

Strengthening Family Engagement and Program Quality for Young Children's School Readiness: A University-District Partnership in Support of Pre-K for All

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Work conducted collaboratively with C. Cybele Raver, Elise Cappella, Natalia Rojas, & Rachel Abenavoli (and thanks to Laurie Brotman)

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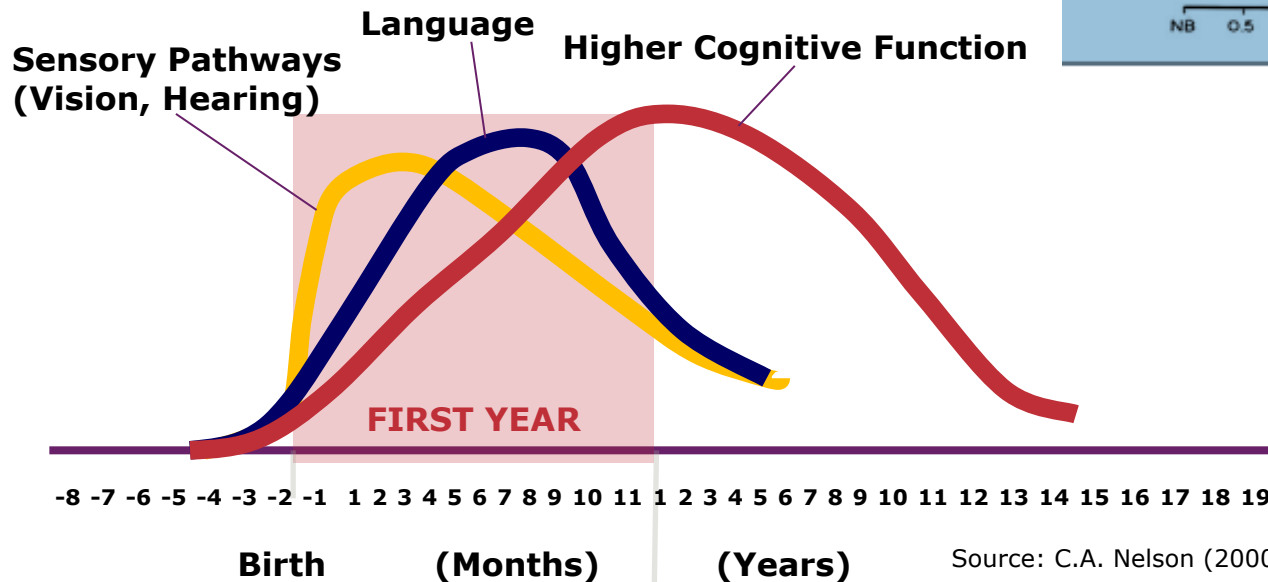
Overview

- Building from neuroscience, income, and policy research, developing new models of applied science
- Leveraging this new model to support historic expansion of high quality Pre-K for All in nation's largest urban school district (NYC)
- Initially:
 - Innovative approaches to systems-building by providing better data + a “dashboard” for decision-making and
 - Building infrastructure to align quality with research-based practice
- Now:
 - **Developing plans to study differentiated professional learning**
- Goal to build science that is the “next stage” in efficacy to effectiveness, and thus more closely tied to practice/policy

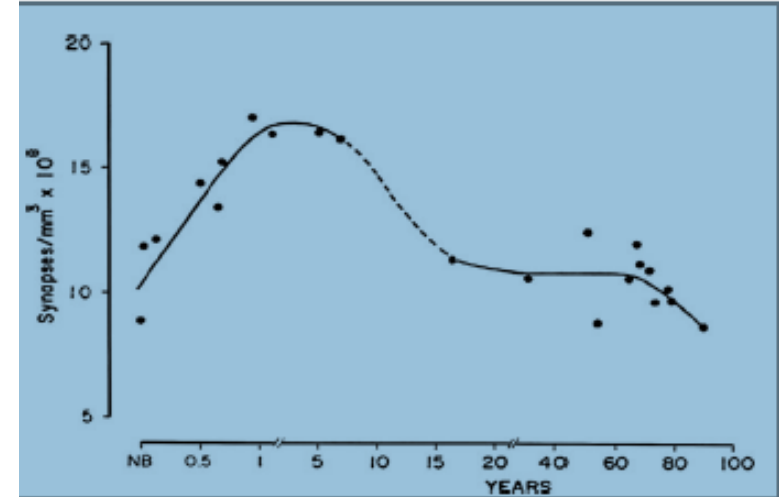
Why should we intervene early?

Leveraging Advances in Neuroscience

- Brain architecture begins to develop very early in life
- Higher-order cognitive processes are built from early skills in the first year (and before) and form the basis for later learning



Neuronal synaptogenesis and pruning by age

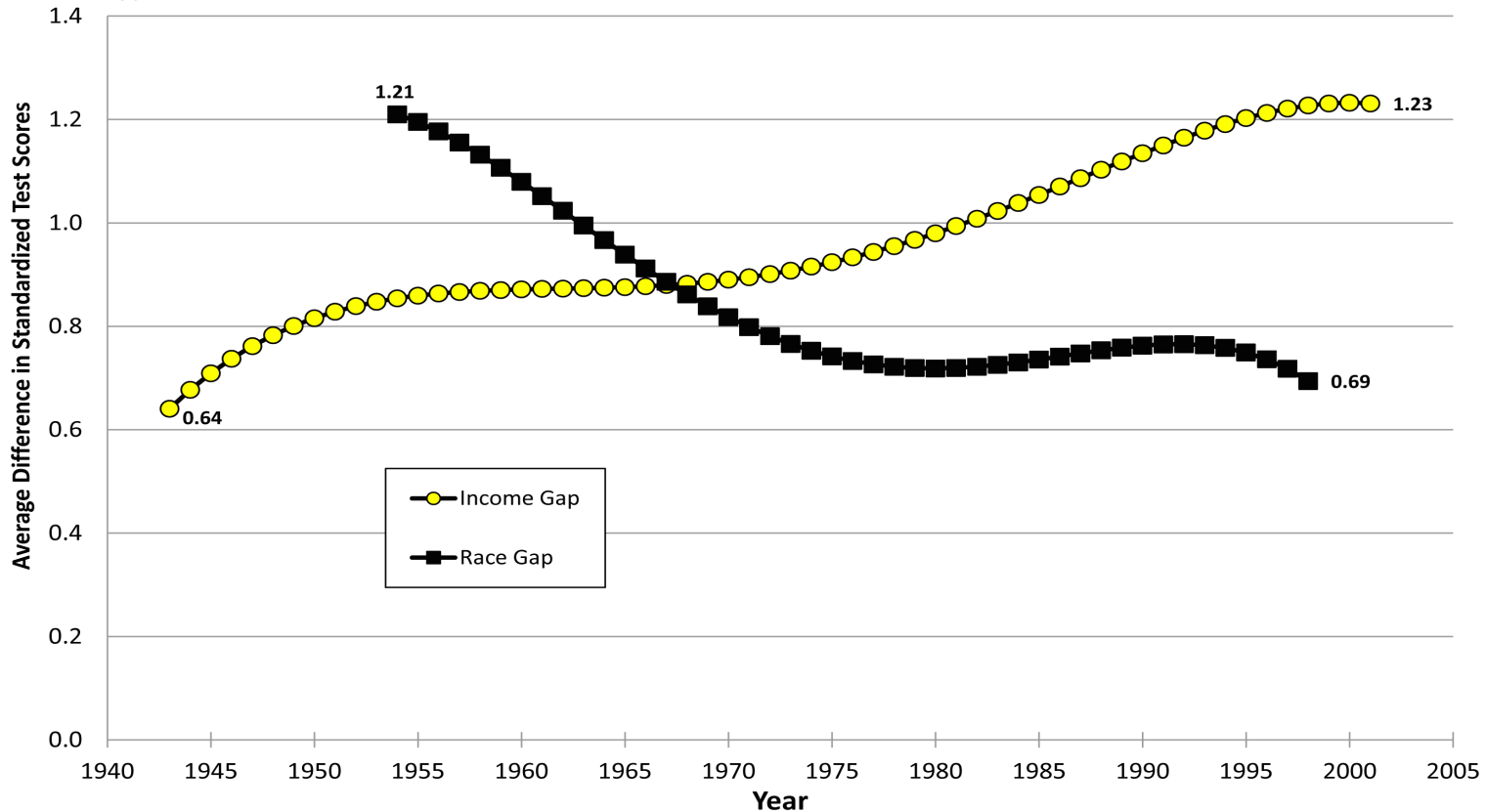


Source: Feinberg & Campbell (2010)

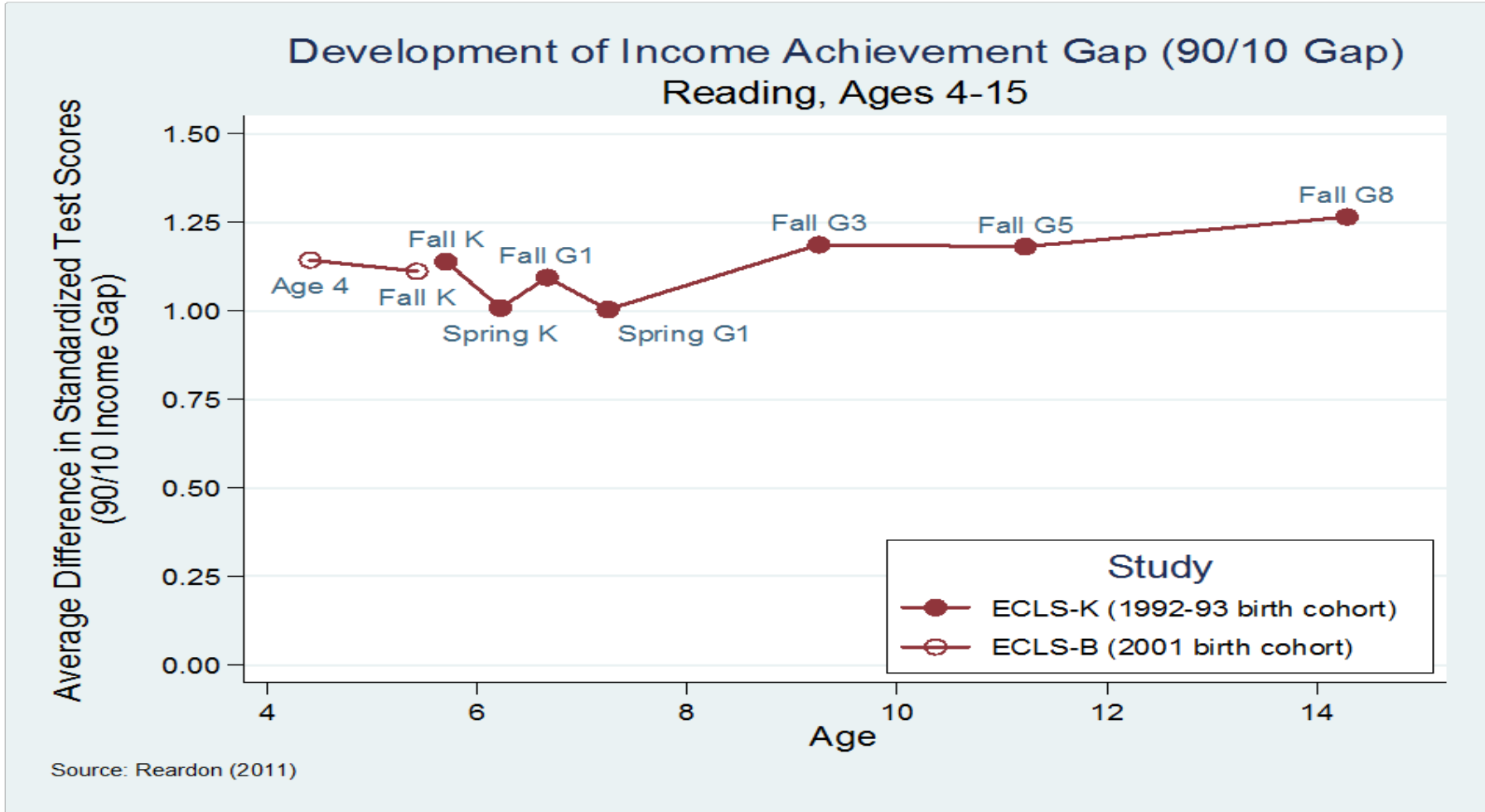
What are the challenges of being low-income? Income-Based Achievement Gap has Grown and Persists (despite declining race-based gap)

Estimated Gaps in Reading Achievement Between High-Low Income (90/10 Ratio) and Black-White Students, by Birth Year, 1940-Present.

[Scores are drawn from 23 Studies of children from ages 3 to 18 in grades pre-K to 12th; see Table 5.A1 of online appendix @



But, much of the income gap in achievement is already present at school-entry, so early investments matter

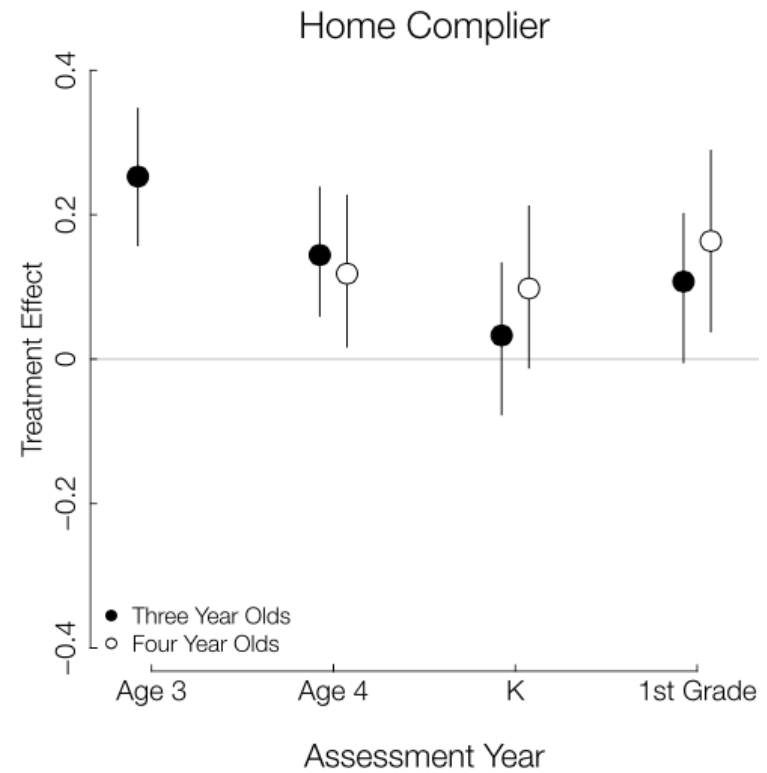
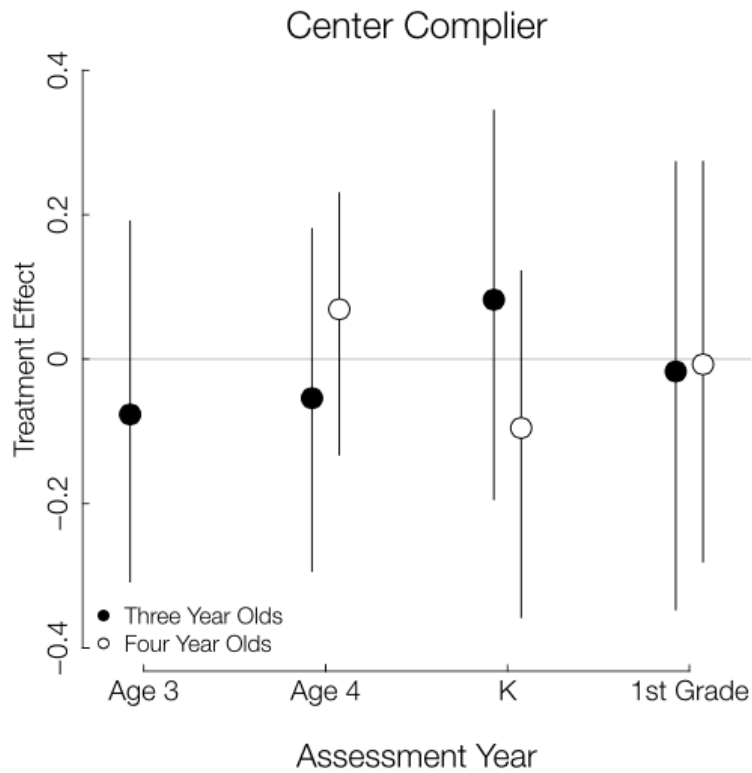


What evidence do we have that early childhood programming can address income-related gaps?

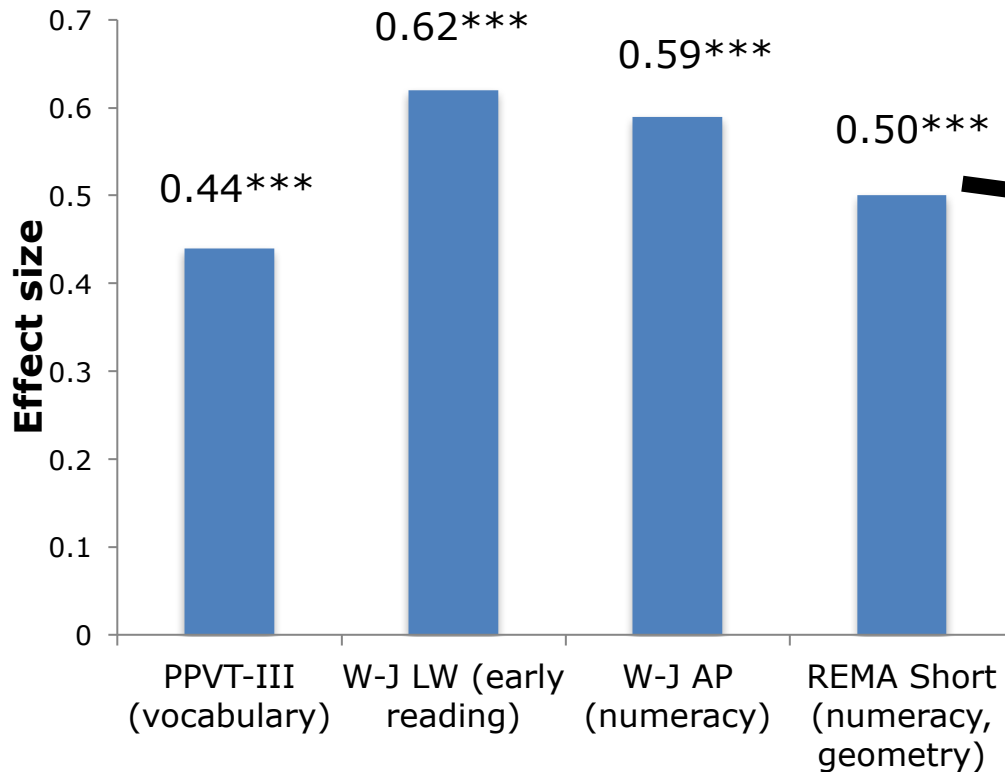
- **Preschool education has shown short and long-term gains** (Barnett; Bartik; Gormley; Heckman; Karoly)
 - **Older demonstration programs:**
 - Perry Preschool Chicago Parent-Child Centers (benefit-cost ratios of 7 to 1 or higher)
 - Abecedarian (longer 0-5 program): 2.5
 - **Benefits of Head Start** (esp for those children who otherwise would have been cared for at home and where counterfactual is weaker)
 - **More recent evidence from at-scale public preschool:**
 - Benefit-cost ratio of Tulsa prekindergarten program: between 3 and 5 to 1; including robust ratio for non-poor children
 - Also, positive findings from Boston (next slide)

Positive impacts of Head Start for “home compliers”

(Feller, Grindal, Miratrix, & Page, 2016)

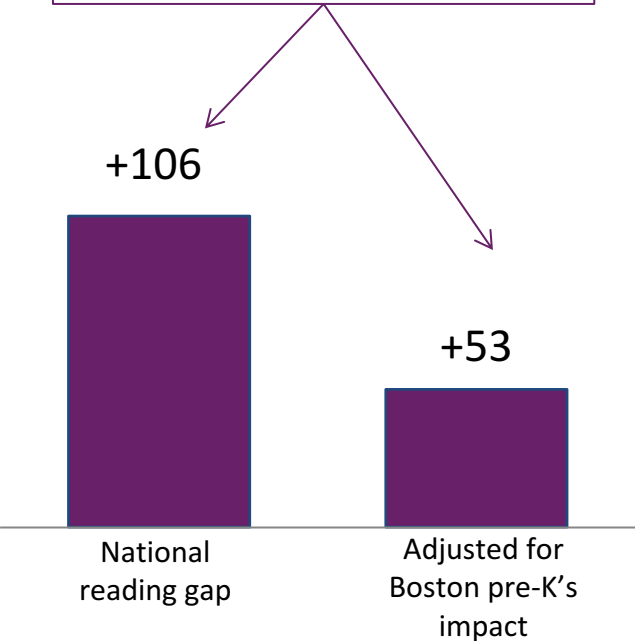


Positive impacts of Boston Pre-K on language and math (*as well as executive function*) (Weiland & Yoshikawa, 2013)



The implication is that Boston's pre-k cuts in half the reading gap

Gap in SAT-type units



Can we improve the quality of early education and make a difference for children?

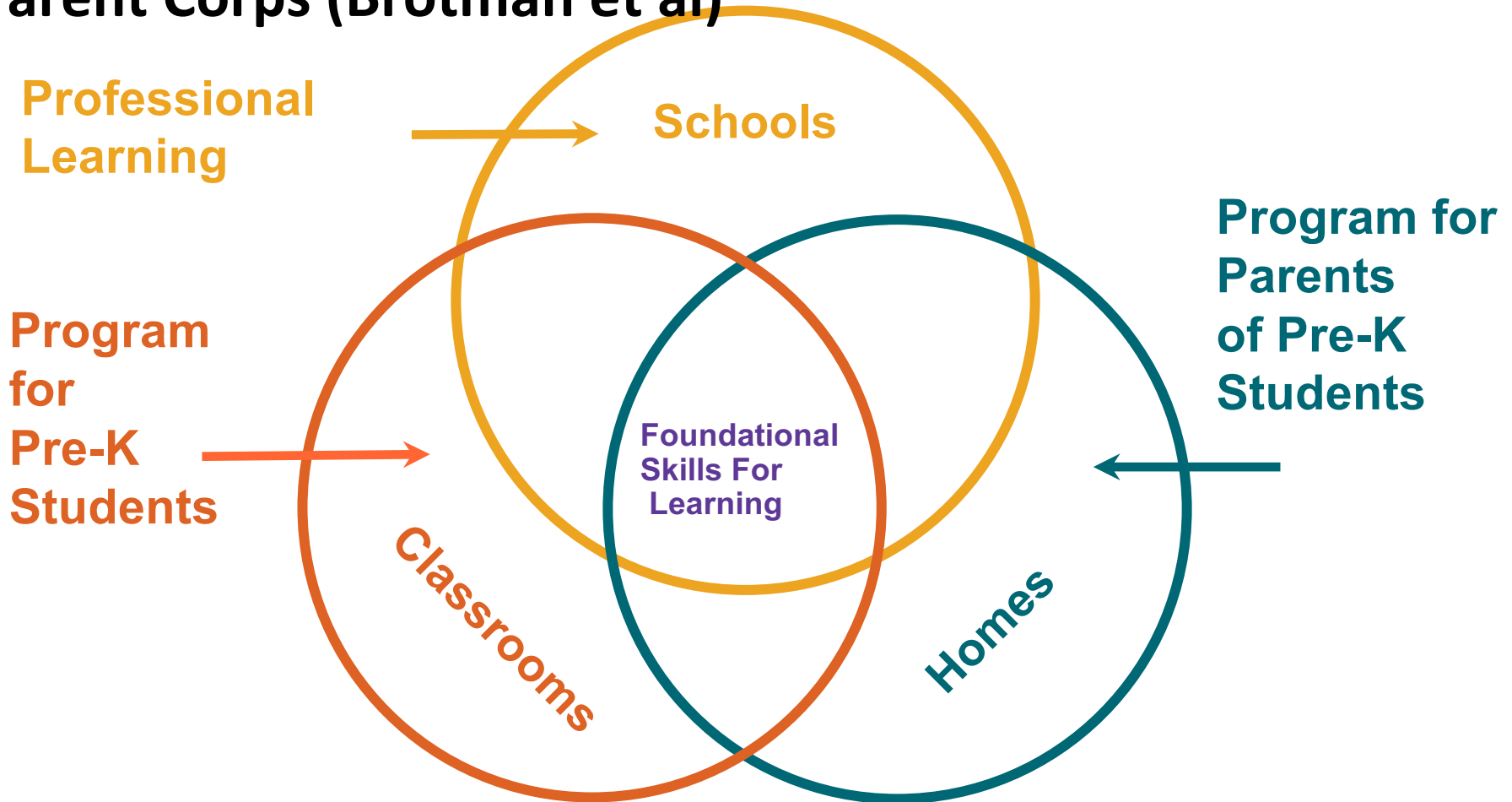
- **Rigorous studies show that preschool enhancements/curricula *can* produce changes in child outcomes**
 - Language/literacy (e.g., Dialogic Reading; OWL; Literacy Express)
 - Math (e.g., Building Blocks; Pre-K Mathematics)
 - Social-emotional/self regulation (e.g., ParentCorps; Chicago school readiness project; PATHS; Incredible Years)

- **Most promising recent evidence suggests high quality is a combination of:**
 - Developmentally focused instruction/curricula (focused on particular skills or combinations of skills – e.g., language/literacy, math, social-emotional skills)
 - Intensive on-site or video-based professional development (mentoring/coaching, often with frequency of $\geq 2X$ a month)
 - **PLUS, family engagement:** Early childhood education cannot be high quality (i.e., effectively support children’s early learning) without effectively engaging families.

ParentCorps (Brotman et al)

- Creates a family-centered intervention that would be broadly available, engaging and effective for low-income, culturally diverse families
- Universal enhancement to pre-k (maximize reach and acceptability)
- Embedded in schools and facilitated by school staff (sustainability)
- Timed with the transition to school (parents are open and motivated)
- Multiple components (home & classroom)
- Group-based (build social capital and create a parent “corps”)

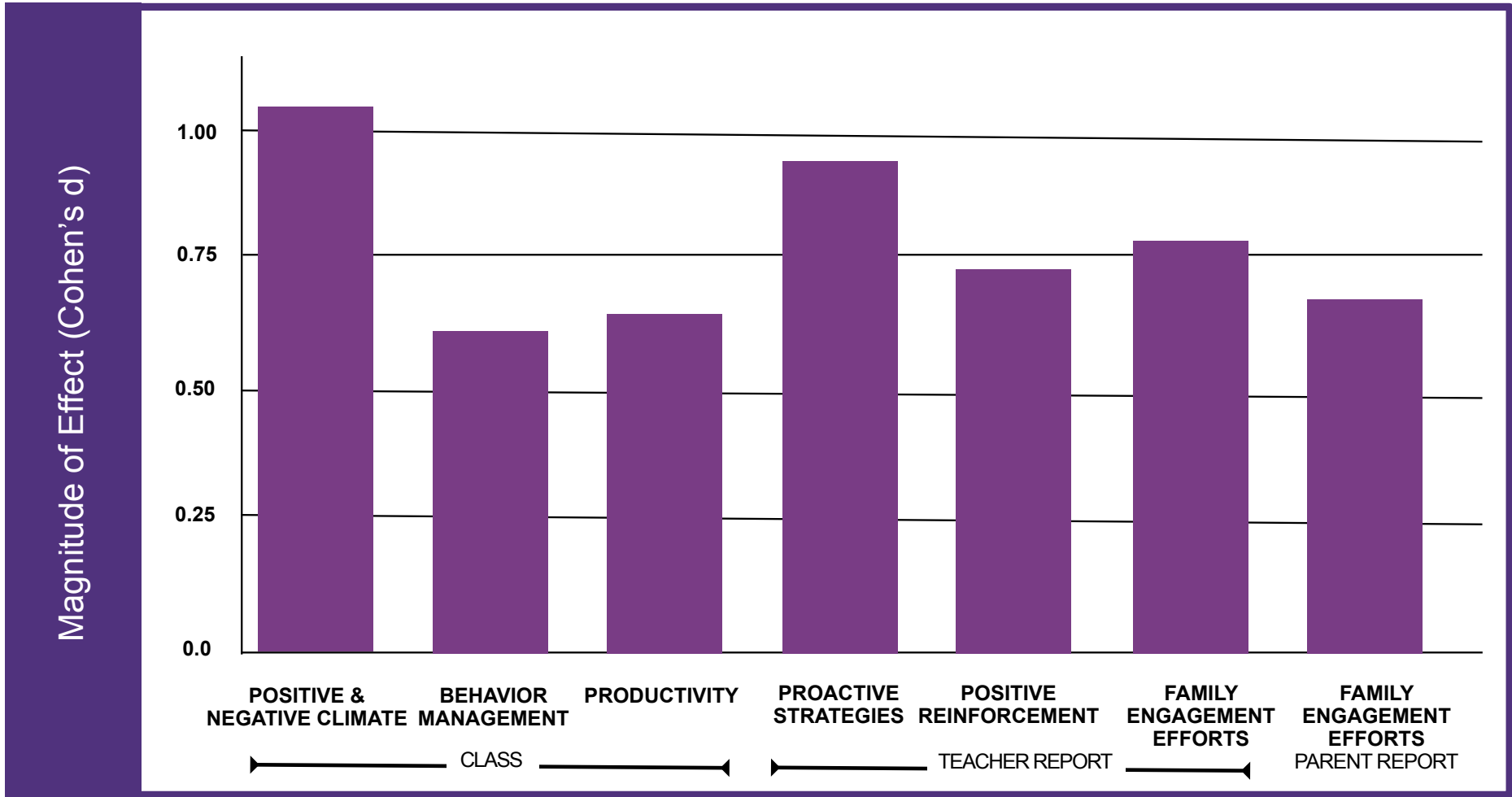
Parent Corps (Brotman et al)



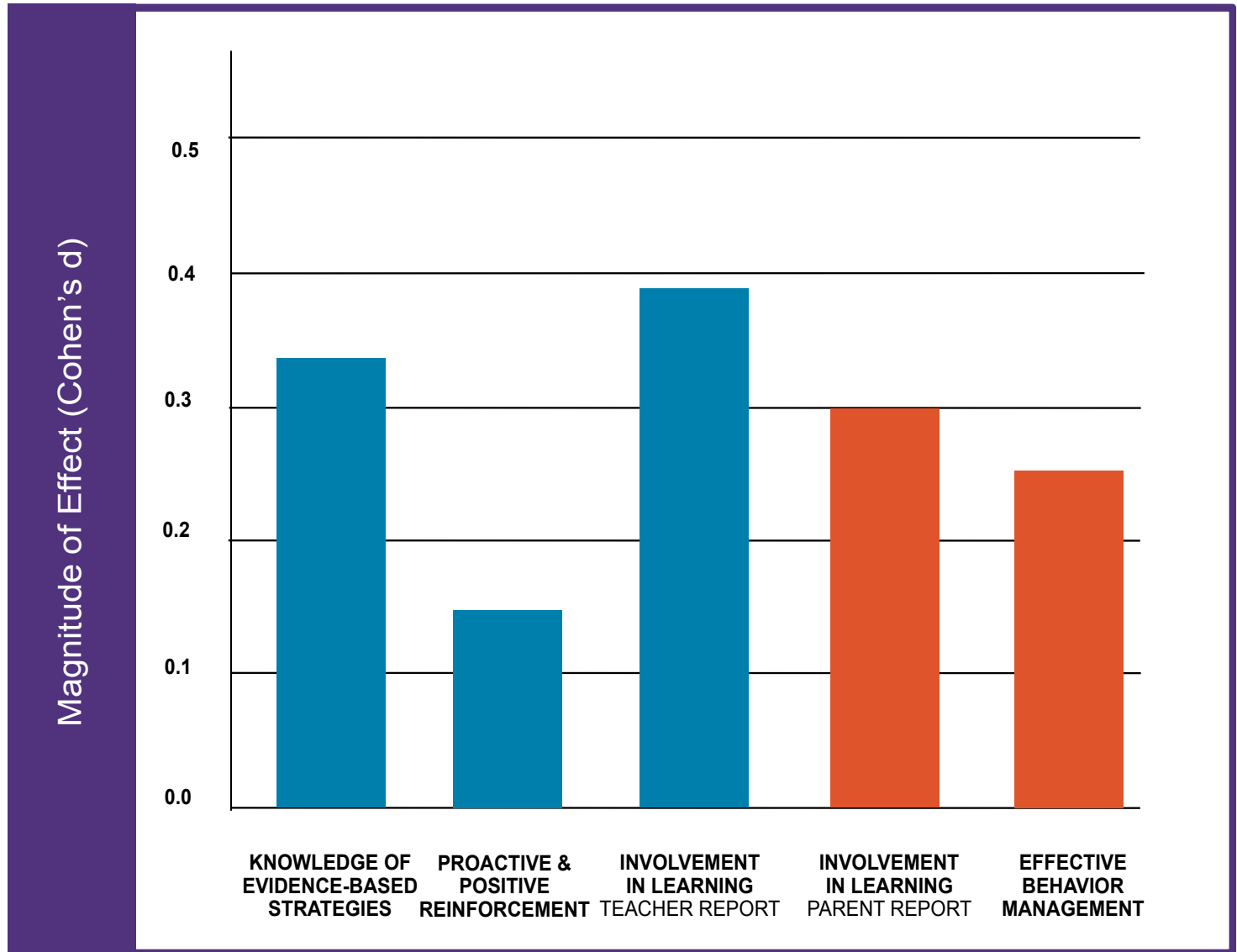
IES-funded trial and three follow-up studies (IES, NIMH: Brotman; 2005 – 2017)

- Brotman et al. (2013). *Pediatrics*.
- Dawson-McClure et al. (2014). *Prevention Science*.
- Brotman et al. (2016). *JAMA Pediatrics*.

ParentCorps Impact on the Classroom Environment and Family Engagement



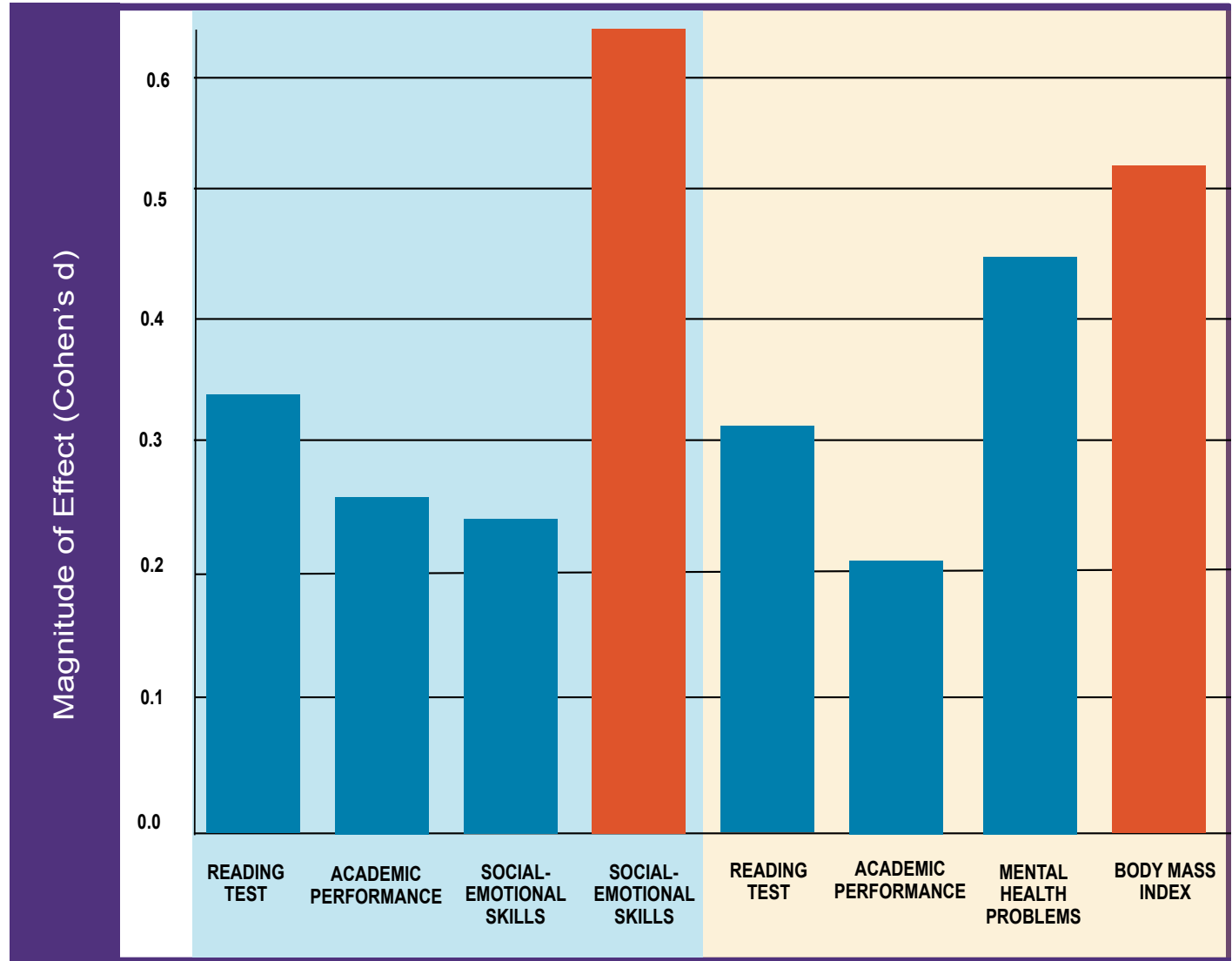
ParentCorps Impact on the Home Environment



 HIGH-RISK FAMILIES

Do not distribute

ParentCorps Impact on Foundational Skills in Pre-K and Kindergarten and Academic Achievement, Mental Health & Physical Health through 2nd Grade



PRE-K AND KINDERGARTEN
 2nd GRADE
 HIGH-RISK FAMILIES

Taking what we know from studies to the practice in New York City

- We have served as PIs/Co-Is on RCTs in Chicago, Newark, New York City, and nationally (CARES)
- So, we know that some programs “work” and preschool “matters”NOW WHAT?
 - While RCTs are an important foundation, they are rarely taken up as is...
- Timeliness and misalignment are major impediments to take up
 - At this rate, will not make major dent on reducing educational disparities in a timely way
- Shifting priorities to emphasize use of research design, data, and analysis to support partnership, decision-making as 1st priority, answering research questions as 2nd priority
 - “Rapid response” data collection, analysis and interpretation
 - Use of data and questions built *into* educational practice

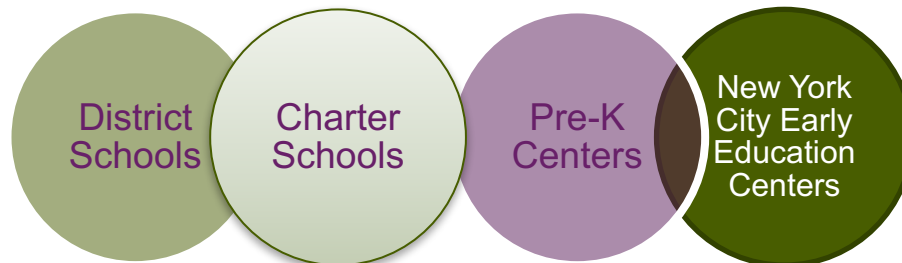
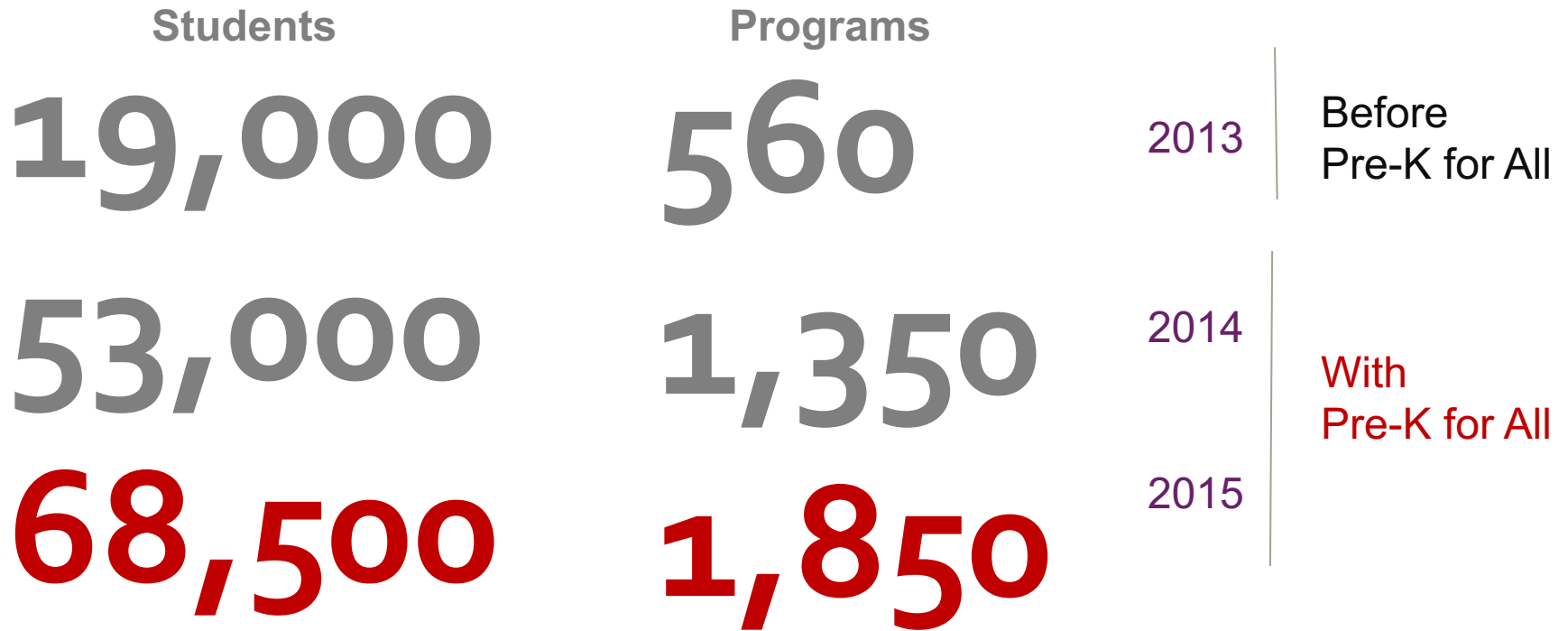
Launch of the Partnership (Spring 2014)

- City announced commitment to launching major expansion in Pre-K
- We met as consortium of IHDSC-linked faculty, discussed possibilities of collaborating and offering expert technical assistance to City in face of UPK rollout.
- Set up meeting with City (faculty as “reps” of the IHDSC-linked faculty consortium)
 - Emphasized the need for linking, building “*research architecture*” for UPK as way to capitalize on/identify successes and to mitigate risks during such rapid transition.
- City welcomed partnership, with ask that we raise resources to do so
 - Raised seed money from IES, Spencer, and NYU

In the meantime....

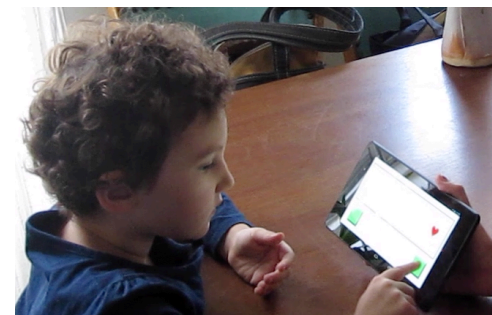
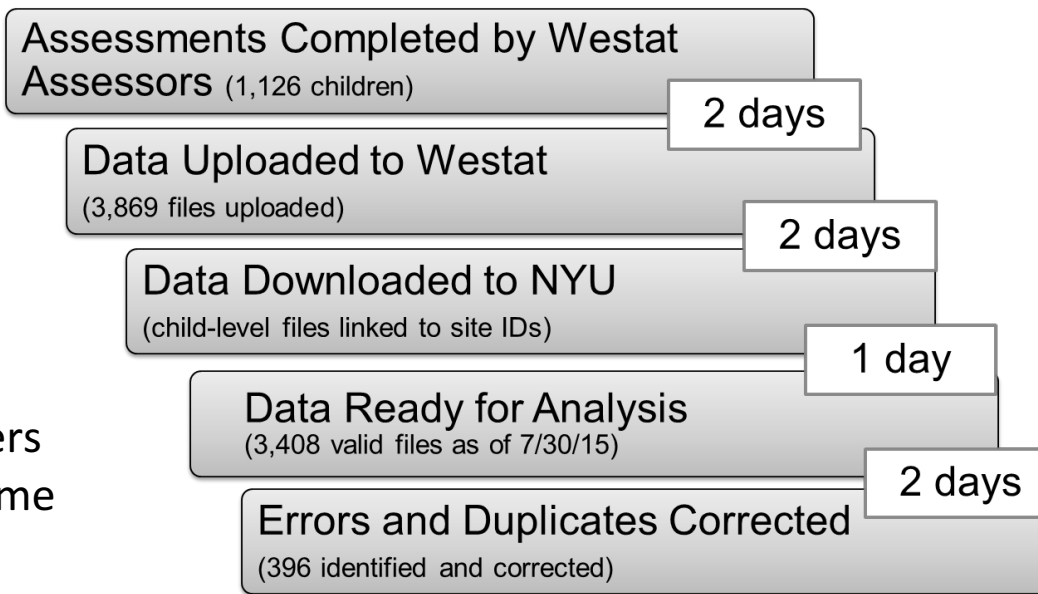
- City successfully identified and licensed new sites, expanded existing sites for UPK delivery
- Hired and trained teacher workforce through CUNY
- Enrolled approx 50K children into UPK for September start in 2014 (see next slide)
- Put out an RFP for \$2M evaluation
 - Westat was awarded the contract

Pre-K for All: Access to free, full-day, high-quality pre-K for every NYC four-year-old

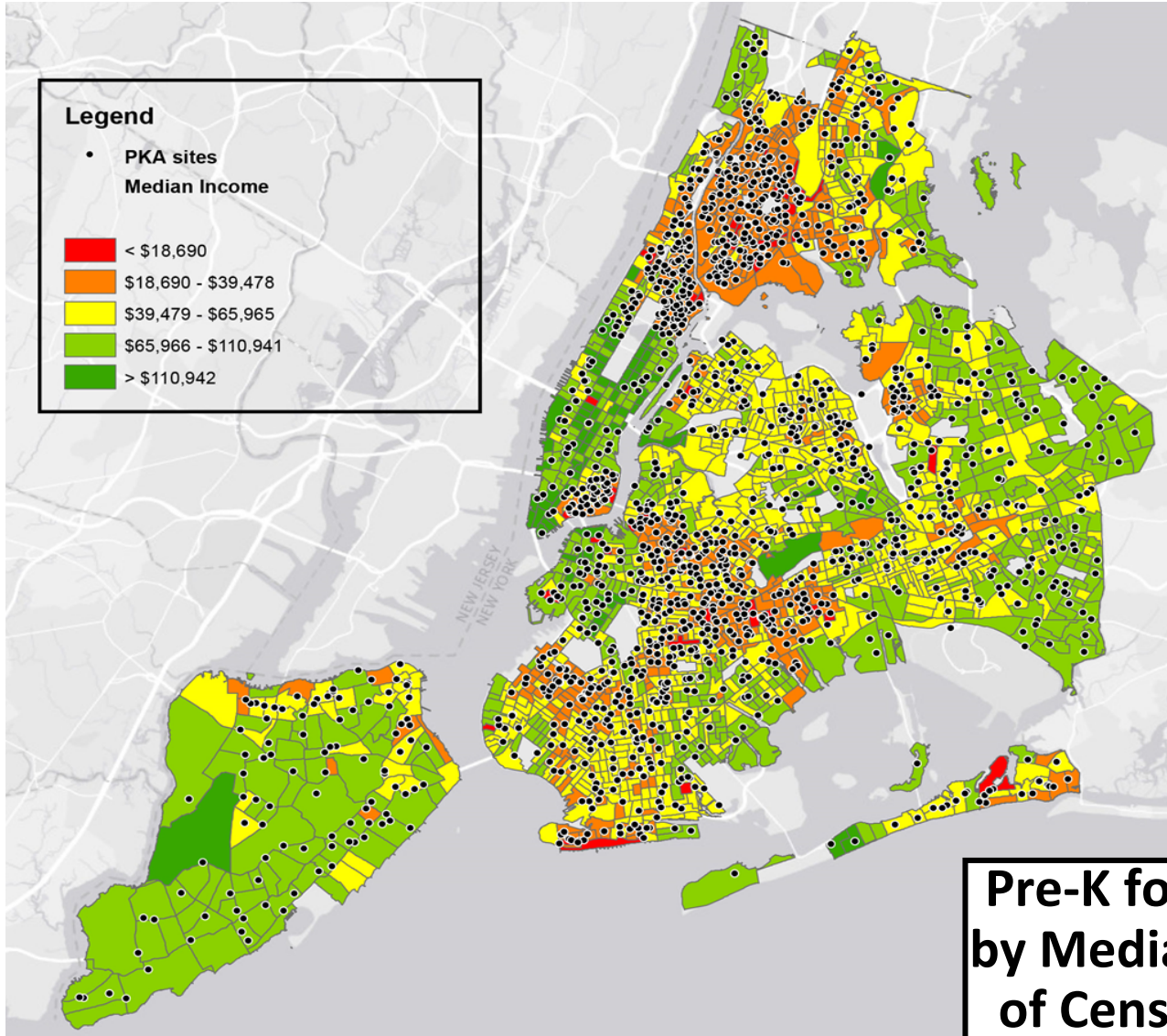


Phase 1: For evidence-based decision-making, Pre-K for All leaders needed easy-to-collect, quick-turnaround, reliable data

- Purchased tablets, loaded software from Jelena Obradovic
 - Adapted Obradovic’s Hearts & Flowers measure of Executive Function
 - Provides valid assessment but lowers error rate and assesses response time
 - Expedited data entry, data upload
- Android programmer hired to develop versions of:
 - Adapted Woodcock-Johnson subtests, including letter-word id, vocabulary, and applied problems.



Phase 1: Using Data Visualization to Support DOE's Efforts



**Pre-K for All Sites
by Median Income
of Census Tracts**

Phase 2 of the Partnership: Co-developing Research Plans to Study Differentiated Professional Learning

- City wants to understand how its system of professional learning supports program quality and helps sites meet their “Program Quality Standards”
- We are currently working with the city to:
 - Study these system
 - Develop new tools to measure impact
 - Embed opportunities for ongoing rigorous evaluation

Pre-K for All Differentiated Professional Learning

- All Pre-K for All Sites:
 - Are assigned to a “track” and participate in track-specific PL sessions
 - Receive on-site coaching by a DECE instructional coordinator or social worker, with type and dosage differentiated according to need
 - Receive ParentCorps evidence-based family engagement supports

Pre-K for All Tracks & Professional Learning System

Explore

- Teachers are trained to implement Building Blocks (evidence-based math program) + Interdisciplinary Units of Study
- Specialized BB coaches provide on-site coaching
- Sites receive materials to support implementation

Thrive

- Teachers and leaders learn evidence-based practices to foster family engagement and children's social, emotional, and regulation skills
- A subset of sites also receive coaching and tools to implement ParentCorps (evidence-based family program)

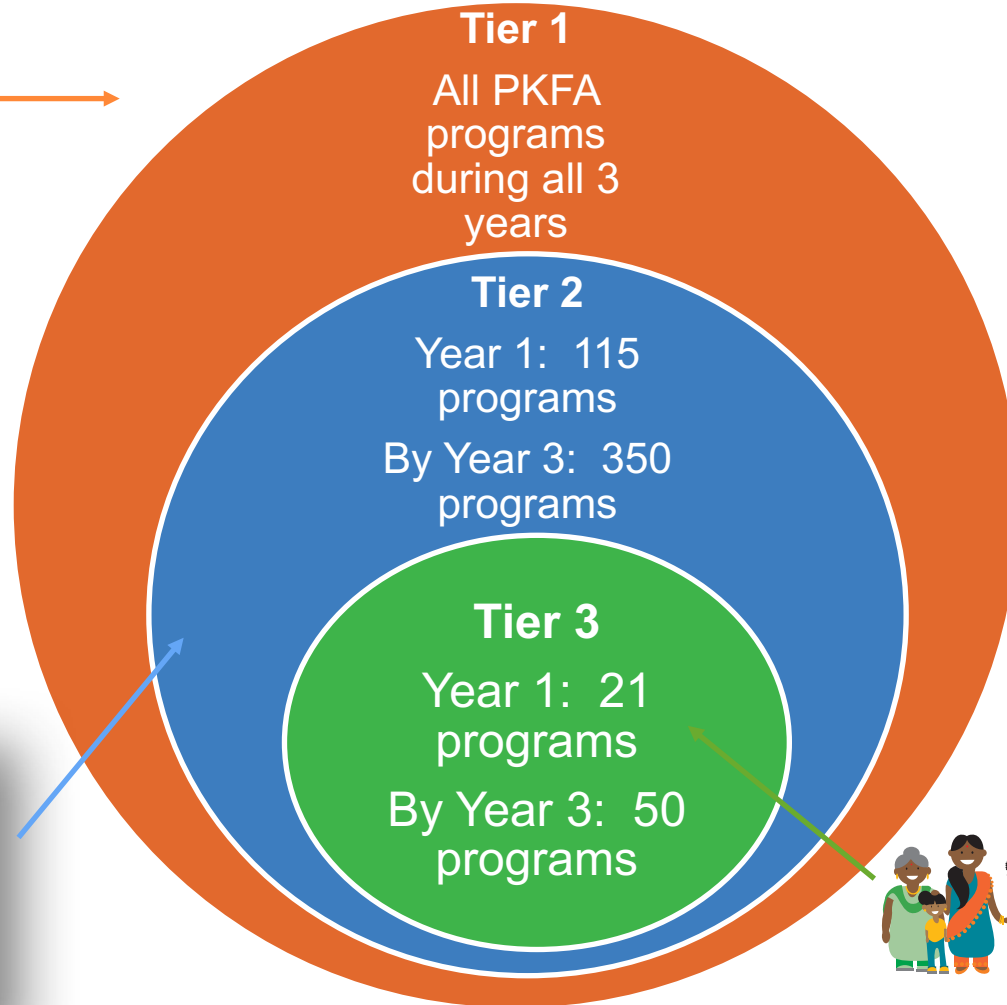
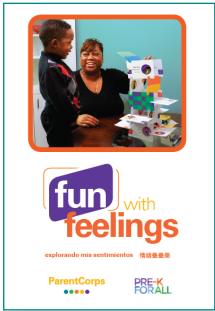
Create

- Teachers and leaders are trained to incorporate visual arts, music, dance, and theater into classroom activities and instruction
- Sites receive toolkits that include art supplies, books, and instruments

Inspire

- Sites select from a menu of topics aligned to Program Quality Standards (e.g., authentic assessment, creating a positive climate)
- Teachers attend trainings tailored to site need and interest

NYC Pre-K Thrive : Three “tiers” to support services within system constraints

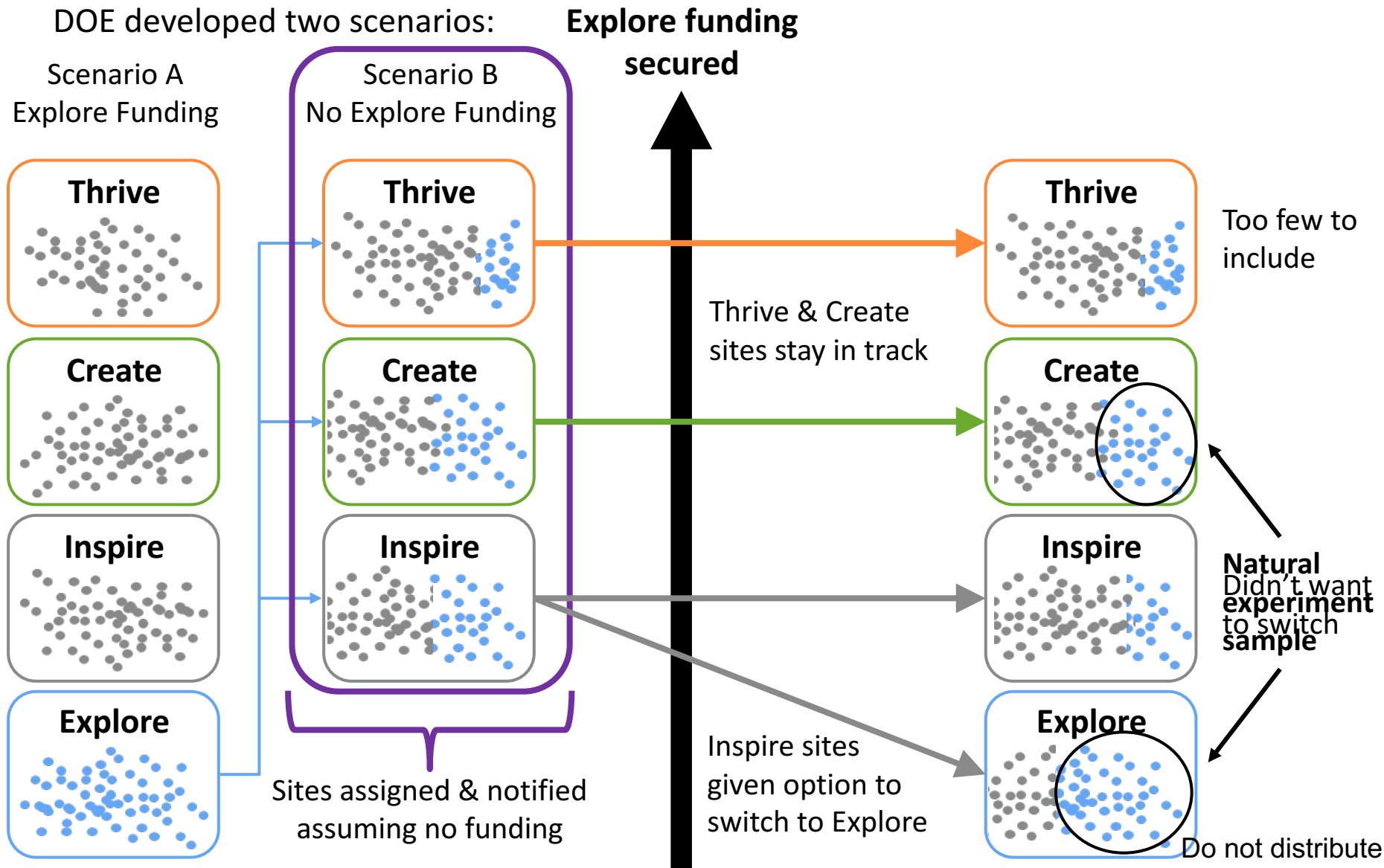


How can we now study Thrive, Explore, and the other models within the existing system: some examples

Continued descriptive work, but paired with :

- Finding “natural experiments” within assignments (to study Explore track)
- Using existing processes to create some experiments within the system
 - Two examples:
 - Randomization of programs
 - Randomization of children
- Goal: to provide city with information about the differing effects of distinct tracks for teachers, classrooms, and children

Uncovering a Natural Experiment



Randomizing of Programs to Tracks

Balancing opportunity for rigorous evaluation with site preference

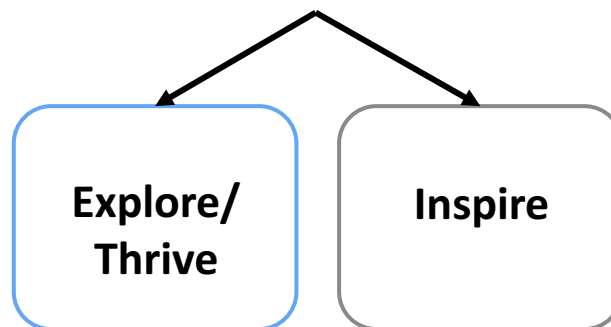
- Can't count on another natural experiment happening by chance
- We worked with the city to embed some randomization into the process of assigning sites to tracks to enable rigorous *future* research

Sites rank track preferences

Site	Inspire	Explore	Thrive	Create
Site A	1	2	3	4
Site B	2	1	3	4
Site C	2	1	4	3
Site D	1	2	4	3
Site E	3	2	1	4
Site F	1	4	3	2
Site G	3	4	1	2

DOE selects sites that ranked Thrive/Explore & Inspire #1 & #2 (in either order)

Randomly assign

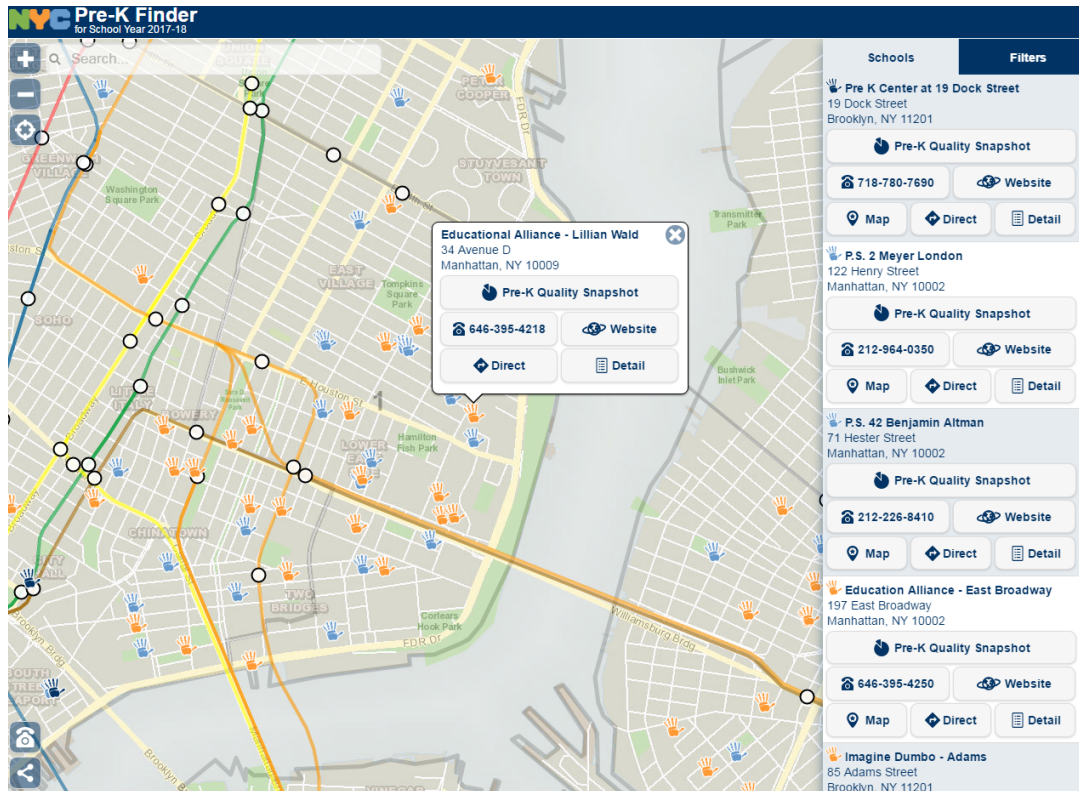


Do not distribute

Leveraging randomization of children to programs

Balancing opportunity for rigorous evaluation with student choice

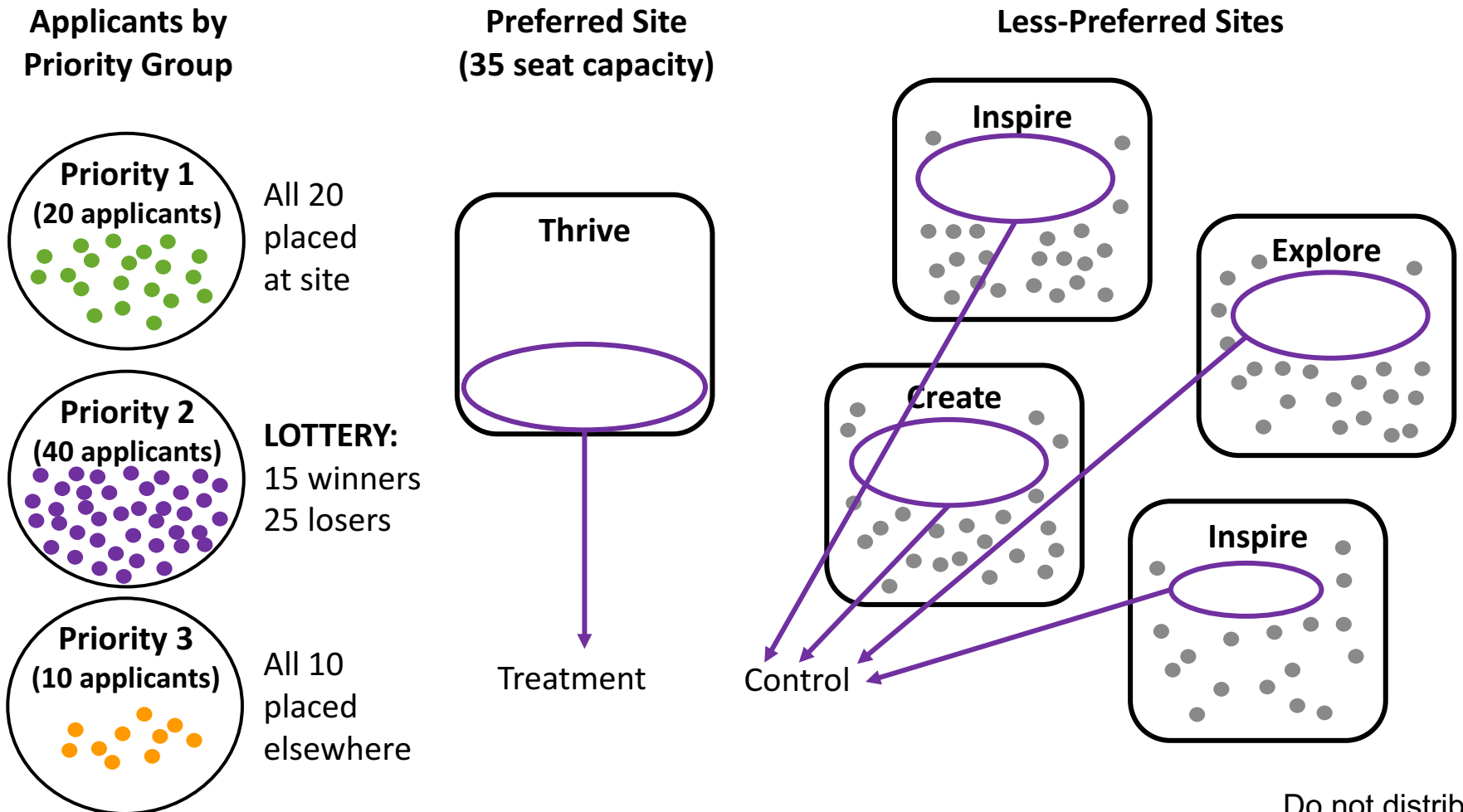
- Pre-K Application System
 - On pre-K application, families can list 12 pre-K sites in order of preference
 - Sites have “priorities” for each child



Leveraging Naturally-Occurring Student “Lotteries”

- At oversubscribed sites, children are assigned to site by lottery-like process
- Lotteries occur within groups with the same site preference and priority group
- Thus, “winners” and “losers” within a block (i.e., lottery) are equivalent in expectation and mean differences are valid estimates of the causal impact
- Similar methodology used to evaluate impacts of small high schools of choice (Bloom & Unterman, 2014)

How do the lotteries provide opportunities for studying the effects of PD tracks?



Summary

- Family engagement is an important component of early childhood quality programming and key to reduce achievement gap
- But, we need to eliminate barriers to widespread deployment of what works – bridge the gap from micro intervention to macro policy
 - RCTs *were* important to build the foundation of what works
 - BUT, there is a limit to how far such research can take us in informing *policy at scale*
- Research-practice partnerships provide an opportunity to “move the dial” on the achievement gap by building programs at scale that are sensitive to the constraints & opportunities of the system.
 - BUT they are not easy: require shift in style of work for both academics and agency leaders
- **NOW is the time:**
 - Federal and private funders are supporting these efforts
 - Academics are increasingly interested
 - Agency leads are open this kind of work
 - And, of course, the needs of low-income children are still very real

THANKS to....

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