



Behavioral Insights and Parenting Lab

The MPACT Initiative: Math for Parents and Children Together

THE CHALLENGE

Disadvantaged children are at risk for entering kindergarten behind more advantaged peers, creating an achievement gap that continues through later school and into adulthood.

Early math skills are the strongest predictor of both later math and reading skills. However, many parents spend little time promoting their children's math skills at home. Interventions to support parents' promotion of their children's math skills in the home environment may help build math and reading skills and narrow this gap. Unfortunately, few home-based interventions for low-income parents emphasize children's early math learning, and even fewer have been rigorously evaluated.

THE STUDY

MPACT, Math for Parents and Children Together, is an initiative that teaches parents what effective math instruction for young children looks like, shows them how to integrate math learning into everyday routines, and encourages parents to spend time in these activities.

Building on the principles of the successful Parents and Children Together (PACT) project, which increased the time low-income parents spent reading to their children, MPACT uses insights from behavioral science to promote parents' engagement in building children's developmentally relevant math skills.

Chicago-area parents with children ages three to four in subsidized preschool programs are randomly assigned to one of three treatment groups or a control group:

- Treatment group one receives an activity booklet with developmentally appropriate, math-focused activities for parents to do with their child.
- Treatment group two receives the same intervention as group one and in addition receives behaviorally informed text messages.
- Treatment group three is lent a digital tablet preloaded with developmentally appropriate, math-focused applications.
- The control group receives no math tools or behaviorally informed intervention.

The goal of MPACT is to test how each of these different interventions improves parents' confidence in building their children's math skills, decreases parents' math anxiety, and increases children's relevant math skills, such as numeracy, number recognition and relationship, and counting. The study began in 2016 and was concluded in 2020.

THE RESULTS

KEY FINDINGS

6 months after the program ended, children in the “**MKit-only**” and “**tablet-only**” treatment groups had each gained about 16% of a standard deviation in math skills compared to the control group. **No other treatments** yielded gains in math scores.

The tablet treatment alone increased the number of days that parents reported doing math activities with their children, **increased** the number of parents with a growth mindset, **increased** the percentage of parents who said they had everything they need to help their child get ready for kindergarten, and **lowered** parents' math anxiety.

CONCLUSIONS

Parental engagement in math is not analogous to parental engagement in literacy. The things that parents can do at home to increase children's math skills are ambiguous and complex. Uncertainty about what to do, math anxiety, and children's resistance to being “taught” math impede parental engagement in math activities. Access to math apps on a tablet removes these impediments to parental engagement because the apps are interactive and fun. If the MKit and tablet provide equivalent math learning per minute but the **tablet is used for more minutes**, it will logically increase math skill more.

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WHO WE ARE

The **Behavioral Insights and Parenting Lab** at the University of Chicago Harris School of Public Policy studies the science of parental decision-making through the lens of behavioral science. Research shows that a variety of behavioral supports can optimize the decisions that people make. The BIP Lab is dedicated to understanding how such behavioral supports can be used to support parental investments that promote children's development, especially in low income families. The lab was co-founded in 2014 by University of Chicago Harris School of Public Policy Professors Ariel Kalil and Susan Mayer.

DIRECTORS

Ariel Kalil, PhD, is a professor at Harris Public Policy, where she also directs the Center for Human Potential and Public Policy. She is a developmental psychologist who studies economic conditions, parenting, and child development. In addition to her work at the BIP Lab, her current research examines the historical evolution of income-based gaps in parenting behavior and children's cognitive and non-cognitive skills.

Susan E. Mayer, PhD, is a professor and dean emeritus at Harris Public Policy. She has published numerous articles on the measurement of poverty, the effect of growing up in poor neighborhoods, and the effect of parental income on children's well-being. In addition to her work at the BIP Lab, she is engaged in a number of studies of intergenerational economic mobility.



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