COGNITIVE AND NEUROLOGICAL DEVELOPMENTAL PROCESSES IN THE CONTEXT OF SHARED ADULT-CHILD INTERACTIONS

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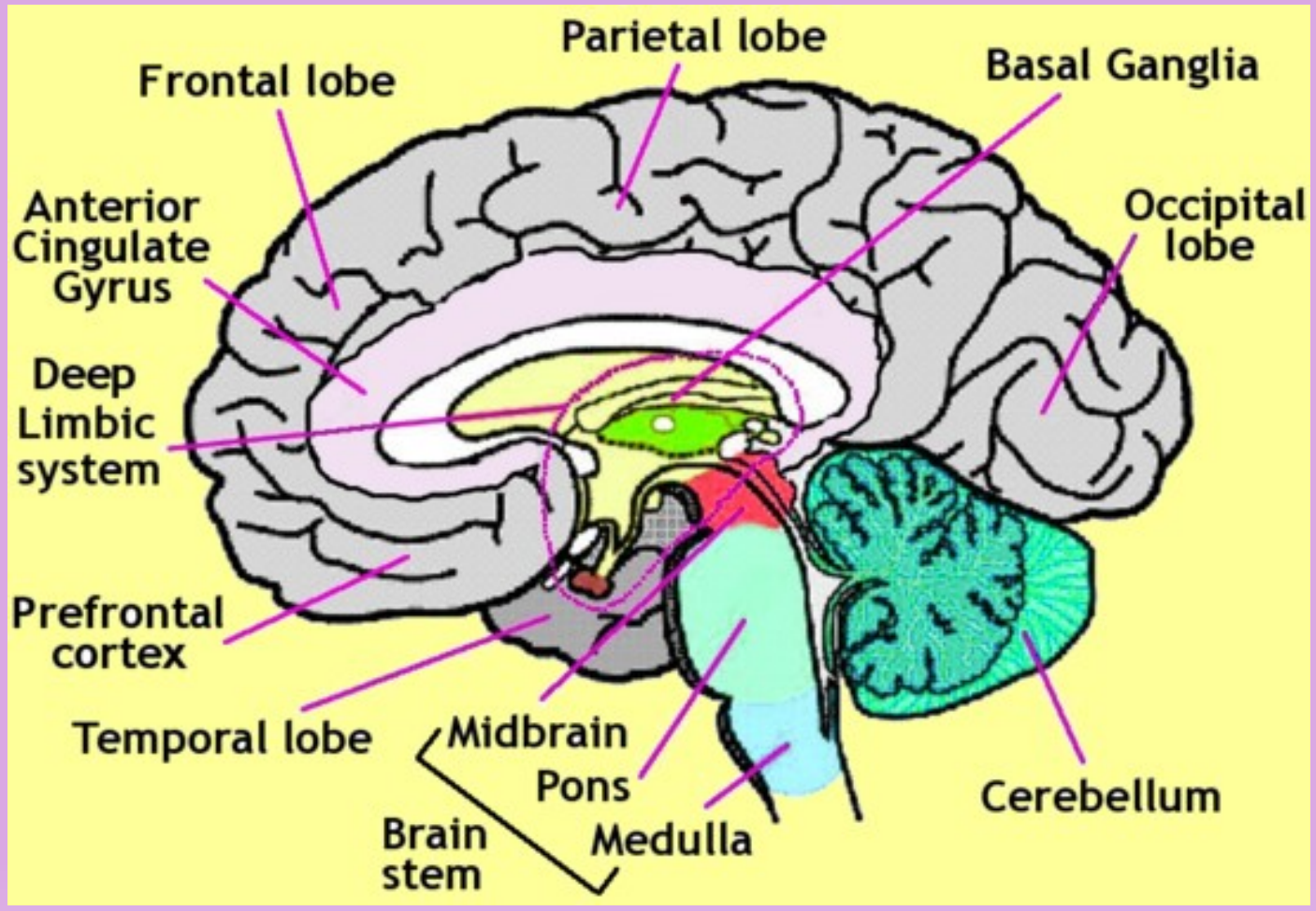
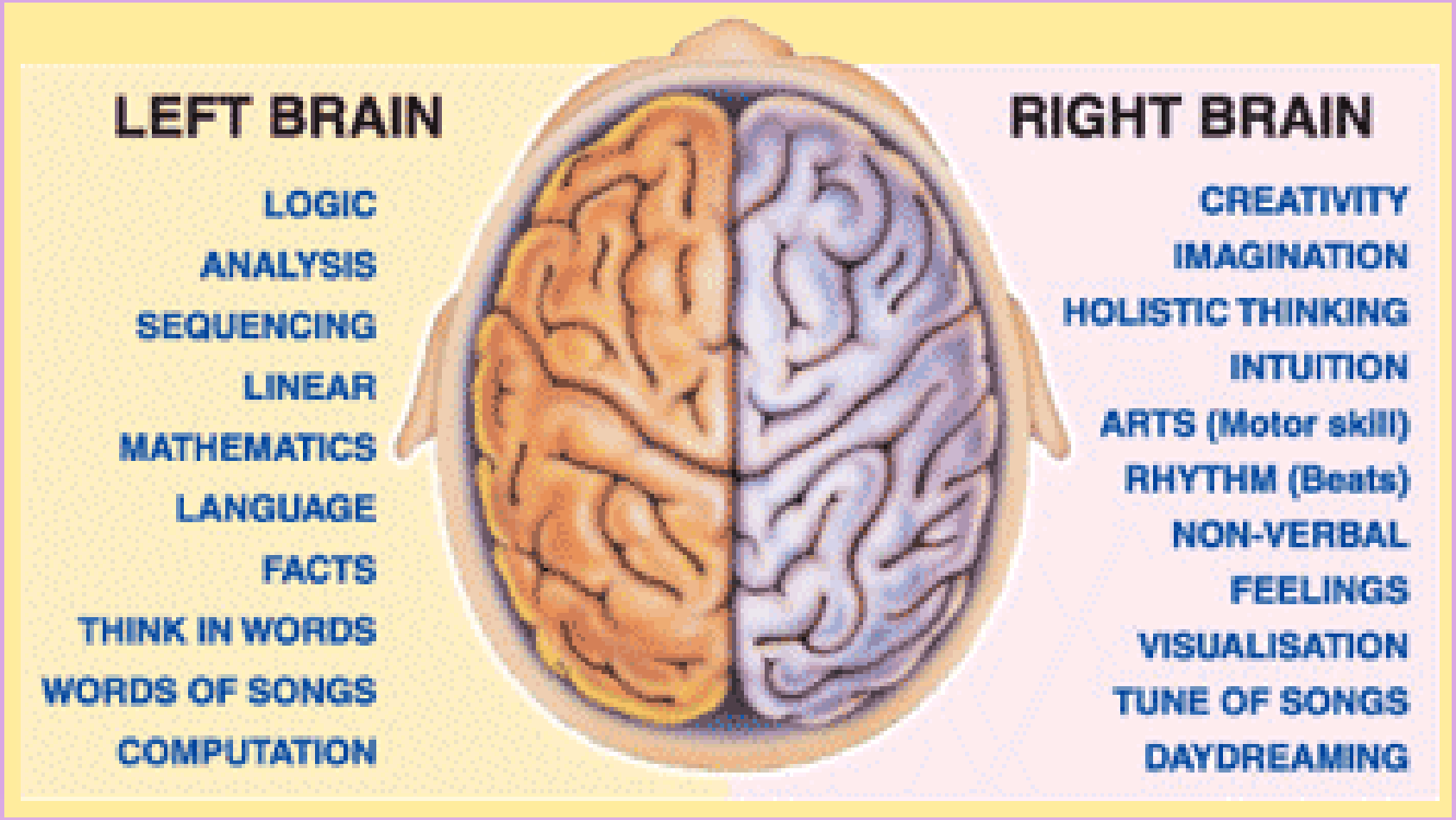
OVERVIEW

- Overview of Brain Anatomy
- Hallmarks of Adult-child Interaction
- Two Examples of Interaction and Resulting Pathways
- Implications for Practice and Research

OVERVIEW OF BRAIN ANATOMY



OVERVIEW OF BRAIN ANATOMY



CHILD DEVELOPMENT HALLMARKS

- Rapid increases in brain development from 0-3
- Sensory capabilities
- Play, sleep, A-C interaction

ADULT-CHILD INTERACTIONS

- Shared Activities Provide Opportunities for Neural Pathway Development
- Important Processes for Stronger Neural Pathways
- Many Cognitive Developmental Processes Require Adult-Child Interaction

NEURAL PATHWAY DEVELOPMENT

- Neural pathways are strengthened by repetition and practice
- Positive Adult-child (AC) interaction provides safe opportunities
- Negative AC increases likelihood of neural pathways reinforcing stress responses

MODEL OF ADULT-CHILD INTERACTIONAL PROCESSES

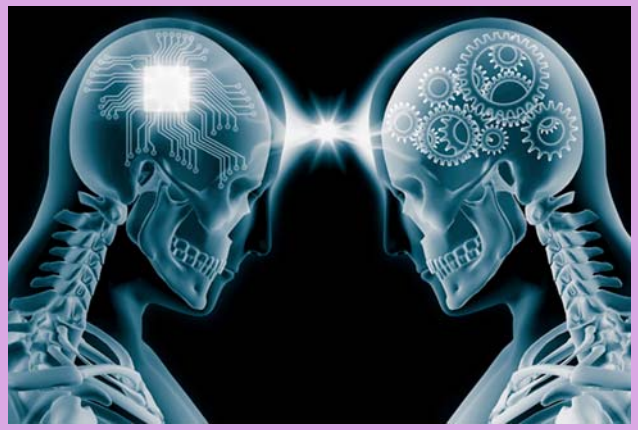
Continual, intentional, assessment of others' engagement, intent, knowledge, understanding, developing relationships

Continual, intentional, assessment of others' engagement, intent, knowledge, understanding and Theory of Mind development

DEVELOPMENT IN THE CONTEXT OF A-C INTERACTION

- Cognitive Development
  - Literacy
  - Numeracy
- Social-emotional Development
  - Theory of Mind
  - Understanding and Expressing Feelings

INTERSUBJECTIVITY



- Foundation of adult social interactions
- Unwritten rules of social engagement
- Shared understandings of social contexts and processes

THEORY OF MIND

- Other people's beliefs, thoughts, and behaviors
- Perspective-taking
- Foundations of adult social interactions

MIND-MINDEDNESS

- Thinking about the child's developing mind / brain
- Not merely meeting needs
- Long-term implications for attachment

EXAMPLE 1: SHARED READING

- Learning to Read is a Necessarily Social Endeavor
- Requires Multiple Domains of Neural Pathway Development

SHARED READING & COGNITIVE DEVELOPMENT

- Print Functions / Reading (Occipital Lobe)
- Phoneme Awareness (Hearing – Temporal Lobe / Wernicke's Area)
- Vocabulary development (Frontal Lobe)
- Speech Production (Broca's Area)

SHARED READING & SOCIAL EMOTIONAL DEVELOPMENT

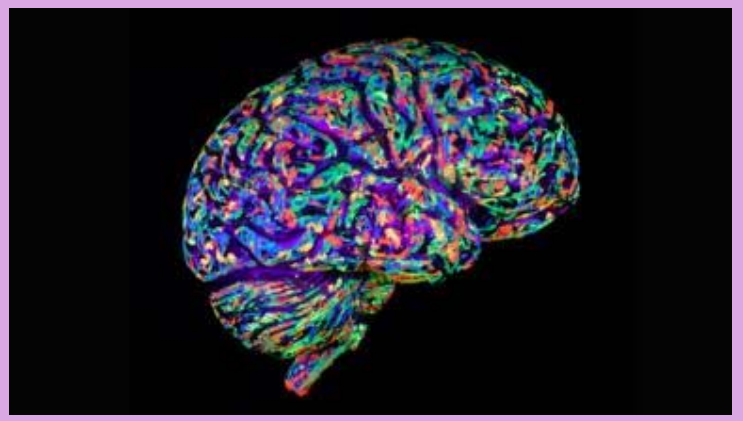
- Theory of Mind (Frontal and temporo-parietal lobe)
- Emotion recognitions (Amygdala, Hypothalamus, Frontal lobes)
- Inhibitory control (Frontal lobes)

EXAMPLE 2: SHARED DANCING

- Many physical activities are mentored processes
- Dancing together builds pathways in the brain
  - Physical development
  - Cognitive development
  - Social-emotional development

SHARED DANCING & COGNITIVE DEVELOPMENT

	LURIA (1966)	SOHLBERG & MATEER (2001)
LOWER LEVEL COGNITIVE PROCESSES	Anticipation	Initiation and drive *(starting behavior)*
		Response inhibition (stopping behavior)
	Planning	Task persistence (maintaining behavior)
		Organization (organizing actions and thoughts)
	Execution	Generative thinking (creativity, fluency, cognitive flexibility)
HIGHER LEVEL COGNITIVE PROCESSES	Self-monitoring	Awareness (monitoring and modifying one's own behavior)



SHARED DANCING & SOCIAL EMOTIONAL DEVELOPMENT*

- Theory of Mind (Frontal and temporo-parietal lobe)
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- Inhibitory control (Frontal lobes)

SHARED DANCING & PHYSICAL DEVELOPMENT

- Planning, control, and execution of voluntary movement (Motor cortex)
- Motor control and hand-eye coordination (Somatosensory cortex)
- Smooth coordination of movement (Basal Ganglia)
- Integrating input from the brain and spinal cord / fine and complex motor actions (Cerebellum)

TAKE HOME MESSAGES

- Adult-child Interactions have profound effects on brain development
- Many activities are mentored
- Brain development affected by shared experiences (some the same)

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QUESTIONS?