

Early Development Instrument: An indicator of developmental health at school entry

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Early development

- ◆ All children are born wired for feelings and ready to learn
- ◆ Brain development depends on the interaction between genes and environment
- ◆ It is complex, fast, and flexible

Early years matter

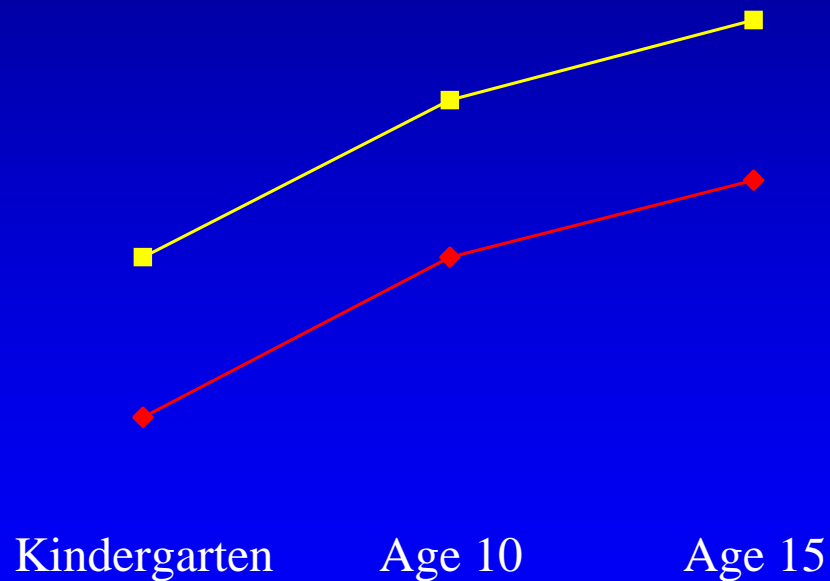
- ◆ They set the stage for further development
- ◆ All children are born ready to learn:
the neurosystem is pre-programmed to develop various skills and neuropathways, depending on the experience it receives.



Domains of early development

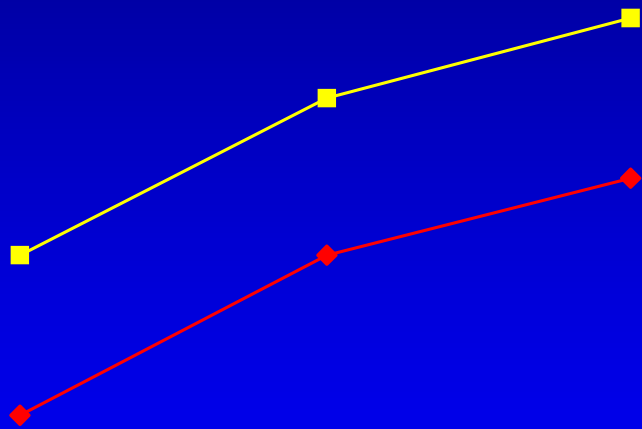
- ◆ Physical health and well-being
- ◆ Social and emotional competence
- ◆ Approaches to learning
- ◆ Cognitive and language competence
- ◆ Communication skills

Hypothetical growth trajectories



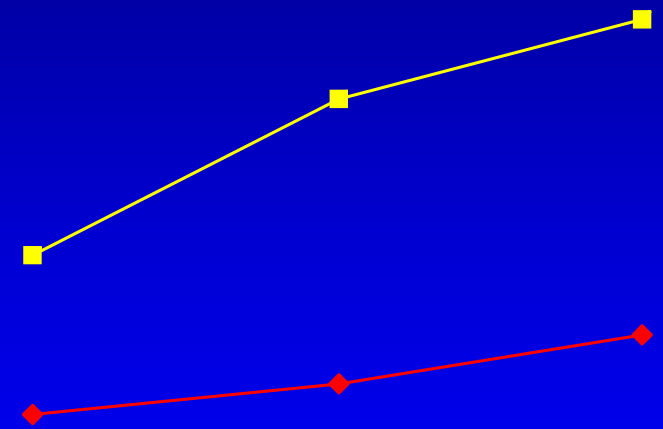
Simple continuation of differences

Hypothetical growth trajectories



Kindergarten Age 10 Age 15

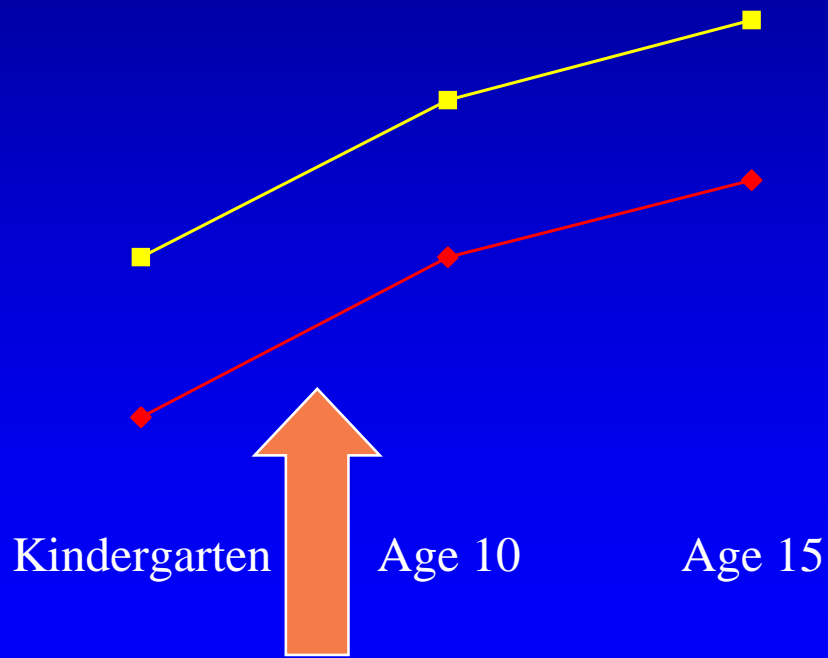
Simple continuation of differences



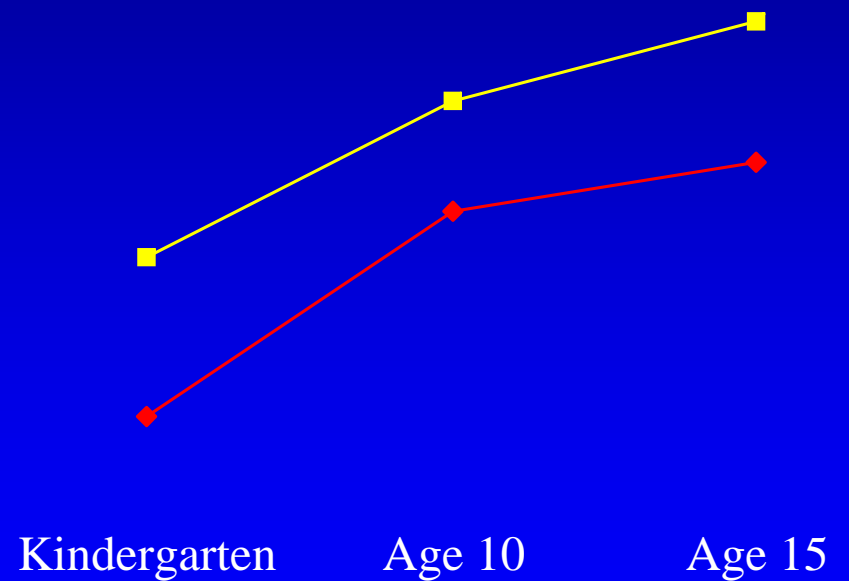
Kindergarten Age 10 Age 15

Increasing differences

Growth trajectories



School-based interventions



Frequently-achieved results

School readiness

School readiness reflects developmental outcomes and milestones achieved during the first five years of life within the context of early experiences



- ◆ Children develop exactly the same way regardless of their place of birth and ethnicity
- ◆ There are variations in manifestation of developmental milestones
- ◆ Indicators of health are universal, but need to be anchored in culture and context

Age of transition

- ◆ 5 to 7 - age of transition into independence
- ◆ School entry age in many countries
- ◆ Age of increased responsibility
- ◆ School entry as a marker for the 5-7 age range

Outcome of transition to school

- ◆ Child contribution - outcome of the early years in the family, neighbourhood; with age/gender/culture combination
- ◆ School contribution - transition practices towards easing of the process
- ◆ “Whole child” view of adjustment

Prosperous Society

Innovative and
Competitive Workforce

Resources to Fund
Programs that Foster
Healthy Child
Development

Healthy Children
and Adolescents

Healthy Child
Development

How do we know that children are exposed to optimal social and physical environment?

- ◆ Need to keep score
- ◆ Need to monitor over time

Existing common indicators

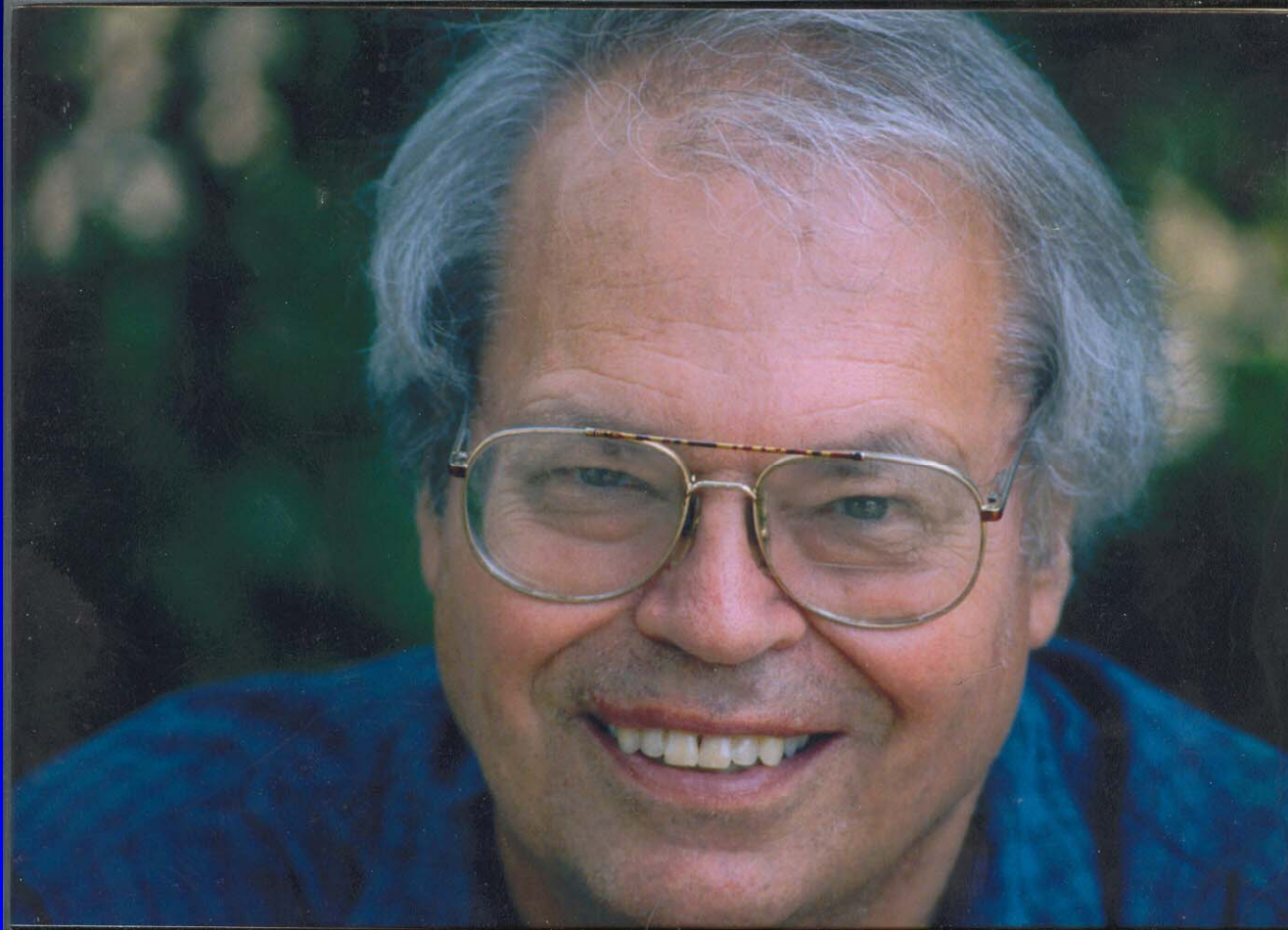
- ◆ Infant/child mortality rates
- ◆ Prenatal and antenatal care
- ◆ Low birth weight
- ◆ School enrollment
- ◆ School drop-out rates

Existing common indicators

... do not account for the child's
development

Measuring child development

- ◆ Incorporate aspects of the major developmental areas
- ◆ Allow for association with external factors
- ◆ Reliable, valid, and sensitive
- ◆ Comparable across groups of children





EARLY DEVELOPMENT INSTRUMENT

a population-based measure for communities

As of April 2006

- ◆ Canada: data from over 300,000 children
- ◆ Normative data for 5-year-olds (N=116,800)
- ◆ Three provincial coverages: BC, Manitoba, Ontario
- ◆ International implementation in 6 other countries (Australia, USA, Chile, New Zealand, Jamaica, Kosovo)
- ◆ Translated into 2 other languages

Early Development Instrument (EDI)

- ◆ Completed by teacher or early childhood educator
- ◆ Items grouped into five domains
- ◆ Long: 104; short: 35-50
- ◆ Items adaptable to the local context
- ◆ May include:
 - Indicators of special problems and special skills
 - Questions about the child's pre-school experience

Information from the EDI

- ◆ Average scores for groups of children in five domains/16 subdomains
- ◆ Percentages of children who are vulnerable:
 - for each domain
 - overall
- ◆ Percentage of children with Multiple Challenge Index (MCI)

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

Child development at school entry

School readiness as an indicator of developmental health:

- a holistic concept involving several developmental areas
- reflects developmental outcomes and milestones achieved during the first five years of life within the context of early experiences

Domains of school readiness

- ◆ Physical health and well-being
- ◆ Social competence
- ◆ Emotional maturity
- ◆ Language and cognitive development
- ◆ Communication skills and general knowledge

School readiness is an indicator of children's health in a community

- ◆ Reflects a broad concept of health
- ◆ Population level indicator
- ◆ Useful at macro and micro-levels

An example

- ◆ EDI collected in 1999 and 2001
- ◆ 162 schools; neighbourhood income data
- ◆ EDI grouped into Cognitive and Socioemotional
- ◆ Explored median income based on census 1996 and 2001

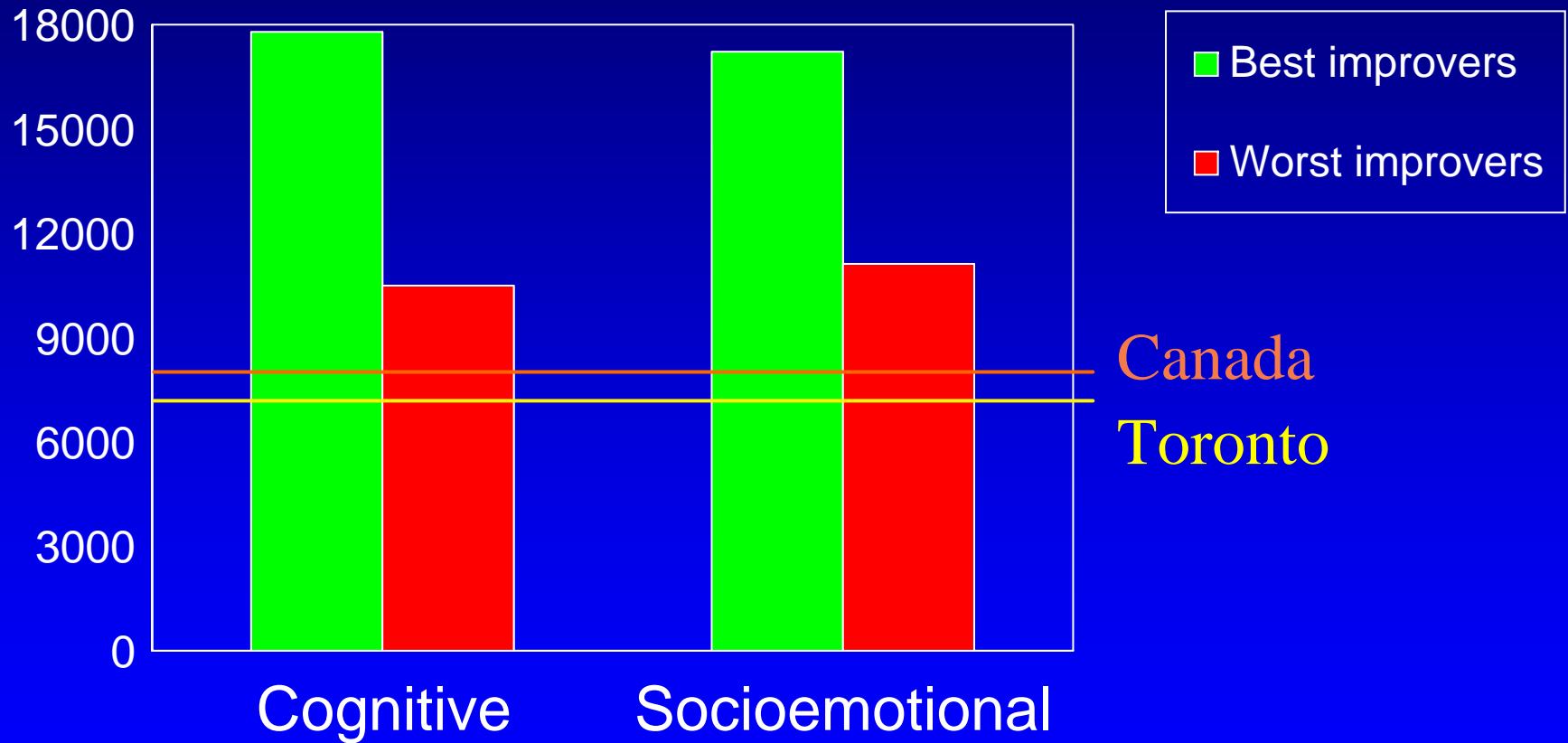
EDI 2001 is predicted by...

Domains Variance	<u>Cog</u>		<u>Social</u>	
	Tot	ΔR^2	Tot	ΔR^2
EDI 1999 only	.32		.211	
EDI 99, Income 96+2001	.364	.052	.236	.024
EDI 99, Income 96	.35	.034	.228	.016
EDI 99, Inc 96, Inc 01	.364	.018	.236	.008

Next step

- ◆ 162 school
- ◆ 4 equal groups based on improvement (99-2001) in Cognitive and Socioemotional scores
- ◆ Contrast the Best and Worst improvers
- ◆ Compare the change in median income between the neighbourhoods

Change in neighbourhood income



Ways to use the EDI

- ◆ Basic information
- ◆ Comparisons of degree and range of vulnerability
- ◆ Associations

Validity of the EDI

- ◆ Concurrent validity: comparisons with other tests (cognitive, language)
- ◆ External validity: 1) comparisons with other measures of similar concepts: parent reports; 2) relationships with other measures
- ◆ Predictive validity: prediction of later scores

Validity of the EDI

◆ Concurrent validity

Language tests: 0.26-0.57

Developmental diagnostic tests: 0.54-0.73

◆ External validity

Parent reports: Physical Health and Well-being: 0.15-0.34; Social Competence and Emotional Maturity: 0.21-0.48; Language and Communication: 0.15-0.26;

Other measures: e.g., boys, children from low-income families are more likely to be vulnerable

◆ Predictive validity

Prediction of scores in Grade 2: 0.19-0.46

Reliabilities of the EDI Domains

Domain & Sub-domains	Canada	Seattle, WA	Perth, Australia	Jamaica	Chile
physical health and well-being	0.831	0.823	0.806	0.641	0.779
social competence	0.953	0.958	0.942	0.930	0.928
emotional maturity	0.923	0.926	0.922	0.866	0.917
language and cognitive development	0.907	0.892	0.883	0.883	0.882
communication and general knowledge	0.931	0.957	0.934	0.890	0.864

Steps in adapting to local context

- ◆ Experts' feedback regarding the relevance of items
- ◆ Possible change: within limits of the subdomains for comparability
- ◆ Pilot implementation with teachers/ECE
- ◆ Local validity assessment

EDI vs. Short EDI

- ◆ Correlations with EDI domains and subdomains: 0.795 to 0.973
- ◆ Overlap of populations scoring as ready or not ready:
 - Ready: 92.9%
 - Not ready: 92.3%

Strengths of the EDI

- ◆ Holistic picture of children's well-being
- ◆ No labelling of individual children
- ◆ Adaptable to a local context
- ◆ Means for international comparisons

Requirements for a measurement

- ◆ Sensitive to local context
- ◆ Sensitive to cultural differences
- ◆ Cover the universals

- ◆ Comparability vs. context

Concluding reminders

- ◆ Children everywhere develop the same way
- ◆ Everywhere, we have the same responsibility for their well-being
- ◆ We need to *monitor* the status of children's well-being and *interpret* the changes

Reminder....



For more information:

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