

THE CRITICAL NECESSITY of DEVELOPMENTALLY APPROPRIATE STANDARDS

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I. The Lessons of History

- The key to learning disabilities, delays, impairment
- Success with unsuccessful populations – Brookstone Schools

II. The Lessons of Neuroscience: The Brain Matters!

A. The Role of the Cerebrum – Cerebral Cortex

1. Left/Right hemispheres – linked by Corpus Callosum
2. Considered the seat of thinking, memory, speech, movement

It Includes:

- a) The Frontal Lobes – Executive Control
- b) The Temporal Lobes – Hearing, music, memory, language (left)
- c) Occipital Lobes – visual processing
- d) Parietal Lobes – Spatial orientation, calculation, sensory processing

B. The Cerebellum – Coordinates movement; connected to regions that perform mental and sensory tasks

C. The Brainstem (Reptilian Brain) – vital body functions monitored and controlled

D. The Limbic system – Generation of emotions, processing of emotional memories

- Thalamus – monitors all incoming sensory information
- Hypothalamus – monitors internal systems to maintain normal state of body
- Hippocampus – memory work, memory storage, meaning
- Amygdala – involved in regulating and encoding emotional interactions (fear).
- Significance of Limbic System integration
- Education example

III. The Synthesizing of Neuroscience and Education

A. Brain Cells

1. Explanation of functioning
2. Importance of the growth and interactions of cells

B. Understanding the Windows of Opportunity for Learning

1. Motor Development
2. Vision
3. Language / Vocabulary
4. Math and Logic
5. Emotional Control

IV. Implications for Education

A. The Education Process

1. Blooms Taxonomy (Levels of Complexity of Human Thought)
Revised Version 2001



Create
Evaluate
Analyze
Apply
Understand
Remember

2. Remembering Piaget
 - Early Childhood – concrete operations, dependent
 - Middle years – formal operations, independent
 - High School – formal operations, interdependent

B. Necessity for Developmentally Appropriate Standards

- CCSS Reading Standard for Informational Text
Grade 1.
- 5. *Know and use various text features (e.g., headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text.*

- CCSS Writing Standards.
Grade 1
 1. *Write opinion pieces in which they introduce the topic or name the book they are writing about, state an opinion, supply a reason for the opinion, and provide some sense of closure.*
- CCSS Math Standard Represent and Interpret Data
Grade 1
 - 1.MD.4. *Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.*

C. Implication for Teacher Preparation / Application / Growth

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Internet Sites:

Brain Connections

www.brainconnection.com

Brainland: The Neuroscience Information Center

www.brainland.com

The Society for Neuroscience

www.sfn.org

Whole Brain Atlas

www.med.harvard.edu/AANLIBhome.html