Applying the Implementation Science Lens to Early Care and Education Research and Evaluation

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Child Trends

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Active Implementation

To successfully implement and sustain evidence-based and evidence-informed innovations in ECE, we need to know:

- **The WHAT** – The effective interventions or approaches that meet the needs of the population of concern

- **The HOW** - Effective implementation and sustainability frameworks (e.g. strategies to change and maintain behavior of practitioners and create hospitable organizational systems)

- **THE WHO** – Organized, expert implementation assistance
Implementing and supporting high quality practices in early childhood settings will promote optimal development for young children.
The Challenge

“It is one thing to say with the prophet Amos, ‘Let justice roll down like mighty waters’ … … and quite another to work out the irrigation system.”

William Sloane Coffin
Social activist and clergyman
Goals for Today’s Session

The “What”
- Identify effective strategies that will improve child outcomes in ECE

The “How”
- Install the Implementation Drivers that result in competence and sustainability
- Conduct ‘stage-related’ work necessary for successful service and system change
- Institute “improvement cycles,” align systems, and scale-up implementation capacity

The “Who”
- Understand the roles and responsibilities of program developers, purveyors, technical assistance providers, and implementation teams
Careful Assessment and Selection of the “WHAT”

- What are the needs of your population?
- What interventions are available to address those needs?
- What is the strength of the evidence of those interventions?
- Which interventions are a good fit for your community?
- Do we have what is required to fully and effectively implement these interventions?
Careful Assessment and Selection

- Is this the right approach for this community? For our needs?
- Is this approach ready for replication?
  - Has the approach been clearly described and operationalized? Are there fidelity measures or ways to assess performance?
- Do we have what is required to fully and effectively implement this approach?
Assessing Evidence-Based Programs and Practices

Capacity to Implement
Staff meet minimum qualifications
- Financially
- Structurally
- Buy-in process operationalized
- Practitioners
- Families
- Agency

Need in Agency, Setting
Socially Significant Issues
Parent & Community Perceptions of Need
Data indicating Need

Fit with current -
- Initiatives
- State and Local Priorities
- Organizational structures
- Community Values

Intervention Readiness for Replication
Qualified purveyor
Expert or TA available
Mature sites to observe
# of replications
How well is it operationalized?
Are Imp Drivers operationalized?

Resource Availability
IT
Staffing
Training
Data Systems
Coaching & Supervision
Administrative & system supports needed

Evidence
Outcomes – Is it worth it?
Fidelity data
Cost – effectiveness data
Number of studies
Population similarities
Diverse cultural groups
Efficacy or Effectiveness

EBP:
<table>
<thead>
<tr>
<th>5 Point Rating Scale: High = 5; Medium = 3; Low = 1. Midpoints can be used and scored as a 2 or 4.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need</td>
</tr>
<tr>
<td>Fit</td>
</tr>
<tr>
<td>Resources Availability</td>
</tr>
<tr>
<td>Evidence</td>
</tr>
<tr>
<td>Readiness for Replication</td>
</tr>
<tr>
<td>Capacity to Implement</td>
</tr>
<tr>
<td>Total Score:</td>
</tr>
</tbody>
</table>

© National Implementation Research Network 2009
Adapted from work by Laurel J. Kiser, Michelle Zabel, Albert A. Zachik, and Joan Smith at the University of Maryland
Implementation is defined as *a specified set of activities* designed to put into practice an activity or program of *known dimensions*. 
Implementation Gap

Why Focus on Implementation?

“Children and families cannot benefit from interventions they do not experience.”
Science-to-Service Gap

Implementation Gap

- What is adopted is not used with fidelity and good outcomes
- What is used with fidelity is not sustained for a useful period of time
- What is used with fidelity is not used on a scale sufficient to impact social problems
The Science and Practice of Implementation

Implementation Research: A Synthesis of the Literature


Download all or part of the monograph at:
http://www.fpg.unc.edu/~nirn/resources/detail.cfm?resourceID=31
Active Implementation Frameworks

Theory of Implementation
- Based on extensive analysis and review of evaluation literature

Best Practices
- Intensive concept mapping
- Nominal group processes
- Structured interviews
Active Implementation Frameworks

- Testable Hypotheses
- Organize Implementation Knowledge
- Identify Gaps
- Guide Development of Implementation Capacity
Insufficient Methods

- Implementation by laws/compliance by itself does not work
- Implementation by “following the money” by itself does not work
- Implementation without changing supporting roles and functions does not work
- Diffusion/dissemination of information by itself does not lead to successful implementation
- Training alone, no matter how well done, does not lead to successful implementation

Fixsen, Naom, Blase, Friedman, Wallace, 2005
### Implementation Science

#### Table: Implementation and Intervention Effects

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effective</td>
<td>Effective Benefit</td>
</tr>
<tr>
<td>Not Effective</td>
<td>Unpredictable or poor outcomes</td>
</tr>
</tbody>
</table>


Inconsistent; Not Sustainable; Poor outcomes; Unpredictable or poor outcomes

From Mark Lipsey’s 2009 Meta-analytic overview of the primary factors that characterize effective juvenile offender interventions –

“... in some analyses, the quality with which the intervention is implemented has been as strongly related to recidivism effects as the type of program, so much so that a well-implemented intervention of an inherently less efficacious type can outperform a more efficacious one that is poorly implemented.”
The “How”
Active Implementation Frameworks

成功的实施需要在有用的范围内。

- 积极利用实施核心组件的最佳实践 — “实施推动因素”
- 意义深远的匹配关键实施活动到过程的阶段 — “实施阶段”
- 专注于持续的、有意义的改进 — “改进过程”
Implementation Drivers

🛠️ Common features of successful supports to help make full and effective uses of a wide variety of innovations

🛠️ Build Competency and Confidence

🛠️ Develop, improve, and sustain competent & confident use of innovations

🛠️ Change Organizations and Systems

🛠️ Create and sustain hospitable organizational and system environments for effective services
Improved Outcomes for Children

Effective ECE Strategies

Performance Assessment (Fidelity)

Coaching

Systems Intervention

Facilitative Administration

Decision Support Data System

Integrated & Compensatory

Leadership

Adaptive

Technical

Selection

Training

Competency Drivers

Organization Drivers

© Fixsen & Blase, 2008
## Training and Coaching

### OUTCOMES

%. of Participants who Demonstrate Knowledge, Demonstrate New Skills in a Training Setting, and Use new Skills in the Classroom

<table>
<thead>
<tr>
<th>TRAINING COMPONENTS</th>
<th>Knowledge</th>
<th>Skill Demonstration</th>
<th>Use in the Classroom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory and Discussion</td>
<td>10%</td>
<td>5%</td>
<td>0%</td>
</tr>
<tr>
<td>..+ Demonstration in Training</td>
<td>30%</td>
<td>20%</td>
<td>0%</td>
</tr>
<tr>
<td>...+ Practice &amp; Feedback in Training</td>
<td>60%</td>
<td>60%</td>
<td>5%</td>
</tr>
<tr>
<td>...+ Coaching in Classroom</td>
<td>95%</td>
<td>95%</td>
<td>95%</td>
</tr>
</tbody>
</table>

Joyce and Showers, 2002
### Implementation Science

Longitudinal Studies of a Variety of Comprehensive School Reforms

<table>
<thead>
<tr>
<th>Effective Interventions</th>
<th>Actual Supports Years 1-3</th>
<th>Outcomes Years 4-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Every Teacher Trained</td>
<td>Fewer than 50% of the teachers received some training</td>
<td>Fewer than 10% of the schools used the CSR as intended</td>
</tr>
<tr>
<td>Every Teacher Continually Supported</td>
<td>Fewer than 25% of those teachers received support</td>
<td>Vast majority of students did not benefit</td>
</tr>
</tbody>
</table>

Aladjem & Borman, 2006; Vernez, Karam, Mariano, & DeMartini, 2006
Organizational Change

"All organizations [and systems] are designed, intentionally or unwittingly, to achieve precisely the results they get."

R. Spencer Darling
Business Expert
Effective ECE Strategies

- Performance Assessment (Fidelity)
- Coaching
- Systems Intervention
- Facilitative Administration
- Decision Support Data System

Integrated & Compensatory

- Leadership
  - Adaptive
  - Technical

- Selection
- Training
- Competency Drivers
  - Organization Drivers

Improved Outcomes for Children

© Fixsen & Blase, 2008
System Stability

EXISTING SYSTEM

Effective approaches are Changed to Fit the System
Or Operate in the Shadows
(The Ghost System)
Effective System Change

EXISTING SYSTEM

Effective approaches are Changed to Fit the System
Or Operate in the Shadows
(Ghost System)

EXISTING SYSTEM IS CHANGED TO SUPPORT THE EFFECTIVENESS OF THE APPROACH
(Host System)
EFFECTIVE APPROACH
The “HOW”
Active Implementation Frameworks

成功的实施要求……

- 激活使用实施核心组件“最佳实践”——“实施驱动器”
- 有目的的将关键实施活动与过程的阶段匹配——“实施阶段”
- 专注于持续、有目的的改进——“改进过程”
Implementation Takes Time
2 – 4 Years

Stages AND Drivers
Sustainability

Goals:

- **Financial:**
  - Ensure funding streams for desired change and necessary infrastructure

- **Programmatic:**
  - Ensure high fidelity and positive outcomes through infrastructure improvement and maintenance
  - Plan for turnover

“The only thing harder than getting there is staying there.”
Change “in order to….”

Organization and Systems Change are in service to practice change

Functional Organizational Change: Purposeful and iterative change in an individual ECE providers’ internal structures and procedures and in its external relationships in order to support, sustain, and renew effective delivery of high quality ECE strategies.

Strategic Systems Change: Purposeful and iterative change among interdependent governing, regulatory, funding, and decision-making bodies in order to create and maintain hospitable conditions for reliable and effective ECE practices.
Cascading Logic Model

Organizations and Systems don’t change – people do! (Jim Wotring)

- How do we identify and measure changes in people’s behavior, knowledge, attitudes that relate to better outcomes for children and families?
- How do we evaluate the products/processes they create to support the service or system change?

One measure – two purposes

- Independent variable or process measure at one level
- Dependent variable or outcome measure at the next level
<table>
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<tr>
<th>Population</th>
<th>Intervention Strategies (WHAT)</th>
<th>Intervention Outcomes</th>
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<tr>
<td>Children ages 0-5 and families</td>
<td>Early Care Educators fully and effectively use evidence-based practices</td>
<td>High quality early child care and education practices</td>
</tr>
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<td></td>
<td></td>
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<td>Early Child Care Educators</td>
<td>Early Care Educators competently and confidently use effective ECE strategies</td>
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Table: ECE PD Systems Cascading Logic Model

- **Population**: Children ages 0-5 and families
- **Intervention Strategies (WHAT)**: Early Care Educators skillfully implement effective ECE strategies
- **Intervention Outcomes**: High quality early child care and education practices; Positive child outcomes
- **Implementation Strategies (HOW)**: Provision of skillful, timely training, coaching, performance assessments in supportive administrative environments organized by ECE Providers, Networks, and L
- **Implementation Outcomes**: Early Care Educators competently and confidently use effective ECE strategies
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<td>Agreements with Trainers, Consultants and Coaches</td>
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<td>Regional and State ECE Trainers, Quality Consultants, and Technical Assistance Providers</td>
<td>PD System Planners develop standardized and centralized approach to PD Services in order to develop core knowledge and skills of PD providers.</td>
<td>Timely and skillful provision of services by Regional or State ECE Trainers, Quality Consultants and Technical Assistance Providers</td>
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# ECE PD Systems Cascading Logic Model

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<td>ECE Policy Makers, Funders, and State Leadership</td>
<td>Common ECE PD Mission developed</td>
<td>Skillful PD System Leadership and Planning to ensure high quality, consistent training for ECE PD consultants and technical assistance providers.</td>
</tr>
<tr>
<td></td>
<td>Formal structures created to build policy-practice feedback loops</td>
<td></td>
</tr>
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<td></td>
<td>Changes in funding streams to support new functions and new relationships</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Collaborative partnerships to build PD System infrastructure</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fidelity and outcome data systems developed and maintained</td>
<td></td>
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</table>
Successful implementation on a useful scale requires...

- Active use of implementation core components “best practices” – “IMPLEMENTATION DRIVERS”
- Purposeful matching of critical implementation activities to the stage of the process – “STAGES OF IMPLEMENTATION”
- A focus on continuous, purposeful improvement – “IMPROVEMENT PROCESSES”
Changing on Purpose

New practices do not fare well in existing organizational structures and systems

- Effective innovations are changed to fit the system, as opposed to existing systems changing to support effective innovations.

People, organizations, and systems...

- Cannot change everything at once (too big; too complex; too many of them and too few of us)
- Cannot stop and re-tool (have to create the new in the midst of the existing)
- Cannot know what to do at every step (we will know it when we get there)
- Many outcomes are not predictable (who knew!?)
Practice-Policy Feedback Loops

Management Team

Policy Enabled Practice (PEP)

Practice Informed Policy (PIP)

Implementation Team

Practitioners
Children
Practice-Policy Feedback Loops

Adaptive Challenges
- RFP methods
- IHE curricula
- Salaries
- Funding
- Credentialing
- Licensing
- Time/scheduling
- Union contracts
- Duplication
- Fragmentation
- Hiring criteria
- Federal/State laws
- Silos

Organized, “Expert” Assistance

Management Team

System Change

Practice Informed Policy (PIP)

Policy Enabled Practice (PEP)

Implementation Team

Practitioners Children
Supporting the Change Process

Letting “It” happen. . .
- Innovation occurs without intervention

Helping “It” happen. . .
- Interested innovators figure it out on their own

Making “It” happen. . .
- Active use of strategies to support the adoption of the innovation
- Active installation of supports for the implementation of the innovation

Based on Greenhalgh, Robert, MacFarlane, Bate, & Kyriakidou, 2004
“Who” Makes It Happen?

Organized, “Expert” Assistance:

- Purveyors
- Intermediary Organizations
- Implementation Teams
Implementation Science

Successful implementation of an EBP or innovation on a useful scale requires a purveyor

- An individual or group of individuals representing a program or practice who actively work to help others implement that practice or program with fidelity and good effect.

- Accumulate data and experiential knowledge, and become more effective and efficient over time, and work simultaneously at multiple levels of the system.

- Affiliated with researchers, researchers who become purveyors, T & TA Centers, private consultants sanctioned by developers.
Implementation Teams

Provide accountable structure to move intervention through stages of implementation

Focus is on

- Ongoing “buy-in” and readiness
- Installing and sustaining the Implementation Drivers
- Fidelity & Outcomes
- Alignment (funding and policy) and Stage-based work
- Building the new system – linkages
- Problem-solving and sustainability
Implementation Team

Simultaneous, Multi-Level Interventions

Practitioner Competence
Provider Agency Supports
Management (leadership, policy)
Administration (HR, structure)
Supervision (nature, content)
Regional Authority Supports
State Leadership
Questions to think through:

- What **knowledge** and **tools** are needed for researchers to help identify and determine effective practices and programs?
- What **measurement strategies** need to be in place so that we aren’t just asking **WHAT** is effective but **HOW** is it effective?
  - For whom and under what circumstances?
  - Beyond efficacy of the intervention, what do we need to measure?
  - Are we measuring implementation infrastructure (i.e., each of the Drivers)?
- Are we measuring implementation at **every level of the system**?
- What is the **role** of researchers in providing programs feedback for continuous program improvement?
  - Evaluator vs. purveyor
Implications for ECE Policy & Practice

What information at each stage of implementation do program developers and policymakers need to have to make informed decisions?

What infrastructure needs to be in place for successful implementation at each stage?
Summary

Improving ECE practice and outcomes for children through:

- Purposeful selection of an effective and feasible “What”
- Conceptualize a change process *so that* effective teacher practices can become embedded and sustained in socially complex settings
  - “stage-matched activities to guide the process
  - “implementation drivers” to build the infrastructure
- Improvement processes are critical
  - the work is never done because the environment is in motion
- Invest in the development of organized, “expert” implementation support

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