Mission

The mission of MIT's Lookit platform is to lower the practical barriers to conducting and participating in rigorous, reproducible research that advances the understanding of child development and its implications for education, parenting, policy, and medicine.

"We don't just want to speed up the sort of developmental research we can already do. We want to enable people to ask new questions — and enable new people to ask them."

— Kim Scott

MIT research scientist and founder of Lookit

Scaling the Study of Early Childhood Cognition

THE CHALLENGE

Behavioral research in child development has the potential to inform educational approaches, medical and behavioral interventions, models of intelligence, and our understanding of the organization of the brain. However, above and beyond the challenges of other human subjects research, the practical demands of recruiting and testing young children limit the scope of questions researchers can address. It is difficult to collect enough data, and sufficiently representative data, to make robust inferences about early childhood development. Much of the time involved in executing a developmental study is spent not on science per se, but on participant recruitment, outreach, scheduling and coordination with participants, database maintenance, and partner institutions like preschools, children's museums, and hospitals.

This means that many important questions are not pursued simply because they would incur impractical logistical costs. Especially when working with infants, collecting very little data from each participant is typical since individual experimental sessions have to be short. The lab environment further limits the ability to access natural behavior or work with representative samples. Children who do visit for studies are far from representative; most parents don't live near a university lab or have the time, motivation, and flexibility to spend hours bringing a child in for a research study. Finally, these challenges limit those who conduct research primarily to academics associated with established labs, excluding the educators, clinicians, and social workers who work more directly with children and families and whose goals align more directly and immediately with children's needs.

Image above and left: Participants of Lookit study at Boston Children's Museum

THE LOOKIT CONCEPT

Lookit is a video-based online platform developed by MIT's Early Childhood Cognition lab that allows families to participate in developmental research from home. Parents browse the website to find studies appropriate for their child's age, select one that looks interesting, and (after providing a verbal statement of consent to participate) proceed to complete a study with their child, right in the web browser. During the study, webcam video of the parent and child is sent to the lab for later analysis. Researchers can then watch the videos to record measures such as where on the screen infants chose to look and for how long, children's facial expressions, parent interaction, or verbal responses.

The first and only system of its kind, Lookit aims to mitigate the practical constraints on developmental research. Online research has the potential to allow researchers to collect larger sample sizes, collect data from broader demographics, measure small or graded effects, conduct large-scale longitudinal studies that capture individual differences or developmental change, and accelerate research about developmental disorders.

Larger datasets and new opportunities: With access to a vast subject pool (parents with webcams and internet connections) and a system that dramatically reduces the time involved in 'running a subject', researchers will be able to collect larger and more complex data samples. Families of children with specific developmental disorders, often excited to participate in research to further the understanding of their own child's condition, will be able to participate from anywhere in the world. Bringing the lab home opens up powerful new possibilities: researchers can observe natural behavior and parent-child interaction in a familiar environment, measure behavior just before or just after naps, or even work with newborns without camping out in the maternity ward.

Replicability and open science: Small sample sizes reduce our confidence in and ability to replicate scientific findings. By allowing the use of larger sample sizes, Lookit will help to reduce the impact of this problem. Conducting studies online also allows researchers to publish and disseminate experimental protocols in their entirety, whereas descriptions of in-lab protocols fail to capture many potentially important features of the lab setup and ways the experimenter interacts with children.

Expanding access: On Lookit, families can participate from home, anywhere in the world, at a convenient time – without having to miss work, travel to a lab, or bring other children along. This means we can greatly reduce the sampling bias induced by typical lab studies and work with families with more representative educational backgrounds, income levels, occupations, races, and ethnicities – across the world. In addition to expanding access for participants, Lookit also brings the rigorous tools of cognitive development research within reach of those who work with children, but are not affiliated with an established developmental laboratory: for instance, early childhood educators, pediatric clinicians, social workers, and researchers across the world with limited budgets or in isolated locations.

SUPPORTING SCIENCE AT SCALE

More than a hundred early childhood labs exist in the US, with another several hundred located internationally. Collectively, these labs already run on the order of a quarter of a million sessions per year. Led by MIT's Early Childhood Cognition Lab (ECCL), MIT is actively developing the Lookit platform with the goal of offering access to developmental researchers around the world interested in scaling their ability to study the development of young children.

The goal is to turn Lookit into a large collaborative "online lab" with a single participant interface and infrastructure, where families can choose among studies from many research groups. Researchers who use the platform agree to high ethical and scientific standards. They can design and test studies without needing programming experience, although advanced users can contribute to the code base. Lookit is committed to open source development, encouraging data and protocol sharing, recruiting a representative participant pool, and supporting work from non-traditional developmental researchers that directly benefits children and families.

MIT Open Learning and the ECCL seek support to scale this important work. The funding will cover necessary staffing for research support, software and video development, and family engagement and outreach. Long term, the project is expected to be made sustainable through contributions from outside participating labs.

For More Information
website | lookit.mit.edu
email | lookit@mit.edu