The Amazing First Three Years of Life
NIFTEY

NATIONAL INVESTMENT FOR THE EARLY YEARS
THE SCIENTIST IN THE CRIB
WHAT EARLY LEARNING TELLS US ABOUT THE MIND

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The Amazing First Three Years of Life

• What people “know” about children
• What children can show us if we watch
• New knowledge about brain development
• Why the early years matter
• Children finding faith
Beliefs about infants’ knowledge

- Children defined by what they didn’t know and couldn’t do
- Romantic view: Children’s knowledge uncorrupted, like poetry rather than science
- Piaget: Babies think, search for knowledge and learn
- Vygotsky: Children use their parents as a tool to solve problems
Beliefs about infants’ knowledge

- Freud: relied on inferences from neurotic adults
- Skinner: relied on the behaviour of slightly less neurotic laboratory rats

Both ignored Bertrand Russell’s advice to Aristotle
How infants

- See
- Compute
- Reason
- Speak
Language

R & L

English = Fried rice

Japanese = Flied lice

Before 7 months Japanese and English speaking infants discriminate R and L equally – not by 12 months
Nature Vs Nurture
Nature Vs Nurture

Too simple

Scientifically obsolete
Nature AND Nurture

Child development is not a matter of nature Vs nurture, it is the interplay of nature and nurture together.
Two Neurons

Axon

RECIPIENT NEURON

Synapse

Dendrite

SIGNAL-SENDING NEURON
Synaptic Density

At Birth 6 Years Old 14 Years Old

Rethinking the Brain, Families and Work Institute, Rima Shore, 1997
Early brain development

• 100 billion nerve cells at birth – most of these are unconnected
  - each neuron may eventually connect to as many as 15,000 other neurones
  - by the age of three, a child’s brain has 1.000 trillion connections
  - by late adolescence one-third of these synapse have been discarded
• Forming and reinforcing these connections are the key tasks of early brain development
Critical Periods
Critical Periods

Windows of opportunity in early life when a child’s brain is exquisitely primed to receive sensory input and develop more advanced neurological systems

Early Years Report 2003
Canadian Government
Evening Cortisol Levels Increase with Months of Orphanage Rearing *
Health problems related to early life and brain development

- Coronary heart disease
- Non-insulin dependant diabetes
- Obesity
- High blood pressure
- Memory loss
- Depression
Key facts about brain development

- The brain development that takes place before age one is more rapid and intensive than we previously realized.

- Brain development is much more vulnerable to environmental influence than we ever suspected.

- The influence of early environment on brain development is long lasting.

- The environment affects not only the number of brain cells and number of connections among them, but also the way these connections are “wired.”

- We have new scientific evidence for the negative impact of early stress on brain function.

Carnegie Corporation of New York (1994)
“One cannot emphasize too strongly the importance of those first years for the course that a child will follow throughout his entire life”.

Erasmus (1529, p.309)
“Early brain development sets a base for learning, behaviour and health throughout life”.

Early Years Report
Human Brain Development –
Synapse Formation

Sensing Pathways (vision, hearing)
Language
Higher Cognitive Function

Conception

-6 -3 0 3 6 9 1 4 8 12 16
Months
Years
AGE

C. Nelson, in From Neurons to Neighborhoods, 2000
The Mismatch Between Opportunity and Investment

Brain's "Malleability"

Spending on Health, Education and Welfare

0  3  10  70

Headstart
Public Education
Research
Welfare
Medicare
Social Security
Medicaid
“If we have a dollar to invest, where do we place it to get the best return? All the evidence points to early intervention as having the highest success rate and therefore the best return for society”.
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James Heckman, 2005
Nobel Prize, Economics
When a child learns security and trust

This paves the way for seeing God as personal, trustworthy and dependable
When a child feels valued as a person

This paves the way for seeing God’s love for individuals
When a child learns about forgiveness and putting things right

This paves the way for concepts of God’s fairness, of repentance and of reconciliation
When a child learns about giving, sharing and preserving and enjoying relationships

This paves the way for talking to and listening for God and for obedience and service