Launching a New Era in Science-Based Early Childhood Policy

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Building on a 50-Year Legacy
Advocates of earlier and more intervention have an obligation to measure their impacts and costs. Skeptics, in turn, must acknowledge the massive scientific evidence that early childhood development is influenced by the environments in which children live.
Continued ‘winner takes all’ conflict between advocates and skeptics serves only to fuel a siege mentality in the early childhood community that undermines critical self-evaluation in the service of short-sighted self-preservation.
Applying Julius Richmond’s Model for a Social Change Agenda

Knowledge Base

Social Strategy

Political Will
Driving Science-Based Innovation that Achieves Breakthrough Outcomes for Children Facing Adversity

Advances in neuroscience, molecular biology, genomics, and the behavioral and social sciences provide an unprecedented opportunity to catalyze new strategies across multiple sectors to strengthen the foundations of lifelong learning, behavior, and health.
Experiences Build Brain Architecture

View this video:
http://developingchild.harvard.edu/resources/multimedia/videos/three_core_concepts/brain_architecture/
The Cumulative Pile Up of Adversity Impairs Development in the First Three Years

Source: Barth, et al. (2008)
Risk for Adult Heart Disease is Embedded in Adverse Childhood Experiences

Source: Dong, et al. (2004)
Biological “Memories” Link Maltreatment in Childhood to Greater Risk of Adult Heart Disease

Source: Danese, et al. (2008)
Toxic Stress Derails Healthy Development

View this video:
http://developingchild.harvard.edu/resources/multimedia/videos/three_core_concepts/toxic_stress/
Early Life Experiences Are Built Into Our Bodies (For Better or For Worse)

Research on the biology of adversity illustrates how increases in blood pressure, heart rate, blood sugar, stress hormones, and inflammation fuel the “fight or flight response” to deal with acute threat...

...but excessive or prolonged activation of stress response systems can lead to long-term disruptions in brain architecture, immune status, metabolic systems, cardiovascular function, and gene expression.
Magnitude of Effects of Center-Based Early Childhood Education By Year of Intervention

Average Effect Size vs. Calendar Year of Study

- Perry Preschool
- Abecedarian Project
- Five-State Pre-K
- Abbott Preschool Program
- Chicago Parent Center
- National Head Start

Source: Leak, et al. (2011)
The Foundations of School Success are Strengthened by Building Caregiver Capabilities, Not Simply by Giving Parents Information

Source: Grindal, et al. (under review)

Average Impacts of 88 Early Childhood Education Programs (1960-2007)

Source: Grindal, et al. (under review)
Increasing the Impact of Current Investments Requires Three Strategies

Enhance quality and take effective models to scale
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Build strong systems for coordinated service delivery and data management
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Enhance quality and take effective models to scale

Build strong systems for coordinated service delivery and data management

Formulate enhanced theories of change, test new ideas, and learn from interventions that don’t work
Current Conceptual Framework Guiding Early Childhood Policy and Practice

Stimulating Experiences, Parenting Education, Sound Nutrition, Primary Medical Care, and Health-Promoting Environments

Readiness to Succeed in School

Center on the Developing Child, Harvard University
Current Conceptual Framework Guiding Early Childhood Policy and Practice

Significant Adversity

Impaired Development

Stimulating Experiences, Parenting Education, Sound Nutrition, Primary Medical Care, and Health-Promoting Environments
Creating a New Paradigm for Policy and Practice Across Sectors

Early experiences affect lifelong health and learning
Creating a New Paradigm for Policy and Practice Across Sectors

Early experiences affect lifelong health and learning.
Healthy development requires protection and enrichment.
Generating Hypotheses to Guide New Intervention Strategies

Early experiences affect lifelong health and learning. Healthy development requires protection and enrichment.

Protection and enrichment for young children require:

1. Strengthening adult capabilities that are the common foundations of effective parenting, economic self-sufficiency, and responsible citizenship.
Generating Hypotheses to Guide New Intervention Strategies

Early experiences affect lifelong health \textit{and} learning. Healthy development requires protection \textit{and} enrichment.

Protection and enrichment for young children require:

1. Strengthening adult capabilities that are the common foundations of effective parenting, economic self-sufficiency, and responsible citizenship.

2. Reducing community sources of toxic effects on healthy development.
Skill Building for Parenting and Economic Self-Sufficiency Points to the Foundational Role of Executive Function and Self-Regulation Skills

These core dimensions of adult competence include the ability to focus and sustain attention, set goals and make plans, follow rules, solve problems, monitor actions, defer gratification, and control impulses.
Building Blocks for Early Learning

**Self Control** — filter thoughts and impulses to resist temptations and distractions

**Working Memory** — hold and manipulate information in our heads over short periods of time

**Mental flexibility** — adjust to changed demands, priorities, or perspectives
What These Skills Look Like in Adults

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The Challenge: The Ability to Change Brains and Behavior Decreases Over Time

Normal Brain Plasticity Influenced by Experience

Physiological “Effort” Required to Modify Neural Connections

Age (Years)
The Opportunity: Circuits for Executive Function Skills Are Located in Brain Regions that Exhibit an Extended Period of Plasticity

<table>
<thead>
<tr>
<th>Birth</th>
<th>3</th>
<th>5</th>
<th>10</th>
<th>15</th>
<th>25</th>
<th>30</th>
<th>50</th>
<th>70</th>
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<tbody>
<tr>
<td>Skill proficiency</td>
<td>3</td>
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<td>15</td>
<td>25</td>
<td>30</td>
<td>50</td>
<td>70</td>
<td>80</td>
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A Humble Proposal for a Bold New Strategy

Create an aspirational vision for the 21st century by defining best practice as a starting point, not a solution.

Move beyond battles over statistically significant but small magnitude effects on multiple measures, and seek breakthrough impacts on key outcomes.

Embrace constructive dissatisfaction with the status quo and build an R&D platform to catalyze innovation.

Recognize that the risks of trying new strategies that don’t work pale next to the risks of not being bold enough to seek substantially larger impacts.
The Compelling Need to Design and Test Enhanced Theories of Change
Special Thanks for the Collective Knowledge and Contributions of the Following Remarkable Groups

NATIONAL SCIENTIFIC COUNCIL ON THE DEVELOPING CHILD

NATIONAL FORUM ON EARLY CHILDHOOD POLICY AND PROGRAMS

Frontiers of INNOVATION