Early years matter:
They set the stage for further development
Continuation of differences

Hypothetical growth trajectories

Kindergarten  Age 10  Age 15  Kindergarten  Age 10  Age 15

Simple continuation of differences  Increasing differences
Target for interventions

Hypothetical growth trajectories

Kindergarten Age 10 Age 15

School-based interventions

Kindergarten Age 10 Age 15

Desired results
Target for interventions

Hypothetical growth trajectories

Kindergarten  Age 10  Age 15

School-based interventions

Kindergarten  Age 10  Age 15

Frequently-achieved results
Target for interventions

Hypothetical growth trajectories

Pre-school-based interventions

Desired results
Readiness to learn concept

Children are born ready to learn:

the neurosystem is pre-programmed to develop various skills and neuropathways, depending on the experience it receives.
All children are born ready to learn

- Early development: speed, plasticity, non-linearity, vulnerability
- Children are active participants
- Interplay between genes and environment
- Importance of early interaction and stimulation
Readiness for school

Refers to the child’s ability to meet the task demands of school, such as:

- being comfortable exploring and asking questions,
- listening to the teacher,
- playing and working with other children,
- remembering and following rules.

In short, it is the ability to benefit from the educational activities that are provided by the school.
Domains of school readiness

- Physical health and well-being
- Social competence
- Emotional maturity
- Language and cognitive development
- Communication skills and general knowledge
Early Development Instrument (EDI)

- Teacher-completed
- 104 questions grouped into the five domains
- Indicators of special problems and special skills
- Up to 10 questions about the child’s preschool experience
Purposes of the EDI

- Report on populations of children in different communities
- Monitor populations of children over time
- Predict how children will do in elementary school
Physical Health and Well-being

SUBSCALES

- Physical readiness for school day
- Physical independence
- Gross and fine motor skills
Social Competence

SUBSCALES

- Overall social competence
- Responsibility and respect
- Approaches to learning
- Readiness to explore new things
Emotional Maturity

SUBSCALES

◆ Pro-social behaviour and helping behaviour
◆ Anxious and fearful behaviour
◆ Aggressive behaviour
◆ Hyperactivity and inattention
Language and Cognitive Development

SUBSCALES

- Basic literacy
- Interest in literacy/numeracy and memory
- Advanced literacy
- Basic numeracy
Communication Skills and General Knowledge

(No subscales)

Ability to clearly communicate one’s own needs and understand others

- Clear articulation
- Active participation in story-telling (not necessarily with good grammar and syntax)
- Interest in general knowledge about the world
Can school readiness serve as an indicator of children’s health in a community?

- Concept of health
- Population level indicator
- Usefulness
<table>
<thead>
<tr>
<th>Population-level indicator</th>
<th>YES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data collected from the whole population, or a representative sample</td>
<td>YES</td>
</tr>
<tr>
<td>Method relevant to the issue(s) in question</td>
<td>YES</td>
</tr>
<tr>
<td>Feasibility and ease of use (timing, respondents)</td>
<td>YES</td>
</tr>
<tr>
<td>Suitable for policy recommendations</td>
<td>YES</td>
</tr>
</tbody>
</table>
Children who score low in one or more of the five domains of the EDI

“Low” - in the lowest 10 percent of the population within their site

Specific for domain

Specific for site

Norms available for comparison
Readiness to Learn at School by Family Income (N=1799)

Number of children “Not ready”

School readiness and Grade 3 by neighbourhood affluence

Mean % vulnerable in kgtn

% below standard in Grade 3 in:
- Reading
- Writing
- Math

Neighbourhood Affluence:
- Lowest 20%
- 21-40%
- 41-60%
- 61-80%
- Above 80%
School readiness and neighbourhood affluence

% vulnerable in kindergarten

- Community 1
- Community 2

Neighbourhood Affluence:
- Lowest 25%
- 25-50%
- 51-75%
- Over 75%
## Contribution of EDI and SES to Grade 3 scores

<table>
<thead>
<tr>
<th>Neighbourhood level</th>
<th>EDI</th>
<th>SES variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading</td>
<td>8%*</td>
<td>10%*</td>
</tr>
<tr>
<td>Writing</td>
<td>7%*</td>
<td>8%*</td>
</tr>
<tr>
<td>Math</td>
<td>5%</td>
<td>12%*</td>
</tr>
</tbody>
</table>

*Source: Janus, Harren, Duku 2004  * * p<.05*
EDI and breastfeeding: neighbourhood

- 21 Neighbourhoods in a Southern Ontario community
- Data: % Low Birth Weights; % mothers breastfeeding at discharge from hospital; % Low on the EDI
- Correlations:
  - % Low EDI with % breastfeeding: -0.60
  - % Low BW with % breastfeeding: -0.54
EDI and birth weights - individual

- Birth weight: Low and Normal
- Timing of birth: Early and Normal
- Normal BW, Normal TB least likely to have low EDI scores
- Low BW, Early TB and Low BW, Normal TB most likely to have lowest scores
Can the EDI be adapted?

- Used in three other countries with minimal changes
- Subscale identification allows for valid shortening
- Some room for adjusting items to ensure relevance to local context
Steps leading to the brief EDI

- Selection of 3 items per subscales: 3 with highest loadings in the normative sample
- Reliability of thus shortened scales in comparison with original EDI
- Used the same 3 items for checking “short/long” reliability with Australian and US samples
- Further reliability testing
Tasks required

- Testing short form (can be done as a pilot work)
- Local expert validation of the items selected for short EDI - local educators, academics
- Confirmatory factor analyses
Summary of short EDI reliability/validity
Reliability results - 1

- Operational definition of “not ready”: within lowest 10th percentile on 1 or more scales
- Overlap of populations scoring as ready or not ready:
  - Ready: 92.9% (89.4% if 2 items)
  - Not ready: 92.3% (93.7% if 2 items)
Reliability results - 2

- More stringent operational definition of “not ready”: within lowest 10th percentile on 2 or more scales
- Overlap of populations scoring as ready or not ready:
  - Ready: 88.6%  (89.0% if 2 items)
  - Not ready: 97.3%  (96.0% if 2 items)
Reliability results - 3

- Multiple Challenge Index: a child scoring below a specified level on at least 9 of 16 subscales (based on the original EDI)
- 100% of children with MCI fall in the lowest 10th percentile on 1 or more scales
- 98.9% of children with MCI fall in the lowest 10th percentile on 2 or more scales
Validity results - 4

- Association with other tests

Correlations with PPVT:

<table>
<thead>
<tr>
<th></th>
<th>EDI</th>
<th>short EDI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lang-Cognitive</td>
<td>.344</td>
<td>.311</td>
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<tr>
<td>Communication</td>
<td>.477</td>
<td>.418</td>
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</tbody>
</table>
Validity results - 5

Correlations with First Steps assessment:

<table>
<thead>
<tr>
<th></th>
<th>EDI</th>
<th>Short EDI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Health and Well-being</td>
<td>0.54</td>
<td>0.53</td>
</tr>
<tr>
<td>with FS Motor score</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Competence</td>
<td>0.65</td>
<td>0.62</td>
</tr>
<tr>
<td>Emotional Maturity</td>
<td>0.73</td>
<td>0.70</td>
</tr>
<tr>
<td>with FS Socio-emotional score</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Language and Cognitive Development</td>
<td>0.58</td>
<td>0.56</td>
</tr>
<tr>
<td>Communication Skills and General Knowledge</td>
<td>0.52</td>
<td>0.53</td>
</tr>
<tr>
<td>with FS Cognitive score</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N=68-94, all p<0.001