Playful Learning, School Readiness, and Urban Children: Results from Two RCTs

Conference Brief

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ISSUE | Why Home Visitation Matters for Urban Children

Home visitation programs offer a unique way to provide services to low-income, urban communities, including immigrant and ethnically diverse families. The Parent–Child Home Program (PCHP) in particular is a nationally recognized home visitation program that improves school readiness skills among poor families (PCHP, 2014). However, there is limited “gold standard” evidence that shows home visitation programs work to improve school readiness for low-income ethnically and racially diverse urban children.

This conference brief will outline new evidence from two randomized control trials (RCTs) of PCHP as presented during the closing keynote address by Dr. Jennifer Astuto on May 6th, 2014 at the annual PCHP National Conference.

Findings from these studies highlight the first “gold standard” evaluations of the program in an urban setting and its impact on children’s school readiness skills after two years of receiving the program.

PLAY | A Four-Letter Word?

If you turn on the news, open your local paper, or check out the cover issue of a parent magazine there you will find a passionate discussion on the role of play in young children’s lives. While some understand the deep connection between early childhood playful experiences and critical developmental skills such as language and self-regulation—others see it as a distraction from learning specific academic skills, such as counting to 10 or reciting the ABCs. For low-income children, playful learning during early childhood is challenged as the ideal vehicle for learning necessary school readiness skills despite evidence suggesting the contrary (Hirsh-Pasek, Golinkoff, Berk, & Singer, 2008; Milteer et al., 2012).

If we care about preparing children for early learning, we need to take pause, look at the evidence and understand the contexts of children’s lives. Life-long learning begins when children are engaged in the process of discovery and exploration. Finding ways to exploit these opportunities is a worthy goal for the field of early childhood.

SCHOOL READINESS

Across the U.S., a persistent and widening gap in academic achievement exists between low-income Black and Latino children and their White counterparts. A 2012 report from the Center on Children and Families at Brookings, highlighted that only 48% of poor children compared to 75% of children from moderate or high-income homes are school-ready at age five. This results in a 27% point school readiness gap upon school entry.
This disadvantage has raised questions for educators, interventionists, researchers, and policymakers alike to find ways to reduce the achievement gap for those most in need.

**PARENT CHILD HOME PROGRAM | A Playful Intervention at Work**

PCHP is an intervention that utilizes playful learning as the vehicle to school readiness skills for young children. The model focuses on the most basic parent-child interactions—utilizing a non-didactic approach—which allows both parent and child to learn how to sync with one another while “playing” with books and toys. The unique feature of PCHP is that the intervention approach is rooted in high quality play and literacy activities introducing the family to the benefits of open-ended playful learning for 2-4 year old children.

“Playful learning” is a phrase used to describe an approach to fostering young children’s development. Research cites many benefits of children’s play in the early years (Singer, Golinkoff, Hirsh-Pasek, 2006). When a child feels safe, secure, excited, s/he is able to try new things which help her
develop important critical thinking, as well as self-regulatory skills. These skills are needed in the classroom for socializing, problem solving, and engagement in benchmark assessments. When children learn in this organic way, they experience less stress, feel motivated, engage in creative thought—all leading to the development of a healthy and happy young citizen.

What began as a mother-child intervention by Dr. Phyllis Levenstein in the 1960’s, has for the first time been rigorously tested in two urban low-income communities in NYC (Levenstein, 1988). The time is ripe to share what we have learned through these two studies, and how a playful learning intervention can make a difference in the lives of Black and Latino low-income urban children and families.

**RESEARCH | Study Motivation**

In 2010, President Obama signed into law healthcare reform legislation that included $1.5 billion in funding to states over five years for selecting evidence-based home visitation models. In 2014 this bill was extended for an additional 6 months past its initial funding timeline (Pew Charitable Trusts, 2014; USDHHS, 2013). When the study began, home-based intervention models fell into one of three categories: Proven Programs, Promising Programs and Proven/Promising Programs.

Although PCHP was identified as having promising evidence of its success with low-income families, generating “gold standard” evidence is key for the program and the communities it serves.

In collaboration with the community-based organization that implements PCHP, we designed and conducted two RCTS in low-income, ethnically, racially, and linguistically diverse communities in New York City.

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**Home Visiting Evidence of Effectiveness**

http://homvee.acf.hhs.gov/
“Does participation in PCHP increase Black and Latino children’s school readiness, and related parent behaviors?”

**RESEARCH DESIGN**

**Studies One and Two**

Both studies began in the fall of 2010. Each parent-child dyad participated in three waves of data collection interviews that took place in their homes; the studies ended in the fall of 2012. Both studies addressed the question, “Does participation in PCHP increase Black and Latino children’s school readiness, and related parent behaviors?”

The studies adhere to a longitudinal, randomized intervention and control group design. Assessments of children and parents occurred at the outset of the program (Baseline), after one academic year in the program (Time One), and after two years in the program (Time Two).

We compared families who were randomly assigned to a control group (no treatment) with families who were assigned to receive PCHP (treatment), the home-visitation intervention program. This allowed us to assess the impact of the intervention on measures of school readiness for children and on measures of support for children’s learning by their parents.

**MEASURES**

**Parent Questionnaires**

**Parenting Practices**
1. Parent as a Teacher (PAAT)

**Demographics**
2. “Questions About You”

**Parent Report of Child**
3. Ages & Stages Questionnaire- Social Emotional (ASQ:SE)

**Child Direct Assessments**

**Language**

**Self-Regulation Tasks**
2. Tower Task
3. Tower Clean-Up Task
4. Day Night Task

Three waves of data were collected between 2010 and 2012 in both studies.

- All data collection visits took place in families’ homes and were conducted by trained NYU field researchers.
STUDY ONE | A Community Snapshot

Study One families resided in eight zip codes of one NYC borough. Over 600 families were recruited to get the initial sample of 236 parent-child dyads; the majority of families were approached via street recruitment (i.e. recruited in public places like parks or WIC centers).

Half of the families were randomized into PCHP (experimental); the other half into the control group. By the final wave of data collection, we lost families due to factors such as dead phone numbers, loss of interest, or family mobility. The data presented here reports on the final 150 parent-child dyads.

DEMOGRAPHICS

Parents in Study One were from diverse backgrounds, of which 52% reported being born outside of the U.S. The majority of the parents reported their ethnicity as Black (64%), followed by Latino (34%), and Asian (1%). Most of the families spoke English (82%) as the primary language in the household; however 18% reported Spanish as the primary household language.

NYC Poverty Threshold for a Family of Four in NYC in 2012 was $31,039

NYC Center for Economic Opportunity

Study One: Parent Education

Study One: Annual Family Income
STUDY TWO 
A Community Snapshot

Study Two families resided in one central neighborhood in a NYC borough. Most families who participated in the study were recruited via the program services waitlist kept by the CBO with whom we collaborated to complete the studies. In contrast to Study One, little street recruitment was needed to reach our initial goal of 166 parent-child dyads. Like the previous study, half of the families were randomized into the PCHP (experimental); the other half into the control group. The data presented here reports on the final 150 parent-child dyads.

DEMOGRAPHICS

All parents reported that they were born outside of the U.S. and that Spanish was the primary language spoken in the home. The majority of parents were born in Mexico; the second largest group in Ecuador, and the remaining from the following countries: El Salvador, Puerto Rico, Dominican Republic, Colombia, and Peru. Note that for Study Two parents, education typically was completed in the parent’s home country.

Study Two: Parent Education

Study Two: Annual Family Income

“While median incomes for all households began to stabilize in 2012, median incomes for families with children continued to decline.

In 2012, the average New York City family with children made $6,203 less than the average family in 2008.”

-Citizen’s Committee for Children of New York

Federal Poverty Threshold for a Family of Four in 2012 was $23,550

Department of Health & Human Services
In Study One children who participated in PCHP were 2.57 times more likely to successfully demonstrate self-regulation through turn-taking, when compared to children in the control group who did not receive PCHP.

(See Table 1)

English-speaking children in this study who received PCHP had higher average listening skills scores when compared to English-speaking children in the control group who did not receive PCHP.

(See Table 2)

In Study Two children who participated in PCHP had higher average language scores when compared to children in the control group who did not receive PCHP.

(See Table 3)

Parents of girls who received PCHP were more likely to report fewer problem behaviors when compared to boys in the control group who did not receive PCHP.

(See Table 4)

What’s next?...
Currently we are following these children and their parents as they enter their first years of school to see how much and for how long PCHP will continue to impact key school readiness and learning outcomes.
DOES PCHP WORK? | Study One Findings

- Children in PCHP showed better turn-taking skills than children who did not participate in the program
- Turn taking was measured by the Tower Task, p < .05*
- English-speaking children who received PCHP demonstrated stronger listening skills
- Measured by the PLS (Auditory), p < .05*

*P-value at the 0.05 level means we are 95% confident that the change in children’s turn-taking skills & English-speaking children’s listening skills is a result of participation in PCHP.

Table 1:
Impact on Tower Task Turn-taking is a significant finding for Study One.

<table>
<thead>
<tr>
<th>Measure</th>
<th>B</th>
<th>OR</th>
<th>p</th>
<th>Negelkerke $R^2$</th>
<th>LOR$_{cox}$</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASQ: Social-Emotional (SE) Problem Range</td>
<td>.626</td>
<td>1.870</td>
<td>.139</td>
<td>.098</td>
<td>.379</td>
<td>120</td>
</tr>
<tr>
<td>Complete Tower Clean Up</td>
<td>-.571</td>
<td>0.565</td>
<td>.211</td>
<td>.046</td>
<td>-.346</td>
<td>137</td>
</tr>
<tr>
<td>Begin Tower Clean Up</td>
<td>-.626</td>
<td>0.535</td>
<td>.260</td>
<td>.033</td>
<td>-.379</td>
<td>137</td>
</tr>
<tr>
<td>Tower Task Turn-taking</td>
<td>.945</td>
<td>2.573</td>
<td>.036*</td>
<td>.064</td>
<td>.573</td>
<td>140</td>
</tr>
</tbody>
</table>

Note. All logistic regression analyses are presented in terms of control group’s likelihood (e.g. control group’s likelihood of being in ASQ:SE problem range) except for Tower Task. Covariates were: language spoken in the home, parent education, income, and child participation in center-based care. Baseline controls for the above outcomes were not included, as baseline data were not collected for these measures. Baseline equivalence was established across all outcomes measured at baseline.

*p < .05

Table 2:
Impact on PLS language scores is a significant finding for English-speaking children in Study One.

<table>
<thead>
<tr>
<th>Measure</th>
<th>$B$</th>
<th>$\beta$</th>
<th>p</th>
<th>$R^2_{adj}$</th>
<th>Cohens' $d$</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLS Auditory</td>
<td>5.138</td>
<td>.182</td>
<td>.026*</td>
<td>.320</td>
<td>.424</td>
<td>115</td>
</tr>
<tr>
<td>PLS Expressive</td>
<td>0.345</td>
<td>.133</td>
<td>.880</td>
<td>.294</td>
<td>.028</td>
<td>114</td>
</tr>
<tr>
<td>PLS Total</td>
<td>2.832</td>
<td>.099</td>
<td>.020</td>
<td>.386</td>
<td>.241</td>
<td>114</td>
</tr>
<tr>
<td>ASQ: Social-Emotional</td>
<td>-0.257</td>
<td>-1.118</td>
<td>.233</td>
<td>.053</td>
<td>-.224</td>
<td>116</td>
</tr>
<tr>
<td>Day Night</td>
<td>1.442</td>
<td>.077</td>
<td>.393</td>
<td>.002</td>
<td>.145</td>
<td>141</td>
</tr>
<tr>
<td>Tower Clean Up Duration</td>
<td>1.508</td>
<td>.032</td>
<td>.751</td>
<td>.087</td>
<td>.062</td>
<td>107</td>
</tr>
<tr>
<td>Tower Clean Up Time to Start</td>
<td>-2.193</td>
<td>-.078</td>
<td>.437</td>
<td>-.010</td>
<td>-.143</td>
<td>119</td>
</tr>
<tr>
<td>PAAT Total</td>
<td>-1.404</td>
<td>-.063</td>
<td>.337</td>
<td>.542</td>
<td>-.170</td>
<td>130</td>
</tr>
</tbody>
</table>

Note. Covariates were: baseline measures of outcomes, language spoken in the home, parent education, income, and child participation in center-based care. a PLS analyses reported for Study 1 pertain to the English-speaking subgroup only, as scores from this measure cannot be compared across languages. Covariates for these models were baseline measures of outcomes, race, parent education, income, and child participation in center-based care. The results of the Spanish-speaking sample are excluded due to small sample size. b ASQ scores for the 36- and 48-month measures were standardized.

*p < .05
DOES PCHP WORK? | Study Two Findings

- Children who participated in PCHP were better able to listen and use their words.
- Language ability was measured by the PLS-4 Spanish (Total), p < .05*
- Boys who participated in PCHP demonstrated greater social emotional (SE) gains.
- SE skills were measured by the ASQ:SE, p < .10**
- Parents reported fewer problem behaviors, e.g. hitting or not getting along with others.

Table 3:
Impact on PLS language scores is a significant finding for Study Two.

<table>
<thead>
<tr>
<th>Measure</th>
<th>B</th>
<th>β</th>
<th>p</th>
<th>R^2 adj</th>
<th>Cohen’s d</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLS Auditory</td>
<td>4.518</td>
<td>.186</td>
<td>.030*</td>
<td>.114</td>
<td>.382</td>
<td>133</td>
</tr>
<tr>
<td>PLS Expressive</td>
<td>2.867</td>
<td>.092</td>
<td>.253</td>
<td>.204</td>
<td>.198</td>
<td>136</td>
</tr>
<tr>
<td>PLS Total</td>
<td>4.611</td>
<td>.176</td>
<td>.038*</td>
<td>.175</td>
<td>.374</td>
<td>127</td>
</tr>
<tr>
<td>ASQ: SE*</td>
<td>-0.229</td>
<td>-0.116</td>
<td>.226</td>
<td>.061</td>
<td>-.233</td>
<td>110</td>
</tr>
<tr>
<td>Day Night Task</td>
<td>2.172</td>
<td>.121</td>
<td>.159</td>
<td>.003</td>
<td>.234</td>
<td>147</td>
</tr>
<tr>
<td>Tower Clean Up Duration</td>
<td>2.312</td>
<td>.039</td>
<td>.668</td>
<td>.030</td>
<td>.077</td>
<td>126</td>
</tr>
<tr>
<td>Tower Clean Up Time to Start</td>
<td>-2.725</td>
<td>-0.053</td>
<td>.544</td>
<td>.010</td>
<td>-.103</td>
<td>140</td>
</tr>
<tr>
<td>PAAT Total</td>
<td>0.753</td>
<td>.046</td>
<td>.542</td>
<td>.271</td>
<td>.103</td>
<td>142</td>
</tr>
</tbody>
</table>

Note. Covariates were: baseline measures of outcomes and child participation in center-based care. * ASQ scores for the 36- and 48-month measures were standardized. **p < .05

Table 4:
Impact on social-emotional problem behaviors is a Study Two finding that is significant at the p < .10 level.

<table>
<thead>
<tr>
<th>Measure</th>
<th>B</th>
<th>OR</th>
<th>p</th>
<th>Nagelker ke R^2</th>
<th>LOR_Cox</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASQ: Social-Emotional Problem Range</td>
<td>.675</td>
<td>1.96</td>
<td>.079†</td>
<td>.045</td>
<td>.409</td>
<td>119</td>
</tr>
<tr>
<td>Complete Tower Clean Up</td>
<td>-.462</td>
<td>0.630</td>
<td>.330</td>
<td>.050</td>
<td>-.280</td>
<td>148</td>
</tr>
<tr>
<td>Begin Tower Clean Up</td>
<td>-.824</td>
<td>0.439</td>
<td>.275</td>
<td>.081</td>
<td>-.499</td>
<td>148</td>
</tr>
<tr>
<td>Tower Task Turn-taking</td>
<td>-.151</td>
<td>0.860</td>
<td>.737</td>
<td>.003</td>
<td>-.092</td>
<td>146</td>
</tr>
</tbody>
</table>

Note. All logistic regression analyses are presented in terms of control group’s likelihood (e.g. control group’s likelihood of being in ASQ: Social-Emotional problem range) except for Tower Task. Covariate was child participation in center-based care. Baseline controls for the above outcomes were not included, as baseline data were not collected for these measures. **p < .10

*P-value at the 0.05 level means we are 95% confident that the change in children’s listening & expressive skills is a result of participation in PCHP.

**P-value at the 0.10 level means we are 90% confident that the change in boy’s social emotional skills is a result of participation in PCHP.
FINDINGS OVERVIEW | Study One & Study Two

The findings from these two RCT studies are promising for increasing low-income Black and Latino young children’s school readiness skills in language, self-regulation, and the reduction of problem behaviors. Gains like these equip young children with skills that are crucial and needed for their entrance into kindergarten.

Studies One and Two both found significant impacts for child-level outcomes after completion of the two-year program in the “child development and school readiness” DHHS domain (USDHHS, 2014). This may lead to an increase in implementation of a play-based intervention in communities where children are most in need of such experiences.

CONCLUSION

The findings from these two studies are meaningful. We have established evidence in two distinct contexts that PCHP works to improve young children’s school readiness skills. Through playful learning experiences with mom and home visitor, children who received PCHP were more likely to be prepared for kindergarten experiences than children who did not.

These results point to the importance of young children’s opportunity to play, explore, and have fun in their environment.

In the context of increased “academicizing” of young children’s experience in prekindergarten and kindergarten, (Milteer & Ginsburg, 2012) results such as these provide evidence that children can learn the necessary skills needed to succeed in school through playful learning. Moving toward interventions and programming which supports these types of experiences may not only equip young children with the experiences and knowledge needed to be life-long learners, but also impact their role in society later in life (Astuoto & Ruck, 2010).

PCHP is a program that works for ethnically diverse and poor families. Finding ways to explore the efficacy of this intervention in different contexts (e.g., rural settings) is imperative. Equally important is to find ways to integrate this model into a system of care (Astuoto & Allen, 2009) approach within early learning experiences of young children, which is a priority for anyone committed to addressing the consequences of growing up poor in America.

REFERENCES


ACKNOWLEDGEMENTS

The following foundations graciously funded the studies reported here: PEW Charitable Funds, Heising-Simons, Edith Glick Shoolman Children’s and Edward & Ellen Roche Relief Foundations (Principal Investigators, Drs. LaRue Allen and Jennifer Astuto).

We are very grateful for the commitment, energy and diligence of the studies’ project coordinators (in alphabetical order), Maria-Paula García, Juliana Karras-Jean Gilles, Cristina Medellín-Paz, Kari Morales, Gerard O’Shea, and Ashlee Yates, as well as the entire tireless NYU data collection team.

We would also like to thank the parents and children who were part of this project; without their participation we would know very little about the field of intervention science.

Special thanks to our community collaborators SCO Family of Services and its home visitors and supervisors.

This document was prepared with the support of the Heising-Simons Foundation. The opinions expressed in this brief are those of the authors and do not necessarily reflect the views of the Heising-Simons Foundation.

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