

**Supporting New York City's Early Childhood Educators in a Global Pandemic:  
Challenges, Innovations, and Implications for Professional Learning**

**Final Report Submitted to the NYC Early Childhood Research Network**

**October 11, 2022**

Rachel Abenavoli<sup>a</sup>, Jessica Siegel<sup>a</sup>, Natalia Rojas<sup>b</sup>, Pamela Morris-Perez<sup>a</sup>, Elise Cappella<sup>a</sup>

<sup>a</sup>New York University

<sup>b</sup>New York University School of Medicine

**Acknowledgments**

First and foremost, we are deeply grateful to the Pre-K for All teachers and leaders who generously gave their time and shared their experiences during the COVID-19 pandemic, all while continuing the important work of supporting NYC's children and families through an unprecedented time. We also thank Jisoo Kim, Hailey Vogel, Jessica Young, and the other research team members at NYU who were critical to participant recruitment, data collection, and data entry, as well as Jeffrey Kitrosser, Tejal Shah, and many other partners in the New York City Department of Education's Division of Early Childhood Education for their feedback on measures and study design and their support of the project overall. This project was supported by the New York City Early Childhood Research Network through funding provided by the Heising-Simons Foundation.

## Abstract

This descriptive mixed-methods study examines professional learning (PL) experiences of New York City (NYC) early childhood educators during the COVID-19 pandemic and identifies gaps in support and local solutions. Through surveys with program staff and in-depth interviews with a subset of participants, we gathered broad and deep information about variation in “outside-in” PL experiences provided by the NYC Department of Education’s Division of Early Childhood Education and “inside-out” PL experiences, initiated and facilitated by educators themselves (Sheridan et al., 2009).

The study addressed the following research questions:

1. What are NYC early childhood educators’ experiences with shifts in the PL process (including PL/supports provided by the district and PL/supports at the program level) during the COVID-19 pandemic?
2. To what extent do PL experiences vary across neighborhoods, programs, and individuals, with implications for supporting program quality and advancing equity across the Pre-K for All system?
3. What challenges and innovative strategies related to PL have emerged during the COVID-19 pandemic, with implications for future practice and policy?

Through this work, we aim to inform efforts to support educators within Pre-K for All and national early childhood education systems moving forward, as we shift from the acute phase from the pandemic.

## 1. Introduction

### 1.A. COVID-19's Impact on Early Childhood Education (ECE) and the ECE Workforce

**COVID-19 has upended health, economic, and education systems worldwide, with profound impacts on children, families, and educators.** In New York City (NYC), one of the early epicenters of the crisis, there have been nearly 2.4 million cases and over 40,000 deaths due to COVID as of April 2022 (NYC Department of Health and Mental Hygiene [DOHMH], 2022). About half of all NYC workers lost employment income during the first year of the pandemic, 25 percent missed a rent payment, and 42 percent experienced food hardship (Williams, 2021). One in every 200 children has lost a parent or caregiver due to COVID (Kahn, 2022). Due to a long history of structural economic and racial inequities, the impacts of the pandemic have been unevenly distributed across communities, even within NYC, with low-income, Black, and Latine communities bearing a disproportionate burden. Individuals impacted by poverty and people of color were more likely to become infected with COVID-19 and, once infected, more likely to die (Mays & Newman, 2020; NYC DOHMH, 2020). They were more likely to become unemployed as a result of the health crisis, or to be employed as essential workers who did not have the option to work remotely (Flaming & Burns, 2020; Office of the NYC Comptroller, 2020), and they were less likely to have access to high-speed internet and devices needed for their children to participate in remote instruction while school buildings were closed (William, 2021). Black, Latine, and Asian children were three times more likely than White children to lose a parent or caregiver due to COVID (Kahn, 2022).

**COVID-19 and efforts to mitigate its spread have altered the way teaching and learning occur.** In NYC, the pandemic forced the closure of school buildings and shift to remote instruction from March to June 2020. The 2020-2021 school year did not see the “return to normal” that many hoped for, as many children continued to attend school remotely or through blended in-person and remote learning. Even with the shift back to fully in-person instruction in 2021-2022 (and before that for some younger children), learning experiences continued to be shaped by mask wearing, social distancing, and other health and safety protocols. COVID's impacts on school experiences were particularly challenging for NYC's youngest learners, their families, and early childhood educators, given that these shifts to fully or partially remote learning were not well aligned with young children's developmental needs and the hallmarks of high-quality early learning experiences (e.g., safe and predictable environments; play-based learning; social interaction and conversations with teachers and peers; limited screen time).

**An accumulating body of research has documented the effects of the pandemic on young children's learning experiences and learning outcomes (Weiland et al., 2021).** A systematic review of 63 national, state, and local studies across the U.S. indicated that early childhood education (ECE) enrollment and attendance dropped, the quantity and quality of children's in-person and remote learning experiences suffered, and young children faced setbacks in terms of literacy and math gains (Weiland et al., 2021). Teachers and parents of young children have reported moderate to strong concerns about children's academic, social, and emotional development as a result of COVID (Barnett & Young, 2021; Bassok et al., 2021; Gassman-Pines et al., 2020; Smith et al., 2021; Tulsa SEED Study Team, 2021). Furthermore, due to COVID's disproportionate burden on historically marginalized groups—and the structural inequities that produced and reinforced that burden—Black children, Latine children, and children from families with low incomes have experienced stronger negative effects of the pandemic (e.g., greater drops in attendance, larger learning setbacks), as have dual language learners and children with special needs (Weiland et al., 2021).

Whereas much attention (rightly so) has been paid to the impact of COVID-19 on children's learning experiences and its potential to magnify existing inequities, **less attention**

has been paid to impacts on teachers, and on the ECE workforce in particular (Rodriguez et al., 2022).

**Studies conducted at the start of the pandemic indicated that ECE teachers faced challenges providing remote instruction and struggled with their own mental health.**

Teachers—who already experienced high levels of stress and burnout prior to the pandemic (Jennings & Greenberg, 2009)—were among the first to return to in-person work and were on the frontlines of the COVID-19 crisis. Over the last 2+ years, ECE teachers have been charged with implementing new health protocols, facilitating remote and in-person instruction, and supporting children and families experiencing stress, trauma, and grief, all while managing their own and their families’ physical and mental health (Tarrant & Nagasawa, 2020). Several survey and qualitative studies published in the first year of the pandemic indicated high levels of stress, exhaustion, and depressive symptoms among ECE teachers in NYC and across the U.S. (Bassok et al., 2020; Rodriguez et al., 2022; Souto-Manning & Melvin, 2021; Weiland et al., 2021). In New York state, over 90 percent of ECE teachers reported being emotionally affected at the start of the pandemic; nearly 40 percent said they were affected “a lot” or “extremely” (Tarrant & Nagasawa, 2020), and in NYC, interviews with ECE teachers revealed a pile-up of personal, occupational, and race-related stressors (Souto-Manning & Melvin, 2021) as well as feelings of isolation and loss of identity and purpose (Rodriguez et al., 2022). These initial studies indicate the need for support around teachers’ mental health and remote instruction, but to date, little research has focused specifically on ECE teachers’ experiences with formal and informal supports as they taught throughout the acute phase of the pandemic.

Although COVID-19 has further stressed already-strained systems and had profound negative effects on economic, physical, and mental well-being for so many, **communities and individuals have also demonstrated resourcefulness and resilience as they have navigated the challenges brought on by the pandemic.** Community resilience frameworks, which draw on individual-level theories of resilience that focus on individuals’ ability to bounce back after experiencing stress, as well as public health models of disaster preparedness, offer a useful lens for considering the full range of the pandemic’s impact—challenges *as well as* innovations. Community resilience highlights the capacity of social systems to endure, recover from, and adapt in the face of challenge (Cutter et al., 2008; Norris et al., 2007). An individual’s ability to cope with adversity depends on their community’s ability to provide and facilitate access to resources during times of stress (Unger, 2011) and on the coping of others in the social system (Henley, 2010). Community resilience frameworks acknowledge that the effects of crises are often inequitably distributed, but among communities that are most affected, many have strengths that enable them to respond in flexible, creative, and effective ways (Plough et al., 2013). This framework highlights the need to examine not only the challenges brought on by the pandemic, but the opportunity to learn from the silver linings and innovations that emerge, with the goal of strengthening and transforming modes of teaching and learning to better serve and support all teachers and children.

## **1.B. A Closer Look at Professional Learning Experiences, Broadly Defined**

**Teacher professional learning (PL) is a key component of high-quality pre-K systems** (Phillips et al., 2017; Weiland et al., 2018). By “professional learning,” we refer to the process by which teachers and other school staff develop knowledge, skills, and beliefs that support their work with children and families, and it typically involves opportunities to learn new information or strategies, apply that in practice, reflect, share, and receive feedback. While PL sometimes refers more narrowly to group-based workshops/trainings or individualized coaching, we use the term more broadly to encompass both “outside-in” approaches (e.g., from an outside expert, like a workshop facilitator or coach, typically more “formal” PL) *and* “inside-out” approaches, in which program leaders and teachers take on the responsibility of facilitating their

own ongoing professional growth (which may include more “formal” and “informal” PL experiences; Sheridan et al., 2009).

“**Outside-in**” PL, which includes group-based training sessions and individualized coaching, often paired with developmentally-appropriate curricula, has been shown to produce meaningful improvements in classroom quality and children’s school readiness (Hanushek, 2011; Mashburn et al. 2008; Sarama et al., 2012; Weiland & Yoshikawa, 2013). Randomized trials document that PL and coaching around the use of specific strategies and/or curricula can improve the quality of teachers’ practices in targeted areas (Clements et al., 2011; Domitrovich et al., 2009; Mattera et al., 2018; Morris et al., 2014) and boost domains of children’s school readiness that are foundational to their later learning and development, including language and literacy (Wasik & Bond, 2001), math (Clements & Sarama, 2008; Clements et al., 2011), self-regulation, and social-emotional development (Bierman, Domitrovich, et al., 2008; Raver et al., 2009, 2011; Morris et al., 2014).

**Given this body of evidence, the NYC Department of Education’s Division of Early Childhood Education (DECE) has made investments in PL for pre-K educators since the launch of universal pre-K.** Prior to the pandemic, DECE provided all pre-K programs with on-site support in the form of an instructional coordinator (IC) and/or social worker, with the source of support (IC and/or social worker) and frequency of support (e.g., weekly, monthly visits) differentiated according to program need, based on factors like prior program quality scores or the socioeconomic need of families served by the site (as indicated by census data on home neighborhood). Because of staff reassignments and limited resources during the 2020-2021 school year, support from ICs and social workers was reduced considerably relative to prior years.

In addition to on-site support, DECE historically has assigned pre-K programs to a “PL series,” each with a distinct focus. In the 2020-2021 school year, pre-K programs were assigned to one of the following series:

- **Explore** is a 2-year series that focuses on evidence-based math instructional practices to build children’s critical thinking, problem solving, and math skills. For pre-K classrooms, this involves an evidence-based, developmentally-appropriate, play-based math curriculum (Building Blocks; Clements & Sarama, 2008) combined with interdisciplinary Units of Study; for 3K classrooms, this involves a developmentally-appropriate curriculum developed by DECE called “Explorations” with embedded math activities. Prior to the pandemic, teachers attended in-person PL sessions focused on the curricula and the progression of children’s math skill development, and they received on-site support from a coach with expertise in the Building Blocks curriculum. During the 2020-2021 school year, PL and coaching were provided virtually, and self-paced modules were available online.
- **Create** is a 2-year series that provides teaching teams with arts-focused PL activities and materials to effectively incorporate dance, music, theater, and visual art into instruction to promote children’s engagement. Prior to the pandemic, teachers in the Create PL series attended large group, in-person PL sessions led by community-based arts partners and received on-site coaching from teaching artists. During the 2020-2021 school year, Create involved virtual synchronous PL sessions, self-paced online modules, and virtual coaching/office hours (instead of in-person residencies).
- **Thrive** is a 1-year series focused on supporting children’s social-emotional development, drawing from research on the ParentCorps intervention (Brotman et al., 2011). Prior to the pandemic, teachers attended PL sessions and received resources around evidence-based teaching and family engagement practices that support children’s social-emotional development and promote trauma-informed care (e.g., mindsets and practices that acknowledge our individual and collective trauma and work to build safe, nurturing, and

predictable environments). During the 2020-2021 school year, virtual PL and self-paced modules were available.

- **Building Best Practices (BBP)** is a 1-year series that focuses on high-quality teacher-student interactions, grounded in two widely-used observations of program quality, the Classroom Assessment Score System (CLASS; Pianta, La Paro, & Hamre, 2008) and Early Childhood Rating System (ECERS-R; Harms, Clifford, & Cryer, 1998). PL sessions were virtual in 2020-2021.
- **Teaching Team Learning Communities (TTLC)** is an ongoing series that involves PL sessions, facilitated by ICs, that cover a range of topics and best practices, as well as in-person intervisitations where teachers have the opportunity to observe and learn together. During the 2020-2021 year, there were no intervisitations, and due to the limited number of ICs (as many had been reassigned to serve as classroom teachers), teachers could opt in to virtual PL sessions and participate in self-paced modules on a variety of topics.
- **Leader Lab** is unique in that it focuses on supporting and building capacity in coaching and designing/facilitating professional learning at their own sites among early childhood program leaders specifically, and does not involve PL sessions led by DECE for teachers. PL sessions for leaders were virtual in 2020-2021.

In 2020-2021, in addition to these PL series, a number of self-paced PL modules on different topics aligned to DECE's quality standards, the Early Childhood Framework for Quality (e.g., trauma-informed approaches, implicit bias, remote learning curriculum, respecting and valuing differences) were available to all school staff on a voluntary basis.

**“Inside-out” PL** includes the exchange of information and other support among teachers and program leaders with the goal of learning, reflecting on, and improving the use of best practices in their work with children and families. This includes leader-teacher interactions and teacher-teacher interactions, and formal (e.g., team meetings) and informal (e.g., unscheduled conversations) mechanisms (Cappella et al., 2021; Cramer et al., 2021; Moolenaar, 2012). In a study conducted prior to the pandemic, NYC ECE lead teachers sought advice from a third of their colleagues and assistant teachers sought advice from a quarter of their colleagues; those who sought advice from a higher proportion of their colleagues had greater job satisfaction and confidence in their teaching (Cappella et al., 2021).

**COVID-19 has dramatically changed “outside-in” and “inside-out” PL in a number of ways.** First, COVID's impact on experiences in and out of the classroom has brought new PL needs to the forefront (e.g., around remote instruction and mental health), with implications for the *content* of PL with implications for new and critical content of PL. Second, access to different *sources* of support have shifted. Prior to the pandemic, for example, NYC ECE teachers received support from district-employed ICs; in 2020-2021, the majority of ICs were reassigned as teachers in programs that needed additional staff/resources (due to the nature of blended and remote learning), meaning that ECE teachers no longer had access to formal support. Third, the *modality* of PL shifted, as many districts, including NYC, went from providing largely in-person PL to live (synchronous) and self-paced (asynchronous) virtual PL. Finally, the pandemic may have magnified or introduced new *barriers* to “outside-in” and “inside-out” PL (e.g., lack of time, technology requirements).

**There is a clear need to better understand the nature of these PL shifts and ECE educators' experiences with them, but research to date is limited.** In one qualitative study of 15 ECE teachers from seven Caribbean countries, teachers reported needing more PL around online/blended teaching strategies, technology, and engaging children in remote learning. Interviews also revealed that teachers changed their collaboration practices, working more closely with other teachers in their program as they learned to adapt their teaching strategies, as well as collaborating more closely with families who were supporting children's remote learning (Abdul-Majied et al., 2022). In a study of ECE educators and administrators in Texas, teachers' survey responses indicated a strong need for PL in remote learning. In

addition, interviews with coaches revealed that despite initial challenges getting used to virtual coaching and building relationships with teachers virtually, coaches reported virtual coaching successes, including the use of videos to observe and provide feedback to teachers, and a sense of effectiveness in providing emotional support to teachers (Crawford et al., 2021).

### **1.C. Study Aims**

Understanding whether and how these shifts represent challenges for teachers and leaders is critical, as it can inform the post-pandemic supports needed to counteract inequities for children and teachers that may be exacerbated by the pandemic. At the same time, innovations that educators and/or district staff developed out of necessity and resourcefulness during the pandemic can provide critical (new) learning opportunities for the field. The proposed study capitalized on the opportunity to learn from the PL experiences of NYC teachers and leaders during the 2020-2021 year, identify gaps in support *and* innovative solutions, and suggest ways to better support pre-K educators in NYC and other settings. Through surveys and interviews, we gathered broad *and* deep information about “outside-in” PL experiences provided by DECE and “inside-out” PL experiences to address the following research questions:

1. What are NYC early childhood educators’ experiences with shifts in the PL process during the COVID-19 pandemic?
  - a. *PL facilitated by DECE*: What is the level of access, engagement, and satisfaction with different types of virtual PL (synchronous, asynchronous; universal, series) and virtual coaching provided by DECE? How have educators applied PL content in their work with children and families?
  - b. *PL at the program level*: What types of resources and supports are educators seeking and using? What is the nature of interactions (in-person and virtual) occurring among teachers, leaders, and families that facilitate the exchange of information and support?
2. To what extent do PL experiences vary across neighborhoods, programs, and individuals, with implications for supporting program quality and advancing equity across the Pre-K for All system?
3. What challenges *and* innovative strategies related to PL have emerged during the COVID-19 pandemic, with implications for future practice and policy?

By understanding what worked and did not work during this unprecedented time, and what gaps or inequities in support exist, this study aimed to inform ECE policymakers about systems and processes that can be strengthened or created to better support ECE teachers and children.

## **2. Methods**

### **2.A. Design Overview**

This descriptive mixed-methods study leveraged surveys and interviews with teachers and leaders to develop a rich understanding of PL experiences during COVID-19. The design of the study allowed us to capture detailed (quantitative) information about PL experiences in a sample of programs representing the diversity of the NYC early childhood system (through surveys), as well as a deep understanding of challenges and innovations in a strategically selected subset of programs (through qualitative interviews).

### **2.B. Sample**

**Recruitment process.** Our site recruitment approach was designed to recruit a sample that reflected the characteristics and diversity of the NYC early childhood workforce, which includes ~11,000 teachers in about 1800 NYC Early Childhood Education Centers (NYCEECs), district schools, and pre-K centers in 2020-2021. We recruited from 12 sampling strata made up of two dimensions: program type (public school, NYCEEC) and PL series (Explore, Create, Thrive, Teaching Team Learning Communities, Building Best Practices, Leader Lab). In early 2021 (January-March), we approached program leaders who had previously expressed interest in participating in research with our team, and of these, 48 agreed for their sites to participate in this study. We then invited the program leader(s) (i.e., Director, Principals, Assistant Principal, Site Coordinator) and all 3K and pre-K teachers (lead teachers, assistant teachers, aides, paraprofessionals) to complete a survey in early spring 2021. All teachers who completed a survey were invited (in late spring/summer) to complete a one-on-one interview with a member of our research team.

**Site characteristics.** As shown in Table 1, we recruited 48 programs that closely resembled the full Pre-K for All system in terms of geographic location, program type, whether the site was located in a neighborhood that was identified by the NYC Department of Health and Mayor's Office as hard hit by COVID-19 (or at high risk based on neighborhood and sociodemographic indicators), student racial-ethnic composition, and student socioeconomic status. About 63% of sites were NYCEECs, 31% were public schools, and 6% were Pre-K Centers run by the DOE. As described above, we intentionally oversampled from Explore, Create, Thrive, BBP, and Leader Lab in order to make sure we had sufficient representation of these PL series in our sample (the percent of sites in the series across the system as a whole is low, since these series have capacity constraints). As seen in the table, sites were distributed across PL series, with a slightly higher proportion from TTLC relative to other series (but not relative to the system overall) to reflect the fact that this is the largest series across the broader Pre-K for All system. About 60% of sites were located in neighborhoods identified as hard hit by COVID-19 (vs. about half in the broader system). On average, sites served about 40% Latine students, 18% Black students, 26% Asian students, and 13% White students. Table 2 displays select site characteristics broken down by site type and COVID risk. A greater proportion of NYCEECs were in neighborhoods hard hit by COVID; no Pre-K Centers in our sample were in hard-hit neighborhoods. Sites in hard-hit neighborhoods served higher proportions of Black children (22% vs. 12%), lower proportions of White children (6% vs. 24%), and children from neighborhoods with lower median incomes (\$35,910 vs \$52,476).

**Participant characteristics.** Table 3 presents characteristics of teachers and leaders in the sample overall and broken down by site type, COVID risk, professional role, and instruction type (e.g., in-person, remote, blended). A total of 197 teachers and leaders completed surveys, and a subset of 21 teachers participated in one-on-one interviews. In total, 161 survey respondents (82%) were lead or assistant teachers, 29 (15%) were leaders, and 7 (4%) were teachers *and* leaders (e.g., a Director who also was a lead teacher in one of the classrooms). The majority (56%) were working with children following a "blended learning" model (i.e., they attended school in person some days and remotely other days), 34% were working with children who were fully in-person, and 10% were working with children who were fully remote. About 22% of participants identified as Latine, 18% identified as Black, 13% identified as Asian, 18% identified as White, and the remaining participants selected "other" or did not provide their racial-ethnic identity. These proportions varied somewhat across site type (e.g., higher proportion of White participants in Pre-K Centers) and instruction type (e.g., higher proportion of Black participants teaching virtual-only students) On average, educators had about 13 years of teaching experience (range 0-42 years). Most participants (95%)



identified as female. Educators in public schools had slightly more years of experience. Leaders had more experience than lead teachers, and lead teachers had more experience than assistant teachers.

Of the 21 teachers who participated in one-on-one interviews, almost all identified as female and about 19% identified as Latine, 19% identified as Black, 29% identified as Asian, 24% identified as White, and the remaining participants selected “other” or did not provide their racial-ethnic identity. The large majority (86%) were lead teachers, and 14% were assistant teachers. About two-thirds were working with children who were attending school in-person and remotely; 19% were working with children attending remotely (only) and 14% were working with children attending in-person (only). Teachers were spread geographically across the city, about half were teaching in hard-hit COVID zips, 57% were NYCEEC teachers, 33% were public school teachers, and 10% were Pre-K Center teachers. With respect to PL series, about 38% of teachers were in TTLC, 19% were in Create, 10% were in Explore, 15% were in Thrive, and 19% were in Leader Lab. No teachers were in Building Best Practices.

**Table 1. Characteristics of all sites vs. study sample sites.**

	All Sites	Sample
<b>Borough</b>		
Manhattan	15%	13%
Bronx	18%	27%
Brooklyn	32%	33%
Queens	29%	25%
Staten Island	7%	2%
<b>Program Type</b>		
NYCEEC	57%	63%
Public School	37%	31%
Pre-K Center	4%	6%
Charter	1%	0%
<b>PL Series</b>		
Explore	2%	8.3%
Create	2%	16.7%
Thrive	8%	14.6%
TTLC	78%	31.3%
BBP	3%	14.9%
Leader Lab	7%	14.6%
<b>COVID Hard-Hit</b>	49%	60%
<b>Student Characteristics</b>		
Latine	36%	40%
Black	24%	18%
Asian	17%	26%
White	20%	13%
Census Median Income	\$51,182	\$42,467

*Note.* Explore, Create, Thrive, Building Best Practices (BBP), and Leader Lab have capacity constraints due to funding or other constraints; Teaching Team Learning Communities (TTLC) does not have a similar capacity constraint, and this is why many more sites are assigned to this PL series relative to other PL series.

**Table 2. Characteristics of study sites by site type and COVID risk.**

	Site Type			COVID Risk	
	NYCEEC n=30	Public n=15	Pre-K n=3	Not Hard n=19	Hard Hit n=29
<b>Site Characteristics</b>					
% NYCEEC				47%	72%
% Public School				37%	28%
% Pre-K Center				16%	0%
% COVID Hard-Hit	70%	53%	0%		
<b>Student Characteristics</b>					
% Latine	39%	42%	39%	38%	41%
% Black	18%	20%	13%	12%	22%
% Asian	29%	18%	30%	22%	28%
% White	11%	17%	17%	24%	6%
Census Median Income M	\$41,299	\$45,341	\$39,780	\$52,476	\$35,910
Census Median Income SD	\$16,470	\$22,528	\$8,431	\$20,131	\$13,169

**Table 3. Participant characteristics overall and by subgroup.**

	Overall n=197	Site Type			COVID Risk		Role			Instruction Mode		
		NYCEEC n=129	Public School n=57	Pre-K Center n=11	Not Hard Hit n=78	Hard Hit n=119	Leader n=36	Lead Teacher n=91	Assistant Teacher n=70	Blended n=110	In- Person n=66	Virtual n=19
<b>Role</b>												
Leader	18%	22%	12%	9%	15%	20%				28%	5%	0%
Lead Teacher	46%	43%	53%	45%	46%	46%				40%	52%	68%
Assistant Teacher	36%	35%	35%	45%	38%	34%				32%	44%	32%
<b>Instructional Type</b>												
Blended	56%	62%	49%	18%	53%	58%	86%	48%	50%			
In-Person Only	34%	33%	28%	73%	35%	33%	8%	37%	41%			
Virtual Only	10%	5%	21%	9%	13%	8%	0%	14%	9%			
<b>Racial-Ethnic Identity</b>												
Latine	22%	26%	16%	18%	26%	20%	8%	21%	31%	24%	23%	16%
Black	18%	16%	25%	9%	17%	19%	17%	24%	11%	17%	17%	32%
Asian	13%	16%	7%	9%	5%	18%	17%	12%	11%	15%	9%	11%
White	18%	15%	18%	55%	24%	13%	33%	16%	11%	17%	20%	16%
Missing	29%	28%	35%	9%	28%	29%	25%	26%	34%	26%	32%	26%
<b>Years Experience</b>												
Mean	12.72	10.91	16.98	12.30	12.35	12.99	18.40	13.67	8.46	14.12	9.97	13.47
SD	9.52	9.27	9.15	8.30	8.70	10.12	10.15	9.38	7.49	10.10	7.94	9.33

## 2.C. Procedures

**Quantitative data collection procedures and measures.** Teachers and leaders were invited to complete 30-minute surveys online (via Qualtrics) or on paper in late spring 2021. Separate surveys were developed for teachers and for leaders, though most constructs and scales overlapped across surveys (differences between teacher and leader surveys are noted below). The surveys built upon our team’s prior research efforts funded by the Foundation of Child Development (FCD; Cappella et al., 2021) and Institute of Education Sciences (IES; PI Morris) and were co-developed with our partners in DECE. Surveys captured: (a) support seeking around a variety of practices from different sources; (b) experiences with and application of PL and individualized coaching/consultation; (c) interactions among leaders, teachers, and families; and (d) experiences of stressors and resources during the COVID-19 pandemic.

**Frequency of support.** Participants reported how frequently they sought or received support around different practices relevant to their work. Teachers reported on 7 practices (i.e., instructional practices, supporting children's behavior, engaging families, supporting children from diverse groups, health and safety, supporting children and families experiencing grief and trauma, maintaining their own mental health), and leaders reported on 12 practices (i.e., managing school operations, creating positive teaching and learning environments, using data for continuous quality improvement, designing professional learning opportunities for teachers/staff, recruiting/retaining teachers/staff, health and safety, offering blended and remote learning, equitably serving all children, engaging families, supporting children and families experiencing grief and trauma, supporting the mental health of teachers and staff, their own mental health). For each practice, participants rated how often they sought or received support from each of 6 different sources (i.e., principal/leader, other teachers, IC or coach, social worker or mental health professional, family worker or parent coordinator, and NYC DOE resource/professional learning) using a 7-point scale (1=never/almost never, 2=a few times per year, 3=once a month, 4=2-3 times a month, 5=once a week, 6=2-3 times a week, 7=daily). (Note: On the leader survey, leaders reported how frequently they sought support overall, not by specific source.) Responses were examined at the item level as well as at the practice (averaged across sources;  $\alpha$  range .83-.95) and at the source level (averaged across practices;  $\alpha$  range .94-.98).

**Satisfaction with support.** Teachers reported on how supported they felt around each practice on a 5-point scale (1=not at all support, 5=completely supported), and items were averaged to create a scale representing how supported they felt across practices ( $\alpha = .94$ ). Teachers also reported on how supported they felt by each source on the same 5-point scale, and items were averaged to create a scale representing how supported they felt across sources ( $\alpha = .92$ ).

**PL series participation.** Teachers and leaders indicated which PL series their site participated in from a list of names (i.e., Explore, Create, Thrive, Building Best Practices, Teaching Team Learning Communities, or Leader Lab; descriptions of the series were not provided). They could also mark that they did not know which series they were participating in. Teachers also indicated how much time they spent (a) participating in live virtual sessions related to their PL series and (b) completing self-paced modules related to their PL series using a 5-point scale (1=none, 2=less than half a day, 3=half day to full day, 4=1-2 full days, 5=3-4 full days).

**PL series satisfaction and use.** Using a 6-point scale (1=completely disagree, 6=completely agree), teachers rated 7 items about the extent to which they were satisfied with their PL series and found it useful (e.g., PL deepened my understanding of concepts and strategies, PL provided opportunities for me to meaningfully reflect on my practice, PL has had a significant impact on my work with children and families;  $\alpha = .97$ ). Teachers and leaders also indicated whether they used concepts and/or strategies from the PL in their work with children and families in the last month (yes/no).

**Access to coaching/consultation support from borough staff.** Teachers indicated how much time they spent interacting with an IC, social worker, and other coach via live interactions (i.e., in-person, phone, live video interaction) and other interactions (i.e., email, text) on a 5-point scale (1=never, 2=once in the last 3 months, 3=once/month, 4=2-3 times per month, 5=once/week or more).

**Coaching/consultation support satisfaction.** Using a 6-point scale (1=completely disagree, 6=completely agree), teachers rated 7 items about the extent to which they were satisfied with their IC and (separately) social worker (e.g., coach helped me apply concepts/strategies in my work with children/families, I have a positive relationship with this coach,  $\alpha = .97$ -.99). Teachers and leaders also indicated whether they used concepts and/or strategies from coaching in their work with children and families in the last month (yes/no).

**Barriers to support.** Teachers indicated whether they experienced any of 6 barriers to working effectively with children and families (e.g., information/support needed is not available; information/support is poor quality; technology requirements prevent teachers from getting information/support).

**Challenges and demands.** A modified version of the Demands subscale from the The Classroom Appraisal of Resources and Demands (CARD; Lambert et al., 2001) scale was used to assess challenges, adapted to capture additional challenges related to the pandemic (e.g., remote learning). Teachers and leaders used a 5-point scale (1=not demanding/challenging, 5=very demanding/challenging) to rate the extent to which they found each of 25 items challenging (e.g., planning, assisting children/families in using technology, your leader's expectations, lack of guidance;  $\alpha = .96$ ).

**COVID-specific stress.** Teachers and leaders rated 9 items on a 5-point scale (1=strongly disagree, 5=strongly agree) about the extent to which they were experiencing stress specifically related to the COVID-19 pandemic (e.g., felt nervous/anxious about the pandemic, worried about how the pandemic will affect my physical health, my mental health, my job performance;  $\alpha = .92$ )

**Current job stress and coping.** Teachers and leaders rated two items (Eddy et al., 2017; Herman et al., 2018) on their current levels of job stress (how stressful is our job?) and coping (how well are you coping with the stress of your job?) on an 11-point scale (not stressful at all to extremely; not well at all to extremely well).

**Interactions among teachers, leaders, and families.** Teachers and leaders rated the number of minutes they spent interacting in person, video/phone, or other with teachers, leaders, and families (1=0-10 mins, 2=10-30 mins, 3=30-60 mins, 4=1-2 hours, 5=2-3 hours, 6=3+ hours). The scale was converted to minutes, and minutes were summed to reflect the total time (across modality) spent with (a) teachers, (b) leader, and (c) families.

**Teaching efficacy.** A modified version of the Teacher Sense of Efficacy Scale (Tschannen-Moran & Woolfolk Hoy, 2001), was adapted in partnership with DECE to be clearer/more specific as well as more consistent with the division's priorities and approach. Using a 9-point scale (1=none at all, 9=a great deal), teachers rated the extent to which they were able to use teaching practices to support children's learning since September on 20 items (e.g., craft questions that help children think more deeply, establish classroom routines and expectations, engage children in play-based learning;  $\alpha = .98$ ).

**Family engagement efficacy.** Nine items were drawn from the Self-Assessment of Parent Engagement Practices (Sjuts & Sheridan, 2011) to assess family engagement efficacy. Teachers and leaders used a 5-point scale (1=not at all, 5=extremely) to rate the extent to which they felt effective on a range of family engagement practices (e.g., helping families support children's learning at home, working with families to set goals, reaching families from all racial and cultural groups;  $\alpha = .95$ ).

**Background and demographic characteristics.** Teachers and leaders reported on their professional role (i.e., lead teacher, assistant teacher/aide, and/or leader), instruction type (in person, virtual, hybrid), years of experience in ECE, and racial-ethnic identity.

**Qualitative data collection procedures and protocols.** Five trained research team members that identified as White, Asian American, and Asian conducted one-on-one semi-structured interviews, each lasting about 60 minutes, to deepen our understanding about educators' experiences, challenges, and innovations during the 2020-2021 school year. Each interview was conducted over Zoom; interviewers kept their cameras on and interviewees were able to keep their cameras on or off. Interview questions focused on interactions among school staff, children, and families; professional learning; coaching/consultation; stress and coping; and successes.

Interviews were transcribed using Descript and then were coded using a directed approach and following the Consensual Qualitative Research (CQR; Hill, 1997) method. The coding team included 5 research team members, 2 of whom had also served as interviewers. Coders identified as White and Asian American. First, research team members read through the interview protocol and two transcripts and then independently identified domains, or a “start list” of high-level codes that were used to organize the qualitative data for deeper analysis. This team met together to develop consensus about the codes and document the domains and their definitions in a codebook. As noted below in the Results section, the two domains we identified for the current study were: (1) interactions among staff and “inside out” PL, and (2) “outside in” PL and support. Then, remaining transcripts were independently coded by each team member, domains were discussed and argued to consensus during team meetings, and domains were iteratively revised as needed. Once broad domains were established, we constructed core ideas within each domain, within each interview (i.e., within-case analysis). Then, core ideas were examined across interviews (i.e., cross-analysis) and organized into categories. Finally, during the narrative write-up, we identified common (and less common) categories or themes.

## **2.D. Analytic Approach**

To address Research Question 1, we conducted descriptive statistics (frequencies, means, standard deviations) and created visual displays to understand educators’ “inside-out” and “outside-in” PL experiences.

Then, to address Research Question 2, we estimated multilevel models with program staff (level 1) nested in schools to examine the extent to which PL experiences (as dependent variables) varied systematically by program and staff characteristics (as independent variables). Our primary models included children’s socioeconomic background, aggregated at the site level, as a predictor of variation in educators’ experiences. Supplemental analyses included (a) an indicator of neighborhood risk for COVID and (b) children’s racial-ethnic backgrounds, aggregated at the site level instead of the aggregate socioeconomic indicator (we did not include all three indicators simultaneously because of the moderate to strong correlations among the predictors, making interpretation of the independent/unique associations among predictors and dependent variables difficult).

As noted above, to address Research Question 3, qualitative analysis followed a directed approach (Hsieh & Shannon, 2005), in which an initial coding scheme was developed and codes were refined through an iterative process. Research staff coded interviews and resolved discrepancies through consensus following the Consensual Qualitative Research method (Hill et al., 1997). During analysis, domains were used to organize the data and core ideas were documented for each interview. At the cross-analysis stage (across interviews), categories (or themes) were extracted and organized.

Findings from each method were integrated toward the goal of “analytic density” (Fielding, 2012). This process allows us to use complementary methods to broaden, deepen, and diversify what we learned about challenge and innovation in PL during a time of disruption and change. Therefore, in the results section that follows, we first present quantitative findings related to Research Question 1, then review qualitative findings related to Research Question 3, as these serve to extend the descriptive survey findings. We close the Results section with findings related to variation in PL experiences (Research Question 2).

## **3. Results**

### **3.A. Preliminary Analyses: What is the context?**

Before examining our main research questions about professional learning experiences specifically, we first sought to better understand our participants and their context. In a year as unusual and unpredictable as the 2020-2021 school year, understanding the experiences of educators at work and at home, and how they were navigating the disruptions brought on by COVID-19, was a critical first step. Below, we describe averages and variation for preliminary, descriptive purposes only; Research Question 2 addresses whether any descriptive patterns we see in this preliminary step represent statistically significant differences (see below).

On average, educators reported spending about 122 minutes per day interacting with other teachers, 69 minutes interacting with leaders, and 47 minutes interacting with families, with large variation. Educators working in Pre-K Centers reported spending more time interacting with teachers (190 minutes) and leaders (124 minutes) than those in NYCEECs (124 minutes; 68 minutes) or public schools (106 minutes; 59 minutes). Educators of virtual instruction reported spending more time interacting with families (80 minutes) than those of blended (45 minutes) and in-person instruction (42 minutes).

Educators reported facing similar amounts of challenges (average of 2.93) regardless of site type, COVID neighborhood risk, role, and instruction mode. Overall, educators reported moderate-to-high levels of COVID-related stress (3.66 on 1-5 scale), job-related stress (7.72 on a 0-10 scale), and job-related coping (7.34 on a 0-10 scale). Educators reported similar levels of stress and coping across site type, COVID neighborhood risk, and instruction mode; however, leaders reported higher job-related stress (9.52) than lead teachers (7.96) and assistant teachers (6.57). Overall, teachers reported having a relatively high sense of efficacy (7.59 on a scale of 1-9 on the Teacher Sense of Efficacy Scale) and educators reported a moderate family engagement efficacy (3.50 on a scale of 1-5). Educators in Pre-K Centers reported higher senses of teaching efficacy (8.15) and family engagement efficacy (3.82) than those in NYCEECs (7.47; 3.42) and public schools (7.70; 3.59). In-person teachers reported higher senses of teaching efficacy (7.85) than virtual teachers (7.27), while virtual teachers reported higher family engagement efficacy (3.84) than blended teachers (3.45).

**Table 4. ECE context overall and by site type and COVID risk.**

	Overall		Site Type				COVID Risk					
	M	SD	NYCEEC		Public School		Pre-K Center		Not Hard Hit		Hard Hit	
			M	SD	M	SD	M	SD	M	SD	M	SD
<b>Interaction per Day (minutes)</b>												
With Families	47.39	58.80	44.23	55.03	51.79	64.93	58.64	67.75	47.23	56.67	47.50	60.45
With Teachers	122.16	123.67	123.66	125.21	105.71	107.08	190.00	168.54	125.48	124.63	119.95	123.55
With Leader	68.56	91.58	67.99	75.07	59.15	100.64	123.89	171.77	84.52	114.68	57.69	70.39
<b>Challenge, Stress, and Coping</b>												
Challenges	2.93	0.84	2.94	0.83	2.95	0.84	2.70	0.90	2.72	0.77	3.09	0.85
COVID-Related Stress	3.66	0.76	3.60	0.83	3.79	0.56	3.59	0.80	3.60	0.85	3.70	0.68
Job-Related Stress	7.72	2.72	7.76	2.80	7.69	2.59	7.45	2.70	7.93	2.78	7.56	2.67
Job-Related Coping	7.34	2.44	7.35	2.45	7.37	2.19	7.09	3.53	7.04	2.64	7.55	2.28
<b>Efficacy at Work</b>												
Teacher Sense of Efficacy Scale	7.59	1.24	7.47	1.30	7.70	1.14	8.15	1.00	7.72	1.18	7.48	1.29
Family Engagement Efficacy	3.50	0.73	3.42	0.73	3.59	0.71	3.82	0.77	3.47	0.72	3.51	0.74

Note. Missingness ranged 2-26% across variables.

**Table 5. ECE context overall and by role and instruction type.**

	Overall		Role						Instruction Type					
			Leader		Lead Teacher		Assistant Teacher		Blended		In-Person		Virtual	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
<b>Interaction per Day (minutes)</b>														
With Families	47.39	58.80	73.33	60.73	43.93	53.38	41.62	62.84	45.24	45.63	41.67	67.36	79.72	83.22
With Teachers	122.16	123.67	179.63	147.79	102.10	125.50	125.29	103.67	127.35	123.02	114.60	134.15	119.17	88.34
With Leader	68.56	91.58			63.82	81.55	75.16	104.24	73.87	86.75	62.21	102.95	67.94	69.51
<b>Challenge, Stress, and Coping</b>														
Challenges	2.93	0.84	3.08	0.60	2.92	0.81	2.87	0.96	2.90	0.85	3.00	0.83	2.84	0.79
COVID-Related Stress	3.66	0.76	3.64	0.73	3.77	0.70	3.51	0.83	3.63	0.81	3.66	0.69	3.79	0.72
Job-Related Stress	7.72	2.72	9.52	1.95	7.96	2.41	6.57	2.91	7.75	2.72	7.63	2.71	7.81	2.88
Job-Related Coping	7.34	2.44	7.63	2.27	7.43	2.40	7.08	2.58	7.47	2.35	6.77	2.46	8.50	2.58
<b>Efficacy at Work</b>														
Teacher Sense of Efficacy Scale	7.59	1.24			7.55	1.26	7.65	1.22	7.46	1.30	7.85	0.96	7.27	1.71
Family Engagement Efficacy	3.50	0.73	3.43	0.69	3.61	0.71	3.36	0.76	3.45	0.64	3.47	0.80	3.84	0.91

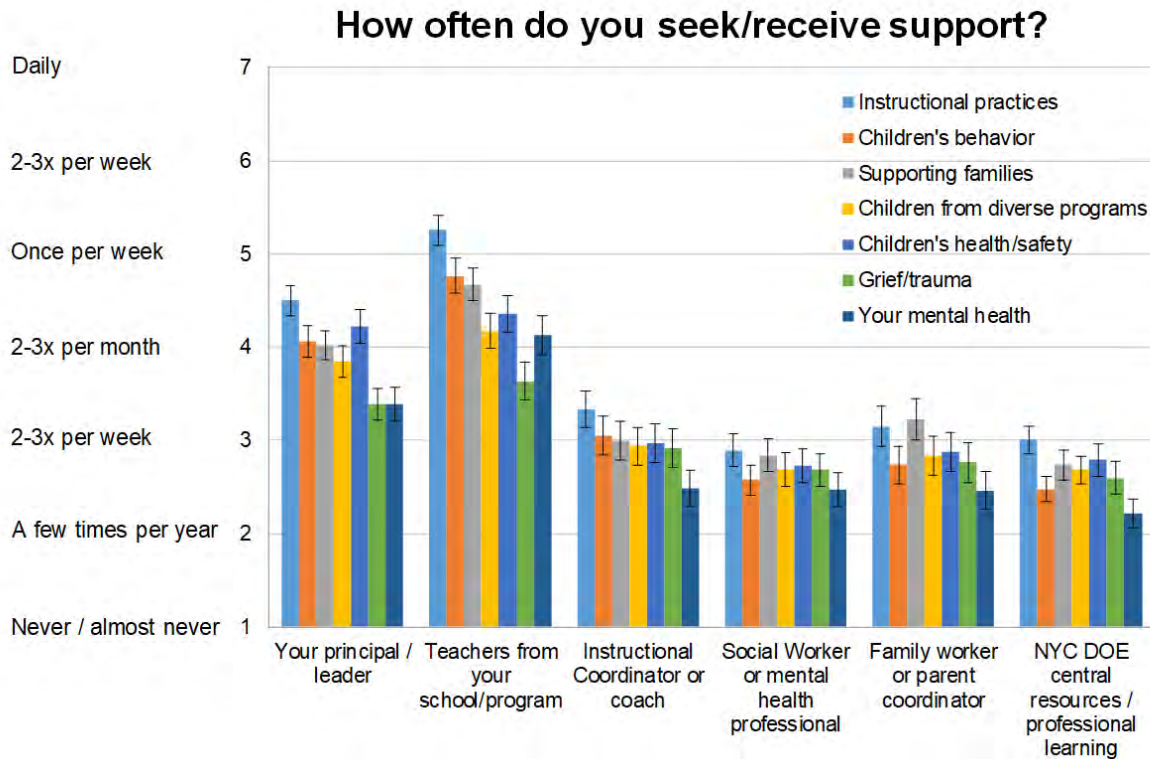
Note. Missingness ranged 2-37% across variables. Leaders did not report on minutes interacting with leaders or on the Teacher Sense of Efficacy Scale.



### 3.B. PL Experiences, Challenges, and Innovations (Research Questions 1 & 3)

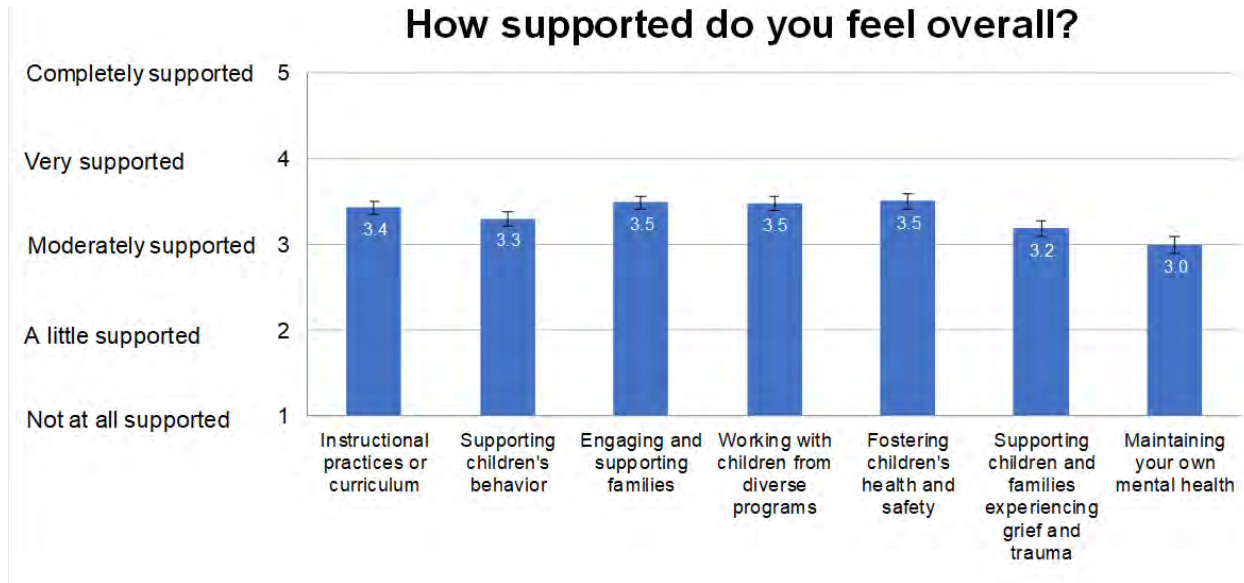
**Support across sources and practices: Access and satisfaction.** Figure 1 presents the frequency with which teachers sought or received support around 7 different practices (e.g., instruction, family engagement); from 6 sources of support (e.g., site leader, other teachers). As seen in the figure, teachers reported seeking or receiving support most frequently from other teachers at their site across practices (typically between multiple times per month or multiple times per week), followed by their site leader (typically between once per month and multiple times per month). They reported seeking or receiving support from an IC, social worker, family worker, and DOE professional learning/resources less frequently (typically between a few times per year and monthly). This descriptive pattern—more frequent “inside out” support relative to “outside in” support—was true across the different practices measured. Though there was some variation across sources, generally speaking, teachers reported seeking/receiving support *most* frequently around instructional practices and *least* frequently around their own mental health.

**Figure 1. Teachers’ frequency of support by practice and source.**

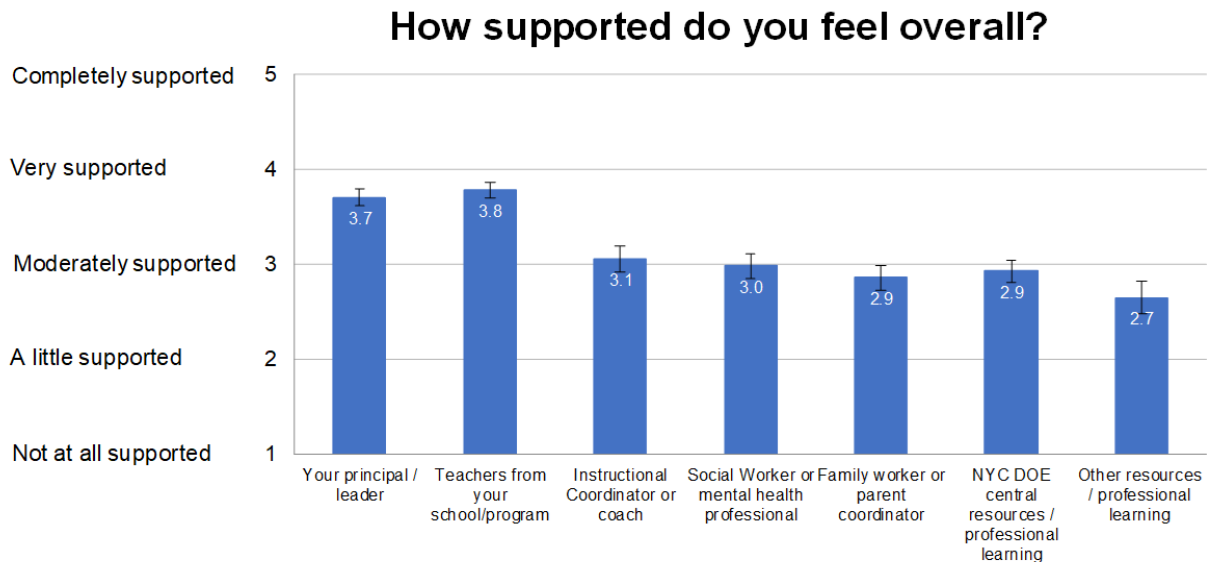


As shown in Figure 2, teachers felt moderately to very supported across different practices during the 2020-2021 school year. They reported feeling slightly more supported by other teachers and their site leader than by ICs, social workers, family workers, and DOE professional learning/resources (Figure 3).

**Figure 2. Teachers' sense of support by practice.**

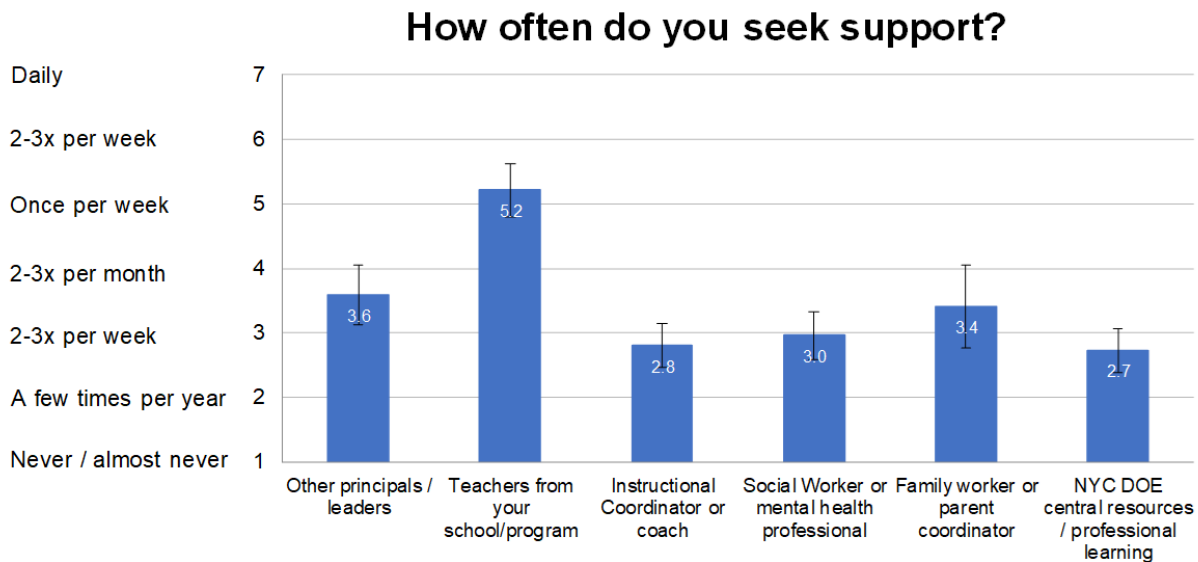


**Figure 3. Teachers' sense of support by source.**



Figures 4-6 present findings regarding site *leaders'* access to support across 12 practices and 6 sources of support. Leaders reported seeking or receiving support most frequently from teachers at their site (multiple times per week) and least frequently from NYC DOE professional learning/resources (multiple times per year). Leaders reported seeking/receiving support most frequently around children's health and safety and family engagement (between once per month and 2-3 times per month) and least frequently around recruiting/retaining staff and designing PL opportunities for staff (between a few times per year and once per month). Overall, leaders felt moderately supported across practices and sources. They reported feeling most supported by teachers at their site (3.88 on the 5-point scale) and less supported by "outside in" supports (IC, social worker, DOE resources/PL).

**Figure 4. Leaders' frequency of support by source.**



**Figure 5. Leaders' sense of support by source.**

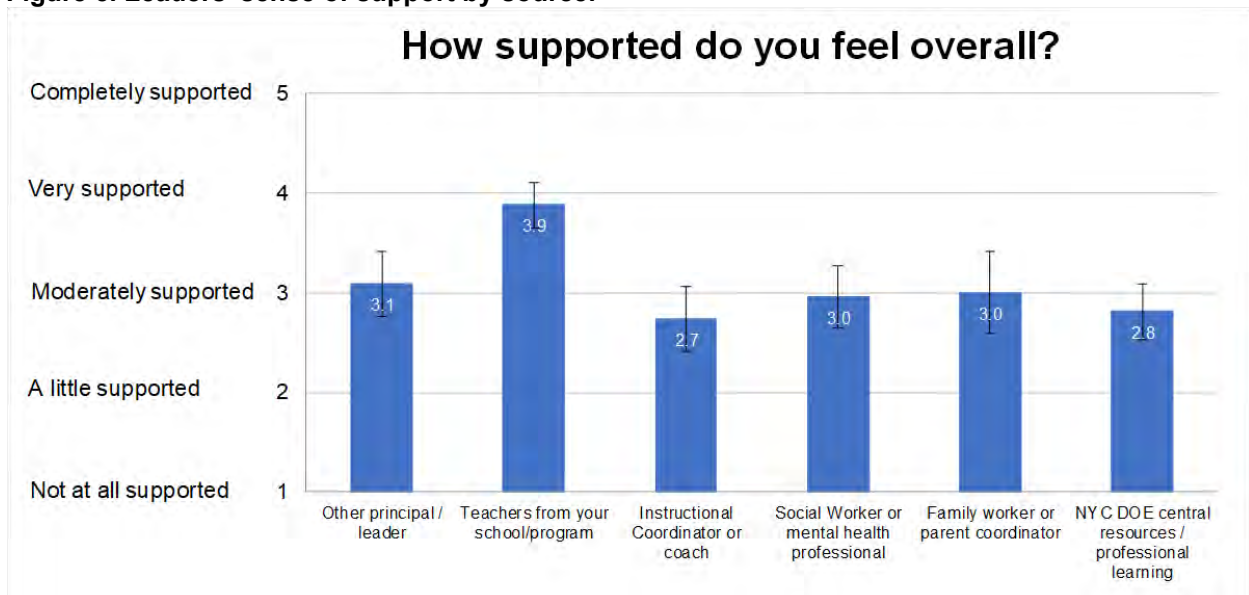
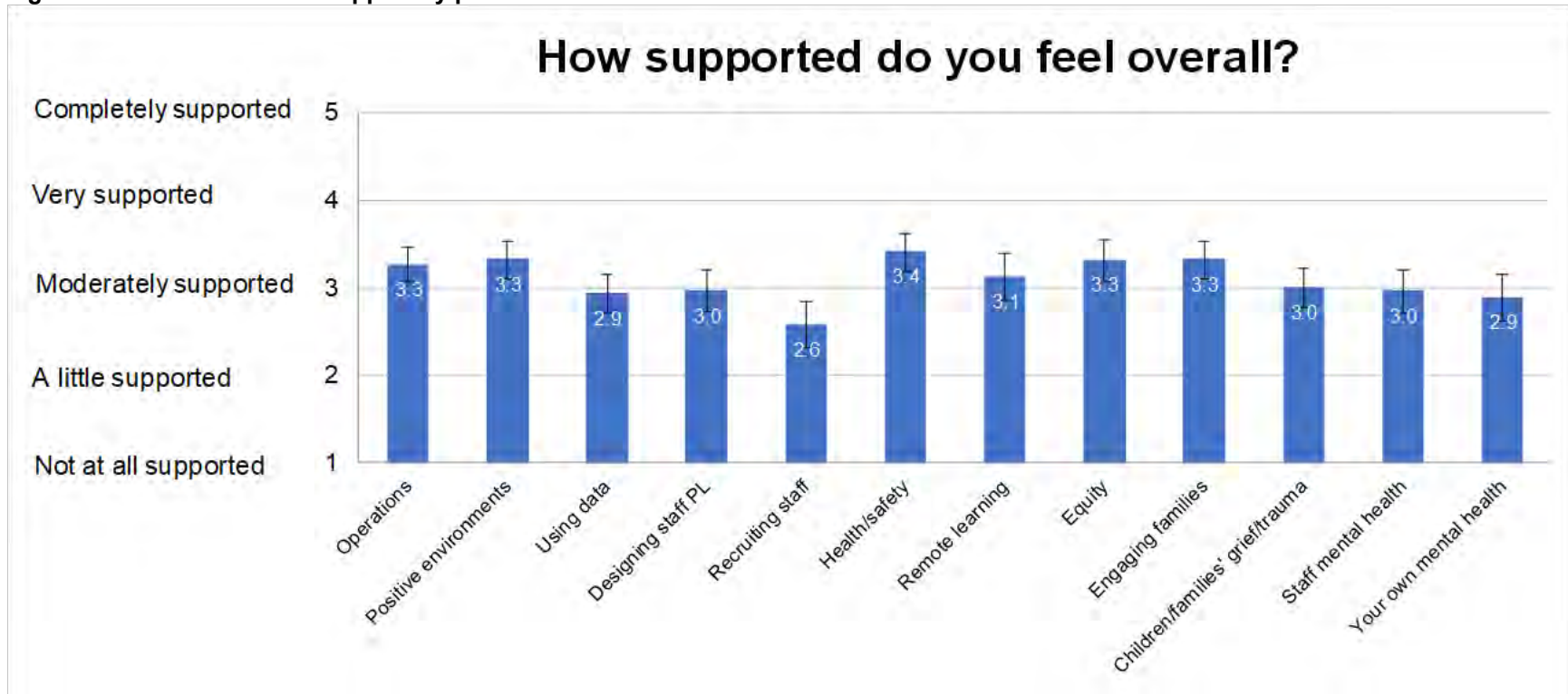


Figure 6. Leaders' sense of support by practice.



### **Professional learning and coaching/consultation:**

**Access, satisfaction, and use.** As noted above, all programs were assigned by DECE to a Professional Learning (PL) series in the 2020-2021 school year, and teachers had access to live virtual PL as well as asynchronous (self-paced) PL via the web-based ProTraxx system. Among teacher survey respondents, 22% reported that they participated in a total of 1 or more full days of live virtual PL since the start of the school year, 57% participated in up to 1 full day of live virtual PL, and 20% did not participate in any live virtual PL. In addition, 34% of teachers reported completing 1 or more full days of asynchronous PL, 48% participated in up to 1 full day of asynchronous PL, and 18% did not complete any asynchronous PL. Looking across both live and asynchronous PL together, 15% of teachers participated in at least 1 day of live PL *and* 1 day of asynchronous PL related to their series, and 12% did not participate in any PL (live or asynchronous) related to their series.

When asked about their PL series, only about 31% of teachers correctly identified their DECE-assigned series; 69% of teachers did not know the name of their series or reported being in a series other than the one assigned by DECE. For leaders, this pattern was flipped: 69% of leaders correctly identified the name of their PL series, and 31% did not know the name of their series or identified a different series. Despite not knowing the series name, teachers generally rated the PL sessions they attended favorably (i.e., average 4.5 on a scale of 1-6). In addition, about 55% of teachers and 60% of leaders reported that they used concepts or strategies from Professional Learning in their work in the last month.

As noted above, because of staff reassignments and limited resources during the 2020-2021 school year, support from DECE ICs and social workers was reduced considerably relative to prior years. About 34% of teacher survey respondents reported having (virtual) access to an IC during the 2020-2021 school year, 23% had access to a social worker, and 12% had access to another coach. Those who had access to an IC and/or social worker rated the support they received from those individuals favorably (4.4 and 4.1, respectively, on a scale of 1-6), and about 45% of teachers reported using concepts or strategies from an IC and/or social worker in the last month. In addition, about 56% of leaders said that they talked to teachers or other staff about what they were working on with an IC, social worker, or other coach in the last month.

**Barriers to support.** For teachers, the most common barriers to getting support for working effectively with children and families were not having time to get the information/support they need (23%) and technology/software issues (23%). Some teachers also reported that information/support was not available (20%), not relevant (18%), difficult to find (14%), or poor quality (10%). For leaders, the most common barrier was not having time to get the information/support they need (38%), followed by technology/software issues (33%), information/support not being available (33%) or being difficult to find (33%), and information/support not being relevant (29%). The least commonly reported barrier was information/support being of poor quality (17%)

**Interactions among staff and “inside out” PL.** Analyses of the qualitative interviews that had been conducted in summer 2021 revealed three themes related to “inside out” PL: (a) formal interactions in staff meetings, (b) COVID-related changes, and (c) communication and relationships.

**Staff meetings.** More than half of teachers (12) discussed meetings among staff. Many teachers (8) mentioned meeting daily or weekly with their pre-K team to plan, collaborate on curriculum, and/or generally touch base about their students and classrooms. Additionally, many teachers (9) discussed meeting weekly or monthly as a whole school or with leadership. These meetings ranged in topics (e.g., professional learning; current events; personal feelings). While the frequency of meetings did not necessarily change from previous years, the topics of staff meetings sometimes differed in their focus on more personal matters (e.g., on staff burnout and

stress; on social justice issues). A couple of teachers (2) also mentioned the difference in feel of having meetings over zoom with limited in-person connection and less ability to “see” each others’ classrooms. For example, one teacher noted: “In a, in a room when people again are together it just adds more flavor to what you’re doing. The amount of visual things that I can see my colleagues holding up, that they’ve done in their room... You really can’t see [that] on a box.”

**COVID-related changes.** More than half of teachers (13) mentioned a COVID-related change in terms of routines and protocols, student learning, communication, or relationships. A handful of teachers (4) discussed student-facing changes for COVID protocols, such as new routines around morning drop-off (e.g., temperature checks; parents not allowed in classroom), disinfecting the room and materials, and taking turns to not crowd common spaces (e.g., bathrooms). One teacher discussed the difficulty of her students being distant from her principal when they were used to her coming into the room daily, “greeting our kids, hugging our kids, having whole conversations with our kids.”

Some teachers (6) mentioned relying on fellow teachers to adapt to the changes of remote or blended teaching. Teachers described working together as a team to adjust when “nobody knew what was going on and it was very confusing.” Teachers also mentioned coming together to create engaging virtual content for their students and adapt from “constantly having fun with the kids and then all of a sudden you’re stuck behind the screen.”

Many teachers (8) mentioned staff-facing changes related to COVID. Teachers discussed social-distance protocols amongst teachers and the difference of no longer “poking your head out of the room” to ask questions or have lunch together “to talk and de-stress.” One teacher mentioned the “surreal feeling” of not knowing who else was in the school building.

**Communication and relationships.** Most teachers (15) discussed their interactions and relationships with colleagues, usually as a form of support during this challenging time. Teachers described communicating constantly by texting and calling to check in with one another and offer emotional support. They mentioned relying on each other personally to cope with stress and discuss feelings of burnout or exhaustion. Teachers described the supportive feeling of talking to colleagues who are going through the same challenges and are “in the same boat” or “in the trenches” together. One teacher described this experience as “we all had personal reasons to be worried, we all had job related issues. I mean, this was something that, even though it was horrible, it actually just connected us even more.” While teachers’ reports of their relationships with colleagues were generally positive, one remote teacher mentioned feeling forgotten and not always included by the majority of staff who were in person.

Teachers also mentioned more tangible forms of support, such as dropping off materials for one another or filling in for each other when they needed “time away from the screen” or a break from the classroom. As one teacher said, “anything we ever needed from each other, even if it meant that we drove by each other’s houses and threw a book on someone’s steps, we did it for each other because it was difficult.”

Many teachers (10) specifically mentioned their relationships with and support from program leaders. This support came in the form of visiting the classroom (in-person or virtually), generally being available and responsive to teachers (e.g., “doors are always open”), listening to teachers’ concerns, and providing flexibility to teachers. While teachers’ reports of their interactions with program leaders were generally positive, one teacher mentioned feeling more distant from her leader this year as she was overwhelmed both personally (caring for a sick relative) and professionally (adapting to COVID protocols).

**“Outside in” PL.** When it came to “outside in” PL experiences, teachers discussed (a) the topics of PL they received during the 2020-2021 school year and their perceptions about those experiences, (b) their experience with (or lack of) coaching/consultation, and (c) the pros and cons of virtual PL relative to in-person PL.

**PL topics and perceptions.** About half of the teachers we interviewed mentioned the PL series their site was participating in with DECE (e.g., Create, Thrive, Explore, TTLC). Several teachers also discussed PL focused on COVID health/safety (8), remote learning (5), race or culture (6), and trauma (7). COVID health/safety PL focused on cleaning and social distancing protocols; a few teachers (3) also noted that trainings covered how to talk to children about COVID. Teachers were mixed on the usefulness of these trainings, reporting that they already knew the information, that the information they received from the DOE conflicted with other information they received (e.g., from DOH), or that protocols weren't feasible to implement in their classrooms or sites (e.g., had to "break the rules" about number of centers in order to better ensure social distancing). One teacher noted a lack of guidance around implementing COVID safety protocols in the classroom: "Um, we didn't really get support on ideas on how to make COVID work in the classroom. It was just kind of like, we figured it out on our own... and did our own research for it." Teachers also reported mixed perceptions about training on remote learning. A few teachers reported participating in multiple technology-related training sessions and finding them helpful, some reported that these sessions were not always useful (e.g., because they didn't teach remote children, because children's engagement in remote learning is so individualized), and others reported that they received no guidance on remote learning. When asked about remote instruction, one teacher responded, "It's so funny because I really didn't have any guidance on what it would look like."

Teachers were more consistently positive about their experiences with PL focused on trauma and on race/culture. Every teacher who discussed PL focused on trauma spoke positively about that experience. Several teachers named that this was the most useful PL they attended, and many shared specific details about how the PL changed the way they thought or acted in their interactions with children and families. Teachers described that trauma-focused PL content helped them gain a new sense of awareness, understanding, and empathy for the children and families and what they might be experiencing outside the classroom, especially during the pandemic (e.g., families losing jobs, losing family members to COVID, disrupted living situations). This new awareness led them to think (and potentially respond) differently to children's behavior in the classroom. One teacher described her own shift in mindset as a result of trauma-focused PL: "Like if a kid comes in and the kid is, you know, upset and... you may be like, 'Okay, what are you upset about?' And... you don't *know* what happened to that kid before that kid came to school. A lot of things could have happened. And... now I want to take the time out to investigate, you know... So I think, to me, I want to be more empathetic towards the children and towards the parents and not just to think, oh, she don't care... I don't want to pre-judge people... I do a lot of online courses, too, training courses. And I saw myself and I didn't like what I saw at times. And I tell myself, you have to change that. You know? So to me, I want to... be more empathetic towards the children and be more, um, open to them, you know."

A couple teachers also noted that teachers' own trauma and mental health was addressed in the PL sessions they attended. One teacher noted, "A lot of the topic was about trauma and... how to help kids deal with trauma, and how to mentally check on ourselves for trauma. Um, because dealing with the kids, you know, you can take some of the luggage home, and... it can be kind of difficult."

Several (6) teachers described trainings and resources they received from DECE or sought themselves around social/racial justice, cultural responsiveness, and implicit bias. Multiple teachers described these training experiences as having a big impact on them, and several noted specific changes in their practices as a result (e.g., using new curriculum, implementing Black Lives Matter mini-lessons from DECE, going through materials/books to check for cultural representation).

When asked about the PL series their site was participating in with DECE, several teachers (6+) were not sure what PL series they were in or what it focused on. A few recalled the name of the series and/or general topic (e.g., social-emotional learning), but did not share

specific things they learned or were using from PL. Several (5) teachers reported participating in the Explore (math-focused) or Create (arts-focused) PL series and described their experience with the shift from in-person to virtual PL. (Because Explore and Create are 2-year series, these teachers had received some in-person PL prior to the pandemic.) Explore teachers described challenges they experienced implementing Explore in the classroom in person (e.g., difficult to sanitize the math manipulatives and follow COVID safety rules) or in a remote learning context (e.g., she and her students didn't have the math materials at home, lost access to the math curriculum website during the year). Create teachers were generally positive about their experiences with virtual PL. One teacher noted that she thought the Create PL team was "as supportive as they could possibly be" and another "was actually surprised at how much [they] were able to gain" from virtual PL. Teachers appreciated the virtual coaching they received, and strategies for incorporating the arts into in-person as well as remote instruction, when children might not have access to the same types of arts materials at home. They also appreciated the virtual "share fairs," where they had the opportunity to learn about how other teachers were incorporating the arts in their classrooms and think about how they might try similar things on their own. Still, across both Explore and Create, teachers highlighted what they saw as the value of in-person coaching specific to their PL series, which was not possible during the pandemic. An Explore teacher noted that she was thankful that they had received about 6 months of Explore PL and coaching in person, prior to the pandemic—"Thank God we had that foundation"—and expressed her disappointment that most of her Explore experience had been virtual: "We were guaranteed two years... and a year and a half of it was remote. Right. So we were kind of cheated of that. There was more to learn, but we didn't learn it all." A Create teacher noted that even though virtual PL and coaching were useful, she wished they could have observed her coach model strategies in the classroom: "They were able to try to teach us virtually what to present and how to present these arts to the kids, but we didn't have the opportunity to have somebody come in [and] directly work with our kids... and observe, 'Oh, this is what they can do. Look how that works.' You know, we didn't have that because it just wasn't really possible. Yeah, that was... the one downfall from it that was missing."

**Coaching/consultation experiences.** Of the teachers we interviewed, some still had access to their prior level of support from ICs, social workers, and/or other coaches, but most had reduced support (e.g., access to a social worker but not IC) or no support from a coach in 2020-2021. Teachers who still had access to at least some coaching/consultation support spoke positively about the coaching they received, which included support via phone, videoconference, and email. Several teachers described how they appreciated specific support they received from coaches around families (e.g., shared resources and activities for families, conducted workshops with families), and one noted that coaches seemed to be more available in 2020-2021, perhaps because they weren't always traveling to provide in-person support. Teachers also described the ways in which virtual support was similar to and different from in-person support, represented by the words of one teacher: "So in a way, that is [a] similar... level of support. Um, someone is available to help support us at all times. The way that it's different is they're not hands-on in your classroom, so you're really sitting and having a telephone conversation about things. The good part is that we do have the virtual sessions, so modeling can be done. Things like that can happen, but it's, it's different being on screen than having someone in your physical room to come in and sit with a small group or do certain things that instructional coaches do to help support."

Teachers who did not have access to coaching/consultation support in 2020-2021 said that they missed the support they had previously received, and several (3) used strong language to describe the sense of isolation and neglect they felt without coaching/consultation support or other guidance ("it was almost like we were on an island;" "we were kind of neglected"). When asked whether the PL and other support she was receiving was useful, one teacher expressed that the PL training she received was not useful, and that individualized



coaching support was what her site needed this year: “I didn’t really find them [PL trainings] very helpful. I think that it was just very general and... I think we really needed help from the coaches this year. We had some new teachers in our grade for pre-K and for them to start... not only, you know, in a new grade, but also with the pandemic happening... I think we could have benefited from more support from, from outside... I think we really needed that this year.”

A few teachers who did not have access to support from ICs, social workers, or other coaches described ways that other individuals stepped in to fill those gaps. Multiple (3) teachers talked about how coaches they had worked with in prior years continued to provide support (e.g., sharing resources, answering questions via email), even though those coaches weren’t assigned to work with the site in 2020-2021. A couple teachers (3) noted that their teaching teams, site coordinators, and/or leaders provided the support they needed, so they didn’t feel like they were completely on their own.

**Virtual vs. in-person PL.** In describing virtual versus in-person PL experiences, most teachers described a mix of advantages and disadvantages, rather than indicating a strong preference for one modality over another. The most commonly discussed advantage of virtual PL was access to videos with PL content. Teachers appreciated being able to watch videos at their own pace and rewatch them at a later time, which is not typically possible with in-person PL. As one teacher said: “When you’re in person... in the trainings, it’s so much information given to you and it’s thrown at you. And when you leave, half of the time, you don’t remember what they said because it’s just too much information... I like the fact that I can pace myself... and then I can go back and... look at the video again... and learn it.” Teachers also found it useful to watch videos where PL facilitators modeled practices/strategies: “[The videos were] amazing because you didn’t have to go through reading and try to imagine what it was like. They were showing you exactly what to do.” Teachers also described watching and then discussing videos with their site leader and/or with other teachers at their site, and found this helpful. For example, one teacher described how she showed her leader videos from her PL series, and this led to a rich conversation between the teacher and leader about how she might apply the PL concepts and strategies in her classroom: “That was another thing about having the virtual, because I was able... to go back and show her [the site leader] the videos. So... she also had the opportunity to see what I was learning for the first time. So she really was able to see it firsthand and she was like... ‘Oh, you know, maybe you can add this.’ And so we were able to piggyback off of each other’s thoughts, as well, and she was able to add more to it because she’s had a lot of years of experience as well with, um, special ed kids... Whereas, you know, in the past, if I was trying to explain something or give her some paperwork, it really wasn’t the same as it was this year.” Other advantages of virtual support that teachers named included: greater feasibility and convenience (e.g., not having to travel, being able to stop/continue to fit your schedule and go at your own pace); more time to engage in virtual PL; opportunities to interact (virtually) with teachers in small groups; and opportunities to interact with teachers from across the country.

Teachers named several disadvantages of virtual PL, as well. Several teachers said that they preferred, and got more out of, hands-on, interactive learning, and that they were more likely to become distracted and disengaged when participating in virtual PL. They noted that while virtual PL enables teachers to discuss and plan how to apply PL concepts to their classrooms, it does not enable them to practice or “do” in the same way that in-person PL does. Several teachers also described how they missed the “human connection” that is part of in-person PL. And, while some teachers described ways that they were able to learn from and with other teachers virtually, other teachers said that there were greater opportunities for meaningful peer-to-peer learning through in-person PL. A few teachers noted that it was difficult to complete virtual PL (especially live virtual sessions) given time constraints or expectations about when they should complete virtual PL (i.e., on their own time vs. during the work day). One teacher’s perspective summarizes a few of these points: “For me, it was completely different. It was

different because I'm a people person. I like to interact in our professional learnings. I actually ask questions and I did them asynchronously because I was the in-person teacher in the school. So I couldn't participate throughout the day because I had the kids. I couldn't go to the live versions of them. Um, so for me it was a lot different. And even though I read it, I'm a visual person. I'm very hands-on. So I don't feel like I got as much as I would have gotten if I was in person, like going to the training and spending the day with the leaders and asking questions and learning from my peers."

### 3.C. Variation in PL Experiences Across Sites and Individuals (Research Question 2)

Tables 6-10 present results from analyses examining the site- and individual-level predictors of seeking/receiving support across different types of practices (Table 6) and from different sources of support (Table 7), and satisfaction with support (Table 8). For additional context about variation in educators' experiences more broadly, Table 9 presents results from analyses examining challenges, stress, and coping as dependent variables, and Table 10 presents results from analyses examining interactions and efficacy.

As noted above, our primary models included children's socioeconomic background, aggregated at the site level, as a predictor of variation in educators' experiences, and supplemental analyses included (a) an indicator of neighborhood risk for COVID and (b) children's racial-ethnic backgrounds, aggregated at the site level instead of the aggregate socioeconomic indicator. Results were generally similar across models, and in general, COVID risk and racial-ethnic composition did not predict variation in educators' experiences (though significant and trend-level associations from those supplemental models are noted in the text below).

Below, we have organized results by site- or individual-level covariates, looking across models presented in Tables 1-5.

#### Site-level covariates.

**Borough.** The frequency with which teachers sought/received support around specific practices or from different sources did not vary by borough. Relative to teachers in Queens (reference group), teachers in Manhattan/Staten Island reported feeling less supported around specific practices and from different sources. In addition, teachers in Manhattan/Staten Island reported a greater number of minutes interacting with families and marginally (at the trend level) *lower* efficacy around engaging families relative to teachers in Queens. Teachers in the Bronx reported a greater number of minutes interacting with families relative to teachers in Queens. There were no differences in challenges, stress, or coping by borough.

**Program type.** Relative to teachers in public schools, teachers in NYCEECs reported marginally lower frequency of seeking/receiving support around children and families' grief and trauma and marginally fewer minutes interacting with families. Teachers in Pre-K Centers, relative to other teachers in public schools, reported greater frequency of support around health/safety and marginally greater frequency of support around children's behavior. They also reported greater frequency of support from their site leader and from ICs, and marginally greater frequency of support from other teachers. Pre-K Center teachers reported a greater number of minutes interacting with families, leaders, and (marginally) teachers. There were no marginal or significant differences across program type with respect to satisfaction with support, challenges, stress, and coping.

**Census median income.** Neighborhood income was not associated with frequency of support around specific practices. It was marginally and *positively* associated with frequency of support from site leaders/principals and *negatively* associated with satisfaction with support around specific practices and with support from ICs. Neighborhood income was not associated

with challenges, stress, or coping, but it was positively associated with the number of minutes interacting with families and leaders.

**COVID risk.** In the supplemental models we ran (replacing neighborhood income with a neighborhood COVID risk indicator), frequency of support around specific practices did not vary by COVID risk. Teachers in higher COVID-risk neighborhoods reported marginally lower frequency of support from other teachers. Teachers in higher COVID-risk neighborhoods also reported marginally greater efficacy around engaging families. Challenges, stress, and coping did not vary by neighborhood COVID risk.

**Student race-ethnicity.** Frequency of support around specific practices and from different sources did not vary across sites serving higher proportions of Latine, Black, Asian, or White children. Teachers in sites serving a higher proportion of Latine children, relative to teachers in sites serving a higher proportion of White children, reported greater satisfaction with PL and with their IC, greater COVID-related stress, and greater efficacy around engaging families. Teachers in sites serving a higher proportion of Black children, relative to teachers in sites serving a higher proportion of White children, reported feeling more supported around specific practices and greater satisfaction with their IC and social worker.

### **Individual-level covariates.**

**Racial-ethnic identity.** Relative to White teachers, Latine teachers were marginally less satisfied with PL and reported marginally lower efficacy engaging families. Black teachers reported seeking/receiving support around working with diverse groups of children with marginally lower frequency than White teachers, and they reported significantly greater satisfaction with their Social Workers. Asian teachers reported marginally lower frequency of support from their site leader/principal and significantly greater satisfaction with their Social Worker. Reports of challenges, stress, and coping did not vary by teacher race, nor did minutes interacting with families, teachers, and leaders.

**Role.** Relative to assistant teachers, lead teachers reported lower frequency of support around instruction, children's behavior, supporting diverse groups of children, and their own mental health, and marginally lower frequency of support around health/safety and grief/trauma. Lead teachers also reported lower frequency of support from their site leader, other teachers, and ICs, and marginally lower frequency of support from family workers. They were marginally less satisfied with the support they received around practices. They also reported more COVID-related stress and current stress than assistant teachers. Minutes interacting with families, leaders, and other teachers, and sense of efficacy around teaching and engaging families, did not differ between lead and assistant teachers. For outcomes that were relevant for leaders, leaders reported greater current stress and more minutes interacting with families.

**Instructional type.** Relative to teachers working with students attending school remotely, teachers working with blended learning students (attended school in person and remotely) reported marginally greater frequency of support around working with diverse groups of children and greater frequency of support from site leaders. Teachers working with in-person students, relative to teachers working with remote students, reported lower coping. Teachers of blended learning students and teachers of in-person students reported fewer total minutes interacting with families relative to teachers of remote students. Satisfaction with supports and efficacy did not vary across teachers engaged in different types of instruction.

**Years experience.** Years of experience was marginally and positively associated with the frequency of support around instruction and health/safety. Experience was positively associated with frequency of support from site leaders and ICs and marginally (and positively) with support from other teachers and social workers. It was marginally and positively associated with feeling supported around instructional practices. Years of experience was positively associated with challenges. It was not associated with minutes of interaction or efficacy.

**Table 6. Frequency of seeking/receiving support across practices.**

	Instruction		Child Behavior		Engage Families		Diverse Groups		Health & Safety		Grief & Trauma		Mental Health	
	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE
<b>Intercept</b>	3.63 ***	1.14	1.78	1.23	2.74 +	1.38	2.52 +	1.33	2.51 +	1.40	3.91 **	1.35	2.34 +	1.37
<b>Site-level predictors</b>														
Borough														
Manhattan/SI	-0.59	0.53	0.07	0.58	-0.41	0.66	-0.01	0.65	-0.65	0.66	-0.64	0.64	-0.15	0.67
Bronx	-0.40	0.60	0.65	0.65	0.20	0.79	0.27	0.76	0.02	0.77	-0.60	0.74	0.30	0.74
Brooklyn	-0.15	0.38	0.12	0.42	-0.05	0.48	0.19	0.46	-0.02	0.47	-0.28	0.47	0.03	0.47
Program Type														
NYCEEC	-0.09	0.39	0.45	0.43	-0.06	0.47	-0.30	0.45	0.09	0.48	-0.89 +	0.48	-0.15	0.48
Pre-K Center	0.88	0.63	1.36 +	0.67	1.06	0.75	1.15	0.71	1.65 *	0.76	0.81	0.76	-0.21	0.77
Census Median Income	0.54	1.30	2.20	1.30	0.87	1.60	0.91	1.50	0.70	1.60	-1.00	1.50	0.00	0.00
<b>Individual-level predictors</b>														
Race/Ethnicity														
Hispanic	0.06	0.34	-0.01	0.37	0.07	0.36	-0.03	0.36	0.24	0.41	0.06	0.43	-0.05	0.43
Black	-0.23	0.36	-0.43	0.39	-0.55	0.39	-0.77 +	0.39	-0.38	0.42	-0.20	0.44	-0.40	0.44
Asian	-0.52	0.45	-0.46	0.48	-0.40	0.49	-0.76	0.48	-0.79	0.53	-0.57	0.53	-0.68	0.56
Role														
Lead Teacher	-0.64 *	0.29	-0.85 **	0.32	-0.49	0.31	-0.68 *	0.31	-0.67 +	0.36	-0.68 +	0.37	-0.84 *	0.37
Instructional Type														
In-Person/Virtual	0.62	0.47	0.83	0.50	0.68	0.50	0.95 +	0.49	0.94	0.54	0.74	0.55	0.60	0.55
In-Person Only	0.05	0.48	0.06	0.51	0.29	0.50	0.65	0.49	0.42	0.55	0.66	0.56	0.50	0.56
Years Experience	0.03 +	0.02	0.03	0.02	0.03	0.02	0.02	0.02	0.04 +	0.02	0.02	0.02	0.02	0.02

Note. \*\*\* p < .001; \*\* p < .01; \* p < .05, + p < .10. Borough reference group is Queens; program type reference group is public schools; race-ethnicity reference group is white; role reference group is assistant teachers; instructional type reference group is virtual only. NYCEEC = New York City Early Education Center. SI = Staten Island. Census estimates in the hundred-thousandths

**Table 7. Frequency of seeking/receiving support across sources.**

	Principal		Other Teachers		IC		SW		Family Worker		DOE Resource/PL	
	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE
<b>Intercept</b>	1.44	1.19	4.25 **	1.32	2.66	1.58	1.85	1.35	2.27	1.62	2.47 *	1.12
<b>Site-level predictors</b>												
Borough												
Manhattan/SI	0.24	0.58	-0.26	0.64	-0.33	0.72	-0.28	0.63	0.15	0.76	-0.12	0.52
Bronx	0.31	0.65	-0.34	0.74	0.10	0.89	0.55	0.76	0.65	0.91	0.09	0.62
Brooklyn	0.05	0.42	0.01	0.47	0.21	0.53	-0.05	0.47	0.04	0.55	0.11	0.37
Program Type												
NYCEEC	0.60	0.42	-0.35	0.46	-0.37	0.52	-0.27	0.45	-0.68	0.54	-0.46	0.37
Pre-K Center	2.14 **	0.67	1.29 +	0.75	1.93 *	0.81	0.53	0.72	-0.05	0.85	0.74	0.58
Census Median Income	2.70 +	1.30	0.80	1.50	-0.79	1.80	0.31	1.50	0.27	1.80	0.92	1.30
<b>Individual-level predictors</b>												
Race/Ethnicity												
Hispanic	0.17	0.36	0.19	0.40	0.14	0.45	0.40	0.39	0.07	0.48	0.02	0.33
Black	-0.20	0.38	-0.18	0.42	-0.34	0.47	0.18	0.41	-0.01	0.49	-0.26	0.34
Asian	-0.86 +	0.47	0.02	0.52	-0.30	0.56	0.06	0.52	-0.23	0.63	-0.47	0.43
Role												
Lead Teacher	-0.84 *	0.37	-1.07 **	0.34	-0.82 *	0.38	-0.57	0.34	-0.78 +	0.42	-0.40	0.28
Instructional Type												
In-Person/Virtual	0.87 +	0.48	0.51	0.54	0.90	0.60	0.83	0.50	0.68	0.60	0.30	0.43
In-Person Only	0.28	0.49	-0.29	0.54	0.43	0.60	0.03	0.51	0.59	0.61	0.13	0.43
Years Experience	0.04 *	0.02	0.04 +	0.02	0.04 *	0.02	0.03 +	0.02	0.04	0.02	0.01	0.02

Note. \*\*\* p < .001; \*\* p < .01; \* p < .05, + p < .10. Borough reference group is Queens; program type reference group is public schools; race-ethnicity reference group is white; role reference group is assistant teachers; instructional type reference group is virtual only. NYCEEC = New York City Early Education Center. SI = Staten Island. IC = Instructional Coordinator. SW = Social Worker. DOE = Department of Education. PL = Professional Learning. Census estimates in the hundred-thousandths

**Table 8. Satisfaction with support.**

	Around Practices		From Sources		With PL		With IC		With SW	
	B	SE	B	SE	B	SE	B	SE	B	SE
<b>Intercept</b>	4.23 ***	0.65	4.06 ***	0.72	5.23 ***	0.78	7.59 ***	1.44	6.49 **	2.06
<b>Site-level predictors</b>										
Borough										
Manhattan/SI	-0.84 *	0.31	-0.76 *	0.35	-0.40	0.40	-0.69	0.63	-1.55	0.97
Bronx	-0.52	0.35	-0.02	0.39	-0.26	0.44	-0.73	0.71	-1.03	1.18
Brooklyn	-0.22	0.23	-0.08	0.25	-0.18	0.27	-0.38	0.51	-0.85	0.87
Program Type										
NYCEEC	-0.15	0.23	-0.34	0.25	0.09	0.27	-0.76	0.50	-0.63	0.77
Pre-K Center	0.26	0.37	-0.18	0.42	0.15	0.43	-0.53	0.71	-0.84	1.23
Census Median Income	-1.00 +	0.74	-1.00	0.81	-1.00	0.88	-3.00 +	1.60	-3.00	2.20
<b>Individual-level predictors</b>										
Race/Ethnicity										
Hisp	-0.14	0.20	-0.29	0.22	-0.45 +	0.24	-0.26	0.40	0.05	0.56
Black	0.03	0.21	-0.30	0.23	0.01	0.25	0.22	0.40	1.13 *	0.50
Asian	-0.11	0.26	-0.07	0.29	0.14	0.31	0.51	0.42	1.27 *	0.56
Role										
Lead Teacher	-0.30 +	0.17	-0.23	0.19	-0.16	0.21	-0.30	0.32	-0.16	0.48
Instructional Type										
In-Person/Virtual	0.25	0.27	0.39	0.30	0.24	0.32	-0.79	0.54	-0.03	0.82
In-Person Only	-0.10	0.27	0.24	0.30	-0.18	0.32	-0.77	0.51	-0.97	0.83
Years Experience	0.02 +	0.01	0.01	0.01	0.01	0.01	-0.01	0.02	0.00	0.02

Note. \*\*\* p < .001; \*\* p < .01; \* p < .05, + p < .10. Borough reference group is Queens; program type reference group is public schools; race-ethnicity reference group is white; role reference group is assistant teachers; instructional type reference group is virtual only. NYCEEC = New York City Early Education Center. SI = Staten Island. PL = Professional Learning. IC = Instructional Coordinator. SW = Social Worker. Census estimates in the hundred-thousandths

**Table 9. Challenges, stress, and coping.**

	Challenges		COVID Stress		Current Stress		Current Coping	
	B	SE	B	SE	B	SE	B	SE
<b>Intercept</b>	2.91 ***	0.67	4.00 ***	0.51	6.29 **	1.85	6.36 **	1.80
<b>Site-level predictors</b>								
Borough								
Manhattan/SI	0.31	0.32	0.26	0.24	0.54	0.87	1.32	0.87
Bronx	-0.30	0.37	-0.29	0.27	0.03	0.99	0.56	0.99
Brooklyn	-0.07	0.24	-0.07	0.18	-0.71	0.65	0.50	0.65
Program Type								
NYCEEC	-0.03	0.22	-0.23	0.17	-0.01	0.60	0.59	0.60
Pre-K Center	-0.28	0.38	-0.32	0.30	-0.53	1.04	1.14	1.02
Census Median Income	-0.40	0.77	-0.14	0.58	2.00	2.10	2.00	2.10
<b>Individual-level predictors</b>								
Race/Ethnicity								
Hisp	-0.03	0.18	-0.01	0.16	-0.52	0.54	0.03	0.50
Black	-0.25	0.20	-0.17	0.16	0.05	0.56	0.37	0.52
Asian	0.08	0.23	0.23	0.20	-0.46	0.68	0.08	0.63
Role								
Lead Teacher	-0.02	0.16	0.29 *	0.14	1.14 *	0.47	0.03	0.43
Leader	0.34	0.21	0.13	0.19	2.91 ***	0.64	0.23	0.58
Instructional Type								
In-Person/Virtual	-0.08	0.27	-0.19	0.23	-0.56	0.78	-1.21	0.73
In-Person Only	0.20	0.28	-0.16	0.23	0.03	0.79	-1.63 *	0.73
Years Experience	0.02 *	0.01	-0.01	0.01	0.01	0.03	0.03	0.02

Note. \*\*\* p < .001; \*\* p < .01; \* p < .05, + p < .10. Borough reference group is Queens; program type reference group is public schools; race-ethnicity reference group is white; role reference group is assistant teachers; instructional type reference group is virtual only. NYCEEC = New York City Early Education Center. SI = Staten Island. Census estimates in the hundred-thousandths

**Table 10. Minutes of interaction and sense of efficacy at work.**

	Family Mins		Teacher Mins		Leader Mins		Teach Efficacy		Family Efficacy	
	B	SE	B	SE	B	SE	B	SE	B	SE
<b>Intercept</b>	-43.69	35.72	112.50	87.47	-59.62	70.90	6.28 ***	0.98	4.02 ***	0.48
<b>Site-level predictors</b>										
Borough										
Manhattan/SI	52.07 **	17.01	26.12	41.08	33.38	34.14	-0.37	0.48	-0.42 +	0.23
Bronx	64.23 **	18.70	1.26	45.29	48.93	38.32	0.65	0.54	-0.08	0.25
Brooklyn	14.46	12.67	-34.67	30.51	-5.40	24.81	0.06	0.35	-0.14	0.17
Program Type										
NYCEEC	23.83 +	11.84	12.50	28.88	27.94	24.67	-0.12	0.34	-0.05	0.16
Pre-K Center	46.62 *	20.66	90.79 +	50.23	104.53 *	39.55	0.43	0.54	0.22	0.27
Census Median Income	155.00 ***	40.00	34.00	97.00	172.00 *	79.00	1.80	1.10	-0.06	0.53
<b>Individual-level predictors</b>										
Race/Ethnicity										
Hisp	-11.51	11.16	-3.14	27.52	4.85	21.42	0.01	0.29	-0.26 +	0.15
Black	-7.40	11.44	5.14	28.12	12.89	22.73	0.02	0.31	-0.09	0.16
Asian	9.40	13.91	7.81	34.17	-1.68	28.16	0.11	0.38	-0.28	0.19
Role										
Lead Teacher	10.88	9.65	-24.13	23.86	-7.75	18.54	-0.01	0.25	0.11	0.13
Leader	40.28 **	13.30	43.53	32.82					-0.07	0.18
Instructional Type										
In-Person/Virtual	-44.89 *	15.89	-20.52	39.04	8.51	28.93	0.48	0.39	-0.24	0.21
In-Person Only	-46.75 **	16.11	-15.29	39.62	-11.90	29.32	0.53	0.39	-0.33	0.22
Years Experience	0.60	0.53	0.88	1.29	1.11	1.02	-0.01	0.01	0.00	0.01

Note. \*\*\* p < .001; \*\* p < .01; \* p < .05, + p < .10. Borough reference group is Queens; program type reference group is public schools; race-ethnicity reference group is white; role reference group is assistant teachers; instructional type reference group is virtual only. NYCEEC = New York City Early Education Center. SI = Staten Island. Census estimates in the hundred-thousandths



## 4. Discussion

A robust literature has documented clear benefits of PL for teachers and their students. PL may be especially critical during the COVID-19 pandemic, as teachers navigate personal and professional stressors, new modes of teaching and learning, and expanded roles and responsibilities. However, ECE educators' experiences with PL during the pandemic has received limited research attention. The current study documented what PL – both outside in and inside out – looked like for NYC educators during the pandemic, how educators experienced that PL, and how experiences varied across sites and educators. **Below, we summarize several key findings and highlight implications for practice and policy.**

### 4.A. Summary of Key Findings

**Inside-out PL appeared to be more salient than outside-in PL, and outside-in PL appeared to stimulate inside-out PL.** Across a range of different practices, teachers reported seeking or receiving support most frequently from other teachers, followed by their site leader. They sought support from these sources more often than from ICs, social workers, family workers, and DECE PL / resources. They also felt more supported by teachers and leaders than by other sources of support. This pattern was reinforced by the qualitative findings on staff interactions. Even though inside-out PL seemed more salient, there was evidence that outside-in PL provided by DECE served to stimulate and support ongoing learning and conversations among teachers and leaders (e.g., by watching videos together and discussing them afterwards).

One puzzling finding was that a large majority of pre-K teachers did not know the name of their PL series. We can only speculate the reasons for this. One explanation is that pre-K teachers are unfamiliar with the name of their PL series, but they are familiar with the content (e.g., they don't know the name of their PL series is "Explore," but they do know that their PL focuses on a play-based math curriculum and interdisciplinary units of study). Alternatively, it is possible that pre-K teachers are unfamiliar with both the name of their PL series and the content. In reality, it is likely some combination of these two. Our qualitative interviews could not fully answer this, but we found that some teachers were able to describe the content of their PL with some level of detail and specific examples, regardless of whether or not they knew the name of their PL series. Other teachers were not able to give examples of things they learned in PL; these teachers appeared unfamiliar with both the name and content of PL. In addition, DECE communicates more frequently with pre-K leaders about PL series, which might explain why a larger number of leaders could identify the name of their site's PL series. More explicit or direct communication with teachers about PL could be helpful, though we believe it is more important that teachers understand the content of PL and apply it to their work, versus know the name of their PL series.

**Trauma and mental health are relevant PL topics.** Given the collective and individual trauma brought on by the pandemic, as well as heightened attention to racial bias and systemic injustice, it is perhaps not surprising that teachers found the trauma-related PL they participated in relevant and useful. Teachers described real mindset shifts, new levels of awareness, and stronger empathy for the children and families they work with as a result of this training. In addition to *children's* experience of trauma, teachers also acknowledged that they were experiencing heightened stress, grief, and trauma themselves, in line with several other studies of ECE educators during the pandemic (Rodriguez et al., 2022; Souto-Manning & Melvin, 2021; Weiland et al., 2021). However, according to results from the survey, teachers reported seeking or receiving support around mental health the least frequently, and felt the least supported around this, indicating a need for greater support.

**Teachers were generally satisfied with the PL sessions / modules they completed, but experiences could be improved.** While some PL topics struck a chord with teachers (e.g., trauma-informed approaches), the verdict on other PL sessions / modules was more mixed. In general, teachers reported feeling generally satisfied with the PL they completed, but (as noted above), it wasn't necessarily as salient or memorable for them. The majority of teachers did not know the name of the PL series that their site was in, and a little over half reported using concepts and strategies from PL in their work with children and families, and in the interviews, many teachers could not provide concrete details about what they were doing in their classrooms as a result of PL sessions. Exceptions to this were in the cases of Explore and Create, which, notably, also involve coaching aligned to PL and other supports (curricula for Explore; arts materials for Create) designed to support implementation in the classroom.

**Teachers valued support from ICs, social workers, and other coaches.** Although experiences with PL were somewhat mixed, teachers were more consistently positive about their experiences with coaching. Despite the shift to virtual coaching, there were several indicators that teachers valued the individualized support they received from coaches: Those who had access to coaches described the ways they were supported virtually and were benefiting from the coaching they received. Those who did not have access to coaches in 2020-2021 described the sense of loss of instrumental and emotional support they experienced as a result. Several used the time to reflect on the strong relationships they had with past coaches. Others described feeling isolated, neglected, and on their own without a coach. These findings are consistent with another qualitative study of NYC teachers at the start of the pandemic, who described that the lack of guidance they received from district leadership made them feel like the "forgotten ones" (Rodriguez et al., 2022).

**ECE staff expanded their roles as sources of support to one another during the pandemic.** Teachers and leaders had to take on new roles during the pandemic, likely because of new demands, increased stress, reduced individualized support from ICs and social workers, and less guidance from the district. This included providing emotional support and deepening relationships with other teachers, "figuring out" how to adapt instruction during the pandemic with limited guidance, and filling in gaps in support given reduced interaction with coaches. In addition, there was evidence that ICs provided support by email and text to teachers and leaders, even when they were not officially assigned to them.

**There were pros and cons of virtual (vs. in-person) PL.** The shift to virtual PL came with advantages and disadvantages. While some teachers did indicate a preference for in-person PL over virtual PL, most noted pros and cons of each. For example, teachers noted that in-person PL sessions and coaching allowed for more interactive, hands-on learning where they could discuss and practice new strategies in interaction with colleagues, and they noted that virtual PL was "not the same." At the same time, teachers noted that virtual PL offered some advantages over in-person experiences. In particular, they appreciated the flexibility to learn at their own pace and on their own time, and the opportunity to watch, rewatch, share, and discuss videos on PL content, strategies, and examples. Several teachers talked about how they combined virtual outside-in PL experiences with in-person inside-out PL, for example, by watching videos together with other teachers and/or leaders. While teachers noted the convenience of not having to travel to in-person PL, survey and interview responses indicated that lack of time was still a barrier to participating in PL (the most commonly reported barrier, according to survey responses). Interestingly, despite technology-related challenges in relation to remote learning and interacting with families (documented in ours and other studies; Weiland et al., 2021), technology challenges did not emerge as a major barrier to PL participation.

**PL experiences varied somewhat across programs and teachers.** In analyses examining variation in PL experiences by site- and individual-level characteristics, only a few associations emerged as significant or marginally significant explanatory variables. Here we highlight a few patterns. When it came to program type, with a couple exceptions, teachers in

NYCEECs and public schools did not differ much across the dependent variables examined, but teachers in Pre-K Centers (relative to public schools) appeared to seek or receive support more frequently and spend more time interacting with colleagues and families. A major caveat in the current study is that there were very few teachers (n=11) in Pre-K Centers in the current study, so results should be interpreted with extreme caution; nonetheless, this pattern was striking and warrants further exploration in order to understand (and perhaps replicate in other settings) processes that enable this in Pre-K Centers.

In general, we did **not** find clear evidence that PL experiences were inequitable across sites and educators. That is, we did not find that teachers in sites serving greater proportions of Black children, Latine children, children from families with low income, or children in neighborhoods with high risk for COVID reported less access or less satisfaction with PL. The associations that did emerge seemed to suggest that sites serving these subgroups of children were somewhat **more** satisfied with the PL they were receiving and/or their efficacy engaging families, though they may seek/receive “inside-out” PL with somewhat lower frequency. Future analyses should examine whether these patterns hold across a larger sample of NYC teachers as well as elucidate factors that may have contributed to this pattern.

At the individual educator level, results suggested that lead teachers and teachers with less experience were receiving less frequent support, feeling less supported, and experiencing somewhat higher rates of stress or challenge. While teachers working with remote students received less support from site leaders compared to teachers working with blended students, they also reported greater general coping on the 1-item coping measure (vs. teachers working with in-person students) and spent more time interacting with families (vs. blended and in-person teachers). This pattern was consistent with what we heard in interviews, where virtual teachers sometimes felt isolated from their colleagues, but reported much more (virtual) interaction with families relative to prior years. Finally, Black teachers and Asian teachers (relative to White teachers) were more satisfied with the support they received from social workers; however, Asian teachers received less frequent support from site leaders. In addition, Latine teachers were somewhat less satisfied with PL and less efficacious engaging families relative to White teachers. This pattern is different from the pattern observed with *student* race-ethnicity aggregated at the site level, where sites serving higher proportions of Latine students showed greater satisfaction with PL and greater family engagement efficacy. It may be important to unpack these results by examining racial-ethnic match between teachers and children in further analyses.

With limited resources and a reduced coaching workforce in 2020-2021, DECE allocated resources (e.g., social workers) in part based on neighborhood COVID risk (which is correlated with sites’ socioeconomic and racial-ethnic student composition). Our analyses do not speak to whether that resource allocation process was effective, but our findings do indicate that sites in neighborhoods that were more vulnerable to the negative effects of COVID-19 did not experience clear disadvantages with respect to their PL experiences.

#### **4.B. Limitations**

This study adds to an accumulating literature on ECE educators during the pandemic, and is among the small number to examine PL experiences specifically. Results provide critical information for the field and for our district partners, but a few limitations and directions for future research are important to note. First, the study was descriptive and cross-sectional. Because data were collected at one time point, it is not possible to examine change over time or attribute experiences to COVID specifically. Second, the sample was relatively small and represents a unique urban setting in which universal pre-K and a range of PL opportunities are funded and provided by the district. Thus, while this mixed-methods study provides helpful insights about the NYC context, findings may not generalize to other settings in which ECE is not publicly

funded. Third, our study focused on educators' experiences with PL, and thus self-report surveys and interviews were appropriate and served to lift the voices of educators themselves. Still, we acknowledge that this study does not speak to the *effectiveness* of PL in changing teachers' behaviors or children's learning experiences and outcomes, and other research (e.g., randomized trials) are needed to document that.

#### 4.C. Implications for policy and/or practice

The selected findings above highlight several implications for policy and/or practice for DECE and policy leaders in other districts:

- 1. Continue to offer and expand trauma-informed PL as well as PL around teachers' trauma and mental health.** There is a clear appetite among NYC educators for PL related to trauma; many teachers reported clear shifts in mindset and awareness relating to children and families, and further PL and support would ensure that these initial shifts translate to sustained changes in thinking patterns and behavior. A smaller number of teachers discussed supports for their mental health, and they felt the least supported in this area, indicating an opportunity for greater support. Given that teachers were most often turning to other teachers for support around their mental health, PL experiences that scaffold and make space for emotionally supportive interpersonal relationships among colleagues might be a promising approach.
- 2. Provide supports for inside-out PL experiences and integration with outside-in PL.** In general, DECE and policy leaders in other districts focus on providing outside-in PL experiences. While this is important, there may also be a role in supporting and elevating inside-out PL experiences that are happening among ECE teachers and leaders. For example, in surveys and interviews, educators reported that the biggest barrier to getting the support they need was lack of time. Processes and policies that give educators more time to engage in both inside-out and outside-in PL would be useful. In addition, finding ways to support ECE teachers and leaders in connecting inside-out and outside-in PL is another promising approach (e.g., encouraging educators to participate in virtual PL together).
- 3. Use a combination of in-person and virtual PL.** ECE educators highlighted a number of advantages of both in-person and virtual PL. Our findings suggest that hybrid opportunities that allow for interactive learning with colleagues *and* videos they watch, rewatch, and share once educators return to their programs would be a promising approach.
- 4. Strive for open and timely communication with ECE educators to address feelings of isolation and neglect.** The first two years of the COVID-19 pandemic has been an unprecedented time, full of uncertainty, abrupt shifts, and change. It was and is impossible to anticipate the challenges brought on by the pandemic, but moving forward, policymakers should strive for open, timely communication as much as possible. While there is a balance to strike between under- and over-communication, open communication channels, as well as supports for educators to talk to each other across sites, may reduce educators' sense of isolation and being on their own when other supports and guidance are not available.
- 5. Monitor PL implementation, impact, and potential inequities.** Our findings did not reveal systemic inequities in PL experiences based on the data we collected and analyzed. Nonetheless, COVID-19's effects on teaching and learning are likely to be long-standing, as are the structural economic and racial inequities that contributed to the pandemic's uneven burden across communities. Thus, it is critical to collect, analyze, and review information on an ongoing basis on PL experiences, PL impacts on teaching

and learning, and the extent to which experiences and impacts may vary across sites and educators. Ongoing monitoring ensures that policymakers are well positioned to address inequities early where they exist.

By examining teachers' experiences with PL during the pandemic, this study shines a light on processes to strengthen, barriers and challenges to address, and innovations to sustain and spread across NYC ECE programs. Rather than "return to normal" after the height of the pandemic, these lessons can be used to strengthen the PL system, drawing on the most effective "outside-in" and "inside-out" approaches from prior to and during the pandemic to best meet the needs of all ECE educators and ensure high-quality ECE learning experiences for all young children.

## References

- Abdul-Majied, S., Kinkead-Clark, Z., & Burns, S. C. (2022). Understanding Caribbean early childhood teachers' professional experiences during the COVID-19 school disruption. *Early Childhood Education Journal*, 1-11. <https://doi.org/10.1007/s10643-022-01320-7>
- Barnett, W. S., & Jung, K. (2021). Seven impacts of the pandemic on young children and their parents: Initial findings from NIEER's December 2020 preschool learning activities survey. *National Institute for Early Education Research*.
- Bassok, D., Markowitz, A. J., Smith, A., & Kiscaden, S. (2020). Child care leaders' experiences with COVID-19: First findings from the study of early education in Louisiana. Retrieved from <https://curry.virginia.edu/sites/default/files/uploads/epw/COVID%20Leader%20Rept%20July,20>.
- Bassok, D., Weisner, K., Markowitz, A. J., & Hall, T. (2021). Teaching young children during COVID-19: Lessons from early educators in Virginia. *EdPolicyWorks at the University of Virginia*.
- Bierman, K.L., Domitrovich, C.E., Nix, R.L., Gest, S.D., Welsh, J.A., Greenberg, M.T., Blair, C., Nelson, K., & Gill, S. (2008). Promoting academic and social-emotional school readiness: The Head Start REDI program. *Child Development*, 79(6), 1802-1817. <https://doi.org/10.1111/j.1467-8624.2008.01227.x>
- Brotman, L.M., Calzada, E., Huang, K.Y., Kingston, S., Dawson-McClure, S., Kamboukos, D., Rosenfelt, A., Schwab, A., & Petkova, E. (2011). Promoting effective parenting practices and preventing child behavior problems in school among ethnically diverse families from underserved, urban communities. *Child Development*, 82(1), 258–276. <https://doi.org/10.1111/j.1467-8624.2010.01554.x>
- Cappella, E., Cramer, T., Raver, C. C., Allen, L., & Morris, P. (2021). Using data to improve quality: Formal and informal mechanisms supporting professional development in NYC's Pre-K for All. *Foundation for Child Development*.
- Clements, D. H., & Sarama, J. (2008). Experimental evaluation of the effects of a research-based preschool mathematics curriculum. *American Educational Research Journal*, 45(2), 443–494. <https://doi.org/10.3102/0002831207312908>
- Clements, D. H., Sarama, J., Spitler, M. E., Lange, A. A., & Wolfe, C. B. (2011). Mathematics learned by young children in an intervention based on learning trajectories: A large-scale cluster randomized trial. *Journal for Research in Mathematics Education*, 42(2), 127-166. <https://doi.org/10.5951/jresmetheduc.42.2.0127>
- Cramer, T., Canto Porto de Moraes, J., McKenna, A., Keays Hagerman, K., & Allen, L. (2021). Knowledge dissemination among early childhood staff members: A promising pathway for professional learning. *Journal of Early Childhood Teacher Education*, 1-14. <https://doi.org/10.1080/10901027.2021.1954567>

- Crawford, A., Vaughn, K. A., Guttentag, C. L., Varghese, C., Oh, Y., & Zucker, T. A. (2021). "Doing what I can, but I got no magic wand." A snapshot of early childhood educator experiences and efforts to ensure quality during the COVID-19 pandemic. *Early Childhood Education Journal*, 49(5), 829–840. <https://doi.org/10.1007/s10643-021-01215-z>
- Cutter, S. L., Barnes, L., Berry, M., Burton, C., Evans, E., Tate, E., & Webb, J. (2008). A place-based model for understanding community resilience to natural disasters. *Global Environmental Change*, 18(4), 598-606. <https://doi.org/10.1016/j.gloenvcha.2008.07.013>
- Domitrovich, C. E., Bradshaw, C. P., Poduska, J. M., Hoagwood, K., Buckley, J. A., Olin, S., Romanelli, L. H., Leaf, P. J., Greenberg, M. T., & Jalongo, N. S. (2008). Maximizing the implementation quality of evidence-based preventive interventions in schools: A conceptual framework. *Advances in School Mental Health Promotion*, 1(3), 6-28. <https://doi.org/10.1080/1754730X.2008.9715730>
- Domitrovich, C. E., Gest, S. D., Gill, S., Bierman, K. L., Welsh, J. A., & Jones, D. (2009). Fostering high-quality teaching with an enriched curriculum and professional development support: The Head Start REDI Program. *American Educational Research Journal*, 46(2), 567–597. <https://doi.org/10.3102/0002831208328089>
- Eddy, C., Herman, K. C., Reinke, M. W. (2017, August). Single-item teacher stress and coping measures. Poster presented at the American Psychological Association Conference, Washington, DC.
- Fielding, N. G. (2012). Triangulation and mixed methods designs: Data integration with new research technologies. *Journal of Mixed Methods Research*, 6(2), 124–136. <https://doi.org/10.1177/1558689812437101>
- Flaming, D., & Burns, P. (2020). In harm's way: California workers at high risk of unemployment in the COVID-19 pandemic. Los Angeles, CA: Economic Roundtable.
- Gassman-Pines, A., Ananat, E. O., & Fitz-Henley, J. (2020). COVID-19 and parent-child psychological well-being. *Pediatrics*, 146(4). <https://doi.org/10.1542/peds.2020-007294>
- Hanushek, E. A. (2011). The economic value of higher teacher quality. *Economics of Education Review*, 30(3), 466–479. <https://doi.org/10.1016/j.econedurev.2010.12.006>
- Harms, T., Clifford, R., & Cryer, D. (1998). *The Early Childhood Rating Scale-Revised*. New York and London: Teachers' College Press.
- Henley, R. (2010). Resilience enhancing psychosocial programmes for youth in different cultural contexts: Evaluation and research. *Progress in Development Studies*, 10(4), 295-307. <https://doi.org/10.1177/146499340901000403>
- Herman, K. C., Hickmon-Rosa, J., & Reinke, W. M. (2018). Empirically derived profiles of teacher stress, burnout, self-efficacy, and coping and associated student outcomes. *Journal of Positive Behavior Interventions*, 20(2), 90–100. <https://doi.org/10.1177/1098300717732066>

- Hill, C. E., Thompson, B. J., & Williams, E. N. (1997). A guide to conducting consensual qualitative research. *The Counseling Psychologist*, 25(4), 517–572.  
<https://doi.org/10.1177/0011000097254001>
- Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, 15(9), 1277-1288.  
<https://doi.org/10.1177/1049732305276687>
- Jennings, P. A., & Greenberg, M. T. (2009). The prosocial classroom: Teacher social and emotional competence in relation to student and classroom outcomes. *Review of Educational Research*, 79(1), 491–525. <https://doi.org/10.3102/0034654308325693>
- Khan, F. (2022, April 20). *1 in every 200 NYC children have lost a parent or caregiver to COVID. That's almost twice the national rate.* The City.  
<https://www.thecity.nyc/2022/4/20/23033998/1-in-every-200-children-nyc-lost-parent-covid-twice-national-rate>
- Lambert, R. G., McCarthy, & Abbott-Shim, M. (2001). Classroom appraisal of resources and demands, school-age version. Atlanta, GA: Head Start Quality Research Center.
- Mashburn, A. J., Pianta, R. C., Hamre, B. K., Downer, J. T., Barbarin, O. A., Bryant, D., Burchinal, M., Early, D. M., & Howes, C. (2008). Measures of classroom quality in prekindergarten and children's development of academic, language, and social skills. *Child Development*, 79(3), 732-749. <https://doi.org/10.1111/j.1467-8624.2008.01154.x>
- Mattera, S., Jacob, R., & Morris, P. (2018). *Strengthening children's math skills with enhanced instruction: The impacts of Making Pre-K Count and High 5s on kindergarten outcomes.* New York: MDRC.
- Mays, J. C., & Newman, A. (2020, April 8). *Virus is twice as deadly for Black and Latino people than Whites in N.Y.C.* The New York Times.  
<https://www.nytimes.com/2020/04/08/nyregion/coronavirus-race-deaths.html>
- Moolenaar, N. M. (2012). A social network perspective on teacher collaboration in schools: Theory, methodology, and applications. *American Journal of Education*, 119(1), 7-39. <https://doi.org/10.1086/667715>
- Morris, P., Mattera, S.K., Castells, N., Bangser, M., Bierman, K., & Raver, C.C. (2014). *Impact findings from the Head Start CARES demonstration: National evaluation of three approaches to improving preschoolers' social and emotional competence.* New York, NY: MDRC.
- New York City Department of Health and Mental Hygiene. (n.d.). COVID-19: Data Trends and Totals. Retrieved May 1, 2022, from  
<https://www1.nyc.gov/site/doh/covid/covid-19-data-totals.page>
- Norris, F. H., Stevens, S. P., Pfefferbaum, B., Wyche, K. F., & Pfefferbaum, R. L. (2007). Community resilience as a metaphor, theory, set of capacities, and strategy for disaster readiness. *American Journal of Community Psychology*, 41(1-2), 127–150.  
<https://doi.org/10.1007/s10464-007-9156-6>



NYC Department of Health and Mental Hygiene [DOHMH]. (2020). COVID-19: Data. [Data source]. Retrieved from <https://www1.nyc.gov/site/doh/covid/covid-19-data.page>.

Office of the NYC Comptroller. (2020, March). New York City's frontline workers. New York, NY: Bureau of Policy & Research.

Pianta, R. C., La Paro, K. M., & Hamre, B. K. (2008). *Classroom Assessment Scoring System™: Manual K-3*. Paul H Brookes Publishing.

Phillips, D., Lipsey, M. W., Dodge, K. A., Haskins, R., Bassok, D., Burchinal, M.R., Duncan, G. J., Dynarski, M., Magnuson, K. A., & Weiland, C. (2017). *Puzzling it out: The current state of scientific knowledge on pre-kindergarten effects*. Washington, DC: Brookings.

Plough, A., Fielding, J. E., Chandra, A., Williams, M., Eisenman, D., Wells, K. B., Law, G. Y., Fogleman, S., & Magaña, A. (2013). Building community disaster resilience: Perspectives from a large urban county department of public health. *American Journal of Public Health, 103*(7), 1190–1197. <https://doi.org/10.2105/AJPH.2013.301268>

Raver, C. C., Jones, S. M., Li-Grining, C., Zhai, F., Bub, K., & Pressler, E. (2011). CRSP's impact on low-income preschoolers' preacademic skills: Self-regulation as a mediating mechanism. *Child Development, 82*(1), 362–378. <https://doi.org/10.1111/j.1467-8624.2010.01561.x>

Raver, C. C., Jones, S. M., Li-Grining, C., Zhai, F., Metzger, M. W., & Solomon, B. (2009). Targeting children's behavior problems in preschool classrooms: A cluster-randomized controlled trial. *Journal of Consulting and Clinical Psychology, 77*(2), 302–316. <https://doi.org/10.1037/a0015302>

Rodriguez, V., Rojas, N. M., Rabadi-Raol, A., Souto-Manning, M. V., & Brotman, L. M. (2022). Silent expectations: An exploration of women pre-kindergarten teachers' mental health and wellness during Covid-19 and beyond. *Early Childhood Research Quarterly, 60*, 80–95. <https://doi.org/10.1016/j.ecresq.2021.12.006>

Sarama, J., Clements, D. H., Wolfe, C. B., & Spitler, M. E. (2012). Longitudinal evaluation of a scale-up model for teaching mathematics with trajectories and technologies. *Journal of Research on Educational Effectiveness, 5*(2), 105-135. <https://doi.org/10.1080/19345747.2011.627980>

Sheridan, S. M., Edwards, C. P., Marvin, C. A., & Knoche, L. L. (2009). Professional development in early childhood programs: Process issues and research needs. *Early Education and Development, 20*(3), 377-401. <https://doi.org/10.1080/10409280802582795>

Sjuts, T. M., & Sheridan, S. M. (2011). Self-assessment of Parent Engagement Practices (SPEP). Unpublished instrument, Nebraska Center for Research on Children, Youth, Families and Schools, University of Nebraska-Lincoln, Lincoln, NE.

Smith, S., & Granja, M. (2021). Early childhood education throughout the COVID-19 pandemic: The experiences of Arkansas educators. Retrieved from <https://educate.bankstreet.edu/nccp/1>

Souto-Manning, M., & Melvin, S. A. (2022). Early childhood teachers of color in New York City: Heightened stress, lower quality of life, declining health, and compromised sleep amidst COVID-19. *Early Childhood Research Quarterly*, 60, 34-48. <https://doi.org/10.1016/j.ecresq.2021.11.005>

Tarrant, K., & Nagasawa, M. (2020). New York Early Care and Education Survey: Understanding the Impact of COVID-19 on New York Early Childhood System. New York Early Childhood Professional Development Institute, CUNY. Retrieved from <https://educate.bankstreet.edu/sc/2>

Tschannen-Moran, M., & Woolfolk Hoy, A. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and Teacher Education*, 17(7), 783-805. [http://dx.doi.org/10.1016/S0742-051X\(01\)00036-1](http://dx.doi.org/10.1016/S0742-051X(01)00036-1)

Tulsa SEED Study Team. (2020). Parents, teachers, and distance learning during the COVID-19 pandemic: A snapshot from Tulsa, OK. *Child Development and Social Policy Lab*. <https://static1.squarespace.com/static/5ec6d9f9144482661ecd735a/5d5bbd1934e03165f8>.

Ungar, M. (2011). Community resilience for youth and families: Facilitative physical and social capital in contexts of adversity. *Children and Youth Services Review*, 33(9), 1742–1748. <https://doi.org/10.1016/j.childyouth.2011.04.027>

Wasik, B. A., & Bond, M. A. (2001). Beyond the pages of a book: Interactive book reading and language development in preschool classrooms. *Journal of Educational Psychology*, 93(2), 243–250. <https://doi.org/10.1037/0022-0663.93.2.243>

Weiland, C., McCormick, M., Mattera, S., Maier, M., & Morris, P. (2018). Preschool curricula and professional development features for getting to high-quality implementation at scale: A comparative review across five trials. *AERA Open*, 4(1), 1-16. <https://doi.org/10.1177/2332858418757735>

Weiland, C., University of Michigan. Gerald R. Ford School of Public Policy. Education Policy Initiative, & Urban Institute. (2021). *Historic crisis, historic opportunity: Using evidence to mitigate the effects of the COVID-19 crisis on young children and early care and education programs*. Gerald R. Ford School of Public Policy, Education Policy Initiative.

Weiland, C., & Yoshikawa, H. (2013). Impacts of a prekindergarten program on children's mathematics, language, literacy, executive function, and emotional skills. *Child Development*, 84(6), 2112-2130. <https://doi.org/10.1111/cdev.12099>

Williams, M. (2021). Life in New York City During COVID-19 (Poverty Tracker). Robin Hood.

