

PLAY LAB RESEARCH BRIEF

AUGUST 2021

A two-year study of BRAC's Play Lab model in Bangladesh has revealed that the intervention achieved a primary but elusive aim of early childhood education: to ensure that, when starting formal schooling, all children are equally developmentally equipped to benefit from it.

FINDINGS AT A GLANCE

- Play Labs improved children's developmental outcomes.
- Play Labs reduced gaps between children's outcomes.
- Play Labs equipped parents with the knowledge and resources to support their children's development.
- Working on the Play Labs helped Play Leaders build their knowledge and skills as professionals in early childhood development.

ABOUT THE PLAY LABS



Early childhood is a critical time. Ninety percent of the brain's development occurs before age 5, making quality early opportunities essential to building solid foundations for the rest of children's lives.¹ However, many children are still not given early opportunities to learn, play, and thrive. UNICEF estimates that only one in every five children in low-income countries have access to pre-primary education.² The early learning services that do exist are frequently low quality, lacking well-trained staff, child-friendly environments, and developmentally-appropriate approaches.

BRAC has championed the importance of early childhood development for decades. BRAC has run pre-primary

education programs since the 1990s, reaching millions of children in Bangladesh, Afghanistan, Liberia, the Philippines, Tanzania, and Uganda. Building on this experience, BRAC developed the Play Lab model for quality, playful early childhood development in 2015 in partnership with the LEGO Foundation.

The purpose of the Play Labs is to help children learn and heal through play. BRAC's Play Labs provide children ages 3-5 with high-quality play-based learning through a low-cost, culturally relevant, sustainable model in low-resource and humanitarian settings. The model centers around play, children's fundamental approach to learning and exploration, in order to create joyful environ-

ments that promote children's holistic development. The Play Lab curriculum targets five key developmental domains: language development, fine and gross motor development, cognitive development, social-emotional development, and self-regulation. In the Play Labs, children build their skills in these areas through playful activities that reflect local culture, like rhymes, stories, and dancing.

Since 2015, over 115,000 children have been reached through the Play Lab model in Bangladesh, Tanzania, and Uganda through Play Labs in local communities, government schools, and refugee camps in Cox's Bazar.



Children draw a picture together in a Play Lab in Bangladesh.

¹ Hunter, Elaine. "How a Child's Brain Develops from Womb to Age Five." Theirworld Brief. February 22, 2017. <https://theirworld.org/news/how-childs-brain-develops-from-womb-to-age-five>

² UNICEF. "Early Childhood Education." <https://www.unicef.org/education/early-childhood-education>

RESEARCH METHOD



Participants

Under the leadership of the late Dr. David Whitebread, a developmental psychologist and researcher at the University of Cambridge, BRAC's Play Lab project underwent rigorous monitoring and evaluation, culminating in a quasi-experimental evaluation in 2018 and 2019. The study was conducted in Bangladesh with a sample of 367 children, composed of 196 children in the intervention group who

participated in BRAC's Play Labs and 171 children in the control group. There were 88 boys and 108 girls in the Play Lab intervention group and 87 boys and 84 girls in the control group.

Children in Bangladesh do not normally start preschool until they are 4-years-old. As such, only 8 children in the control group attended preschool for the full 2 years, while 107 control group children attended

preschool in just the second year, typically run by the government. In this analysis across the whole 2 years, the comparison is therefore overwhelmingly between children in Play Labs and children who had some exposure to preschool, but did not have two years of preschool education.

There were no significant differences in demographic variables between the families of children in the intervention

Demographics	Group (n)	Minimum	Maximum	Mean	Standard Deviation
Mother's age (years)	Intervention (196)	18	40	26.45	4.95
	Control (170)	18	40	26.17	4.71
Mother's education (years)	Intervention (196)	0	16	6.96	3.33
	Control (170)	0	16	7.36	3.37
Father's age (years)	Intervention (196)	20	50	33.34	6.04
	Control (169)	21	65	33.53	6.50
Father's education (years)	Intervention (195)	0	16	6.58	3.87
	Control (170)	0	16	7.14	3.92
Monthly income	Intervention (196)	34,000	90,000	19,989	14,102
	Control (171)	3,000	100,000	20,991	13,695
Total belongings	Intervention (196)	1	79	14.86	10.33
	Control (171)	3	64	16.63	10.74

group and control group at the baseline. Parents' ages ranged from 18 to 65, with a mean of 26 for mothers and 33 for fathers. Parents' education levels ranged from no schooling up to 16 years, with an average of 6-7 years for both mothers and fathers. Monthly incomes spanned from 3,000 to 100,000 Bangladeshi Taka, or approximately \$35.38 to \$1,179.13 USD per month, with an average close to 20,000 Taka per month. This diversity in households helped the research team understand the impact of children's backgrounds on their developmental progress.

Measures

Researchers measured out-

comes using the Ages and Stages Questionnaire (ASQ), the Checklist for Independent Learning (CHILD), the Knowledge, Attitude and Practice (KAP) questionnaire, verbal scales from the Wechsler Pre-school and Primary Scale of Intelligence (WPPSI), and several tools developed specifically for the purposes of the Play Lab project to measure playfulness (the Developmental Index of Pre-Primary Playfulness, or DIPP), the fidelity of the model (Fidelity), the quality of the Play Leader-Child interaction (PLC), and Play Leaders' competencies. Most of the research tools were new to the Play Lab countries, and BRAC piloted and validated them to

ensure contextual relevance.

Procedures

Field Research Assistants from Brac University were trained in the administration of all measures as well as data collection protocols. Play Leaders were also trained on child observation and the CHILD and DIPP measures. Play Leaders collected CHILD and DIPP data for intervention children in both years, while the Field Research Assistants collected CHILD and DIPP data for control group children in both years and for intervention children in the second year. Checks were conducted on Play Leader reliability and inter-observer reliability.

RESEARCH RESULTS



The study found that the Play Labs had significant positive impacts on children, their parents, and their Play Leaders.

The benefits of the Play Labs on children's holistic development were extensive and consistent. For each measure (ASQ3, WPPSI, CHILD and DIPP), Play Lab children outperformed control group children, moderately in Year 1 and dramatically in Year 2, resulting in dramatic differences between the two groups over the project's course. Perhaps most strikingly, children who scored

below average at the baseline were able to catch up to their peers over their two years in the Play Labs, a phenomenon not seen in the control group, demonstrating the Play Labs' ability to level the playing field. This is crucial to ensuring that all children enter primary school with the skills they need to learn and succeed.

Play Labs improved children's developmental outcomes. On the Ages and Stages Questionnaire (ASQ3), a common assessment tool measuring children's physical, intellectual,

and socio-emotional development, there were highly significant differences between Play Lab and control children in all areas. The overall increase in control group children's ASQ3 score was just 16.36 over the course of the project, compared to an increase of 88.61 for the Play Lab children, with an effect size of 1.79*. Play Lab children's WPPSI Verbal IQ score improved by 23.52 points, compared to just 5.63 for children in the control group. The difference in progress was also considerable and significant between

* "Effect size" captures in a single number how well an intervention is working in the test group versus the control group across a range of contexts. Effect size measures change or progress in terms of the mean number of standard deviations.

Play Lab children and control group children on the CHILD and DIPP, measuring children's self-regulation and playfulness.

Play Labs reduced gaps between children's outcomes.

When children entered the Play Labs at age 3, there were already large gaps between children's ASQ3 scores. However, by the end of Year 2 when the children were 5 years old, those who entered the Play Labs with the lowest baseline scores improved even more significantly than the average child, by a total of 136.19 points on the ASQ3 (with a stunning effect size of 4.45). This allowed them to catch up with their peers who had entered with the highest scores, narrowing the total gap between the groups to just 4 points. There

was no similar pattern in the control group, where children continued to have very diverse levels of development as they approached primary school age.

Play Labs equipped parents with the knowledge and resources to support their children's development. Parents of Play Lab children scored significantly higher than parents of control group children on Knowledge, Attitudes and Practices (KAP) questions related to early childhood development and education. The total KAP score for Play Lab parents increased from 43.02 at baseline to 59.08 over the two years of the project, with an effect size of 2.34. Over the same period, parents of control group children improved their

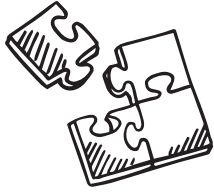
average scores from 42.71 to just 46.50 with a much smaller effect size of 0.64.

Working on the Play Labs helped Play Leaders build their knowledge and skills as professionals in early childhood development. Play Leaders' KAP scores also improved significantly to an even larger extent than parents' scores. Similarly, the quality of interactions between children and Play Leaders increased on all 21 observed indicators, with an effect size of 1.85. Over the course of the project, Play Leaders' scores on the Fidelity measure also increased dramatically, with an effect size of 5.25. A lack of fidelity is a common challenge in education programs, often leading to poor outcomes for children. The project's outstanding progress in this area indicates the strength of the Play Lab approach to teacher training and mentoring.

The effect sizes achieved by the Play Labs in many areas are remarkable. To put them into perspective, an effect size of 0.5 is significant while 1.0 is unusually high. In John Hattie's book *Visible Learning*, which calculates the effect sizes of 138 different educational interventions, only two are reported as over 1.0, and the vast majority are less than 0.7. As the results above show, for several measures of progress for the Play Lab children, their parents, and Play Leaders, the effect sizes considerably exceeded these levels, demonstrating the program's incredible impact.

“Perhaps most strikingly, children who scored below average at the baseline were able to catch up to their peers over their two years in the Play Labs, a phenomenon not seen in the control group, demonstrating the Play Labs' ability to level the playing field.”





THE PATH FORWARD

BRAC is committed to building the evidence base for early childhood development in the Global South. In addition to these findings from Bangladesh, results are forthcoming from the evaluation of the Play Lab project in Tanzania and Uganda. Initial findings suggest that the Play Labs had a positive impact on children's development in Tanzania and Uganda.

BRAC is also working closely with Dr. Hiro Yoshikawa from New York University on an ongoing evaluation of BRAC's Humanitarian Play Labs in the Rohingya refugee-hosting

region of Cox's Bazar. This research is being conducted as a part of the Play to Learn partnership with the LEGO Foundation, BRAC, Sesame Workshop, and the International Rescue Committee.

Evaluations are also planned for two of BRAC's COVID-19 related adaptations of the Play Lab model: Pashe Achhi in Bangladesh and Radio Play Labs in Uganda. BRAC's Pashe Achhi (or "Beside You") telecommunications model reached 100,000 children and their caregivers at the height of the pandemic through 20 minute weekly phone calls,

integrating early learning with mental health. BRAC's Radio Play Labs, adapted Play Labs elements for national and community radio in Tanzania and Uganda. During the radio sessions, Play Leaders and teachers lead interactive, playful activities, hold storytelling sessions, and share messages on child development and wellbeing.

If successful, these models and their evidence base could have far-reaching implications for young children around the world, particularly in crisis, conflict, or remote settings.



Children engage in dramatic play at a Play Lab.

ABOUT BRAC

BRAC is a global leader in developing cost-effective, evidence-based solutions to empower people and communities in situations of poverty. Founded in Bangladesh in 1972, BRAC now touches the lives of more than 100 million people in 11 countries across Asia and Africa. BRAC runs programs in education, health care, financial inclusion, youth empowerment, humanitarian response, and more. A leader in low-cost, child-friendly education, BRAC's pre-primary and primary education programs have graduated over 13 million children.