The overall goal of Mind in the Making and its partner Vroom is to use the knowledge from developmental research to promote engaged learning and executive function (EF) skills in adults and children.
**The Problem**

Children are born learning—with a fire in their eyes for learning—and with tremendous potential. But gaps—the achievement gap and the opportunity gap—emerge as early as infancy and continue to widen as children grow. The fire for learning dims for too many children.

In addition to a dropout-of-school problem, the U.S. has a drop-out-of-learning problem.

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**The Approach**

The question we have pursued is: **how can we keep the fire for learning burning in children’s eyes and keep their engagement in learning strong?**

Beginning in 2000, Families and Work Institute staff reviewed more than 1,000 studies and conducted in-depth interviews with close to 100 leading researchers who study children’s learning from many different academic disciplines—neuroscience, cognitive science, developmental research, the development of literacy, math, and STEM sciences—filming these researchers “in action,” as they conduct their actual experiments.
In the first years, trillions of neural connections are made—forming the foundation for future learning. The architecture of the brain is being built from the ground up, based not just on genes, but on experiences. Although the early years are the best time to begin, it is never too late to promote children’s brain development and learning.

1. **THE EARLY YEARS ARE THE BEST TIME TO BEGIN**

2. **PROMOTING POSITIVE RELATIONSHIPS WITH CARING ADULTS IS ESSENTIAL FOR BRAIN DEVELOPMENT**

3. **PROMOTING SERVE AND RETURN IS ESSENTIAL FOR BRAIN DEVELOPMENT**

4. **PROMOTING EXECUTIVE FUNCTION SKILLS IS ESSENTIAL FOR BRAIN DEVELOPMENT**

When we talk about how the environment affects young children, we’re really talking about relationships. **There is no development without relationships!**

—Jack P. Shonkoff, Harvard University

Serve and Return forms the platform for early learning. Children learn by reaching out and then having someone respond. Like a game of ball, the child serves and a responsive adult returns the serve—Megan Gunnar, University of Minnesota

If you look at what predicts how well children will do later, more and more evidence is showing that executive functions actually predict success better than IQ tests.

—Adele Diamond, University of British Columbia
WHAT IS EXECUTIVE FUNCTION?

Executive function refers to the top-down neurocognitive processes involved in flexible, goal-directed problem solving.”

(Zelazo et al., 2008)

Executive function involves managing thoughts, actions and emotions to achieve goals.

(Miyake et al., 2000)
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Executive function involves managing thoughts, actions, and emotions to achieve goals. (Miyake et al., 2000)

**WHAT ARE EXECUTIVE FUNCTION LIFE SKILLS?**

**Focus**—being able to pay attention;

**Working memory**—being able to keep information in mind in order to use it;

**Cognitive flexibility**—being able to adjust to shifting needs and demands; and

**Inhibitory control**—being able to resist the temptation to go on automatic and do what we need to do to achieve our goals.

As children grow older, these skills include reflecting, analyzing, planning and evaluating.
“Executive function skills are crucial building blocks for the early development of both cognitive and social capacities.”

(Center on the Developing Child, 2011)
Executive Function skills are predictive of academic achievement.
One aspect of executive function skills in four year olds—“attention span-persistence”—is strongly predictive of whether or not these same children graduated from college when they were 25 years old. (McClelland et al., 2012)
Employers are concerned that new entrants to the workforce have a “fill in the bubble” mentality, aren’t used to working in teams, and don’t have experience in challenging themselves—there is a skills gap, leaving millions of jobs unfilled.
Employers rated “ability to work in a team structure,” “ability to make decisions and solve problems,” “ability to plan, organize, and prioritize work,” and “ability to verbally communicate” as the most important skills for job candidates.
Executive functions are predictive of physical health, substance dependence, criminal convictions, and personal finances achieved at age 32, after controlling for socioeconomic status of origin and IQ.

(Moffitt et al., 2011)
Executive function life skills are a strong place to intervene because research shows that they can be improved.

(Diamond and Lee, 2011)
Seven Evidence-Based Executive Function Life Skills That Can Help Children and Adults Thrive Now and in the Future.

- **FOCUS AND SELF CONTROL**
- **PERSPECTIVE TAKING**
- **COMMUNICATING**
- **MAKING CONNECTIONS**
- **CRITICAL THINKING**
- **TAKING ON CHALLENGES**
- **SELF-DIRECTED, ENGAGED LEARNING**
David A. Hamburg, MD, Weill Cornell Medical College and President Emeritus of the Carnegie Corporation of New York

Mind in the Making is the central component of a creative, multi-faceted initiative that clarifies paths to lifelong learning—related to discoveries about brain development and how learning builds on the structure and function of the brain. It is a valuable contribution based on solid research that yields practical benefits.

Philip David Zelazo, Professor, Institute of Child Development, University of Minnesota

The future of our society depends on how we treat our children and this remarkable book, richly illustrated with examples from the latest scientific research, provides an engaging and well-informed characterization of the developmental challenges children face. It will be of enormous value to parents, educators and policy makers, and serious students of child development.

Alison Gopnik, Professor of Psychology, University of California at Berkeley

Ellen Galinsky has been one of our most thoughtful as well as passionate advocates for children. In this book she assembles the latest fascinating research from the very best scientists in the field and presents it clearly and accurately, in a way that parents and others will find most valuable.

Kathy Hirsh-Pasek, Professor of Psychology, Temple University

Mind in the Making is a tour de force. In Galinsky’s hands, the latest scientific discoveries about how children learn are carefully molded into seven seemingly simple but profound skills that predict success in the 21st Century.
Robert Michnick Golinkoff, Professor of Education, Psychology and Linguistics and Cognitive Science, University of Delaware

A book of incomparable quality about what is best for children and why in today’s world. Mind in the Making helps you assemble the ingredients in your own kitchen for rearing children who are intelligent, emotionally secure, and equipped to succeed.”

Lisa Belkin, New York Times

[Mind in the Making] may well be the next iconic parenting manual, up there with Spock and Leach and Brazelton.”

Michele Borba, Ed.D., author of The Big Book of Parenting Solution

[Ellen Galinsky’s] latest book, Mind in the Making just put her in the ‘Child Development Expert Hall of Fame,’ Mind in the Making is one of those rare and glorious books that will make a difference on our children’s lives and future.”

Judy Woodruff, Co-Anchor and Managing Editor of PBS NewsHour with Gwen Ifill and Judy Woodruff

Ellen Galinsky—already the go-to person on interaction between families and the workplace—draws on fresh research to explain what we OUGHT to be teaching our children. This is must-reading for everyone who cares about America’s fate in the 21st century.”

• Sold over 120,000 copies;
• Has remained among top 100 early childhood parenting books on Amazon for more than five years;
• Selected as one of the top ten non-fiction books by the Washington Post (May 2014) and voted as the number one book for preschool teachers in the Child Care Exchange (June 2014);
• Received more than 2.5 billion media impressions; and,
• Available in a video book (Vook) and an audio book format.
Vroom, an initiative of the Bezos Family Foundation, was born out of a need for creative tools and materials that inspire families to turn everyday moments into brain building moments. It was developed with thoughtful input from parents, early childhood experts, neuroscientists, and community leaders in order to share the science of early brain development in new ways so that all children have the chance to become thriving adults. The Bezos Family Foundation has provided funding, and a lot of passion, because they believe that all parents have the potential to create a bright future for their children.

Mind in the Making has collaborated with Vroom to create almost 1000 tips for their free app for families.

To find out more, visit:
http://www.bezosfamilyfoundation.org/vroom
2 DVDs with videos of 42 experiments conducted by top child development scientists including the hypotheses, the methodology, the key findings, the implications and references.

Funded by the Popplestone Foundation.
MIND IN THE MAKING AND VROOM ARE WORKING TOGETHER TO SHARE THE SCIENCE OF EARLY LEARNING THROUGH VIDEOS OF TOP RESEARCHERS.
This is a selected library of 89 books for infant/toddlers, preschoolers and school-age children that promote executive function life skills.

First Book makes these books available at greatly reduced prices for programs serving low-income children. Mind in the Making created free tips sheets showing how to promote executive functions—354,178 downloads since September 2013! 220,816 in English and 133,362 in Spanish: http://mindinthemaking.org/firstbook/.

Collaboration between First Book and Mind in the Making funded by the Popplestone Foundation.

A selection of 12 books and tips sheets are available from Raising a Reader.
Adele Diamond of the University of British Columbia is a pioneer in studying the executive functions of the brain. These are the functions that we use to manage our attention, our emotions, and our behavior in pursuit of our goals. Diamond says:

"If you look at what predicts how well children will do later in school, more and more evidence is showing that Executive Functions—working memory and inhibition—actually predict success better than IQ tests."

There are many things you can do at home with your child that will help him get ready to enter school while also promoting the life skill of Focus and Self Control. Here are a few suggestions:

1. **Play games with your child.** Children learn best when they are engaged socially, emotionally, intellectually, and physically. Playing games that require your son to pay attention, remember the rules, respond to changing circumstances and resist the temptation to go on automatic, but instead use self control. These skills help him thrive now and in the future. Some of these brain-building games include:
   - **Simon Says, Do the Opposite.** In this game, your child must pay attention and not go on autopilot. The aim is to do the opposite of what the leader says. For example, if you say, "Simon Says, 'be noisy,'" then your child would stay quiet. If you say, "Simon says, 'trounce fast,'" then your child would move slowly.
   - **Red Light/Green Light, Freeze Dance, Musical Chairs.** These games all require children to use self control to Stop and Go.
   - **Guessing games.** Listening games encourage children to focus, remember and practice self control. For example, you could say, "I am thinking of an animal with a name that sounds like a rat." The child must use his working memory and ability to make connections. When asked to sort according to new rules, your child engages his cognitive flexibility and self control. You can make sorting games at home using printed pictures or drawings on cards.
   - **I Spy.** Encourage your son to pay close attention and tell him what you spy. (“I spy something in this room that is green.”) Ask your child to guess what it is. Then let your child take a turn to spy and ask you to guess.
   - **Puzzles.** Puzzles help your child develop attention and attentional skills. You can use store bought puzzles or make them at home by tearing or cutting magazine photos into different shapes. Encourage your child to “find the picture” by putting the pieces back together.

2. **Be creative and promote pretend play.** When your son plays pretend or invents stories, he is developing what researchers call “cognitive flexibility.” This requires being able to readily adapt to changed circumstances and to flexibly switch perspectives or focus of attention.
   - **Pretend play.** When children play “baby,” “house,” “school,” “restaurant,” and other pretend scenarios, they are using their imagination to represent other people and using objects to represent something else. For example, you might pretend to be the baby and your child would act as the parent, perhaps using a block or other item as a baby bottle. Expand on the play scenarios by introducing a new idea like, “I’m feeling tired. Let’s get ready for bed.”

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**School Readiness**

Promoting the Life Skill of Focus and Self-Control in Preschoolers

**Five Strategies That Work in Moving from Managing Children’s Behavior to Promoting Life Skills**

**Question:** I have decided not to send my three year old to preschool. What activities can I do at home to help prepare him for school later so that he’s not behind children who went to formal preschool programs?

98 tip sheets take parents’ frequently asked questions and offer strategies that work in moving from managing children’s behavior to promoting life skills.

See them all at: http://www.mindinthemaking.org/prescriptions-for-learning/

Funded by the Popplestone Foundation.
A new approach to professional education, the Modules:

- Engage educators in an experiential process of self-reflection and self-discovery that encourages them to think about various aspects of learning in their own lives.
- Connect the adults’ experiences to the research on learning in children’s lives.
- Use videos of the most respected and compelling child development research on that topic.
- Provide evidence-based activities that participants use to promote learning in children.
- Provide participants with an Individual Development Plan process that they use throughout the Modules.

Evaluation of the Learning Modules for Educators

These Modules have been evaluated by several independent studies.

Pennsylvania

The findings showed that this training was a very positive experience for educators, increased their knowledge, and improved classroom practice significantly toward the excellent range.

“Teachers who participated in MITM Modules increased their overall classroom quality through better communication with the children that enriches language, better learning opportunities for the children through the use of play and materials, and more activities to increase the social development of children in the classroom.”


Massachusetts

The findings showed that participants:

• Had very positive experiences with the Learning Modules;
• Gained knowledge from participating in MITM, which they could apply to their work with children and families;
• Increased their knowledge of how children learn and develop;
• Increased their perceived confidence in their skills and abilities in supporting children’s learning and development;
• Improved their reported comfort with their relationships with children and families; and,
• Enhanced their perceived knowledge of how to support children’s learning and development.


Mind in the Making has taken a sequential approach to the dissemination of the Seven Essential Skills Modules
A new approach to learning and teaching, the eight Modules:

- **Promote Executive Function Life Skills for children by promoting them first in adults.** We start by engaging families and professionals in an experiential process of self-reflection and self-discovery where they experience their own competence in each of these life skills, probe why this skill is important in their own lives and take responsibility for proposing strategies to improve this skill in themselves.

- **Provide adults with first-hand experience with child development research.** In the Modules, we then connect the adults’ experiences to the research on this skill in children’s lives—why it is important and how it can be promoted—through videos that present compelling child development research on the skill in an accessible way.

- **Use the language of science.** In sharing the science, the Modules introduce some new terms, which are intended to move away from old educational debates and create a shared language.

- **Tie action to research.** Each Module specifies Learning Goals and Outcomes—knowledge that Participants are expected to obtain and research-based activities that Participants are expected to do.

- **Reframe adults’ approach to children’s behavior, moving away from managing children’s behavior to providing opportunities to teach life skills.** Many teaching approaches focus on helping adults deal with challenging behavior. The Mind in the Making perspective intends to shift that approach to an assets-based one, where these challenges are seen as opportunities to promote life skills.
Seven Essential Life Skills Modules for Families And Professionals

8 Modules that share research on promoting Executive Function Life Skills in adults and children.

Funded by the W. K Kellogg Foundation and the Marks Family Foundation.
With the help of the Boston Children’s Museum and the Institute of Museum and Library Services, Mind in the Making has adapted the Seven Essential Skills Modules for frontline museum and library staff to support them in understanding and promoting executive function life skills in themselves, as well as in the children and families with whom they work.

With these partners, we have adapted the Modules to complement and draw from the Boston Children’s Museums Standards of Engagement, best practices for educators in the museum and library fields.

In the fall of 2015, we are offering this exciting professional development opportunity to select museum and library professionals from across the country.

This ground-breaking report takes a deeper look at how museums and libraries promote executive function life skills and shares the results of an in-depth review and national survey of leaders in museums and libraries serving children and families.

The results highlight:

- promising new practices that feature research on the brain and their potential for focusing on executive function life skills in exhibits and programs; and

- opportunities for positioning libraries and museums as key contributors to the work of promoting executive function skills.

Pediatricians are among families’ most trusted sources of support and guidance.

In partnership with the Mount Sinai Parenting Center at Mount Sinai Hospital in New York City, Mind in the Making is working to adapt the Seven Essential Skills Modules for pediatric residents and a variety of medical professionals.

The purpose of these Modules is to provide practitioners with fundamental child development knowledge and equip them with practical skills for guiding the families they serve. Our ultimate goal is to connect the mind and the body—to promote overall well-being: physical, social, emotional, and cognitive.

To that end, we are in the process of:

• **Adapting and field testing the Mind in the Making Seven Essential Skills Modules into an approximately eight-hour component of residents’ Brain and Behavior Course.** We have learned that it is important to provide child development information early in pediatricians’ careers so that it becomes foundational to their practice of medicine.

• **Adapting the Mind in the Making Seven Essential Skills Modules into an eight-hour course for Pediatricians, Child Life Specialists, Social Workers, and Nurses.** By bringing together the professionals who work in the hospital for this training, we can make the promotion of executive function skills part of the culture of the hospital.
In the spring of 2014, we began working with Amazon Kids to incorporate the Seven Essential Life Skills into their educational children’s programming. Wishenpoof is the newest Amazon Original Kids Series supporting kids as lifelong creative learners by giving them the life skills and mindset they need to lead purpose-filled, creative lives. The series promotes executive functions and the Life Skills through songs and stories and includes practical research-based tips for parents to try with their children, inspired by each episode.
MIND IN THE MAKING
A National Movement

The Campaign for
GRADE-LEVEL
READING
3rd Grade Reading Success Matters
SEVEN ESSENTIAL LIFE SKILLS MODULES

- Albuquerque and other communities in New Mexico
- Arlington, Virginia
- Austin, Texas
- Baltimore, Maryland
- Detroit, Michigan
- Evansville, Indiana
- Fairfax County, Virginia
- Hartford, Connecticut
- Houston, Texas
- New York City, New York—Children’s Aid Society
- Multnomah County, Oregon
- Providence, Rhode Island
- Tucson and other communities in Arizona
- Tulsa and other communities in Oklahoma
- Charleston and other communities in West Virginia
- Statewide in Hawaii, Oregon and Virginia

LEARNING MODULES FOR EDUCATORS

- Florida
- New Jersey
- New Mexico
- Ohio
- Pennsylvania
- Rhode Island
- West Virginia
MIND IN THE MAKING: SEVEN ESSENTIAL SKILLS
MODULES: PROFESSIONAL DEVELOPMENT FOR
MUSEUMS AND LIBRARY EDUCATORS

- Denver, Colorado
- Downey, California
- Gulfport, Mississippi
- Helena, Montana
- Houston, Texas
- Lawrence, Kansas
- Oceanside, California
- Ogden, Utah
- Omaha, Nebraska
- Palo Alto, California
- Rancho Mirage, California
- San Diego, California
- San Jose, California
- San Rafael, California
- Springfield, Missouri
- Tucson, Arizona
- Union, Kentucky
- Baltimore, Maryland
- Barre, Massachusetts
- Bettendorf, Iowa
- Boston, Massachusetts
- Brooklyn, New York
- Chattanooga, Tennessee
- East Aurora, New York
- Falmouth, Massachusetts
- Galveston, Texas
- Glenview, Illinois
- Ithaca, New York
- Lawrence, Massachusetts
- Mashpee, Massachusetts
- Methuen, Massachusetts
- New Orleans, Louisiana
- New York, New York
- Norwalk, Connecticut
- Portland, Maine
- Providence, Rhode Island
- Richmond, Virginia
- Shrewsbury, Massachusetts
- Taunton, Massachusetts
- Winston-Salem, North Carolina
MIND IN THE MAKING
Dissemination in Learning Communities
EARLY LEARNING COMMUNITY

Resources:
- Seven Essential Skills Modules
- Vroom
- Prescriptions for Learning
- Mind in Making Library of Books and Tips
- Prescriptions For Learning

Community Surround Strategy
EARLY LEARNING NATION

The work of Vroom and Mind in the Making is helping to spark a movement to create an Early Learning Nation (ELN). A step toward that goal occurred on June 23, 2014, when mayors from across the country unanimously adopted a resolution in support of a National Commitment to Building an Early Learning Nation by the Year 2025.
The Mind in the Making Modules, Vroom and Circle Time Games are currently being evaluated in a school-based random control study in Evansville, Indiana.

In this intervention, teachers are receiving training in the Modules, children are participating in the Circle Time Games designed to provide practice with EF skills (Tominey & McClelland, 2011), and parents are receiving daily tips via Daily Vroom on how to promote the healthy development of EF skills.

A small feasibility study recently conducted with this population of children in Indiana showed promising results with researchers finding that gains after six weeks of the MITM Modules, Vroom and Circle Time Games on two tests of EF skills (MEFS and HTKS) and the Woodcock-Johnson Applied Problems subtest were on par with what is typically seen in six months of development (Carlson & Zelazo, 2015; McGrew & Woodcock, 2001), suggesting the intervention might be quickly effective.

A larger randomized controlled trial is currently underway (Zelazo, Carlson, McClelland, Distefano, Miao & Diaz, 2015).

Funded by the W.K. Kellogg Foundation
The Mind in the Making Modules have been chosen for implementation as a part of a Department of Education Race to the Top grant in Oregon and a U.S. Department of Education’s Investing in Innovation Fund (i3), given to the Providence, RI Public School Department (PPSD) and Ready to Learn Providence.

The Providence project is implementing the Modules as a family engagement strategy for children entering school with 1,880 families, 240 teachers, and 160 other school staff over a four-year period. For the academic year of 2014-2015, 432 parents or guardians and 119 PPSD faculty/staff completed the training.

The goals of this project, which is being evaluated by the Wellesley Centers for Women and Abt Associates, are to achieve measurable changes in parent involvement in both children’s learning and parent communication with teachers and staff. At the student level, improvement is expected in student engagement (attendance, homework completion), better performance across learning domains (assessment data), and in relevant executive function metrics (from student report cards).