Contextual parameters of healthy child development

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Aligning child health to sustainable development goals

“All SDGs interact with one another – by design they are an integrated set of global priorities and objectives that are fundamentally interdependent.”

(International Council for Science (ICSU) 2017) “from science to implementation”

SDG 3:  good health and well-being for people
SDG 4:  quality education
SDG 5:  gender equality
SDG 6:  clean water and sanitation
SDG 10: reduced inequality within and among countries
SDG 12: sustainable consumption and production patterns
SDG 16: peaceful and inclusive societies
SDG 17: global partnership
Humans have evolved as an altricial species, whose young develop through social interaction with conspecifics within in an ecocultural niche.

Each society’s developmental niche combines particular

• Physical and social settings
• Customary child care practices
  adapted to those settings, and informed by
• Ethnotheories of caregiving
  that include parental goals and principles

( Super & Harkness 1986 )
Candidates for the status of universal goals of child–rearing care and education

- Safety and physical health
- Manipulative and locomotor competence
- Emotional wellbeing
- Communicative competence
- Social responsibility
Some critical knowledge gaps in developmental science

• Socially distributed care and emotional security

• Language development in extended family and multilingual contexts

• Child-to-child interaction as a source of cognitive development
Internationally agreed ways of promoting child development, with a need for context-sensitive ways of monitoring progress

- Safety and physical health
  - nutrition, growth charts, the question of norms

- Manipulative and locomotor competence
  - milestones of behavioral development
Under – 5 Growth Chart

Slope is what matters
Culture varies across both space and time

In the years after World War 2, in a 1946 birth cohort study of 5,300 children in Britain, 7-year-old children of poor families were shorter and weighed less than children of wealthy families.

After the end of post-war rationing in 1953, aggressive marketing of soft drinks and other sugary foodstuffs increased, and healthy foods became less affordable. Fifty years later, in the same nation’s 2001 birth cohort study of 16 404 children, 7-year-olds of poor families still had lower average height than those of wealthy families, but they had higher average weight and higher body-mass index (BMI).

Thus, over this period “socioeconomic inequalities in weight ... changed direction and those in height narrowed, whereas inequalities in BMI and obesity emerged and widened. These substantial changes highlight the powerful impact of societal changes on child and adolescent growth and the insufficiency of previous policies in preventing obesity and its socioeconomic inequality.”

(Bann et al, Lancet Public Health 2018)
Some gaps in scientific consensus about optimal ways of attaining cross-culturally universal developmental goals

• Emotional well-being

• Communicative competence

• Social responsibility
Emotional well-being

• Co-sleeping by parents with their infants was discouraged by many pediatricians in USA and UK in the 1970s as hazardous.

• When Harkness and Super described to the rural Kenyan parents hosting their research the middle-class Western practice of leaving an infant to cry himself to sleep in his own separate bed, many Kenyan mothers regarded the parents as guilty of child abuse.

• The influential **attachment theory** developed by Bowlby, Ainsworth, Van Ijzendoorn and others has been challenged by researchers on infant care in Kenya and Cameroon as grounded in middle-class Western socialization values and misrepresenting indigenous African socialization practices (LeVine, Weisner, Keller and others).

• **Controversy:** Mesman et al, Universality Without Uniformity vs Keller et al, The Myth of Universal **Sensitive Responsiveness** (Child Development 2017-18)
What is the current scientific consensus about early childhood growth of communicative competence?

• The human **infant brain is uniquely predisposed to acquire language**, and to detect which categories of sound carry meaning in the particular language in use in his or her speech community.

• The pragmatics of communication (**how to do things with words**) play a leading role in building early communicative competence.

• **Parents** in middle-class Western contexts who make an effort to shape the process tend to **pay more attention to the truth value of what their children say than to its grammatical form**. Yet somehow,

• within a couple of years the typically developing infant emerges from a speechless, crawling creature of 6 months into an upright walking-talking **4-year-old who makes hardly any of the grammatical errors** that plague an adult 2nd language learner of this child's ‘native language’ or ‘mother tongue’.
Contextual variation in language socialisation

In many sociocultural groups,

• mothers do not systematically try to nurture their infant’s language development, and they regard playing with an infant as an activity for children (Ochs & Schieffelin 1984, Lancy 2007)

• infants receive most of their language input from other, older children

• competent speakers draw flexibly for communication on several linguistically different speech varieties

• the medium of instruction in primary school is different from the languages spoken in most children’ homes (Trudell 2016)
Is the intensity with which mothers talk to their infants a critical factor for first language development?

A study of maternal speech addressed to infants in two USA cultural groups (Hart & Risley 1992) has been widely cited by policymakers as evidence of a “word gap” between high and low-income family settings that calls for remedial intervention to increase low-income mothers’ talking to their children.

But recent analysis of infants’ language exposure across several American speech communities has not confirmed those findings, and concluded that “definitions of verbal environments that exclude multiple caregivers and bystander talk disproportionately underestimate the number of words to which low-income children are exposed”.

( Sperry, Miller & Sperry 2018 ).
Mean number of word tokens per hour addressed by all interlocutors to & around focal child, across various communities:

- **Black Belt (poor)**: 3,203
- **Longwood (MC)**: 2,496
- **Jefferson (WC)**: 2,491
- **Kansas (professional)**: 2,153
- **Daly Park (WC)**: 1,823
- **South Baltimore (poor)**: 1,619
- **Kansas (MC)**: 1,400
- **Kansas (WC)**: 1,137
- **Kansas (poor)**: 616

**African-American poor families**

**European-American middle-class families**

Sperry, Miller & Sperry (Child Development, in press 2018)
Mean differences in quantity of vocabulary (word tokens) heard by children across three conditions

 Tokens per Hour

<table>
<thead>
<tr>
<th>Community</th>
<th>South Baltimore</th>
<th>The Black Belt</th>
<th>Jefferson</th>
<th>Daly Park</th>
<th>Longwood</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC caregiver alone</td>
<td>1,200</td>
<td>2,500</td>
<td>1,400</td>
<td>1,600</td>
<td>1,500</td>
</tr>
<tr>
<td>AC All caregivers</td>
<td>2,000</td>
<td>3,000</td>
<td>2,200</td>
<td>2,400</td>
<td>2,600</td>
</tr>
<tr>
<td>AS all interlocutors in ambient environment</td>
<td>1,800</td>
<td>3,200</td>
<td>2,000</td>
<td>2,200</td>
<td>2,400</td>
</tr>
</tbody>
</table>

Sperry, Miller & Sperry
(Child Development, in press 2018)
Social responsibility

Studies of African socialization practices have documented

• Shared responsibility for care of infants and young children
  (Weisner & Gallimore 1977: *my brother’s keeper*)

• Sending children on errands as priming for development
  (Nsamenang 1992: *social apprenticing*)

• Playful engagement with economically significant tasks
  (Abebe & Waters 2015: *Labouring and Learning*)
Is this exploitative deprivation of the right to play? OR is it respectful priming for adult responsibility?
Figure 9  Philosophical Forces Influencing Key Personalities

(2001) Educational innovation: a case study
Educational activities documented in the case study of Child-to-Child at Kabale School, Mpika, Zambia

- Plotting growth curves in math classes
- Discussing health & nutrition in science classes
- Monitoring the growth of a younger child
  - escorting him/her to the under-5 clinic
  - evaluating child’s growth
  - preparing oral rehydration solution for treatment of diarrhea
  - nutritional rehabilitation following weight loss
- Community surveys in social studies
- Reflective writing about CtC projects in English
- Cooperative learning in study groups
Grade 5 students studying growth-charts at Kabale Primary School, Mpika, Zambia
Successful outcomes of CtC education

• demonstrable, practical understanding of
  – infant growth-monitoring
  – oral rehydration
  – hygienic treatment of wounds (Mwape & Serpell 1996)
• high academic pass rate (in national school selection exam)
• enduring mutually supportive orientation in high school
• practical child protection skills used in real life by school-leavers (Adamson-Holley 1999)
• long-term appropriation of prosocial values: peer-group cooperation, gender equality, and helping others
  (Serpell, Mumba & Chansa-Kabali 2011)
Children caring for younger children: scientific validation of an African cultural practice

The Child-to-Child approach has been successfully adopted in one province of Ethiopia as a bridge between health and education.

The International Child Development Steering Group (ICDSG) position

The ICDSG articles in the Lancet (2007) weave together a political argument about social justice in response to economic inequalities and a technical argument about the strategic benefits of prevention.

Their argument tends to exaggerate the degree of consensus within the scientific community on what constitutes developmental potential and how its fulfillment is best supported.

They advocate an intervention package along similar lines to the UNICEF strategy of GOBI in the 1980s.
There is no cognitive stimulation package equivalent to GOBI

Biomedical research has established that

Growth-monitoring, Oral rehydration therapy, Breast-feeding and Immunization are universally effective causes of infant survival, growth and health.

ICDSG propose that

stimulation and caregiver sensitivity are universally effective causes of development of children’s cognitive and social-emotional competence

But psychosocial intervention to optimize the development of young children cannot be operationalized with the same degree of cross-cultural equivalence as a vaccine or breast-feeding.
What does developmental science have to offer?

• Children develop in a dynamic eco-cultural context

• Successful interventions coordinate multiple stakeholder groups

• Strengths-based initiatives can fuel progressive social change
References available on request from robertNserpell@gmail.com