Implementing Quality Early Childhood Programs in the Context of the Post-2015 Sustainable Development Goals

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April 23, University of New Mexico

Overview

• I. Early Childhood Development in the 2015-2030 UN Sustainable Development Goals
• II. From Goals and Targets to Implementation: Implementing quality programs at scale using curricula + on-site mentoring
  — Prenatal to age 2 example: PEDS Trial parenting + nutrition intervention, Pakistan
  — Preschool education example: Boston Prekindergarten Program

I. EARLY CHILDHOOD DEVELOPMENT IN THE 2015-2030 UN SUSTAINABLE DEVELOPMENT GOALS

How SDG’s will be different from the 2000-2015 Millennium Development Goals (MDG’s)

• Incomplete MDG agenda + urgency of climate change and environmental degradation (Rockstrom et al., 2009, Nature; Steffen et al., 2015, Science)
• Therefore drafted for high-income country relevance, not just LMIC’s
• Much more inclusive process
• Interconnected challenges require collaboration & problem solving
UN Sustainable Development Solutions Network (SDSN)


Four of 9 planetary boundaries exceeded: (climate change, biosphere integrity, land-system change, and altered biogeochemical cycles) SDSN workgroup on planetary boundaries

Where is early childhood development in the 2000-2015 MDG’s?

- Not included, beyond infant and maternal mortality
- Past 20 Yrs: Much stronger evidence base
- Challenge: Can we communicate this science and its implications for policy in the SDG development process?

Science to Policy: February-June 2014 briefings of the UN Working Group on the SDG’s

Young Children as a Basis for Sustainable Development

Issue Brief
Prepared by the Thematic Group on Early Childhood Development, Education, and Transition to Work
February 18, 2014
Decades of Science from Many Disciplines
All Point to the Same Conclusion

The healthy development of children provides a strong foundation for healthy and competent adulthood, responsible citizenship, economic productivity, strong communities, and a sustainable society.

Children are the common basis for all dimensions of sustainable development. No advances in sustainable development will occur in coming decades without multiple generations contributing to societal improvement. Moreover, beyond sheer survival, children have a right to thrive, develop to their full potential, and live in a sustainable world.

Lifelong Benefits of Investing in Quality ECD Programs and Policies

- Raising quality preprimary enrollment to 100% in low- and middle-income countries: benefit / cost ratio 7 to 15, depending on discount rate
  - (Engle et al., 2011; Hidrobo, Alderman, & Behrman, 2014)
- Based on school attainment / earnings projected effects
- Jamaican parenting intervention from birth to 2 years (integration of nutrition, health and learning, though parenting component produced the long-term effects):
  - Higher IQ; Reduced depression, violence at age 22
  - 50% higher earnings at age 22 (Gertler, Heckman et al., 2013)
Current draft SDG Education goal and targets do include ECD

- Goal 4: “Ensure Inclusive and Equitable Quality Education and Promote Life-long Learning Opportunities for All”
- Target 4.2: “By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education.”
- INDICATORS UNDER CONSIDERATION for Target 4.2:
  - Percentage of children under 5 years of age who are developmentally on track in health, learning and psychosocial well-being (UNICEF ECDI and other measures)
  - Percentage of children aged 24 months and above who attend an organized early learning/care and education programme.
- 30+ OTHER RELEVANT INDICATORS IN HEALTH, POVERTY REDUCTION, WATER, etc. assuming age disaggregation.

II. FROM GOALS AND TARGETS TO IMPLEMENTATION: HOW CAN WE IMPLEMENT ECD PROGRAMS AND POLICIES WITH QUALITY AT SCALE?

EXAMPLE 1. PAKISTAN (0-2 PARENTING PROGRAM)
EXAMPLE 2. USA (PRESCHOOL EDUC)
### Dimensions of quality that matter for children in prenatal-3 home visiting programs

**Effectiveness factors for home visiting include:**
- More highly trained visitors = larger effects.
- No evidence that 1-3 visits have any impact.
- Engaging and maintaining participation of families.
- Opportunities for practice and skill-building to promote responsive and stimulating parenting interactions.
- Some successful programs specifically target populations at high risk with focused curricula (e.g., focused on parent responsiveness in the first year of life; focused on behavior management for preschool-aged children).

### Dimensions of quality in preprimary education programs

**Structural Quality** (group size; adult-child ratio; teacher qualifications)
- Process Quality (quality of teacher-child interaction, including warmth and responsiveness as well as classroom instructional practices to support specific skills in children)
- Structural quality features help to create conditions for positive process quality, but do not ensure that it will occur.

### A promising pathway to promote quality in ECD programs and policies

**Combination of**
- 1) Evidence-based and developmentally focused curricula
  - Focus on specific developmental skills
  - Sequence of engaging, enjoyable activities and materials that build on developmental evidence of how skills grow during the period
  - Culturally relevant and congruent with community and policy goals
- 2) On-site, frequent mentoring and coaching
  - Contrasts with usual supervision or “inspection” model in the US and LMICs
  - Supportive feedback in context of mutual rapport and trust rather than high-stakes evaluation

### Example 1. PEDS Intervention, Pakistan
(Yousafzai et al., 2014, Lancet)

**Combination of:**
- 1) Evidence-based Curriculum (Care for Child Development parenting module of WHO / UNICEF, adapted for rural Pakistan
  - Home visitors support mothers’ responsive and stimulating activities with infants / toddlers – practice and feedback – in monthly visits from 0-24 months
- 2) On-site monthly mentoring of the implementing home-visitor workforce (community health worker workforce of Pakistan – LHW’s) by coaches
- This combination tested with and without additional nutrition support (micronutrients and nutritional counseling) to promote healthy growth
Study Design

- Cluster randomized control trial.
- 1489 children have been recruited at birth in to one of 4 intervention groups:
  1. Standard UFW services (Control)
  2. Care for Child Development Package (ECD)
  3. Nutrition Education and Sprinkles (Enhanced Nutrition)
  4. Care for Child Development Package, Nutrition Education and Sprinkles (ECD and Enhanced Nutrition)
- Development, growth and care outcomes assessed from birth to 24 months of age.

<p>| Moderate to Large Positive Effects of CCD Parenting Module on Cognitive Skills at 24 months (+.5-.7 ES) |
|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|</p>
<table>
<thead>
<tr>
<th>ECD &amp; Enhanced Nutrition</th>
<th>ECD</th>
<th>Enhanced Nutrition</th>
<th>Control</th>
<th>P Value</th>
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</thead>
<tbody>
<tr>
<td>Cognitive 12m</td>
<td>97.8 (1.0)</td>
<td>94.2 (1.2)</td>
<td>94.0 (0.9)</td>
<td>90.1 (0.8)</td>
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<tr>
<td>Cognitive 24m</td>
<td>80.3 (1.1)</td>
<td>83.2 (1.2)</td>
<td>76.5 (1.5)</td>
<td>71.9 (1.0)</td>
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<tr>
<td>Language 12m</td>
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<td>76.0 (1.2)</td>
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<tr>
<td>Language 24m</td>
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<td>86.1 (0.8)</td>
<td>83.1 (1.3)</td>
<td>75.7 (0.9)</td>
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<td>Motor 12m</td>
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<td>Motor 24m</td>
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<td>93.2 (1.3)</td>
<td>87.8 (1.5)</td>
<td>81.9 (1.2)</td>
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<tr>
<td>Soc-E Em 12m</td>
<td>81.5 (0.9)</td>
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<td>80.6 (0.8)</td>
<td>74.8 (0.8)</td>
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<tr>
<td>Soc-E Em 24m</td>
<td>94.1 (1.6)</td>
<td>92.4 (1.3)</td>
<td>95.6 (1.6)</td>
<td>94.3 (2.7)</td>
</tr>
</tbody>
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Example 2. Boston PreK program

- Combination of:
  1) Evidence-based curricula
     - OWL (Broad curriculum across physical, arts, social, science, social studies, language, literacy, math domains, with particular focus on language / literacy -- Schickedanz & Dickinson, 2007) and
     - Building Blocks math curriculum (Clements & Sarama, 2007)
  2) Coaching twice a month; one set of coaches supporting two curricula as well as positive behavior management, classroom organization
Boston's Strong Curricula + Coaching Boost
Executive Function
(Weiland & Yoshikawa, 2013)

<table>
<thead>
<tr>
<th></th>
<th>Backward DS (working memory)</th>
<th>Forward DS (working memory)</th>
<th>Pencil Tap (inhibitory control)</th>
<th>DCCS (cognitive flexibility)</th>
</tr>
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<tbody>
<tr>
<td>Effect size</td>
<td>0.24***</td>
<td>0.24***</td>
<td>0.21***</td>
<td>0.28***</td>
</tr>
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Boston preK substantially reduces school readiness
gaps: income, race/ethnicity and DLL status

- Subgroups: All children benefitted, but impacts particularly
  impressive and larger for children from lower-income families and
  Latino children.
  - Completely closed the kindergarten school readiness gap
    among poor and non-poor children in mathematics
  - Completely closed the school readiness gap between Latino
    and White children in early reading and mathematics
  - Narrowed school readiness gaps between White and Asians
    and between White and Black students.
  - Caution – gaps can open up again as different groups
    experience different schooling, or as comparison groups gain
    skills, later

Conclusion:
Fulfilling the Promise of Quality in ECD
Programs and Policies

- SDG target on ECD likely to remain, with word
  “quality”
- In US and LMIC’s alike, combination of evidence-
  based curricula and on-site mentoring of teachers
  can raise process quality
- Combination is proving effective in both 0-3 home-
  based programs as well as preschool education

Video of the Boston PreK Program

- https://www.youtube.com/watch?v=URZkGPwcsn0
Adaptation of child development measures in rural Pakistan

- How to engage children?
- Tips for engaging the child included: getting down on the child’s level to play with objects that were not from EF tasks, inviting the child to play if the child is shy, asking the child simple questions, engaging with the child in a simple game that involves following directions (e.g., playing pattycake) so that the child can get used to hearing instructions from the data collector and providing a response or action
- Observer rating measure (Smith-Donald & Raver Preschool Self-Regulation Assessment, adapted in low-income urban Chicago sample): Aggression items removed

Rounds of pilot testing

- Pool of families for pilot testing (60 families, children 4.1 to 4.3 years old – target age for full follow-up study)
- Each round – 5 children
- Some measures required more than 3 rounds of testing and changing the measure, often drastically, in between

References

Stroop: Round 1
Difficulty associating sun with day and moon with night
Say "moon" when sun is presented; say "sun" when moon is presented.

Stroop: Round 2
Difficulty with “sun” and “moon”
Say "little" when big cat is presented; say “big” when little cat is presented.

Cognitive Flexibility: The Dimensional Change Card Sort: Shapes and Colors
"Shape" in instructions changed to “picture”

Cognitive Flexibility: The Dimensional Change Card Sort
"Grass Colored"
"Mango Colored"