learning at the school?" Respondents were asked to rate the effectiveness of PD focused on three topics (curriculum/instruction, social and emotional needs, and culturally responsive instruction by selecting a response ranging from 1 (*Extremely ineffective)* to 6 (*Extremely effective*).

Measures of Active Learning and Collective Participation. I measured two closely related constructs, active learning and collective participation, on the post-survey using an ordered response model comprised of six items. An example question is "How often have you participated in the following professional learning activities?" Respondents were asked to indicate their frequency of participation in the six activities (grade-level team collaboration, subject-area team collaboration, reviewing student data, plan a lesson with another teacher, share instructional feedback, and observe another teacher's classroom) by selecting a response category ranging from 0 (*Not at all)* to 4 (*Once a week or more).* While these items provide details on the form of PD, or the types of PD activities teachers participated in, qualitative data from the focus group provided me with teachers' rich descriptions of how, if at all, these activities engaged them in ways that enabled their learning and changes in practice.

Measures of Coherence. Finally, I measured coherence of the PD program using a nominal scale question on the pre- and post- survey asking about the extent to which professional learning opportunities at the school aligned to the needs of teachers. This question was *not* adapted from the TES but was generated based on the context of this school and its focus on culturally relevant instruction. Respondents to the pre-survey were provided a list of Kavanagh's (2017) core practices for

multicultural education and asked to select all of the following they hoped to see incorporated in PD at the school.[4] The post-survey asked a similar question.[5] Lastly, a nominal scale question on the post-survey asked teachers to identify who they primarily worked with to improve their teaching from a list of choices that included instructional coach and administrator among others, including the option to select other and provide a write-in response. While this comparison provides some insight into coherence between teachers' needs and PD opportunities they are offered, my findings for this construct would rely mostly on qualitative data provided by teachers' descriptions of their experiences in PD during the summer compared to the school year. Specifically, to understand in what ways these opportunities were perceived by teachers as being coherent, or relevant, to their daily work, and thus learning.

Survey Measures for Research Question 2. The second research question asks, "In what ways do teachers describe contextual factors as impeding their perceptions of learning in teacher PD opportunities?" To address the second research question, I evaluated the condition of teacher PD in the school using a set of factors that, based on my literature review, were described as barriers to the effectiveness of teacher learning in PD. Accordingly, I assessed teachers' perceptions of barriers to their learning in PD using items adapted from the 2020 TES. For nearly all items in this section, I used a four-point Likert-type scale ranging from 1 (*Strongly disagree*) to 4 (*Strongly agree*). Respondents recorded their degree of agreement with a series of statements covering their perceptions of the leadership, curriculum, and school climate and culture. Table 5 below provides an example item for each of these constructs.

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[4] These practices were selected because the school has offered consistent PD in CCAR, which is directly based on promoting these practices and culturally relevant instruction in the classroom. For a description of CCAR, see organization context.

[5] The post-survey asked "Since October 1, 2021, which core practices of instruction have been incorporated in your school's PD? (Please select all that apply)" and was worded to compare teachers' learning in PD during the summer vs. during the school year.

Table 5

Survey Constructs and Sample Questions: Research Question 2

Construct	Example survey question
Curriculum/ Materials	Please indicate the extent to which you agree or disagree with the following statement about the curricular materials provided by your school: My school provides me with the MATHEMATICS [1] curricular materials [1] (e.g., textbooks, workbooks, activities, assessments) necessary to be successful.
Policy	For each of the following, how would you rate your experiences with professional learning at the school: The amount of time scheduled for instructional planning. [2]
Culture	Our school staff is a learning community in which ideas and suggestions for improvement are encouraged.
Climate	The staff feels comfortable raising issues and concerns that are important to them with school leaders.
Leadership	My principal regularly models effective instruction.

[1] The underlined word was populated based on what the teacher respondent selected as their content area of instruction. This example item would have appeared for a teacher who indicated that they taught math at the school.

[2] For this item, teachers responded by selecting an option choice from 1 (*extremely ineffective*) to 6 *(extremely effective*)

Survey Measures for Research Question 3. Teacher expectations and attitudes, being subjective, are difficult to measure using a single indicator. Therefore, I used a composite index (Babbie, 2017) from the TNTP Teacher Expectations Survey to attempt to accurately capture this complex measure. Both the pre- and post-survey presented to the participants the following four self-report items from the Teacher Expectations Survey (TNTP, 2018): (a) Students are overburdened by the demands of our state's standards; (b) My students need something different than what is outlined in our state's standards; (c) The standards make it difficult for students to learn basic skills in my subject; and (d) Our state's standards are too challenging for my students. Responses were again recorded on a Likert-type scale (0 = *Strongly agree*, 1 = *Agree*, 2 = *Somewhat agree*, 3 = *Somewhat disagree*, 4 = *Disagree*, 5 = *Strongly disagree*). I captured teachers' expectations using a composite score based on the responses to the four items. Based on the scoring guide accompanying the TNTP survey, every survey

received an expectation score between 0 and 20, which I calculated by taking the sum of the four items. Higher scores represented higher expectations, and any score greater than or equal to 11 was classified as *high expectations* (TNTP, 2018).

Reliability Analysis of Survey Instrument. Internal consistency reliability only applies to multi-item scales and assesses how closely related items measure the same concept. I used Cronbach's alpha, which gauges how closely items on a scale are related to one another, to measure it. According to statistics, Cronbach's alpha usually falls between 0 and 1; when it is at least 0.70, it is typically regarded as acceptable internal consistency reliability (Elkin, 2012). Cronbach's Alpha showed the teacher expectations construct of the survey to reach good reliability, $\alpha = 0.737$, therefore I retained all four items when computing the composite variable for teachers' expectations of students (TNTP, 2018).

Survey Participants. Using non-probability techniques and census sampling methods, I invited all 31 middle-school teachers at NECS to participate in the study. Of the total teachers employed at the school, 11 provided informed consent (65% of employees) for the pre-survey and eight provided informed consent (57% of employees) for the post-survey. Across participants in both surveys ($N = 19$), the majority of teachers self-identified as White (9 out of 17 teachers)[6] and non-Hispanic (16 out of 19 teachers). Twenty-six percent (5 out of 19 teachers) indicated that they were entirely new to the field and had never taught before, and the remaining 74% (14 out of 19 teachers) identified as either new hires or veterans at the school. Table 6 provides an overview of teacher demographics for each survey tool.

Table 6

Characteristics of Teachers Responding to Surveys

Characteristic	Survey Instrument		Total ($N = 19$)	p-value [2]
	Pre-survey ($N = 11$)	Post-survey ($N = 8$)		

[6] Across both surveys, $n = 2$ teachers chose not to identify their race. These teachers were excluded from the denominator when calculating frequencies.

Gender				0.3
Female	4 (36%)	5 (71%)	9 (50%)	
Male	7 (64%)	2 (29%)	9 (50%)	
Unknown	0	1	1	
Race				0.6
American Indian or Alaska Native	0 (0%)	1 (14%)	1 (6%)	
Asian	1 (10%)	0 (0%)	1 (6%)	
Black or African American	3 (30%)	3 (43%)	6 (35%)	
White	6 (60%)	3 (43%)	9 (53%)	
Unknown	1	1	2	
Hispanic	2 (18%)	1 (12%)	3 (16%)	1.0
Professional Experience				0.6
New hire	4 (36%)	5 (63%)	9 (47%)	
Novice [1]	4 (36%)	1 (12%)	5 (26%)	
Veteran	3 (27%)	2 (25%)	5 (26%)	

Note. The "Unknown" classification comprised of teachers who did not provide their race or gender.

[1] Novice are those teachers with zero teaching experience and in their first year of teaching

[2] Fisher's exact test

Survey Procedure. Given the culture at NECS, it was important to engage leadership in announcing the purpose of the study and encouraging teacher participation in the pre-survey. The school Executive Director and middle-school principal were vital to increasing response rates of the survey; they pre-notified prospective participants to stress the importance of the study and request their participation in the survey. In the week leading up to the pre-survey, NECS also hosted a virtual faculty meeting among middle school teachers, administrators, and myself to discuss project details and address any concerns. During this meeting, I assured potential participants that their information would be kept confidential, such that at no point would administrators at the school be able to link teacher identities with responses.

I administered the pre-survey in September 2021 to a census sample of all full-time middle school teachers employed at NECS, prior to implementation of intensive instructional coaching at the school. I created a contact list of recipients beforehand using the staff information page on the school's website and deployed all pre-surveys via email. Each email included an individual link to the survey

hosted on the platform Qualtrics, allowing me to track responses and send out reminder messages to participants. At the start of each survey, participants were asked to read a statement on the confidentiality and voluntary nature of the study and to affirm their consent to taking the survey. The pre-survey response rate was 64.71%, with 11 completed responses (*N* = 17) captured between September 21, 2021, and September 30, 2021. I took several logistical actions to increase the response rate in the pre-survey, including reminding participants of the survey deadline date and extending the deadline by two days to allow for more submissions.

I distributed the post-survey in May 2022 to a census sample of full-time middle school teachers employed at NECS. Despite planning a panel survey design, the high turnover rate at the school resulted in most teachers being only available to participate in one of the two surveys, thereby serving as independent samples of the same population (i.e., all full-time middle school teachers at NECS). Due to changes in the teacher population at the time of each survey, new hires were mostly unaware of the study or the value of their participation. Subsequently, the post-survey response rate was 57%, with eight completed responses (*N* = 14) captured between May 16, 2022, and May 23, 2022.

Data collected from the teacher pre- and post-surveys were downloaded, imported into a spreadsheet, coded, and exported to Rstudio Version 1.4.1717 for analysis. To prepare the data set for analysis, I ensured all responses were complete and recoded variables to a quantitative form. See Appendix C for the complete coding scheme used for recoding the teacher survey data.

Qualitative Data Collection

Beyond facilitating deeper insight into aspects of program design and implementation, focus groups have been hailed as useful in supplementing and expanding on findings from self-response surveys (Desimone, 2009). Thus, I collected qualitative data for this study using an online synchronous focus group session with teachers at the school. The purpose of this focus group was to gain general insight into the factors affecting the implementation of an effective PD program at NECS. Specifically, I

sought to better understand the factors influencing access to learning opportunities and teachers' ability to enact new practices in the classroom.

The questions asked during the focus group session measured the same constructs of effective PD as items on the survey (i.e., duration, content focus, active learning and collective participation, and coherence). This intentional overlap between the questions and survey items allowed me to cross-check the reliability of the survey measures. This technique of taking the same measurements more than once is referred to in the social research literature as the *test-retest method* (Babbie, 2017). Table 7 illustrates the relationship between the study's research questions and items included in the teacher focus group protocol presented in Appendix D.

Table 7

Relationship Between Research Questions and Focus Group Questions

Research Question	Focus Group Question
RQ1: In what ways do teachers describe the features of teacher PD opportunities offered at the school in 2021–2022, and during the 2021 summer, and how do these descriptions compare to the literature standard of effective teacher PD?	• Now that you are in the PD training, how does that experience differ from your experience during the summer?
RQ2: In what ways do teachers describe contextual factors as impeding their perceptions of learning in PD opportunities at the school?	• What are ongoing challenges you've experienced despite the new emphasis on coaching? • What is the school culture around PD opportunities offered? • What conditions need to be in place for effective learning to happen at your school?

Note. Focus group discussion questions have been abbreviated in this table; a complete list of numbered interview questions is included as Appendix D.

Preliminary Codebook for Focus Group Data. Prior to engaging in any fieldwork, I developed an *a priori*, *content-specific* coding scheme based on a thorough study of the problem of practice and the theoretical interests motivating this inquiry (Huberman & Miles, 1994). The initial, theory-driven

codebook included features of effective PD (content focus, active learning, coherence, duration, and collective participation) and contextual factors (teacher and student characteristics, curriculum, and school leadership and culture) based on the model by Desimone (2009). Informed by the conceptual framework, research questions, and key indicators of the study, these early or *descriptive codes* would provide the foundation for later qualitative content analysis (Punch, 1998). I therefore created a provisional codebook in the form of a start list comprising 16 codes (Huberman & Miles, 1994). This provisional codebook, along with definitions and examples of each code, is included in Appendix E.

Focus Group Participants. The focus group participants consisted of 12 middle school teachers employed at NECS. They were recruited by the school principal, who requested their participation as part of a planned PD event at the school. Like the pre- and post-surveys, these teachers were selected from the sample of full-time teachers employed at the middle school. Eight (67%) of the participants were female, of whom four were Black or African American. Just over half the sample (7 out of 12 teachers) possessed a master's degree, of whom three were male and four were female. The majority (7 out of 12 teachers) identified as first-year teachers at the school. Among the five veteran teachers included in the focus group, three actively participated in the discussion.

Focus Group Discussion Procedure. The focus group discussion took place synchronously on March 18, 2022, using the Zoom online conferencing platform. The discussion lasted approximately 50 minutes and was scheduled as part of an on-site PD day (i.e., in-service training day) for teachers at the middle school. Leaders at the school managed the on-site logistics of the discussion and arranged a physical space for the teachers to congregate in privately and without interruption. I emailed a secure meeting link beforehand to the principal, who forwarded it to teachers. Using the link, participating teachers logged in from their individual work laptops. Leaders were not present for the session, and Zoom's host permission settings allowed me to control who entered the meeting.

Prior to initiating the focus group, I briefed the teacher participants on ground rules for the discussion, including the steps that would be taken afterward to preserve the confidentiality of the data collected from them. I established consent to record using Zoom's automated consent-to-record feature. The discussion was subsequently held according to the focus group protocol outlined in Appendix D. At the close of the discussion, I thanked the teachers for their time and effort and for contributing to the findings of this study. After the session, I downloaded the discussion video recorded through Zoom and transcribed the audio file using Microsoft Word's transcribe feature. Prior to coding the qualitative data, I checked the transcripts for accuracy and annotated them, following Krueger's (2002) strategy for transcribing focus group interviews. In a later section, I describe my process of developing the final codebook, including a description of the preliminary coding methods, first-cycle coding methods, and post-coding techniques used to code the qualitative data and to prepare for preliminary analysis concurrent with the second-cycle coding done for the study.

Quantitative Data Analysis

I analyzed the quantitative data from both surveys and used descriptive statistics to identify areas in which teachers reported varying levels of training, including comparisons between pre- and post-survey participants' opinions. I described the teachers' perceptions of professional learning at the school both continuously and categorically. Further, I used nonparametric approaches to examine differences in the distributions of responses between the pre- and post-survey groups. Based on the actual distribution of the responses, I undertook meaningful collapsing (e.g., collapsing to agree vs. disagree or satisfied vs. unsatisfied) for instances where respondents only selected two or three of the available response options. In these cases, I used categorical approaches to examine differences in percentages between the groups (Harpe et al., 2012).

Quantitative Results

Quantitative Results for Research Question 1

Several of the teachers I surveyed reported that they were unsatisfied with their professional development (PD) experiences. When asked to rate their experience with professional learning on a five-point Likert-type scale, just over a third of the teachers responded that they were *dissatisfied* in the pre-survey, while only one teacher responded with *very dissatisfied* or *dissatisfied* for the same statement in the post-survey (*n* = 7). Similarly, while only two teachers chose the *neutral* response option in the pre-survey (*n* = 11), five teachers chose this option in the post-survey. Table 8 presents the percentages for teachers' responses on these survey items.

Table 8

Responses to Survey Question "How Would you Rate your Experience with Professional Learning at This School?"

Survey	Likert-Type Scale Question: *How would you rate your experience with professional learning at this school?*				
	Very Dissatisfied (%)	Dissatisfied (%)	Neutral (%)	Satisfied (%)	Very Satisfied (%)
Pre-survey (*n* = 11)	0.00%	36.36%	18.18%	36.36%	9.09%
Post-survey (*n* = 7)	14.29%	0.00%	71.43%	14.29%	0.00%

Duration. Both surveys included three items in an interval scale question to determine features of duration, including how much time teachers spent participating in professional learning activities prior to and after engaging in the school's PD program during the 2021-2022 academic year. While in the pre-survey about a fourth of the teachers reported spending over 20 hours in professional learning, zero teachers reported spending over 20 hours in the post-survey. The post-survey results (*n* = 8) also indicate that the majority of the teachers (5 out of 8 teachers) spent no more than 10 hours in any type of professional learning, with only 38% (3 out of 8 teachers) reporting up to 20 hours of participation. Table 9 displays the percentages for teachers' responses on these survey items, which contributed to the findings for research question 1.

Table 9

Responses to Survey Question "About How Much Time Have You Spent Engaging in Professional Learning?"

Survey	Interval Scale Question: *About how much time have you spent engaging in professional learning?*				
	Not at all (%)	1-10 Hours (%)	11-20 Hours (%)	21-40 Hours (%)	Over 40 Hours (%)
Formal PD opportunities (e.g., workshops, webinars, conferences, or classes)					
Pre (*n*=11)	9.09%	18.18%	27.27%	27.27%	18.18%
Post (*n*=8)	12.50%	75.00%	12.50%	0.00%	0.00%
Individual support through one- on-one mentoring, coaching, or partnerships					
Pre (*n*=11)	9.09%	72.73%	18.18%	0.00%	0.00%
Post (*n*=8)	25.00%	50.00%	25.00%	0.00%	0.00%
Collaborative activities with a group of other teachers (e.g., PLCs, grade level teams)					
Pre (*n*=11)	27.27%	54.55%	18.18%	0.00%	0.00%
Post (*n*=8)	25.00%	50.00%	25.00%	0.00%	0.00%

I performed nonparametric tests to assess changes in teachers' self-reported participation rates across types of professional learning (Grech & Calleja, 2018). Results from a Mann–Whitney U test revealed a small yet significant difference in responses to engagement in formal PD between the pre-survey (*Mdn* = 2) and the post-survey (*Mdn* = 1, U = 17, $p < .05$). The pre- and post-survey responses to the two other interval scale response items, regarding time spent receiving individual support and participation in collaborative activities, revealed no significant difference in teachers' engagement.

Active Learning and Collective Participation. As shown in Table 10, there were considerable variations in the types of collaborative PD activities teachers participated in across the school. The responses on the post-survey show that three-fourths of the teachers engaged in at least one professional learning activity on a regular basis (i.e., monthly, or more). When asked about how frequently they collaborated with other teachers as part of an instructional team (e.g., grade-level or subject-area team), only half of the teachers indicated regular engagement in these activities.

Table 10

Responses to Post-Survey Question, "Since October 1, 2021, How Often Have You Participated in the Following Professional Learning Activities?"

Question: *How often have you participated in the following professional learning activities?*						
	n	Not at all (%)	Once or twice a marking period (%)	About once a month (%)	Two or three times a month (%)	Once a Week or More (%)
Grade-Level Team Collaboration	7	28.57%	28.57%	0.00%	14.29%	28.57%
Subject-Area Team Collaboration	8	62.50%	12.50%	12.50%	0.00%	12.50%
Reviewing Student Data	8	12.50%	0.00%	12.50%	25.00%	50.00%
Plan a Lesson with Another Teacher	8	50.00%	37.50%	12.50%	0.00%	0.00%
Share Instructional Feedback	8	25.00%	37.50%	12.50%	25.00%	0.00%
Observe Another Teacher's Classroom	8	87.50%	12.50%	0.00%	0.00%	0.00%

Content Focus. Data from the post-survey (*n* = 7) indicate that most teachers perceived the content-focused PD opportunities as not being effective. While only one teacher found curriculum and instruction-related PD to be effective or extremely effective, three teachers indicated that they received effective or extremely effective PD in culturally relevant instructional practices. Furthermore, the majority (5 out of 7 teachers) indicated PD focused on social and emotional needs of students was ineffective (a collapsed category made up of responses *somewhat ineffective*, *ineffective*, or *extremely ineffective*). Table 11 presents a breakdown of response choice percentages.

Table 11

Responses to Post-Survey Question, "For Each of the Following, How Would You Rate Your Experiences with Professional Learning at the School?"

Question: *For each of the following, how would you rate your experiences with professional learning at the school? (n = 7)*					
Extremely Ineffective (%)	Ineffective (%)	Somewhat Ineffective (%)	Somewhat Effective (%)	Effective (%)	Extremely Effective (%)

Professional development focused on curriculum and/or instruction					
14.3%	28.6%	42.9%	0.0%	14.3%	0.0%
Professional development focused on social and emotional needs of students					
0.0%	28.6%	42.9%	28.6%	0.0%	0.0%
Professional development focused on culturally relevant instruction					
0.0%	28.6%	0.0%	28.6%	28.6%	14.3%

Coherence. I compared teachers' responses to items related to Core practices (CPs) of instruction across the pre- and post-survey as a measure of coherence, or perceived relevance, of PD opportunities. In the pre-survey, participants were asked to select CPs they hoped to acquire through the PD program during the school year. In the post-survey, they were asked to select the CPs they actually cultivated. Appendix F presents a comparison of the responses gathered from these surveys.

Quantitative Results for Research Question 2

Curriculum. Teachers' responses to certain items in the post-survey reveal a wide range of access to curricular materials at the school. Of the six teachers who self-reported English language arts (ELA) as their content area of instruction, five agreed or strongly agreed with the statement that the school provided them with the ELA curricular materials necessary to be successful. Similarly, of the six teachers who self-reported math as their content area of instruction, five agreed or strongly agreed with the statement that the school provided them with the mathematics curricular materials necessary to be successful. Of the three teachers who self-identified science as their content area of instruction, only one agreed with the same statement about their access to science curricular materials. Table 12 summarizes these responses.

Table 12

Responses to Post-Survey Question, "Please Indicate the Extent to Which You Agree or Disagree with the Following Statement About the Curricular Materials Provided by Your School"

Question: *Please indicate the extent to which you agree or disagree with the following statement about the curricular materials provided by your school.*			
Strongly Disagree (%)	Disagree (%)	Agree (%)	Strongly Agree (%)
My school provides me with the Mathematics curricular materials (e.g., textbooks, workbooks, activities, assessments) necessary to be successful (n = 6)			
0%	16.7%	50%	33.3%
My school provides me with the English/Language Arts curricular materials (e.g., textbooks, workbooks, activities, assessments) necessary to be successful (n = 6)			
0%	16.7%	83.3%	0%
My school provides me with the Science curricular materials (e.g., textbooks, workbooks, activities, assessments) necessary to be successful (n = 3)			
0%	66.7%	33.3%	0%
My school provides me with the Social Studies curricular materials (e.g., textbooks, workbooks, activities, assessments) necessary to be successful (n = 3)			
0%	33.3%	66.7%	0%

Policy. While time is one of teachers' most precious resources, many participants indicated that both the individual and collaborative planning time they received were insufficient for instructional improvement. The results from the post-survey (*n* = 7) show that only one of the teachers indicated that the amount of time scheduled for instructional planning was effective, while only two of the teachers reported that collaboration with colleagues was an effective experience for them at the school. These responses are reported in Appendix F.

Culture and Climate. Six items on the post-survey measured teachers' perceptions of belongingness and psychological safety, and a breakdown of the responses to these items is also provided in Appendix F. The results show that all seven teachers agreed or strongly agreed that they felt cared for by other teachers at the school, while 86% of the teachers (6 out of 7 teachers) felt they belonged. Similarly, while the majority of the teachers (6 out of 7 teachers) agreed with the statement that the school staff is a learning community, only four of the teachers agreed with the statement that

the staff feels comfortable raising issues and concerns with leaders of the school. Furthermore, all seven the teachers disagreed or strongly disagreed with the statement that they like the way things are run at this school.

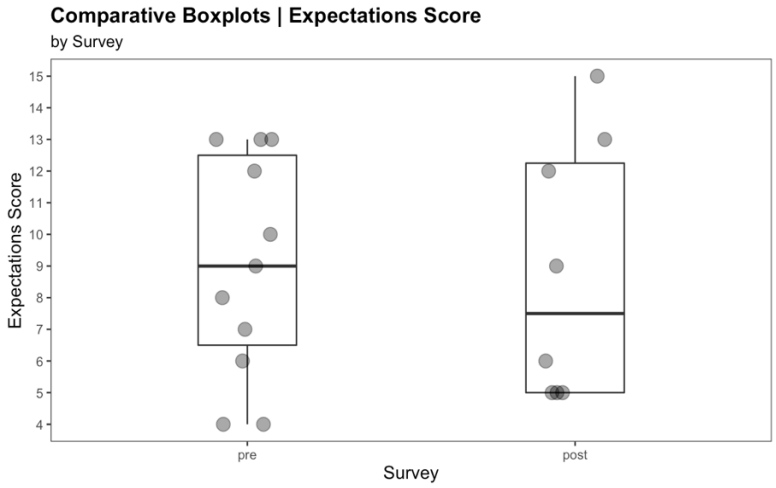
Leadership. The remaining three items were designed to uncover the ways in which instructional leaders at the school acted to impede the implementation of effective PD. The post-survey results indicate that the majority of the teachers (6 out of 7 teachers) disagreed that the school leadership effectively handles student discipline and behavioral problems. Furthermore, 71% of the teachers (5 out of 7 teachers) responded that they agreed with the statement that their principal is knowledgeable about the curricula being used, while only two teachers agreed with the statement that their principal regularly models effective instruction. Appendix F provides a summary of the responses to these items.

Quantitative Results for Research Question 3

Descriptive analysis of teachers' expectations scores on the post-survey following the intervention showed a skewness of 0.2 (*SE* = 1.45) and kurtosis of -1.84 (*SE* = 1.45). Further, I performed a Mann–Whitney U test to check for a difference in the mean expectations scores at the start and end of this study. The results did not indicate a significant difference in total expectations scores between the pre-survey (*Mdn* = 9) and post-survey (*Mdn* = 7.5) groups (U = 48.5, p = 0.7087), $t(17) = 0.14$, p = n.s.. A plot of the data is shown in Figure 9.

Figure 9

Boxplot of Expectations Scores for Pre-Survey (n = 11) and Post-Survey (n = 8) Respondents



Qualitative Data Analysis

To begin the first-cycle coding of the interview transcript, I employed *exploratory coding methods*, assigning tentative labels during my initial review of the transcribed focus group data. I first used *provisional coding* and worked systematically through the entire transcript to identify relevant sections of text, subsequently marking them using the appropriate codes from the initial start list of codes constructed prior to fieldwork (Miles et al., 2020; Saldaña, 2021). In the process of reviewing the *provisional codes* in context, I noticed several inadequacies in the initial codebook, which necessitated further revision prior to analysis or interpretation of the data. For example, I initially defined *curriculum*, a sub-concept based on contextual factors determined through my conceptual framework, as reflecting access to school resources. However, once I attempted to assign this code to the actual transcribed text, I realized that the definition did not contain enough information and could potentially cause interpretation issues later. Therefore, I expanded the definition to capture the broader elements revealed through the focus group interview, which resulted in the following definition: access to curriculum materials and expertise support (Darling-Hammond et al., 2017).

Upon closer review of this provisional code in context, I realized that the code label itself was too broad to be of practical use in capturing the perspectives of teachers. Therefore, I expanded the *curriculum* provisional code to include two subcodes, *curricular materials* and *expertise support*, which

better represent the teachers' perceptions of their participation in PD at NECS. Similarly, I revised and decomposed the *school leadership* provisional code to capture the idiosyncratic dimensions of school leadership as described by the teachers in the focus group, which led to the creation of three subcodes: *accountability pressures, leadership quality,* and *responsiveness to needs*. Other revisions to the provisional codebook included the deletion of student characteristics, as it fell outside the scope of topics discussed in the interview. Table 13 provides an overview of the first level (descriptive) codes generated through provisional coding of the focus group data.

Table 13

Provisional Codes and Subcodes Generated During First Cycle Coding

	Code	Definition	Subcodes
PD features	Active learning	Extent to which the activity offers opportunities for teachers to become engaged (e.g., reviewing student work, obtaining feedback, inquiry-based, reflective, leading discussions)	• Models and modeling • Opportunities for sense-making • PD format
	Coherence	Consistency between what is taught in PD and teacher/school goals and standards (e.g., PD activity is evidence-based and theoretically informed)	• Practical coherence • Comprehensiveness • Continuity and connectedness • Theoretically informed
	Collective participation	Extent to which the activity emphasizes collaborate participation across teachers at the school (e.g., grade-level meetings, common planning time, subject-level (department) meetings, observing expert teachers)	• Teacher-teacher relationships • Professional community • Collective responsibility
	Content focus	Degree to which the activity focuses on improving and/or deepening teachers' content knowledge (e.g., PD activity is driven by actual student learning outcomes)	• Focus on teaching
	Duration	Total number of contact hours spent in activity and span of time over which activity occurs (e.g., spread and frequency of activities)	• Intensity • Frequency

PD context	Curriculum	Access to classroom materials and expert support (e.g., access to needed curriculum materials, curricular models)	• Expertise support • Curriculum materials • Instructional program
	Teacher personal characteristics	Descriptive characteristics of teachers participating in PD at the school (e.g., experience, knowledge, beliefs, and attitudes)	• Teacher turnover • Prior experience
	School leadership	Includes principal-teacher relationships (e.g., trust and shared or distributed leadership, and teacher's perceptions of leadership)	• Accountability pressures • Leadership quality • Responsiveness to needs • Systemic support
	School policy	Refers to aspects related to internal governance, including the formulation and pursuit of policies and practices that better organize the learning of teachers.	• Rules and routines • Praise and consequence • Structural constraints • Countervailing mandates

Next, I used *evaluation coding,* employing *eclectic coding* – an amalgam of *magnitude coding* to indicate if a comment is positive [+] or negative [-] (these labels were used to identify instances where teachers were describing an effective practice [+] or an ineffective practice [-]), and *subcoding* to specify the dimension of effective PD alluded to by a comment (Saldaña, 2021). Recognizing that evaluation coding must reflect the nature and content of the inquiry, I ensured that all codes were related to the conceptual framework used in this study in the sense that I developed higher order codes, based on the components of my framework, to organize the qualitative data I collected. Further, I used Microsoft Word to type the code in the margins of the transcribed document. Here is an example of first-level codes applied to an excerpt taken from the teacher focus group data:

TEACHER F: [1] I just had a thought about how modern classroom is a long-term vision of the school and I think it's an outstanding model. [2] But there is a lot of [discontinuity] with not only the operational element of it, but also the communication of what it actually is, and as a new teacher, even though I got certified with it and all that with their certificate and went through the training and I understand it. [3] Nevertheless, I feel like there's a push to keep delivering it	[1] CURRICULUM: INSTRUCTIONAL PROGRAM [2] – COHERENCE: CONTINUITY AND CONNECTEDNESS [3] – SCHOOL POLICY: COUNTERVAILING MANDATES

across, but there's not a push to the implementation part, which is what [Teacher B] was talking about when [they] said we don't spend time actually seeing whether there's any questions. [4] There's like you can sign up to have some kind of random stranger answer a question like the next day or something, [5] and meanwhile your lesson delivery keeps going on and there isn't any real connection between the big overall big mission picture, which isn't right now, but it's planning in the future and [6] being able to just ask a question like are we sharing the same page of the language that you're talking about? There's no troubleshooting or problem solving really.	[4] – CURRICULUM: EXPERTISE SUPPORT [5] – COHERENCE: CONTINUITY AND CONNECTEDNESS [6] – SCHOOL LEADERSHIP: RESPONSIVENESS TO NEEDS

Qualitative Results

Qualitative results were used as a secondary source to address the first two research questions using mixed methods approaches. I describe these approaches in the following sections, which present the results from the analysis of the integrated data sets.

Mixed Methods Data Analysis

As circumstances related to high teacher turnover compromised data collection, addressing the first research question using a purely quantitative approach proved infeasible. Rather than using a matched pairs design to compare responses to the pre- and post-surveys, I adapted a mixed methods approach and compared the school's current PD with the PD offered in the summer, prior to implementing new changes. While the pre-survey did not include questions about PD during the summer, the qualitative data collected from the focus group provided me with insight on some, but not all, of the key features in the context of summer PD.

I used a mixed methods approach to meaningfully integrate the quantitative and qualitative data sets and address the first two research questions of this study. For both questions, I used findings from the qualitative interviews to explain results from the quantitative surveys, generated results connecting the survey outcomes with the mixed methods questions posed in this study and interpreted the results through integrated approaches. For this last step, I used integrated joint displays for

explaining the survey responses using information from teachers who could best reflect on these outcomes and, subsequently, created matrices for summarizing and comparing the quantitative results and qualitative findings (Plano Clark & Sanders, 2015).

Mixed Methods Results

To undertake integration through narrative, I initially analyzed the quantitative and qualitative data sets separately and reported them in different sections using a *contiguous approach* (McCrudden & McTigue, 2019). Next, to answer the first two research questions of this study, I merged and described the quantitative results and qualitative findings using a *weaving approach* (Fetters & Freshwater, 2015).

Mixed Methods Results for Research Question 1

Considering the first research question's emphasis on the effectiveness of the current PD program (2021–2022) *compared to previous PD opportunities at NECS*, I conducted analyses using responses from *both* teacher surveys to relate them across two points in time. Table 14 summarizes the quantitative and qualitative results that enabled me to generate findings about teachers' perceptions of the school PD at two different points (McCrudden et al., 2021; Plano Clark & Sanders, 2015).

Table 14

Integrated Results Matrix for Research Question 1: Features of Effective PD

Quantitative results	Qualitative results	Example quote
• There was a significant difference in teacher engagement in formal PD between the pre- and post-survey. • Pre-survey teachers spent more time in formal PD than post-survey teachers.	When summer PD was perceived as an overload of information, teachers felt greater need to prioritize systems and scaffold learning throughout the year.	Teacher D: “I felt like you [NECS] gave us everything [upfront] for the whole entire year; it didn’t matter when I needed it … [NECS should] hone in on the top five … [and] keep implementing more development into the school system as needed as the year rolls on so we’re not overloaded with 10 to 12 things to do … but get these five to six [priorities and] master them … [with] the aid of staff who has already been here [and know] the systems.”
• Engagement of teachers in	When summer PD was perceived as	Teacher A: “It was hard to keep track of all this stuff I had to get into. And you know,

individual support and collaborative activities did not significantly differ across surveys. • Median engagement times remained between one and 10 hours for both.	fragmented from the school year, teachers felt overwhelmed and unsupported.	it doesn't feel good to know that you're missing certain elements every week just because … I either forgot or I had a million other things to do, especially in the beginning of the year.”

Note. Table format adapted from McCrudden et al., 2021.

Mixed Methods Results for Research Question 2

I similarly addressed the second research question by connecting data collected from quantitative surveys and findings gathered from the qualitative interview and reporting the results using a joint display, this time, using a matrix organized by the constructs of the conceptual framework guiding this study (Guetterman et al., 2015). Using these constructs, I developed a side-by-side comparison of the qualitative and quantitative results (Table 15) and identified areas of agreement and any disparate findings (Meysenburg et al., 2014).

Table 15

Integrated Results Matrix for Research Question 2: Context Constructs of PD

Context constructs	Post-survey results	Focus group results
Curriculum	83% of teachers agreed that the school provides the math or ELA curricular materials necessary to be successful.	Quality and frequency of one-on-one coaching varies between ELA and math.
	33% of teachers agreed that the school provides them with science curricular materials necessary to be successful.	Curricular support is ambiguous and in some cases absent.
Policy	14% of teachers felt they receive an effective amount of individual planning time.	Teachers receive insufficient time to complete many tasks. Teachers’ planning time is not guaranteed by the school.
	28% of teachers felt they receive an effective amount of collaborative planning time.	Teachers want more time and opportunities for collaborative planning.
Culture	86% of teachers agreed that the school staff is a learning community.	Teachers must seek out support if they need it.

	57% of teachers agreed to feeling comfortable raising issues and concerns with school leaders.	Teachers' willingness to seek out support is dependent on whom it is they must ask. Failure to meet deadlines and expectations is met with punishment.
Leadership	100% of teachers disagreed that they like the way things are run at this school.	Administrators are far removed from the classroom. Decisions are not aligned with teachers' realities. Multiple layering of systems is overwhelming to teachers. Teachers' time is neither prioritized nor protected.
	86% of teachers disagreed that school leadership effectively handles student discipline and behavior problems.	
	29% of teachers agreed that the principal regularly modeled effective instruction.	

Note. Table format adapted from Meysenburg et al., 2014.

Limitations to This Study

In general, interviews and surveys are both limited by social desirability bias. This inherent limitation arises when interviewees feel pressure to respond in a socially desirable manner that is oftentimes non-indicative of the truth (Desimone, 2009). In addition, interviews carry the risk of interviewer bias influencing both the delivery and interpretation of data (APA, n.d.-a). Despite these limitations, there are many advantages to using interviews, namely, their utility in capturing far deeper and richer descriptions than those obtained through any survey item. Moreover, interviews that are based on trusting relationships between the interviewer and interviewee are desirable in that they provoke truthful reflections (Desimone, 2009). In this regard, researchers have identified several strategies for use during qualitative coding to lessen "the likelihood of imputing your motives, fears, or unresolved personal issues to your respondents and to your collected data" (Charmaz, 2008, p. 94). Thus, in this study, I employed detailed line-by-line coding of the qualitative data to ensure a trustworthy analysis of the focus group transcript.

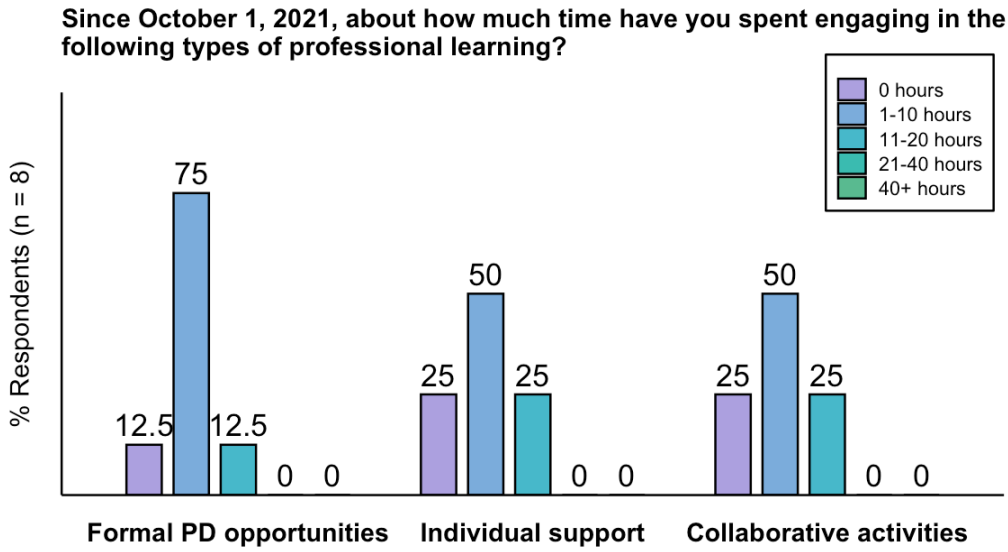
The single biggest limitation of the study is the small sample size. The choice to use non-probability sampling reflects contingencies specific to this study and its design, such as a limited sized target population, use of mixed methods approaches during data collection, and overall descriptive (i.e., explanatory) nature of the capstone. Regarding the small sample size here, the purpose of this study is to understand the phenomenon of professional development and learning for middle school teachers at NECS. Despite these strengths, non-probability sampling methods are known to limit the generalizability of a study's findings (Babbie, 2017). Unlike most empirical studies, this last point is of lesser concern given the narrow scope of the capstone project.

Findings

Research Question 1: In what ways do teachers describe the features of teacher PD opportunities offered at the school in 2021–2022, and during the 2021 summer, and how do these descriptions compare to the literature standard of effective teacher PD?

Research Question 1a: In what ways do teachers describe the features of teacher PD opportunities offered in the 2021–2022 school year?

RQ1a, Finding 1. While teachers reported spending the most time in formal PD opportunities, they described these opportunities as one-off and sparse, and perceived a disconnect between the PD approaches and their classroom practices. On the post-survey, teachers reported their participation in three types of professional learning: formal PD opportunities (e.g., workshops, webinars, conferences, or classes), individual support through one-on-one mentoring, coaching or partnerships, and collaborative activities with a group of other teachers (e.g., PLCs, grade level teams). From teachers' responses to this question, it appears the school mostly offered formal PD opportunities (*Mdn* = 1-10 hours) during the 2021–2022 school year.

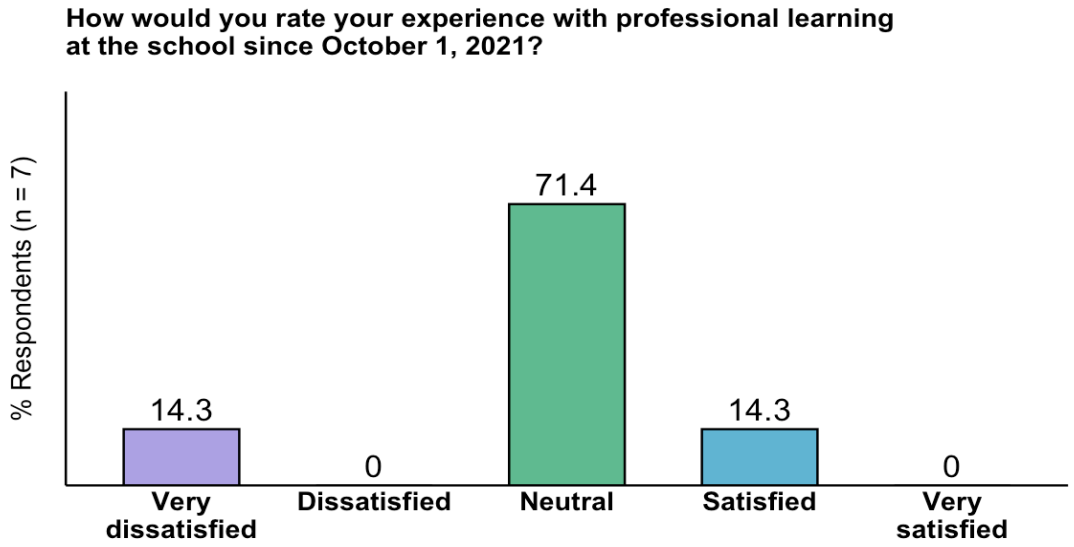


Qualitative findings from the focus group interview corroborate the survey data; together, they suggest that most of the PD opportunities offered by the school were short, one-off workshops that mostly relied on a lecture-based format. A subtheme that emerged from the discussion was that the school offered its teachers a PD program that lacked focus on personal growth and did little to satisfy individualized areas of need. For example, Teacher A felt that "*[putting] all 40 of us [teachers]…in one room doing the same thing: listening"* was impersonal, and suggested that "*instead, [NECS could] make it [PD] like groups of like five to 10…so that you [teachers] can have targeted PD and not just overarching PD."*

From the teachers' perspectives, the one-size-fits-all approach fell short of delivering meaningful or impactful PD. For example, Teacher B said, *"I consider PD where it's…kind of like today where the kids are gone and we're not. So, if you're talking about PD, no, we have not received enough."* Here, Teacher B makes a strong distinction between their perceptions of what PD *should be*, and teacher PD offered by the school on a day-to-day basis. This finding fits with the larger theme of disconnectedness between practices in the classroom and PD practices teachers described. Speaking to what PD was typically like at the school, Teacher A said,

it always blows my mind [that] as teachers…we know [so much] about the craft…but then we have these PDs which are the exact opposite of what we're supposed to be doing… It's…just not an effective way to teach anybody anything.

RQ1a, Finding 2. While the majority of teachers reported a neutral level of satisfaction towards the professional learning offered at the school, teachers' perceptions of PD also suggest that PD topics were not relevant to their classroom practice and were not differentiated to meet their specific needs. An individual Likert item was included on the survey to gauge teachers' attitudes towards professional learning after participating in PD opportunities offered at the school. Teachers' responses to the survey item, "How would you rate your experience with professional learning at this school?", captures a snapshot as to how satisfied teachers were with the professional learning opportunities offered by the school.

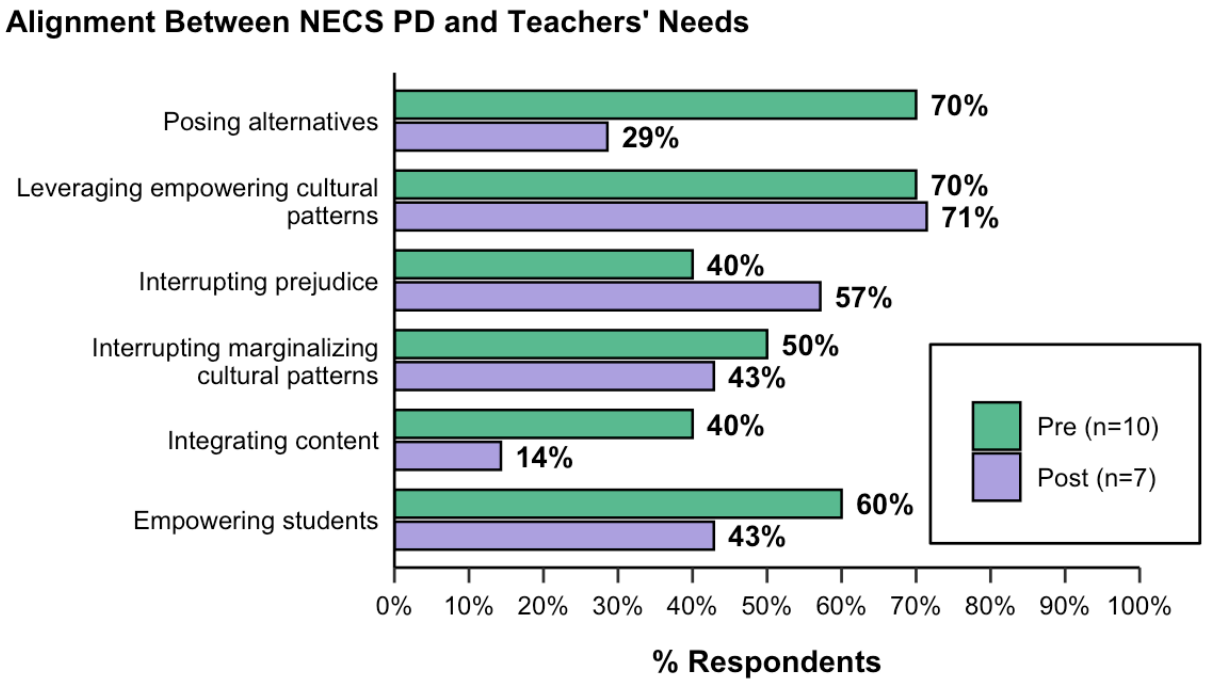


While most teachers reported a neutral attitude towards the school's PD offerings, teachers in the focus group perceived these opportunities as not relevant to their daily work. For example, Teacher B said:

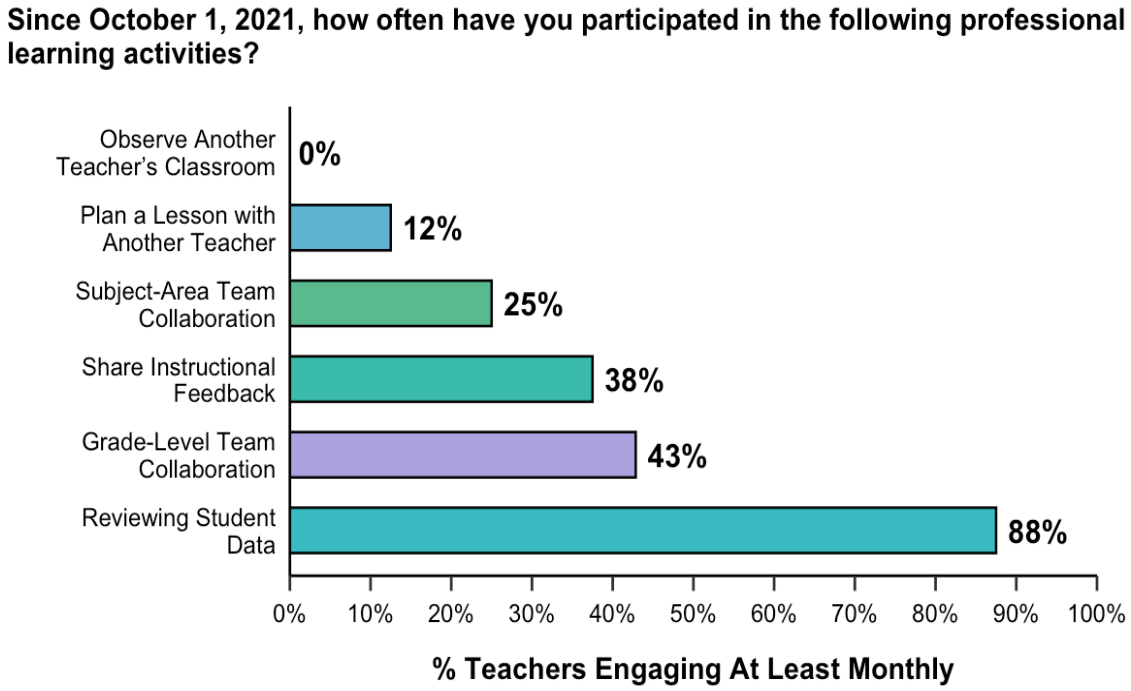
Sometimes the stuff that is being talked about in the PD doesn't pertain to everyone that is there. So, you're [teachers] literally sitting there, bored out of your mind, because you're like, "Wait, that's not what I do…that doesn't have anything to do or relate to me at all."

On the other hand, some teachers' perceptions towards PD suggest that the topics discussed during PD were not relevant to the actual issues or problems teachers experienced at the school. Speaking to their dissatisfaction with mandatory CCAR workshops, Teacher E said, "*mentally, it feels much more presentational [sic] than it does feel uh, like a dialogue."* And while Teacher E felt that teachers *"need to be talking about race*," they also felt that this activity should be *"paired with … cultural competency that also needs … to be connected to uhm, what's hot in the school; like what the priorities are … [And] that has not happened as much … especially in the second trimester."*

These qualitative insights elaborate on survey findings to suggest that the school may not have aligned the topics of PD to the actual needs of their staff members. The PD needs reported by teachers in the pre-survey are not reflected in the PD topics reported by teachers in the post-survey sample. The pre-survey participants (*N* = 10) most frequently selected *posing alternatives* and *leveraging empowering cultural patterns* (*n* = 7) as PD needs, followed by *empowering students* (*n* = 6), *interrupting marginalizing cultural patterns* (*n* = 5), and *integrating content* and *interrupting prejudice* (*n* = 4). While respondents in the post-survey sample indicated little to no PD on posing alternatives, five of them (*N* = 7) did report receiving PD that incorporated practices focused on leveraging empowering cultural patterns.



RQ1a, Finding 3. Although most teachers reported that they regularly participated in some type of team-based collaboration, there was wide variation in the types of opportunities that were offered, and teachers described some of these activities as more or less helpful than others. Responding to the post-survey question on the intensity, or frequency, of their participation in PD activities, five (*N* = 8) teachers reported participating in some type of team-based collaboration – such as engaging in common lesson planning; meeting with grade-level or subject-area teams; or reviewing student data with fellow teachers – on a regular basis (i.e., at least monthly; Patrick, 2019). However, there were considerable variations in the types of collaborative activities teachers partook in across the school. While seven of the teachers reported regular participation in activities reviewing student data, other professional activities were not as common. For instance, only one participant reported regularly collaborating on lesson plans with other teachers, and none reported regularly observing other teachers' classrooms.



Data collected from the focus group discussion corroborate and complement these survey findings. For example, Teacher B confirmed that while most of their collaborative learning time was spent in meetings reviewing student data, this was only because:

> *they're built into our prep schedule … most of our meetings … [are about] cultural competence … but I feel like we're beating a dead horse … and sometimes you just like let us meet together and talk about other stuff like that [us] teachers need to talk about.*

The information offered in Teacher B's response –that data team meetings were mandatory and embedded into teachers' schedules -- highlights an important caveat to these survey findings. Specifically, that teachers reported greater engagement in data team activities *because* it was mandatory and structured into their daily work.

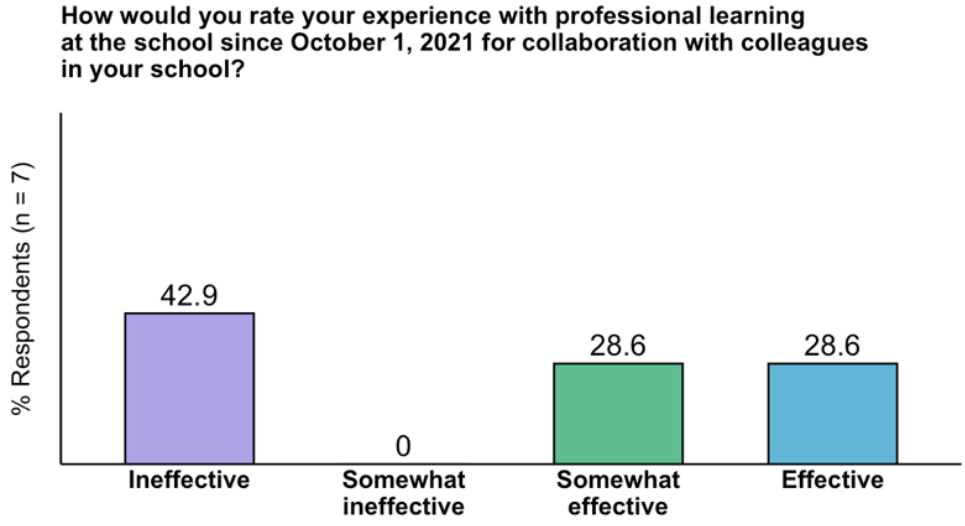
On the other hand, it is possible that the low levels of engagement teachers reported for other activities were due to their lack of formal structure and job-embedded opportunities for learning. For example, the following exchange offers enhanced insight as to the reasons why teachers reported low

participation rates in grade-level and subject-area team activities, and how these experiences shaped their overall perceptions of collaboration at the school:

> *TEACHER C: Isn't it more common to have … meetings with your grade levels or your subject levels like [where] all the teachers meet like once a month or so? … [because] we've never had that … so I never have an opportunity to learn from the other teachers.*
>
> *TEACHER A: Math teachers have that, but I don't know about ELA [English language arts].*
>
> *TEACHER C: [directed at other teachers] Are you guys meeting without me?*

These responses suggest that, unlike data team meetings, other collaborative activities (i.e., grade-level or subject-area team meetings) are not embedded into teachers' daily schedules.

These qualitative findings from the focus group discussion also corroborate teachers' survey responses to the question, "How would you rate your experiences with professional learning at the school for collaboration with colleagues in your school?" Similar to what was shared during the focus group, a majority of teacher respondents felt that their collaboration with colleagues was ineffective at this school. For example, Teacher A shared: *"I would like to spend more time meeting with the math team and like working on vertical integration than I would have another conversation or watch another video…I want to do my job."*



Research Question 1b: How do the features of PD opportunities offered in the 2021–2022 school year compare with descriptions of teacher PD opportunities offered during the 2021 summer?

RQ1b, Finding 1. Compared to PD during the summer, PD opportunities offered during the 2021-2022 school year differed in terms of teachers' reported participation rates. Across both surveys, 94% of teachers (*N* = 19) reported participating in at least one form of professional learning – formal PD, personalized support (i.e., coaching), or collaborative activities with colleagues. Further analysis of these responses revealed that only 26% of participating teachers reported engaging in more than 20 hours of professional learning, none of whom was part of the post-survey sample. Additionally, only one of the post-survey respondents (*N* = 8) reported spending more than 10 hours in formal PD, a steep decline from the 73% (*N* = 11) measured by the pre-survey. In comparing the difference between these two samples, the nonparametric tests indicated a small but significant difference in responses to participation in formal PD between the pre-survey (*Mdn* = 2) and the post-survey (*Mdn* = 1, *U* = 17, $p < .05$).

Median Engagement Time Across Types of Professional Learning from Pre- to Post-Survey

Measure [a]	Pre-Survey (*n* = 11)			Post-Survey (*n* = 8)			Mann-Whitney U Test	
	Mdn	Min.	Max.	*Mdn*	Min.	Max.	*U*	*p*
Formal PD opportunities	2	0	4	1	0	2	17	.02 *
Individual support	1	0	2	1	0	2	41	.77
Collaborative activities	1	0	2	1	0	2	47	.79

Note. Min. = minimum; Max. = maximum.

[a] 0 = not at all, 1 = 1-10 hours, 2 = 11-20 hours, 3 = 21-40 hours, 4 = more than 40 hours.

* $p < .05$

RQ1b, Finding 2. While teacher-reported participation in formal PD was significantly greater on the pre-survey, teachers in the focus group described their experiences in summer PD as too intensive and not coherent with their learning in PD during the school year. Although the pre-survey

teachers reported spending considerably more time in formal PD during the summer, teachers in the focus group also described feeling overwhelmed by summer PD, which they framed in terms of intensity and coherence. Perceiving summer PD as contributing to an information overload, some teachers felt there was a greater need to prioritize systems and scaffold learning throughout the year. Teacher D most aptly expressed this conundrum, saying: "*I felt like you [NECS] gave us everything [upfront] for the whole entire year; it didn't matter when I needed it."* Additionally, in speaking to the need for a more targeted and coherent PD program for teachers at the school, Teacher D specified a recommendation for the future:

> *[NECS can] keep implementing … [PD] as needed as the year rolls on so we're [teachers] not overloaded with 10 to 12 things to do…but get these five to six [priorities and] master them…[with] the aid of staff who has already been here [and know] the systems.*

Teachers also perceived summer PD as fragmented and displaced from what they were offered during the school year. For teacher A, this translated to feelings of being overwhelmed and under-supported:

> *It was hard to keep track of all this stuff I had to get into. And you know, it doesn't feel good to know that you're missing certain elements every week just because…I either forgot or I had a million other things to do, especially in the beginning of the year.*

Research Question 1c: In what ways do 2021–2022 teacher PD opportunities described by teachers align with criteria for effective teacher PD?

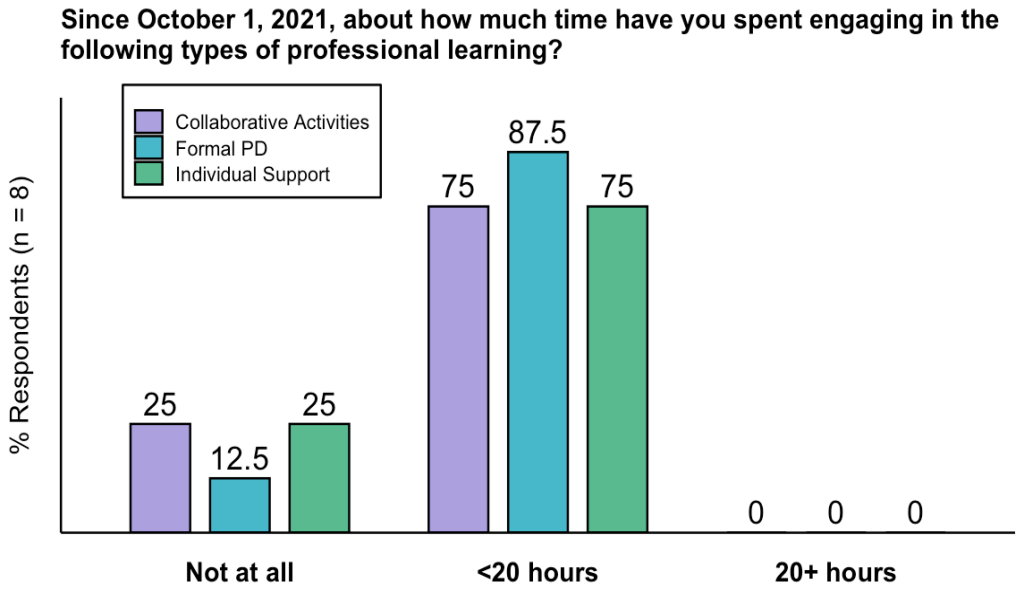
In the literature review, I described the core features of effective PD – duration, coherence, active learning, collective participation, and content focus – and theories of action for their use. These core features served as my criteria for answering this research question.

Core features of effective PD (Desimone, 2009)	**Definition (Desimone & Pak, 2017)**
Duration [1]	"PD activities that are ongoing throughout the school year and include 20 hr or more of contact time" (p. 5)

Coherence	"Content, goals, and activities that are consistent with the school curriculum and goals, teacher knowledge and beliefs, the needs of students, and school, district, and state reforms and policies" (pp. 4-5)
Active learning	"Opportunities for teachers to observe, receive feedback, analyze student work, or make presentations, as opposed to passively listening to lectures" (p. 4)
Collective participation	"Groups of teachers from the same grade, subject, or school participate in PD activities together to build an interactive learning community" (p. 5)
Content focus	"Activities that are focused on subject matter content and how students learn that content" (p. 4)

[1] *Duration* and *sustained duration* are used interchangeably in the literature (i.e., Darling-Hammond et al., 2017; Desimone & Pak, 2017)

RQ1c, Finding 1. Many of the PD opportunities that teachers described in this study occurred in traditional, one-off workshops; these descriptions are related to three core features: duration, active learning, and collective participation. In the post-survey, teachers were asked about two dimensions of duration: (a) the total *contact hours* they spent on the PD activity during the 7-month period from October 1, 2021, to May 16, 2022, and (b) the *span* of time over which the activity was distributed. Five of the participants in the post-survey estimated spending 10 hours or fewer in any type of professional learning, with the exception of three teachers who reported spending up to 20 hours in some cases.

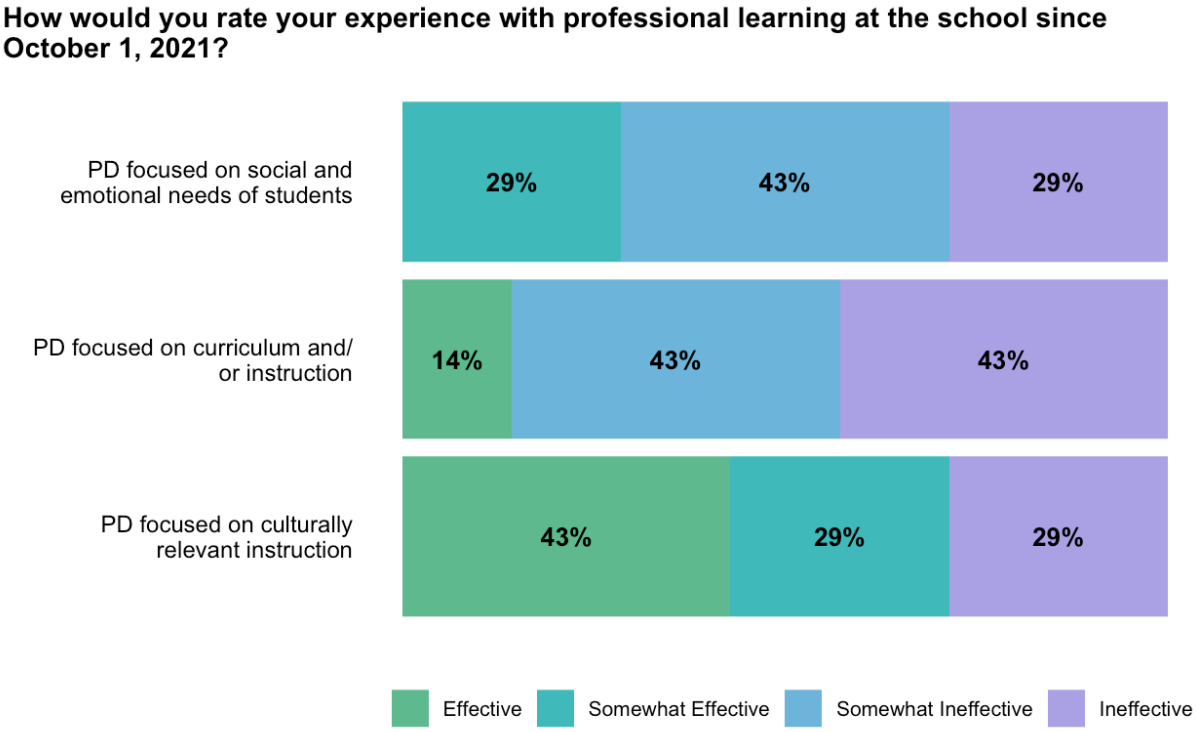


Contrary to the literature on effective teacher PD, which defines *sustained duration* as greater than 20 hours of contact time, teachers included in this study spent fewer than 20 hours each across all types of PD activities (Desimone & Garet, 2015; Yoon et al., 2007).

Findings from surveys and interviews with participating teachers (see RQ1a, Finding 3) spoke to the school's tendency to use one-off workshop-style events as their primary model of PD, which does not support the literature's definition for *active learning* as "opportunities for teachers to observe, receive feedback, analyze student work, or make presentations, as opposed to passively listening to lectures" (Desimone & Pak, 2017). For example, none of the participating teachers (*N* = 8) reported that they regularly engaged in observing another teacher's classroom. Additionally, only three teachers reported that they regularly shared instructional feedback with other colleagues. The integrated findings I described in RQ1a, Finding 3 indicate that collaborative participation was lacking in PD opportunities offered at the school. For a complete description of these data, see above.

RQ1c, Finding 2. Participating teachers reported that the content taught in PD opportunities was not effective and that they perceived these opportunities as lacking coherence, both in terms of its structure and degree of connectedness to teachers' daily work. The rich descriptions I offered in

RQ1b, Finding 2 corroborate survey findings from teacher responses to the question, “How would you rate your experience with professional learning at this school since October 1, 2021?” Based on data from teacher responses to this question (*N* = 7), only one respondent found curriculum- and instruction-related PD opportunities effective or extremely effective, and only three found school PD in culturally relevant instruction effective or extremely effective. Surprisingly, five teachers rated PD focused on social and emotional needs of students as ineffective (a collapsed category comprising the responses *Somewhat ineffective, Ineffective,* and *Extremely ineffective*); however, a small proportion (*n* = 2) felt it was somewhat effective.



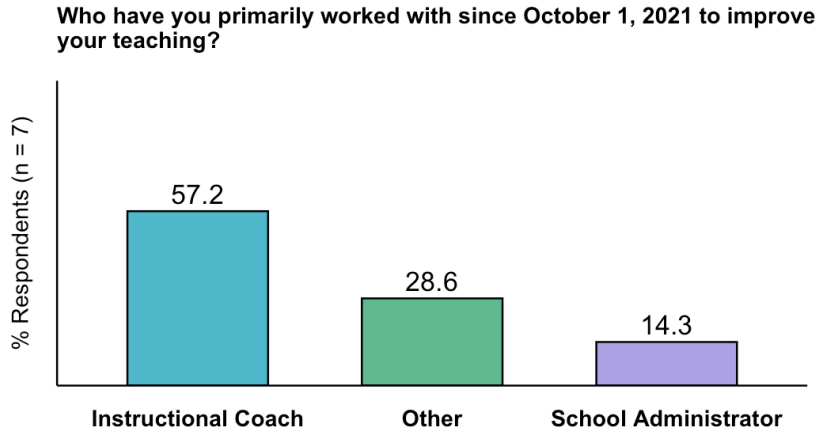
The literature on effective PD defines *content focus* as including an “intentional focus on discipline-specific curriculum development and pedagogies in areas such as mathematics, science, or literacy” (Darling-Hammond et al., 2017, p. v). However, NECS teachers' survey responses indicate that despite high levels of context-specific learning opportunities, the content of PD at the school was

misdirected: It lacked emphasis on discipline-specific content knowledge. Based on data from the post-surveys.

Research Question 2: In what ways do teachers describe contextual factors as enhancing or impeding their perceptions of learning in PD opportunities at the school?

RQ2, Finding 1: Data from teacher surveys and findings from the focus group discussion indicate that lack of access to consistent, high-quality instructional support impeded teachers' learning in PD opportunities offered by the school.

Six teachers in the post-survey sample (*N* = 8) reported receiving between one and 20 hours of individual support from an instructional leader at the school. However, the frequency and intensity of these interactions were unclear. According to the post-survey data, four of the participating teachers (*N* = 7) selected Instructional coach as their answer when asked about who they primarily worked with to improve their teaching. This finding seems counterintuitive to what the administration wanted out of the coaching relationship (i.e., for teachers to rely primarily on the instructional coach for support). Findings from the focus group interview with teachers offered further insight into what these interactions entailed.



Teachers in the focus group shared differing perspectives as to whether instructional coaching was used to develop teachers professionally or to hold them accountable and ensure compliance with

deadlines and other administrative responsibilities. Alluding to the school's tendency to use instructional coaches to promote accountability, Teacher G shared, *"It's like deadlines are some types of punishment [and it feels like admin is] gonna be coming for you if you don't [turn in] what you should."* This statement speaks directly to an accountability culture that pervades the school. For some teachers, this push for accountability displaced the central focus of instructional coaching at the school. For example, Teacher E said,

> *Our coaches are wearing a lot of hats and so rather than focusing on teacher development or instructional development or instructional coaching…coaches are becoming people obligated to keep compliance about data collection [and] data entry.*

Other teachers echoed similar sentiments. For instance, Teacher C referred to their own confusions regarding *"which hat [the coach] was wearing,"* and expanded on Teacher E's description of coaching as overly focused on accountability and the need to meet certain deadlines. Specifically, Teacher C spoke to how the compliance-level approach influenced their perceptions of learning from coaching:

> *I never really felt that comfortable asking for guidance because I felt that my asking for guidance was indicating that I couldn't get the job done and I wouldn't be meeting that deadline that they were checking on … I didn't feel like it really involved much coaching, although that is the title.*

While the majority of teachers spoke negatively about the school's accountability model of coaching, Teacher J appreciated that the coaches at NECS were always *"making sure that we [teachers] stay on top of deadlines,"* particularly because *"[there are] a lot of systems that you [need to] know [and] it is very overwhelming."* Speaking to their experience as a new hire to the school, Teacher J also shared the perceptions about the coaching they received:

> *Even though it does feel like it's more than one hat, I feel like it's actually very helpful because I've only been here for like two months and… I think that's just something extra that is being done to kind of help us out, so we don't get overwhelmed and leave everything till last minute.*

One interpretation of these responses is that leaders at the school operated based on a behaviorist perspective of change and sought to motivate behavior primarily through a set of external rewards and punishment (Goodwin & Slotnik, 2018). However, accountability without meaning results in systems devoid of intrinsic motivation or a sense of personal responsibility, as well as promoting a culture misaligned with an organization's core values.

Findings from the focus group indicate that the degree and nature of support received through instructional coaching varied across teachers at the school. For many teachers, the degree of support depended on their willingness to ask for help. Speaking to this, Teacher J shared,

> *The help is there, but you have to go and find it yourself; however, the down part to that is what if I feel like I'm doing it perfectly fine and there's nothing wrong and there's nobody to tell me that I'm doing it the wrong way.*

While the compliance culture of the school served to dissuade many teachers from seeking out help in the first place, teachers (e.g., Teacher J) who did seek help found that the quality of support they received varied immensely between English Language Arts (ELA) and math. Reflecting on their interaction with the school math coach, who also happened to be in charge of the entire math department, Teacher B said: *"Math is not modeled for me, and I can't go to the person in charge of math and say I don't get [something] because [they] think [I should already know it]."* Teacher B also felt that the quality of coaching differed between ELA and math:

> *We don't talk [about] how to teach math…. You're supposed to be my math coach, [but when] I come to you and I'm like I'm not good [at this], you [don't] come into my room [or] teach it so I can see…how it's supposed to go. I get that with ELA [coaching]…but with math, I don't.*

These teachers' descriptions of instructional coaching paint a vivid picture of learning in this context, one in which learning has been reduced to resemble more of a compliance exercise than a learning opportunity (Bill & Melinda Gates Foundation, 2014).

Teacher B's experience with the math coach is also worth addressing in the light of prior findings that “advice seeking may be more influential in teachers' math practice than in other subject areas” (Parise & Spillane, 2010, p. 341). One way to interpret Teacher B’s experience is that the math coach, who is also in charge of the math department, is overburdened and therefore too busy to offer the kind of support teachers want. This interpretation, however, loses most of its credibility considering the following exchange among Teachers, D, H, and B:

> *TEACHER D: Literally two weeks ago, [the elementary coach] got transferred to this building to be the vice principal because we … [needed] more bodies and help with our culture here.*
>
> *TEACHER H: [The new vice principal] will answer any math or science questions.*
>
> *TEACHER B: Yeah, but let’s be honest, we’ve been instructed not to go to [them]. So, let’s be honest here, we’re not supposed to [do that].*

The above conversation seems to indicate that despite the math coach's limited ability to support teachers, they are the sole and undisputed authority on matters related to math. Meanwhile, in discouraging teachers from seeking out other avenues of expert support, the math coach actively worked to promote a culture of professional isolation for teachers at the school (Hargreaves & Dawe, 1990). On this basis, one may infer that the leaders at the school (e.g., math coach) are unwilling to relinquish control, as doing so would enable others to assume new power. According to this interpretation, leaders at the school seem to be looking not for consensus or a community of practice, but for obedient followers (Copland, 2003).

Within this type of environment, feelings of dissonance seemed to inevitably arise, as teachers' sensemaking was thwarted by competing conceptions of what they *should* be doing. Specifically, the focus group participants communicated a degree of frustration with the school's insistence on prescribing “best practices” without regard to whether or how they should be adapted to the context of

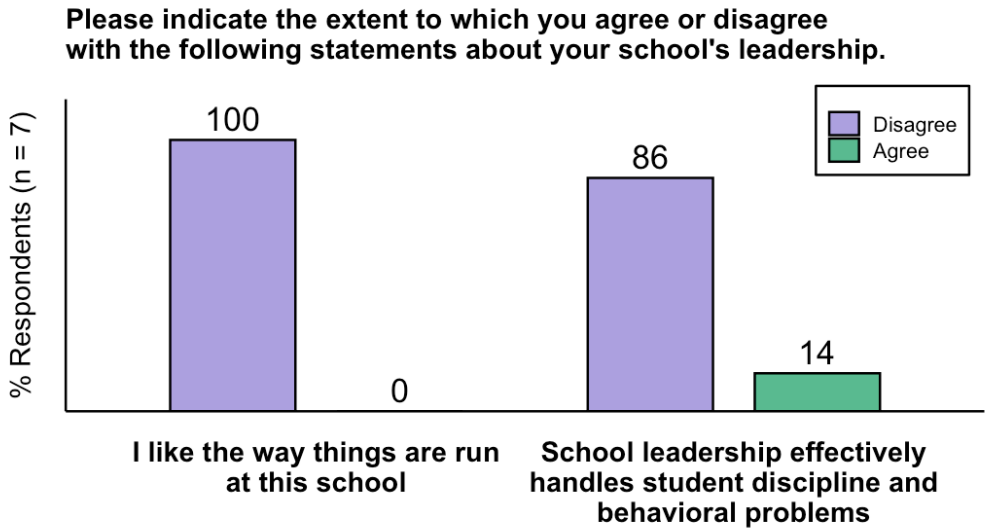
their implementation. For Teacher A, feelings of dissonance became a regular part of attending PD, even in the midst of a pandemic:

> *I don't know how many meetings I had where somebody was like you guys have to be doing more group work. It's a pandemic! I'm not supposed to have the kids [within] three feet [of each other], how are they going to do group work?! But you know, [there's] this aggressive push [by the administration] to do group work during a pandemic.*

Piggybacking on this statement, Teacher C added,

> *I asked about the distance because [administration] wanted…all [students] watching the video … in these groups. The administration just said, as long as it's three feet, [students] can still listen to [one another] …which didn't sound very physically possible, but that was the answer.*

Across both teachers' accounts, PD appeared to be a space where teachers' professional knowledge and agency were mostly challenged by superiors (i.e., administrators) whom they perceived as too far removed from the classroom. In turn, this induced a sense of cognitive dissonance, or "an uncertainty predicated on having their professional knowledge of what is 'best' undermined by external actors" for teachers (Delaney, 2015, p. 381). And while the most striking results from the teacher post-survey were the responses to items about school leadership practices, these qualitative findings offer further elaboration as to why teachers responded this way. In response to the question, "please indicate the extent to which you agree or disagree with the following statements about your school's leadership," 100% of the participants (n = 7) disagreed that they liked the way things were run at this school.



These survey findings could also be linked to teachers' concerns teachers for the number of systems in place at the school. Qualitative findings from the focus group discussion elaborate on this further. Both veterans and new teachers felt unable to devote their energy to professional learning activities, due to the vast time they spent meeting the leadership's demands. For example, a veteran teacher shared that despite feeling these stressors, they had decided not to complain to the administration. On this point, Teacher D elaborated, *"I [could not] complain because I know [that] I know what I need and I'm a … vet. I got newbies sitting here! I've been through this before and I'm overwhelmed."* Attributing their feelings to the multiple and complicated systems in place at the school, Teacher D added,

> *There are so many systems here, it's overwhelming. And if we keep getting new teachers every year, they've got around 40 systems [to learn]. We're [the school] never just going to catch on and be as efficient as we ever could be*

Other veteran teachers, such as Teacher G, also attributed their sense of being overloaded to the many systems in place at the school:

> *I feel like there are so many different systems here that it's overwhelming …. like we don't get a break, it's like something else is coming and [then] it's something else [again]. So, it's…hard for me as a teacher here to feel like I'm being super successful, or successful at all.*

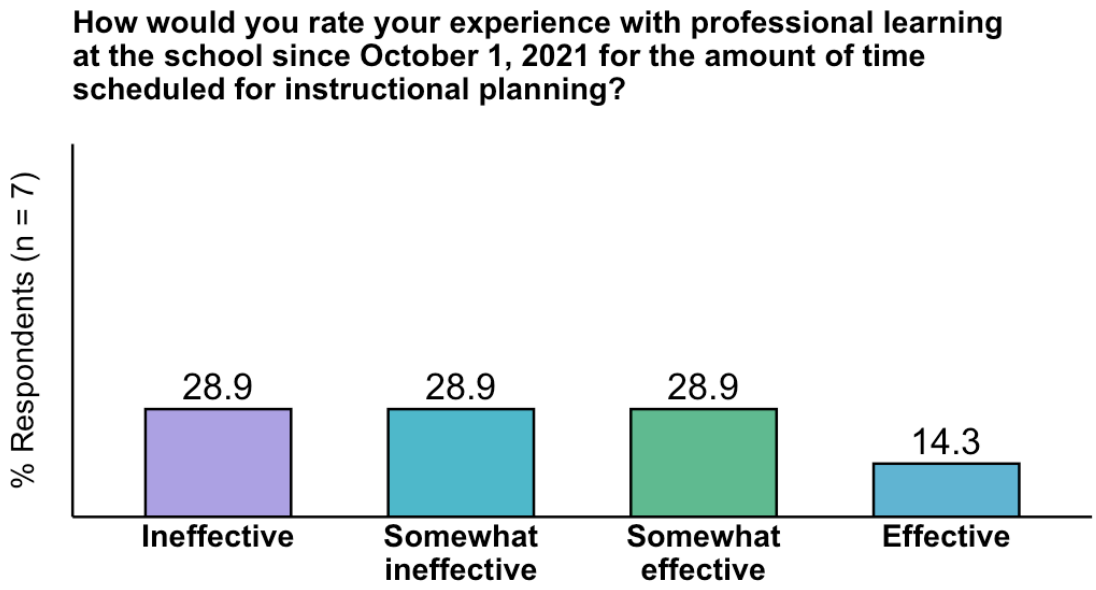
Speaking to the never-ending nature of these responsibilities, Teacher F, another veteran, shared the following:

> *I find my biggest frustration is that there is so much to do. We're constantly getting emails from administrators [reminding us of what] we need to get done. And I feel very frustrated that professional development… [feels like] time taken away from time that otherwise could be used to getting those things [administrative tasks] done.*

As Teacher D correctly pointed out earlier, new teachers also felt the extensive demands to be deconstructive. Teacher A explained, *"it feels insensitive to have all of these overwhelming PDs when you've got six brand new teachers in the building."* Based on these responses, teachers were apparently expected to achieve the impossible, regardless of the numerous hurdles in all directions.

RQ2, Finding 2: Data from the teacher surveys and findings from the focus group indicate that the misuse of teachers' planning time posed barriers to learning in the PD opportunities offered at the school.

While time is one of teachers' most precious resources, many participants indicated that the individual and collaborative planning time they received were both insufficient for instructional improvement. Only one of the post-survey respondents (N = 7) indicated that they were provided sufficient individual planning time. In addition, two participating teachers indicated that they received adequate collaborative planning time. Findings from the focus group discussion further helped corroborate and expand on these survey data.



Based on the teacher focus group discussion, a number of role stress consequences (i.e., role ambiguity, conflict, and overload) appeared especially pervasive. *Role stress*, according to role theory, describes a phenomenon that emerges when "employees experience expectations that are conflicting, overloading, or ambiguous" (Kuntz et al., 2013, p. 85). As a consequence of these stressors, teachers perceived *role overload*, or "the extent to which time and resources prove inadequate to meet expectations of commitments and obligations to fulfill a role," as significantly impacting their ability to perform the job (Örtqvist & Wincent, 2006, p. 400). Teacher H spoke to this tendency within NECS, saying, *"we're getting told to do all of this stuff and we have no time to do it."* They were not alone in feeling this way, and most teachers described their professional learning using the words "overwhelming" and "overloading" to refer to the current administrative demands at the school.

A recurrent pattern in the group interview was also a sense among teachers that leaders at the school neither protected nor guaranteed their planning time. On this issue, Teacher G shared,

> *We're subbing two times out of a week, so we're probably gonna lose a prep or you might not get a prep for the whole day. And then there's still the expectation of "This [task] needs to be done," and it's coming off in a way [that gives] us no grace, right?*

For Teacher I, covering for other teachers' classes was a daily reality of working at the school. They explained, *"We're so short [on teachers] …[that I have] spent probably four days at the actual job that I applied for. Last week I got one prep period and that was Friday."* Implicit in these responses are two assumptions of the school leaders: first, that teachers' time is dispensable; and second, that it can be manipulated at any time. While school leaders appeared to take no fault with their approach, teachers – even those who were never subject to lost planning time – felt the extent of their exploitation. For example, revealing the school's treatment of teachers' planning time, Teacher A shared,

> *I think it's kind of a lot to ask…teachers to cover multiple classes multiple times a week. But I see other teachers getting pulled in all different directions all the time and I [think about how] …that could be me next year if my schedule works out that way.*

While teachers felt obviously taken advantage of by the school, the administration justified the sacrifice on the grounds of each teacher *being a team player, pitching in,* or *giving "whatever it takes."* Teacher E explained,

> *Schools have been trying to elbow grease their way through things for years, and we're hitting a point where, OK, it's not an elbow grease issue. It's not a whatever-it-takes issue. It's a staffing issue. It's a funding issue.*

A commonality across these responses is an idea that planning time is an expendable resource afforded to teachers by the administrators, who can just as easily take it away. However, research devoted to the study of adult learning has definitively rejected this cavalier attitude. In fact, the literature supports the idea that protecting teachers' time – rather than consuming it – is a hallmark of effective instructional leaders (Grissom et al., 2021). Given the timing of this study, attributing the problem to substitute shortages as a result of the pandemic is easy. While this may very well hold true, it is my opinion that

replacing a vital part of the school workforce (i.e., substitutes) with already overburdened teachers – while not compensating them for it – is telling.

Research Question 3: In what ways, if any, do teachers' expectations of student success against grade level standards change over the course of the school year?

In this study, *teacher expectations* are defined as the "inferences that teachers make about the present and future academic achievement and general classroom behavior of their students" (Brophy & Good, 1974, p. 32). According to TNTP (2018), "teachers who hold high expectations for students and truly believe they can meet grade-level standards" represents a key resource "at the heart of high-quality academic experiences for students" (p. 23). In one landmark study, participation in an intensive PD program was found to significantly increase both teachers' expectations of students and levels of student achievement (Timperley & Phillips, 2003).

The Teachers' Expectations Survey created by TNTP (2018) was administered to participating teachers using the pre- and post-survey instruments I designed for this study. I chose this instrument because it assesses "teachers' views on…the state's academic standards and students' readiness to meet those standards" (TNTP, 2018, n.p.). The Teachers' Expectations Survey uses the following four statements to create a composite teachers' expectations score (TNTP, 2018):

Statement
• Students are overburdened by the demands of our state's standards.
• My students need something different than what is outlined in our state's standards.
• The standards make it difficult for students to learn basic skills in my subject.
• Our state's standards are too challenging for my students.

Note. Reproduced from the Teachers Expectations Survey Scoring Guide (TNTP, 2018)

As I described elsewhere in this paper, I coded each of these items according to the TNTP scoring guide (2018): s*trongly disagree* (5), *disagree* (4), *somewhat disagree* (3), *somewhat agree* (2), *agree* (1), or

strongly agree (0). These values are added up to produce a teachers' expectations score ranging from 0-20 with a score at or above 11 indicating high expectations.

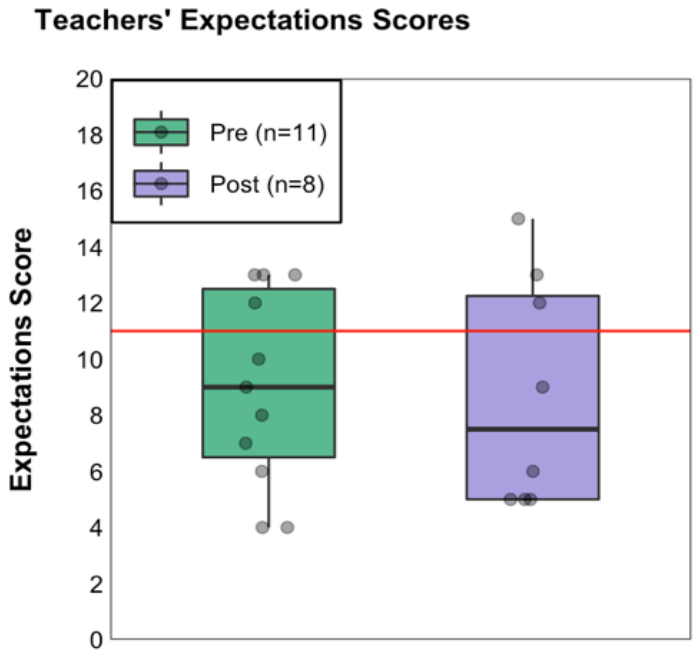
RQ3, Finding 1: The majority of surveyed teachers were found to have low expectations for all learners; further, the expectations scores of teachers in the post-survey were lower than, but not significantly different from, those of teachers in the pre-survey.

To determine the impact of PD participation on teachers' expectations of student success against the state's standards, I calculated the study participants' expectations scores based on their pre- and post-survey responses. Apparent from this data is that across both survey samples, very few respondents had high expectations of their students.

Expectations Score	N	*Mdn*	Min	Max	n (%) High Expectations [a]
Pre-survey	11	9.0	4.0	13.0	4 (36.3%)
Post-survey	8	7.5	5.0	15.0	3 (37.5%)

[a] Per the TNTP (2018) guidelines for scoring this survey, any score at or above 11 was categorized as high expectations.

The post-survey respondents had lower expectations scores than those of the pre-survey participants. I performed the nonparametric version of an independent samples t-test, the Mann–Whitney U test, to identify whether or not there was a significant difference in mean expectations scores between the pre- and post-survey teachers. The data indicate that the difference in total expectations scores between the pre-survey (*Mdn* = 9) and post-survey (*Mdn* = 7.5) groups (U = 48.5, p = 0.7087), $t(17) = 0.14$, p = n.s., was not significant. This outcome suggests lack of a genuine difference in teachers' expectations between the pre- and post-survey samples.



Recommendations

Together, these findings constitute a sobering assessment of teacher learning in professional development (PD) opportunities at this school. Using these findings as a springboard, I offer recommendations into how these opportunities could be redesigned to better support teacher learning and embed opportunities for learning among members of a professional community. To organize this final section, I constructed a matrix by combining the findings for each research question with specific recommendations. Table 16 shows that matrix.

Table 16

A Matrix of Questions, Findings, and Recommendations

Research Question	Finding	Recommendation
RQ1a. In what ways do teachers describe the features of teacher PD opportunities offered in the 2021–2022 school year?	RQ1a, Finding 1. While teachers reported spending the most time in formal PD opportunities, they described these opportunities as one-off and sparse, and perceived a disconnect between the PD approaches and their classroom practices.	Recommendation 1. Provide professional learning opportunities that teachers perceive as relevant (coherent) and engaging (active learning)
	RQ1a, Finding 2. While majority of teachers reported a neutral level of satisfaction towards the professional learning offered at	

	the school, teachers' perceptions of PD also suggest that PD topics were not relevant to their classroom practice and were not differentiated to meet their specific needs.	
	RQ1a, Finding 3. Although most teachers reported that they regularly participated in some type of team-based collaboration, there was wide variation in the types of opportunities that were offered, and teachers described some of these activities as more or less helpful than others.	Recommendation 2. Offer teachers more opportunities to work collaboratively (collective participation)
RQ1b. How do the features of PD opportunities offered in the 2021–2022 school year compare with descriptions of teacher PD opportunities offered during the 2021 summer?	RQ1b, Finding 1. Compared to PD during the summer, PD opportunities in 2021-2022 differed in terms of teachers' reported participation rates and their perceived intensity of the program.	Recommendation 1. Provide professional learning opportunities that teachers perceive as relevant (coherent) and engaging (active learning)
	RQ1b, Finding 2. While teacher-reported participation in formal PD was greater on the pre-survey, teachers in the focus group described their experiences in summer PD as too intensive and not coherent with their learning in PD during the school year.	
RQ1c. In what ways do 2021–2022 teacher PD opportunities described by teachers align with criteria for effective teacher PD?	RQ1c, Finding 1. Many of the PD opportunities that teachers described in this study occurred in traditional, one-off workshops; these descriptions are related to three core features: duration, active learning, and collective participation.	Recommendation 1. Provide professional learning opportunities that teachers perceive as relevant (coherent) and engaging (active learning)
	RQ1c, Finding 2. Participating teachers reported that the content taught in PD opportunities was not effective and perceived these opportunities as lacking coherence, both in terms of its structure and degree of connectedness to teachers' daily work.	Recommendation 2. Offer teachers more opportunities to work collaboratively (collective participation)
RQ2. In what ways do teachers describe contextual factors as impeding their perceptions of learning in teacher PD opportunities?	RQ2, Finding 1. Data from teacher surveys and findings from the focus group discussion indicate that lack of access to consistent, high-quality instructional support impeded their learning in PD opportunities offered by the school.	Recommendation 4. Hold instructional coaches to a consistently higher standard of practice
	RQ2, Finding 2. Data from the teacher surveys and findings from the focus group indicate that the misuse of teachers' planning time posed barriers to learning in the PD opportunities offered at the school.	Recommendation 3. Protect teachers' individual planning time

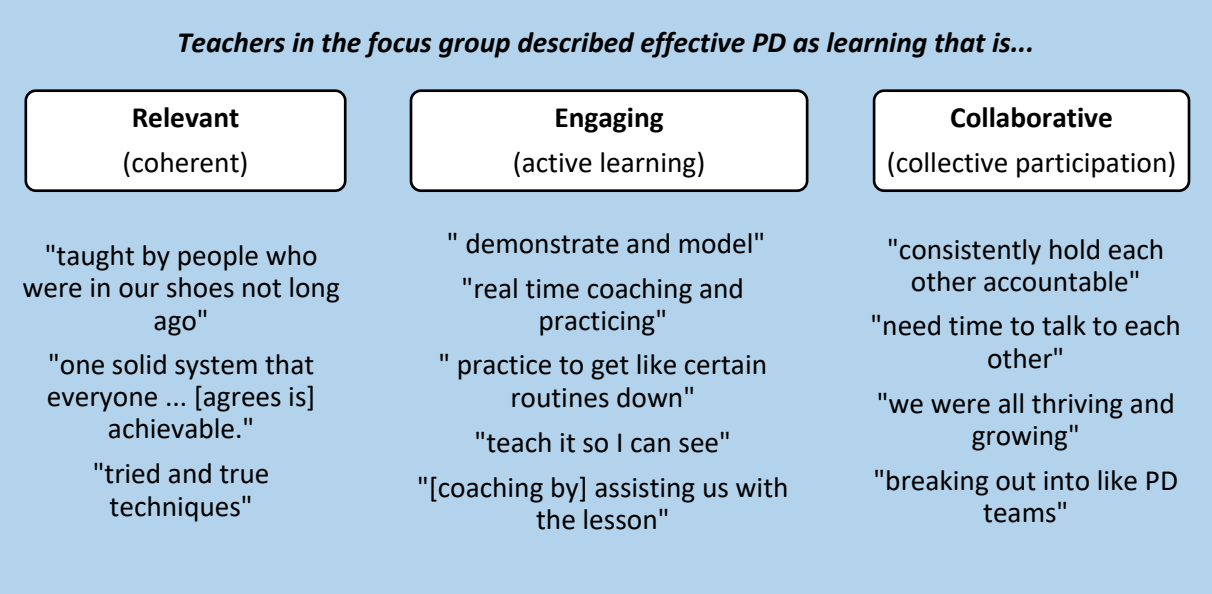
RQ3. In what ways, if any, do teachers' expectations of student success against grade level standards change over the course of the school year?	RQ3, Finding 1. The majority of surveyed teachers were found to have low expectations for all learners; further, the expectations scores of teachers in the post-survey were lower than, but not significantly different from, those of teachers in the pre-survey.	Recommendation 5. Size up the context of the learning environment Recommendation 6. Establish and prioritize professional communities among teachers

Research Question 1: In what ways do teachers describe the features of teacher PD opportunities offered at the school in 2021–2022, and during the 2021 summer, and how do these descriptions compare to the literature standard of effective teacher PD?

Currently, the professional development (PD) offered to teachers at the school resembles "the "cafeteria model," where districts provide teachers with many options in the form of one-shot workshops" (Firestone et al., 2005, p. 441). Research has clearly demonstrated that this model of PD does not produce long-term changes in teachers' learning and practice (Yoon et al., 2007). And, while teachers in this study were dissatisfied with some dimension of the PD opportunities offered by the school, they also recognized the value of PD that incorporates one or more critical features of effectiveness (i.e., coherence, active learning, and collective participation) (Garet et al., 2001); these features interact synergistically to promote long-term change in teacher practice and instruction. When asked what effective PD opportunities at this school might look like, teachers in the focus group described learning that was relevant (coherent), engaging (active learning), and collaborative (collective participation). Teachers' descriptions of their ideal professional learning experience are arrayed in Figure 10 below.

Figure 10

Focus Group Descriptions of the Ideal Professional Learning



Recommendation 1: Provide Professional Learning Opportunities That Teachers Perceive as Relevant (Coherent) and Engaging (Active Learning)

Effective PD opportunities are *coherent:* they target fewer topics in greater depth and feature more effective follow-up. According to Firestone et al. (2005), coherent PD opportunities are characterized by the following three elements:

1. *Consistency of focus*. Coherent PD opportunities favor depth over breadth; they focus on fewer topics and strive to provide teachers with in-depth knowledge to enable the considerable adjustments that new understandings of successful teaching necessitate (Firestone et al., 2005).
2. *Distribution of time*. Coherent PD opportunities feature expert scaffolding (Darling-Hammond et al., 2017); they offer extended opportunities to learn, which promotes long-term changes in teachers' practice (Firestone et al., 2005).
3. *Form of PD events*. Coherent PD opportunities not only situate teachers' learning within the classroom setting but also center this learning around students' actual work (Firestone et al., 2005); such opportunities model the educational strategies that teachers are expected to

practice in the classroom and subsequently promote teachers' active learning in PD (Bill & Melinda Gates Foundation, 2014).

Central to these elements is a focus on learning what teachers actually need, rather than deciding it for them. One way that the school can align its PD offerings with the needs of its teachers is by periodically administering a PD needs assessment. Similar to the survey used in this study, the school can begin surveying their teaching staff about perceptions of not only PD needs but also current offerings (Hanover Research, 2019). Differentiating teachers' PD opportunities would offset teachers' current perception of PD as ineffective and unrelated to their classroom practice. Additionally, the periodic nature of these assessments would confer a greater sense of coherence between the PD opportunities offered during the summer and during the school year. A consistent focus on teachers' actual needs ensures such coherence.

Effective PD opportunities also incorporate *active learning*: they are based on inquiry-oriented learning approaches (Penuel et al., 2007). According to Garet et al. (2001), there are four dimensions of active learning; three of these dimensions are worth consideration by leaders at the school:

1. *Observing and being observed.* Active learning is promoted in PD opportunities "for teachers to observe expert teachers, be observed teaching in their own classroom, and obtain feedback" (Garet et al., 2001, p. 925); when teachers receive help from more experienced colleagues, they obtain vital new information that not only supplements what they are learning in formal PD but also promotes a school-wide culture of collective participation (Penuel et al., 2007).
2. *Planning classroom implementation*. Active learning is promoted in PD opportunities for teachers to link the ideas taught in PD to their actual teaching contexts (Garet et al., 2001); the reason being that "the act of planning, enacting, and revising curricular units engages teachers more deeply with their teaching, so that they can come to understand more fully the principles of effective curriculum" (Penuel et al., 2007, p. 931).

3. *Reviewing student work.* Active learning is promoted in PD opportunities for teachers to examine and discuss examples of student work (Garet et al., 2001). Providing teachers with curricular models and instructional modeling affords greater clarity of what best practices look like; it also supports teachers' capacity to adopt these new tactics in their classrooms (Darling-Hammond et al., 2017).

In short, offering more effective teacher PD would mean shifting away from one-off workshops that currently promote passive learning at the school. The school can make this shift possible by incorporating the recommendations I laid out in the three dimensions above.

Recommendation 2: Offer Teachers More Opportunities to Work Collaboratively (Collective Participation) With Colleagues

Effective PD opportunities also foster *collective participation;* they afford a chance for teachers to collaboratively share and discuss crucial problems of practice (Wilson & Berne, 1999). As it currently stands, the majority of teacher PD at the school was described by teachers as lacking group participation, discussion, or the exchange of ideas and practices. Furthermore, as the findings of this study would suggest, the school's current approach to PD is largely devoid of opportunities for participation, let alone practice, that is central to the notion of creating and sustaining a school-wide culture of collective participation. Particularly, social structures and power dynamics at the school – which overwhelmingly restrict opportunities for collaborative learning -- can be undone in communities of learners created through opportunities for participation by inviting, incorporating, and involving learners in the creation of learning goals for a given curriculum (Case, 1996).

Because of the lack of coverage (i.e., substitutes) afforded to teachers at this school, deliberately scheduling common planning time presents a viable solution to ensuring regular and consistent opportunities for teacher collaboration. In shifting towards a design more amenable to collective participation, I recommend that leaders of the school intentionally schedule common planning

periods for teachers assigned to similar areas of instruction (Abdal-Haqq, 1996). Although adding a collaboration period is most amenable to schools using a block schedule, it is possible to overcome these implementation challenges through one of several creative approaches taken by other secondary schools that serve a population of students similar to NECS. For example, Baltimore's Talent Development High School (BTDHS), which primarily serves students from low-SES and minority backgrounds, takes a unique approach.

> Staff gained permission to reduce the time for each class from 90 to 80 minutes and to extend the school day by 10 minutes. This change enabled the school to establish a 50-minute period at the end of each day reserved for an arts and expression course for 9th graders and career exploration courses for 10th through 12th graders. These courses were offered three times per week and staffed by community members representing various local organizations and businesses. On the other 2 days, teachers led student-advisory groups. This plan gave administrators and staff in every grade-level, subject-area, and interdisciplinary team an opportunity to meet multiple times each week to review student progress, plan interventions and activities, and engage in professional development activities. (Legters et al., 2011, p. 15).

Another example is Brooklyn Generation School, which, like NECS, serves low-SES and minority background students and boasts small class sizes; at Brooklyn Generation, this latter point made it possible to implement a collaboration period by "reducing the number of administrative positions and increasing the number of teachers while shifting to a grade-level team orientation" (Spear & Reinhard, 2014, p. 9). While NECS has historically broached their teacher learning problem by adding more administrative positions, fostering a culture of collaboration, and enabling long-term changes in teacher learning in practice, calls for doing the opposite. By adding more teachers, the school would open itself up to creating opportunities that enhance and sustain effective teaching practice.

Research Question 2: In what ways do teachers describe contextual factors as impeding their perceptions of learning in PD opportunities at the school?

Teachers perceived their learning at the school as hampered by a lack of not only protected planning time but also effective and accessible forms of instructional coaching. While my recommendation to add a collaboration period would protect teachers' time for collaborative planning opportunities, protecting their independent planning time is also imperative to ensuring teacher learning and producing effective changes in their practice.

Recommendation 3: Protect Teachers' Individual Planning Time

Based on the findings of this study, individual planning time is a luxury afforded to some, but not all, teachers at this school. According to teachers in the focus group, this is because individual planning time is often treated as a dispensable resource by leaders at the school. Specifically, teachers' planning periods are regularly swapped for substituting duties that, to my knowledge, extend beyond their duties as teachers and professionals in their own right. Beyond the ethical implications of continuing this practice, forfeiting a teacher's planning period has considerable ramifications to the quality of instruction in the building, which impairs student learning. For these teachers, the solution is overwhelmingly simple: to hire actual substitutes. From the perspective of leaders at the school, the current budget cannot support this solution. In line with my previous recommendation, reducing the number of administrative positions would free up the current budget and allow for hiring of much-needed substitutes and support staff.

Recommendation 4: Hold Instructional Coaches to a Consistently Higher Standard of Practice

Related to my recommendations for supporting teachers' active learning, coaching at the school must also embrace these practices (i.e., modeling and performance feedback; WestEd, 2019) and more. As the findings of this study suggest, teachers' experiences with instructional coaching at the school varied widely as a function of the specific person performing the role of instructional coach; teachers

perceived some coaches as more supportive and effective than others. The descriptions provided by teachers in the focus group echo findings from the literature on effective coaching; specifically, that such variation in coaching effectiveness is "often due to a lack of adherence to a defined coaching process and a clear focus on research-based coaching actions and outcomes that guide PD" (Reddy et al., 2019, p. 105). Kretlow and Bartholomew (2010) offer two general guidelines for developing certain components for instructional coaching.

First, when teachers are learning something new, it is best to use a small-group format for instructive sessions (i.e., class sessions, in-services at schools) in which "teacher educators [i.e., coaches or facilitators] should provide multiple opportunities to practice the instructional strategy with specific praise and with error correction including modeling, when necessary." Second, before initiating any coaching, teacher educators should conduct one or more observations to identify individual teachers' coaching needs based on their areas of weakness. Then, provide feedback and coaching sessions that "include some form of modeling, whether it is during an actual lesson or one-on-one with the teacher" to support each of their specific needs (Kretlow & Bartholomew, 2010, p. 294).

Research Question 3: In what ways, if any, do teachers' expectations of student success against grade level standards change over the course of the school year?

A sobering evaluation of the conditions for teacher learning at NECS, as reported throughout this paper, suggests that the learning environment was not amenable to producing changes in teachers' beliefs about students and their learning. This interpretation aligns with other data suggesting that despite teacher quality playing a part in students' academic achievement, most of this burden falls elsewhere in the learning environment (Warren, 2002). Given the school's commitment to holding *all* students to high expectations, it is important that the school strengthen the relationship between individual and collective components of workplace learning. This is because "teachers' sense of responsibility for student learning is connected with their beliefs about students' academic abilities

through a set of organizationally embedded expectations regarding what is possible for students from particular backgrounds" (Diamond et al., 2004, p. 76). It is this type of systems thinking that reinforces the notion of context and the end-user perspective; particularly, that those within a system have a different perspective compared to those on the outside (Gawande, 2009). Because of this, practitioners cannot focus on just the obvious, visible parts of a system, but must instead strive for integrity, seeing the bigger picture and adapting to their context. Such flexibility shall also promote better learning through forcing one to step back and appreciate the larger system itself.

Recommendation 5: Size up the Context of the Learning Environment

In working to improve the state of teacher learning and develop initiatives that achieve effectiveness, the school needs to carefully analyze the organizational context for change. There are three considerations for carrying out this analysis, which include critically assessing: (1) available know-how, (2) demands on both organizational capacity and human capabilities, and (3) the politics of change. My recommendation for the school, based on the findings of this study and past actions taken by the organization, is to especially focus on the second consideration in their analysis of context. Specifically, the school should closely assess whether the necessary organizational supports are currently in place, and whether they are functioning at the level they need to be, to support the changes envisioned.

> Educational leaders too often wave off this concern with the mantra, "We are building the plane as we fly it." Taking this expression a bit more literally would be a good idea. One is not likely to get such a plane off the ground, and even if one did, it would almost certainly be heading toward a fiery crash! At base here is a general organizational fact of life. The rate of spread for any effective change is a function of the size of the current expertise base that can teach and mentor others how to do this work. As new change ideas are brought into education, by definition, this expertise base tends to be very limited (Bryk et al., 2015, p. 119).

Additionally, it is important that in developing continuous improvement plans, the school focuses more on describing its strategy and how exactly the plan will be executed within the bounds of what the organization is actually, presently capable of (Stevenson, 2019). In the current study, too many unexamined assumptions, and a failure to address challenges for implementing the plan, halted learning, and thus improvement, at the school. Moving forward, the school should plan to include clarifying details of who will do what, by when, and how. Doing so will invite others to take part in, and buy into, the school's plan for change.

Recommendation 6: Establish and Prioritize Professional Communities Among Teachers

Based on the findings of this study, teachers at the school spent most of their collaborative learning in activities focused around analyzing student data; these activities were mandatory (i.e., embedded into teachers' daily work schedules). And, while there is some merit in conducting these activities, such merit becomes lost among professional learning communities focused too narrowly on data-driven practices (Hargreaves, 2007). Therefore, the leaders of this school should work to establish strong and effective professional communities to better enable teachers to differentiate their instruction to meet the diverse needs of students, while still maintaining high expectations for their learning. According to Bolam et al. (2005), effective professional learning communities share eight key features. These attributes are listed below, along with my specific recommendations for leaders at this school:

1. *Shared values and vision.* Beyond involving staff in creating and maintaining values and visions for the school, it is just as vital that leaders ensure that the vision of such a workplace culture is visible and present (Hord, 1997).
2. *Collective responsibility for students' learning.* The research is generally in agreement that members of a professional learning community constantly accept shared responsibility for students' learning. This increases motivation, puts peer pressure on those who do not

contribute, and reduces isolation by breaking the siloes that keep teachers from collectively participating (Bolam et al., 2005; Newmann & Wehlage, 1995; Stoll et al., 2006).

3. *Collaboration focused on learning.* Teachers require knowledge, technical skill, and social-emotional support well beyond what they can muster as isolated individuals working alone. Teachers who productively collaborate in reflective discourse stand to learn more about professional concerns; they monitor and react to one another's teaching, curriculum, and assessment methods; and they work on joint planning and curriculum development (Newmann & Wehlage, 1995).
4. *Individual and collective professional learning.* Previous research indicates that organizational components beyond individual staff competencies strongly impact student performance gains and other advances in their learning (Newmann & Wehlage, 1995). Leaders at the school must develop a community in the richest sense possible such that individuals at all levels of the organization's hierarchy are able to work together and be directed by the quality of work itself.
5. *Reflective professional inquiry.* Professional learning communities engage teachers in collaborative activities and introduce them to new people and opportunities. These environments foster critical self-reflection and reflective practice, which supports teachers' creation of new knowledge and changes in their beliefs (Bolam et al., 2005; Hord, 1997).
6. *Openness, networks, and partnerships.* The task of leadership within learning organizations is one of securing, creating, and maintain possible avenues for constructive interaction within individual agents in the community. On an organizational level, leaders need to take time to create the kind of mutual structures that facilitate freedom and incorporate diverse voices.
7. *Inclusive membership.* It is vital that school administrators recognize the importance of generating opportunities that bring all teachers together in pursuit of a single aim or goal. In this capacity, school leaders must offer insight and participate in fostering the growing process. One

strategy is to create meaningful opportunities for teachers to collaborate on topics and projects that affect them all (Hord, 1997).

8. *Mutual trust, respect, and support.* Leaders at the school should strive to forge meaningful relationships that are built on mutual trust and place value on diverse perspectives and past histories. This calls for school leadership to model that behavior by talking to people and willing to participate when given the opportunity.

Conclusion

This study has generated valuable insights for improving professional learning by investigating the status quo of teacher professional development (PD) and the influencing factors that shaped teachers' learning at this school. By drawing upon both quantitative and qualitative strands of research, I have provided an enhanced understanding of changes needed for teachers to learn, change, and improve. Although the current study is based on a small sample of participants, the findings show that teachers mostly participated in PD opportunities that they described as one-off, workshop-style events, that were not relevant, not engaging, and not collaborative enough to sustain their learning. The findings also show that there are flaws in the approaches used by instructional coaches, and that there are organizational structures preventing teachers' learning at this school. Additionally, the investigation of teachers' expectations of students' success against grade level standards has shown that most of these teachers did not hold high expectations. This finding in particular highlights the potential usefulness of redesigning the learning environment to support a professional learning culture among teachers at this school. Nonetheless, the small sample size adds further caution regarding the generalizability of these findings. Specifically, these findings may not be applicable to other groups within this organization.

Notwithstanding the relatively limited sample, these findings provide the following insights into potential avenues for continued inquiry: the complex interaction between individual and organizational learning, the association of their underlying aspects, and the role of retention and attrition on a school-wide culture of collective participation in professional communities of teachers. Ultimately, the partner organization is responsible for deciding if and how they will use the findings and recommendations provided by the current study. I expect that the school's network team (i.e., Executive Director, Chief Academic Officer, etc.) will thoroughly discuss how the existing systems work with or against the quality

of teacher learning and instruction. Furthermore, I expect that members of this team will want to critically reflect on how they are contributing to the outcomes from this study.

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Appendix A. Teacher Pre-Survey

Teacher Pre-Survey
Roque, 2021

Consent

CNST.

VUMC Institutional Review Board
Informed Consent Document for Research

Principal Investigator: Nicolette Roque
Study Title: Attending to the Problem of Professional Learning
Institution/Hospital: Vanderbilt University

The following information is provided to inform you about the research project and your participation in it. Please read this form carefully and feel free to ask any questions you may have about this study and the information given below. You will be given an opportunity to ask questions, and your questions will be answered. Also, you will be given a copy of this consent form.

You do not have to be in this research study. You may choose not to be in this study and get other treatments without changing your healthcare, services, or other rights. You can stop being in this study at any time. If we learn something new that may affect the risks or benefits of this study, you will be told so that you can decide whether you still want to be in this study.

What is the purpose of this study?
This capstone project hopes to better understand the implementation of a new teacher professional development model for the purpose of changing instruction and improving student outcomes.

Procedures to be followed and approximate duration of the study:
The proposed capstone project will include an online pre- (7 mins) and post-survey (9 mins) distributed to all full-time teachers at the school. Study participants will be informed of the study by the principal investigator, in coordination with the school CEO, during a weekly faculty meeting and invited to participate in surveys during the following week's faculty meeting.

You may be asked to participate in focus group interviews to supplement and expand on findings from self-response surveys. Six to eight teachers will be selected to participate, and each focus group interview is expected to take around 60 mins total. All focus group discussions will be held using Zoom video conferencing platform.

Expected costs:
There are no costs associated with this study.

Description of the discomforts, inconveniences, and/or risks that can be reasonably expected as a result of participation in this study: There are no serious risks associated with participation in this study. The primary inconvenience is the time investment required for completing surveys and participating in the focus group interview.

Good effects that might result from this study:

1. **1) The benefits to science and humankind that might result from this study:** This project will contribute to our understanding of how PD implementation influences teacher and student learning.
2. **2) The benefits you might get from being in this study:** The findings from this project may be used to articulate an understanding of the factors that facilitate or hinder PD implementation, and to improve the experiences in this and similar teacher education programs.

Study Results:
The full publication of this study will be added to the Electronic Theses and Dissertation repository. This repository is a joint project of the Graduate School, Peabody College, and the Jean and Alexander Heard Libraries. The author of the study is Nicolette Roque.

Compensation for participation:
You will not receive any compensation from participating in this study.

Circumstances under which the Principal Investigator may withdraw you from study participation:
You may be withdrawn from this study for lack of participation.

What happens if you choose to withdraw from study participation? If you decide to withdraw from this study after your participation has begun, no further questions will be asked. Any information you have provided up to the point of withdrawal will be maintained as described below.

Contact Information.
If you should have any questions about this research study or possibly injury, please feel free to contact **NICOLETTE ROQUE** at [redacted] or my Faculty Advisor, **SAYIL CAMACHO** at [redacted].

For additional information about giving consent or your rights as a participant in this study, to discuss problems, concerns, and questions, or to offer input, please feel free to contact the Institutional Review Board Office at (615) 322-2918 or toll free at (866) 224-8273.

Confidentiality:
All efforts, within reason, will be made to keep your personal information in your research record confidential but total confidentiality cannot be guaranteed. Diligent efforts will be made to ensure that your participation in this study and your responses remain confidential. Your name will never be used in either data entry or research products that result from the study. Results will be presented so that no participant is individually identifiable. Researchers will remove any personally identifying information, assigning a numeric code to identify participants at the school. Only key study personnel will have access to the coding system. Artifacts and research records, including audio-recordings, will be stored securely and only researchers will have access to these records, for up to 10 years, at which time it will be destroyed.

Privacy:
All efforts, within reason, will be made to keep your personal information in your research record confidential but total confidentiality cannot be guaranteed. Your information may be shared with Vanderbilt or the government, such as the Vanderbilt University Institutional Review Board or the Federal Government Office for Human Research Protections, if you or someone else is in danger or if we are required to do so by law.

STATEMENT BY PERSON AGREEING TO PARTICIPATE IN THIS STUDY
I have read this informed consent document and the material contained in it has been explained to me verbally. All my questions have been answered, and I freely and voluntarily choose to participate.

- ◯ Yes I do Consent
- ◯ No I do not Consent

Demographics

DEM_01. What gender do you identify as?

- ◯ Male
- ◯ Female
- ◯ Other
- ◯ Prefer not to say

DEM_02. Are you Hispanic or Latino?

- ◯ Yes
- ◯ No

DEM_03. Regardless of your answer to the previous question, please indicate how you identify yourself. (Please select one or more).

- ☐ American Indian or Alaska Native
- ☐ Asian
- ☐ Black or African American
- ☐ Native Hawaiian or Other Pacific Islander
- ☐ White

Teacher Background

BKGD_01. Which of the following describes your position in relation to this school?

- ◯ I am a novice teacher entirely
- ◯ I am a new teacher at this school
- ◯ I am a veteran teacher at this school

BKGD_02. How many years have you been a teacher at this school?

BKGD_03. Which content areas do you teach? (Please select all that apply).

- ☐ ELA
- ☐ Math
- ☐ Science
- ☐ Social Studies
- ☐ None of these

Teachers' Expectations Survey

TE_00. The following questions ask you to reflect briefly on our state's academic content standards. Please select the answer that best represents how you feel in response to the listed statements below.

	Strongly agree	Agree	Somewhat agree	Somewhat disagree	Disagree	Strongly disagree
a. Students are overburdened by the demands of our state's standards.	◯	◯	◯	◯	◯	◯
b. My students need something different than what is outlined in our state's standards.	◯	◯	◯	◯	◯	◯
c. The standards make it difficult for students to learn basic skills in my subject.	◯	◯	◯	◯	◯	◯
d. Our state's standards are too challenging for my students.	◯	◯	◯	◯	◯	◯

Professional Learning

PL. Instructions Box

The following questions ask about the professional learning opportunities you had from this past summer (2021) to this point in the school year. Lessons from previous engagement with teachers suggest that professional learning mostly occurs through one of the following three types of pathways:

Formal professional development opportunities, such as

- Workshops
- Webinars
- Conferences
- Graduate or continuing education classes

Individual support through one-on-one mentoring, coaching, or partnerships, such as
- Mentoring (as mentor or mentee)
- Working with an instructional coach, administrator, or teacher leader
- Peer observation and feedback

Collaborative activities with a group of other teachers, such as
- Professional learning communities (PLCs) with grade level or subject area team
- Collaborative planning on curriculum, materials, or specific lessons
- Working together on classroom management or discipline issues

PL_01_pre. Since summer 2021, about how much time have you spent engaging in the following types of professional learning?

	Not at all	1-10 hrs	11-20 hrs	21-40 hrs	More than 40 hours
a. Formal professional development opportunities (e.g., workshops, webinars, conferences, or classes)	○	○	○	○	○
b. Individual support through one- on-one mentoring, coaching, or partnerships	○	○	○	○	○
c. Collaborative activities with a group of other teachers (e.g., PLCs, grade level teams)	○	○	○	○	○

PL_02_pre. How would you rate your experience with professional learning at this school?

- ○ Very Dissatisfied
- ○ Dissatisfied
- ○ Neutral
- ○ Satisfied
- ○ Very Satisfied

PL_03_pre. For each of the following, how would you rate your previous experiences with professional learning at the school?

	Extremely effective	Effective	Somewhat effective	Somewhat ineffective	Ineffective	Extremely ineffective
a. The amount of time scheduled for instructional planning.	○	○	○	○	○	○
b. Collaboration with colleagues in my school.	○	○	○	○	○	○
c. Professional development focused on curriculum and/or instruction.	○	○	○	○	○	○
d. Professional development focused on social and emotional needs of students.	○	○	○	○	○	○
e. Professional development focused on culturally relevant instruction.	○	○	○	○	○	○

GEN. The next few questions ask more generally about your development as a teacher.

PL_14. Think about your GREATEST NEEDS for professional development. Which of the options below would be most useful to you to receive additional professional development? (Please select up to two)

- ☐ Addressing student behavioral issues
- ☐ General instructional practices (e.g., differentiation, questioning)
- ☐ Meeting the needs of all learners (e.g., English learners and students with disabilities)
- ☐ Content-specific instructional strategies
- ☐ Using technology and tools for virtual learning
- ☐ Addressing students' socio-emotional development needs
- ☐ Working with students from diverse ethnic/cultural/racial backgrounds
- ☐ Using the curriculum provided for my classes

TPD. In the coming weeks, your school will begin to implement a new PD model for instructional improvement.

PL_05. What do you hope to get out of participating in the new PD model this school year?

PL_06. What concerns or barriers to implementation do you have regarding your school's new PD model?

CP.
Instructions Box

The following question asks about core practices you hope to see incorporated into upcoming PD at your school. Please refer to the definitions below when selecting your response(s):

Core Practice	**Description**	**Example of Practice**
Integrating content	Integrating content that is representative of historically marginalized student populations	Realizing that the curriculum is devoid of works by African American authors and selecting a book whose author and protagonists are Black.
Posing alternatives	Posing alternatives to hegemonic social narratives and the underlying assumptions that produce them	Calling students' attention to the title of their textbook and uncovering the underlying biases and assumptions that the title carries with it.
Leveraging empowering cultural patterns	Leveraging students' cultural patterns of participation to increase opportunities for student participation	Leveraging Boykin's (1986) nine dimensions of African American culture to teaching a lesson on adding fractions.
Interrupting marginalizing cultural patterns	Interrupting students' cultural patterns of participation in situations where it hinders opportunities for student participation	Recognizing that ELL students tend to congregate at the back of the class and avoid having to participate during small group work.

Core Practice	Description	Example of Practice
Interrupting prejudice	Foreseeing and responding to instances of prejudice	Taking up informal conversations with students to model an inclusive attitude towards students who speak a language other than English.
Empowering students	Advocating with and for historically marginalized student populations	Noticing the disproportionate number of Black students referred to alternative school settings, the teacher proposes that leaders at the school review and revise the current disciplinary policy.

PL_13_pre. Which core practices of instruction do you hope to see incorporated in your school's PD? (Please select all that apply).

- [ ] Integrating content
- [ ] Posing alternatives
- [ ] Leveraging empowering cultural patterns
- [ ] Interrupting marginalizing cultural patterns
- [ ] Interrupting prejudice
- [ ] Empowering students

Appendix B. Teacher Post-Survey

Teacher Post-Survey
Roque, 2021

Consent

CNST.

VUMC Institutional Review Board
Informed Consent Document for Research

Principal Investigator: Nicolette Roque
Study Title: Attending to the Problem of Professional Learning
Institution/Hospital: Vanderbilt University

The following information is provided to inform you about the research project and your participation in it. Please read this form carefully and feel free to ask any questions you may have about this study and the information given below. You will be given an opportunity to ask questions, and your questions will be answered. Also, you will be given a copy of this consent form.

You do not have to be in this research study. You may choose not to be in this study and get other treatments without changing your healthcare, services, or other rights. You can stop being in this study at any time. If we learn something new that may affect the risks or benefits of this study, you will be told so that you can decide whether you still want to be in this study.

What is the purpose of this study?
This capstone project hopes to better understand the implementation of a new teacher professional development model for the purpose of changing instruction and improving student outcomes.

Procedures to be followed and approximate duration of the study:
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You may be asked to participate in focus group interviews to supplement and expand on findings from self-response surveys. Six to eight teachers will be selected to participate, and each focus group interview is expected to take around 60 mins total. All focus group discussions will be held using Zoom video conferencing platform.

Expected costs:
There are no costs associated with this study.

Description of the discomforts, inconveniences, and/or risks that can be reasonably expected as a result of participation in this study: There are no serious risks associated with participation in this study. The primary inconvenience is the time investment required for completing surveys and participating in the focus group interview.

Good effects that might result from this study:

1. **1) The benefits to science and humankind that might result from this study:** This project will contribute to our understanding of how PD implementation influences teacher and student learning.
2. **2) The benefits you might get from being in this study:** The findings from this project may be used to articulate an understanding of the factors that facilitate or hinder PD implementation, and to improve the experiences in this and similar teacher education programs.

Study Results:
The full publication of this study will be added to the Electronic Theses and Dissertation repository. This repository is a joint project of the Graduate School, Peabody College, and the Jean and Alexander Heard Libraries. The author of the study is Nicolette Roque.

Compensation for participation:
You will not receive any compensation from participating in this study.

Circumstances under which the Principal Investigator may withdraw you from study participation:
You may be withdrawn from this study for lack of participation.

What happens if you choose to withdraw from study participation? If you decide to withdraw from this study after your participation has begun, no further questions will be asked. Any information you have provided up to the point of withdrawal will be maintained as described below.

Contact Information.
If you should have any questions about this research study or possibly injury, please feel free to contact **NICOLETTE ROQUE** at [redacted] or my Faculty Advisor, **SAYIL CAMACHO** at [redacted].

For additional information about giving consent or your rights as a participant in this study, to discuss problems, concerns, and questions, or to offer input, please feel free to contact the Institutional Review Board Office at (615) 322-2918 or toll free at (866) 224-8273.

Confidentiality:
All efforts, within reason, will be made to keep your personal information in your research record confidential but total confidentiality cannot be guaranteed. Diligent efforts will be made to ensure that your participation in this study and your responses remain confidential. Your name will never be used in either data entry or research products that result from the study. Results will be presented so that no participant is individually identifiable. Researchers will remove any personally identifying information, assigning a numeric code to identify participants at the school. Only key study personnel will have access to the coding system. Artifacts and research records, including audio-recordings, will be stored securely and only researchers will have access to these records, for up to 10 years, at which time it will be destroyed.

Privacy:
All efforts, within reason, will be made to keep your personal information in your research record confidential but total confidentiality cannot be guaranteed. Your information may be shared with Vanderbilt or the government, such as the Vanderbilt University Institutional Review Board or the Federal Government Office for Human Research Protections, if you or someone else is in danger or if we are required to do so by law.

STATEMENT BY PERSON AGREEING TO PARTICIPATE IN THIS STUDY
I have read this informed consent document and the material contained in it has been explained to me verbally. All my questions have been answered, and I freely and voluntarily choose to participate.

- ◯ Yes I do Consent
- ◯ No I do not Consent

Block 3

DEM_01. What gender do you identify as?

- ◯ Male
- ◯ Female
- ◯ Other
- ◯ Prefer not to say

DEM_02. Are you Hispanic or Latino?

- ◯ Yes
- ◯ No

DEM_03. Regardless of your answer to the previous question, please indicate how you identify yourself. (Please select one or more).

- ☐ American Indian or Alaska Native
- ☐ Asian
- ☐ Black or African American
- ☐ Native Hawaiian or Other Pacific Islander
- ☐ White

Block 4

BKGD_01. Which of the following describes your position in relation to this school?

- ◯ I am a novice teacher entirely
- ◯ I am a new teacher at this school
- ◯ I am a veteran teacher at this school

BKGD_02. How many years have you been a teacher at this school?

Teachers' Expectations Survey

TE_00. The following questions ask you to reflect briefly on our state's academic content standards. Please select the answer that best represents how you feel in response to the listed statements below.

	Strongly agree	Agree	Somewhat agree	Somewhat disagree	Disagree	Strongly disagree
a. Students are overburdened by the demands of our state's standards.	◯	◯	◯	◯	◯	◯
b. My students need something different than what is outlined in our state's standards.	◯	◯	◯	◯	◯	◯
c. The standards make it difficult for students to learn basic skills in my subject.	◯	◯	◯	◯	◯	◯
d. Our state's standards are too challenging for my students.	◯	◯	◯	◯	◯	◯

Professional Learning

BKGD_03. Which content areas do you teach? (Please select all that apply).

- ☐ ELA
- ☐ Math
- ☐ Science
- ☐ Social Studies
- ☐ None of these

PL_07. Please indicate the extent to which you agree or disagree with the following statement about the curricular materials provided by your school.

	Strongly agree	Agree	Disagree	Strongly disagree
My school provides me with the MATHEMATICS curricular materials (e.g., textbooks, workbooks, activities, assessments) necessary to be successful.	◯	◯	◯	◯

	Strongly agree	Agree	Disagree	Strongly disagree
My school provides me with the ENGLISH/LANGUAGE ARTS curricular materials (e.g., textbooks, workbooks, activities, assessments) necessary to be successful.	○	○	○	○
My school provides me with the SCIENCE curricular materials (e.g., textbooks, workbooks, activities, assessments) necessary to be successful.	○	○	○	○
My school provides me with the SOCIAL STUDIES curricular materials (e.g., textbooks, workbooks, activities, assessments) necessary to be successful.	○	○	○	○
My school provides me with the curricular materials (e.g., textbooks, workbooks, activities, assessments) necessary to be successful.	○	○	○	○

PL. Instructions Box

The following questions ask about the professional learning opportunities you had since October 1, 2021 to this point in the school year. Lessons from previous engagement with teachers suggest that professional learning mostly occurs through one of the following three types of pathways:

Formal professional development opportunities, such as
- Workshops
- Webinars
- Conferences
- Graduate or continuing education classes

Individual support through one-on-one mentoring, coaching, or partnerships, such as
- Mentoring (as mentor or mentee)
- Working with an instructional coach, administrator, or teacher leader
- Peer observation and feedback

Collaborative activities with a group of other teachers, such as
- Professional learning communities (PLCs) with grade level or subject area team
- Collaborative planning on curriculum, materials, or specific lessons
- Working together on classroom management or discipline issues

PL_01_post. Since October 1, 2021, about how much time have you spent engaging in the following types of professional learning?

	Not at all	1-10 hrs	11-20 hrs	21-40 hrs	More than 40 hours
a. Formal professional development opportunities (e.g., workshops, webinars, conferences, or classes)	○	○	○	○	○
b. Individual support through one- on-one mentoring, coaching, or partnerships	○	○	○	○	○
c. Collaborative activities with a group of other teachers (e.g., PLCs, grade level teams)	○	○	○	○	○

PL_09. Who have you primarily worked with since October 1, 2021 to improve your teaching?

- ◯ Administrator in my school (e.g., principal, assistant principal)
- ◯ Instructional coach in my school (e.g., literacy or math coach)
- ◯ Another teacher in my school (e.g., veteran teacher, department chair, team leader)
- ◯ Support staff from my school (e.g., district coach, content coordinator)
- ◯ Other:

PL_10. Since October 1, 2021, how often have you participated in the following professional learning activities?

	Not at all	Once or twice a marking period	About once a month	Two or three times a month	Once a week or more
a. Work with a grade level team (e.g., fifth grade team or sixth grade academy)	◯	◯	◯	◯	◯
b. Work with a subject area team (e.g., science department or literacy PLC)	◯	◯	◯	◯	◯
c. Review student assessment data to make instructional decisions	◯	◯	◯	◯	◯
d. Plan a lesson with other teachers	◯	◯	◯	◯	◯
e. Provide or receive feedback about instructional practices or activities	◯	◯	◯	◯	◯
f. Observe another teacher's classroom to get ideas for instruction or to offer feedback	◯	◯	◯	◯	◯

PL_04. Please indicate the extent to which you agree or disagree with the following statements regarding your school.

	Strongly disagree	Disagree	Agree	Strongly agree
a. I feel like I belong at this school.	◯	◯	◯	◯
b. I am treated with respect at this school.	◯	◯	◯	◯
c. I feel like other educators at this school care about me.	◯	◯	◯	◯

PL_11. Please indicate the extent to which you agree or disagree with the following statements regarding your school.

	Strongly disagree	Disagree	Agree	Strongly agree
a. Our school staff is a learning community in which ideas and suggestions for improvement are encouraged.	◯	◯	◯	◯
b. The staff feels comfortable raising issues and concerns that are important to them with school leaders.	◯	◯	◯	◯

	Strongly disagree	Disagree	Agree	Strongly agree
c. I like the way things are run at this school.	○	○	○	○

PL_12. Please indicate the extent to which you agree or disagree with the following statements about your school's leadership.

	Strongly disagree	Disagree	Agree	Strongly agree
a. My principal regularly models effective instruction.	○	○	○	○
b. My principal is knowledgeable about the curricula being used.	○	○	○	○
c. School leadership effectively handles student discipline and behavioral problems.	○	○	○	○

PL_02_post. How would you rate your experience with professional learning at this school since October 1, 2021?

- ○ Very Dissatisfied
- ○ Dissatisfied
- ○ Neutral
- ○ Satisfied
- ○ Very Satisfied

PL_03_post. For each of the following, how would you rate your experience with professional learning at the school since October 1, 2021?

	Extremely effective	Effective	Somewhat effective	Somewhat ineffective	Ineffective	Extremely ineffective
a. The amount of time scheduled for instructional planning.	○	○	○	○	○	○
b. Collaboration with colleagues in my school.	○	○	○	○	○	○
c. Professional development focused on curriculum and/or instruction.	○	○	○	○	○	○
d. Professional development focused on social and emotional needs of students.	○	○	○	○	○	○
e. Professional development focused on culturally relevant instruction.	○	○	○	○	○	○

CP.
Instructions Box

The following question asks about core practices incorporated into professional learning at your school. Please refer to the definitions below when selecting your response(s):

Core Practice	Description	Example of Practice

Core Practice	Description	Example of Practice
Integrating content	Integrating content that is representative of historically marginalized student populations	Realizing that the curriculum is devoid of works by African American authors and selecting a book whose author and protagonists are Black.
Posing alternatives	Posing alternatives to hegemonic social narratives and the underlying assumptions that produce them	Calling students' attention to the title of their textbook and uncovering the underlying biases and assumptions that the title carries with it.
Leveraging empowering cultural patterns	Leveraging students' cultural patterns of participation to increase opportunities for student participation	Leveraging Boykin's (1986) nine dimensions of African American culture to teaching a lesson on adding fractions.
Interrupting marginalizing cultural patterns	Interrupting students' cultural patterns of participation in situations where it hinders opportunities for student participation	Recognizing that ELL students tend to congregate at the back of the class and avoid having to participate during small group work.
Interrupting prejudice	Foreseeing and responding to instances of prejudice	Taking up informal conversations with students to model an inclusive attitude towards students who speak a language other than English.
Empowering students	Advocating with and for historically marginalized student populations	Noticing the disproportionate number of Black students referred to alternative school settings, the teacher proposes that leaders at the school review and revise the current disciplinary policy.

PL_13_post. Since October 1, 2021, which core practices of instruction have been incorporated in your school's PD? (Please select all that apply).

- ☐ Integrating content
- ☐ Posing alternatives
- ☐ Leveraging empowering cultural patterns
- ☐ Interrupting marginalizing cultural patterns
- ☐ Interrupting prejudice
- ☐ Empowering students

Appendix C. Coding Scheme for Survey Data

Variable name	Variable label	Item	Variable type	Levels and values
DEM_01	What gender do you identify as?	Closed	Nominal	Male Female Other (write)
DEM_02	Are you Hispanic or Latino?	Closed	Dichotomous	Yes No
DEM_03	Regardless of your answer to the previous question, please indicate how you identify yourself. (Please select one or more).	Closed	Nominal	American Indian or Alaska Native Asian Black or African American Native Hawaiian or Other Pacific Islander White
BKGD_01	Which of the following describes your position in relation to this school?	Closed	Nominal	I am a novice teacher entirely I am a new teacher at this school I am a veteran teacher at this school*
BKGD_02*	How many years have you been a teacher at this school?	Open	Ratio	Text
BKGD_03	What content areas do you teach?	Closed	Nominal	ELA Math Science Social Studies None of these
TE_00a	Students are overburdened	Closed	Ordinal	0 = Strongly agree 1 = Agree 2 = Somewhat agree 3 = Somewhat disagree 4 = Disagree 5 = Strongly disagree
TE_00b	Students need something different			
TE_00c	Standards make it difficult			
TE_00d	Standards are too challenging			
PL_07	My school provides me with the curricular materials necessary to be successful.	Closed	Ordinal	1 = Strongly disagree 2 = Disagree 3 = Agree 4 = Strongly agree
PL_01a	Formal professional development opportunities (e.g., workshops, webinars, conferences, or classes)	Closed	Ordinal	0 = Not at all 1 = 1-10 hrs 2 = 11-20 hrs 3 = 21-40 hrs 4 = More than 40 hours

PL_01b	Individual support through one- on-one mentoring, coaching, or partnerships			
PL_01c	Collaborative activities with a group of other teachers (e.g., PLCs, grade level teams)			
PL_09	Who have you primarily worked with since October 2021 to improve your teaching?	Closed	Nominal	Administrator Instructional coach Teacher Support staff Other (write)
PL_10a	Work with a grade level team (e.g., fifth grade team or sixth grade academy)	Closed	Ordinal	0 = Not at all 1 = Once or twice a marking period 2 = About once a month 3 = Two or three times a month 4 = Once a week or more
PL_10b	Work with a subject area team (e.g., science department or literacy PLC)			
PL_10c	Review student assessment data to make instructional decisions			
PL_10d	Plan a lesson with other teachers			
PL_10e	Provide or receive feedback about instructional practices or activities			
PL_10f	Observe another teacher's classroom to get ideas for instruction or to offer feedback			
PL_04a	I feel like I belong at this school.	Closed	Ordinal	1 = Strongly disagree 2 = Disagree 3 = Agree 4 = Strongly agree
PL_04b	I am treated with respect at this school.			
PL_04c	I feel like other educators at this school care about me.			
PL_11a	Our school staff is a learning community in which ideas and suggestions for	Closed	Ordinal	1 = Strongly disagree 2 = Disagree 3 = Agree 4 = Strongly agree

	improvement are encouraged.			
PL_11b	The staff feels comfortable raising issues and concerns that are important to them with school leaders.			
PL_11c	I like the way things are run at this school.			
PL_12a	My principal regularly models effective instruction.	Closed	Ordinal	1 = Strongly disagree 2 = Disagree 3 = Agree 4 = Strongly agree
PL_12b	My principal is knowledgeable about the curricula being used.			
PL_12c	School leadership effectively handles student discipline and behavioral problems.			
PL_02	How would you rate your experience with professional learning at this school since October 2021?	Closed	Ordinal	1 = Very dissatisfied 2 = Dissatisfied 3 = Neutral 4 = Satisfied 5 = Very satisfied
PL_03a	The amount of time scheduled for instructional planning.	Closed	Ordinal	1 = Extremely ineffective 2 = Ineffective 3 = Somewhat ineffective 4 = Somewhat effective 5 = Effective 6 = Extremely effective
PL_03b	Collaboration with colleagues in my school.			
PL_03c	Professional development focused on curriculum and/or instruction.			
PL_03d	Professional development focused on social and emotional needs of students.			
PL_03e	Professional development focused on culturally relevant instruction.			
PL_13	Since October 2021, which core practices of instruction have been	Closed	Nominal	Posing alternatives

	incorporated in your school's PD? (Please select all that apply).			Leveraging empowering cultural patterns Interrupting marginalizing cultural patterns Interrupting prejudice Empowering students
PL_14	Think about your GREATEST NEEDS for professional development. Which of the options below would be most useful to you to receive additional professional development? (Please select up to two)	Closed	Nominal	General instructional practices (e.g., differentiation, questioning) Content-specific instructional strategies Using the curriculum provided for my classes Addressing students' socio-emotional development needs Working with students from diverse ethnic/cultural/racial backgrounds Meeting the needs of all learners (e.g., English learners and students with disabilities) Addressing student behavioral issues Using technology and tools for virtual learning
PL_05	What do you hope to get out of participating in the new PD model this school year?	Open	Text	Text
PL_06	What concerns or barriers to implementation do you have regarding your school's new PD model?			

Appendix D. Focus Group Interview Protocol

Preamble: *Welcome and thank you for participating in our teacher group interview. Many of us have already met. My name is Nicolette Roque, and I will be guiding today's interview as part of a quality improvement project evaluating the effectiveness of teacher PD at your school. You were selected because you: (1) have been continuously employed as a full-time teacher since the start of the school year, (2) partook in our pre-survey prior to starting the TPD program, and (3) received TPD at the school this year. Let's go over some points before we begin with the focus group today:*

- *I will ask you a series of open-ended questions and take notes while your responses are audio-recorded.*
- *We are on a first name basis. All information is strictly confidential. This means you will not be identified at any point during this study. To assure you of this, I have created a participant ID code to identify each of you.*
- *Direct quotes will only be reproduced with your prior permission to do so. When quoted, your identity and any qualifiers will remain confidential.*
- *Your name and information will only be known to me, the primary investigator, and Dr. Sayil Camacho, of Vanderbilt University, who is overseeing all aspects of this study as my Capstone Committee Advisor.*
- *The confidentiality of your information is also protected under the guise of the Institutional Review Board at Vanderbilt University.*
- *You are encouraged to talk to each other and engage in a form of dialogue when answering my questions today. We ask that only one person speak at a time. Remember, you don't need to agree with others, but you do need to listen receptively and professionally to what they are saying.*
- *You may rest assured that there is no correct or incorrect answer to any of the questions you may be asked today. It is my intention to share some of the experiences, attitudes, and beliefs regarding TPD at your school.*

I will now display the informed consent document. Do you consent to being audio recorded?
[Start the recording]. **R =** Researcher.

R = *With that, let us introduce ourselves one at a time. If one of you could please start by telling me your name, highest level of education received, and what subject/grade level(s) you currently teach.*

R = *Thank you all for sharing. To start, the subject of our focus group is implementation of effective PD. How would you describe the PD experience at this school?*

FGD1_01. Now that you are in the PD training, how does that experience differ having the school use this approach to PD?

FGD1_02. How has the new PD approach been of value to you?

R = *Now, I'd like for you to think about the contextual factors influencing PD implementation at your school.*

FGD1_03. What are ongoing challenges you've experienced despite the new program?

FGD1_04. What is the school culture around the new PD model?

R = *Thank you for those responses. Now, I'd like for you to tell me about a time that your participation in the new PD made a difference in your instruction.*

FGD1_05. What was your experience/tell me what that is like?

R = *Thank you for those descriptions. Let's keep moving. Your school prides itself on being critically reflective of the marginalization students experience.*

FGD1_06. How can the school elevate that work in PD? What would that look like?

R = *I'd like for you all to think about the qualities or features most important to implementing a successful PD program like the one at your school. I will take notes using the large flip chart paper as each of you shares your thoughts to this question.*

FGD1_07. What conditions need to be in place for this to happen at your school?

R = *To sum up our discussion today, I'd like you all to take a moment to reflect on what has been shared on the flip chart paper today. Is there something we should add? What's missing?*

R = *Before we part ways, is there anything you wish you could have shared today but didn't?*

Closing: *Thank you for taking time to meet with me today. Your contribution to this project is greatly appreciated.*

Appendix E. Provisional Codebook for Focus Group Transcript

Code		Description	Example
PD features codes (adapted from Garet et al., 2001)	Content focus	Degree to which the activity focuses on improving and/or deepening teachers' content knowledge	PD activity is driven by actual student learning outcomes [a]
	Active learning	Extent to which the activity offers opportunities for teachers to become engaged	• Reviewing student work • Obtaining feedback • Inquiry-based [a] • Reflective [a] • Leading discussions [a]
	Coherence	Consistency between what is taught in PD and teacher/school goals and standards	PD activity is evidence-based and theoretically informed
	Duration	Total number of contact hours spent in activity and span of time over which activity occurs	Spread and frequency of activities
	Collective participation	Extent to which the activity emphasizes collaborate participation across teachers at the school	• Grade-level meetings • Common planning time • Subject-level (department) meetings • Observing expert teachers [a]
	Teacher characteristics	Descriptive characteristics of teachers participating in PD at the school	Experience, knowledge, beliefs, and attitudes [a]
Context codes (adapted from Merchie, Tuytens, Devos, & Vanderlinde, 2016)	Curriculum		• Access to resources
	School leadership	Related to all levels of administrators at the school	• School management practices • Principal's supportiveness
	Policy	Structures in place at the school	• Teacher autonomy

[a]Desimone (2009)

Appendix F. Quantitative Results

Table F1

Pre- and Post-Survey Responses for Core Practices

Core practice	*Pre-survey (n = 10)*		*Post-survey (n = 7)* [1]	
	N	% Respondents	*N*	% Respondents
Integrating content	4	40%	1	14.3%
Posing alternatives	7	70%	2	28.6%
Leveraging empowering cultural patterns	7	70%	5	71.4%
Interrupting marginalizing cultural patterns	5	50%	3	42.9%
Interrupting prejudice	4	40%	4	57.1%
Empowering students	6	60%	3	42.9%

[1] One participant did not provide a response to this question, and some others. Rather than discard their data, I report all sample sizes.

Table F2

Responses to Post-Survey Question, "For each of the following, how would you rate your experiences with professional learning at the school?"

Question: *For each of the following, how would you rate your experiences with professional learning at the school?*

Extremely Ineffective (%)	Ineffective (%)	Somewhat Ineffective (%)	Somewhat Effective (%)	Effective (%)	Extremely Effective (%)
The amount of time scheduled for instructional planning.					
28.6%	0.0%	28.6%	28.6%	14.3%	0.0%
Collaboration with colleagues in my school.					
0.0%	42.9%	0.0%	28.6%	28.6%	0.0%

Table F3

Responses to Post-Survey Question, "Please indicate the extent to which you agree or disagree with the following statements regarding your school." (n = 7)

Question: *Please indicate the extent to which you agree or disagree with the following statements regarding your school.*

Strongly Disagree (%)	Disagree (%)	Agree (%)	Strongly Agree (%)
I feel like I belong at this school.			
0%	14%	86%	0%
I am treated with respect at this school.			
0%	29%	57%	14%
I feel like other educators at this school care about me.			
0%	0%	71%	29%
Our school staff is a learning community in which ideas and suggestions for improvement are encouraged.			
0%	14%	57%	29%
The staff feels comfortable raising issues and concerns that are important to them with school leaders.			
0%	43%	57%	0%
I like the way things are run at this school.			
29%	71%	0%	0%

Table F4

Responses to Post-Survey Question, "Please indicate the extent to which you agree or disagree with the following statements about your school's leadership" (n = 7)

Question: *Please indicate the extent to which you agree or disagree with the following statements about your school's leadership.*			
Strongly Disagree (%)	Disagree (%)	Agree (%)	Strongly Agree (%)
My principal regularly models effective instruction.			
29%	43%	29%	0%
My principal is knowledgeable about the curricula being used.			
0%	29%	71%	0%
School leadership effectively handles student discipline and behavioral problems.			
43%	43%	14%	0%