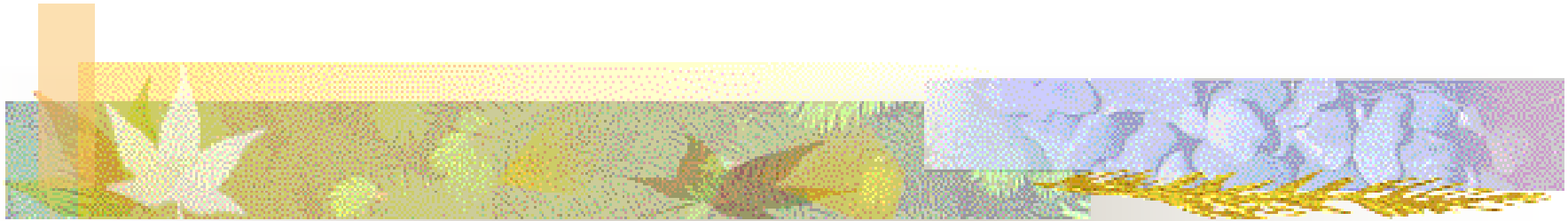


Why Play?

The Importance of Early Experience in the Development of the Infant and Toddler



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Agenda

- The role of nature and nurture in the development of the infant and toddler
- The impact of early experience on brain development
- Play-what it is, the stages of play and what is happening during play?
- Group activity and discussion



Let's Play!

- Babies are born with the motivation to make sense of the world around them
- Play begins at birth. Newborns experience the world through a series of reflexes that ensure their survival
- Infants need responsive, nurturing care to foster curiosity and promote learning



How Babies Learn

“Scientists have now proven, beyond reasonable doubt, what many parents and early childhood educators have believed for years-that loving and nurturing relationships with parents and caregivers, along with positive play experiences significantly affect the brain development of infants and young children.”

(Shore, Rima, 1997)



Nature AND Nurture

- Optimal brain development is the result of a dynamic interplay of nature (biology) and nurture (environment)
- The foundation for future learning and development occurs within the context of caregiver-child relationships and the social and physical environment



Nature: *the Biology of Early Brain Development*

Genetics determine the:

- Basic structure and connections between regions of the brain
- Pre-disposition toward certain traits and characteristics (temperament, musical ability)



Early Brain Development

- The central nervous system starts to develop at 2 weeks gestation
- Brain cells or *neurons* are the building blocks of the brain-100 billion are present at birth
- Brain growth continues after birth as connections between neurons develop

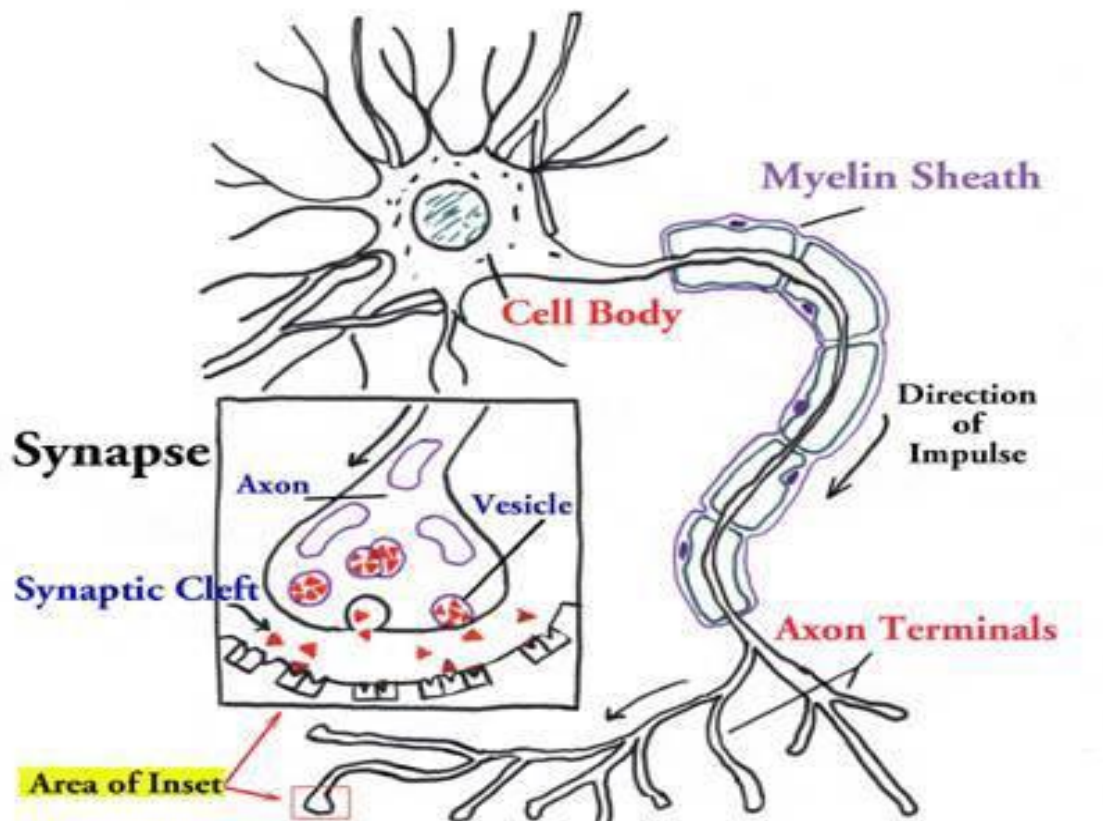


Brain Cells, Axons and Synapses

- Focused on establishing and reinforcing connections between neurons for first 3 years of life
- Synapses (connections) are formed as impulses are sent through the axon and received through the dendrites
- Complexity and number of synapses increases rapidly, then slows at 3

Diagram of a Synapse

NERVE AXON

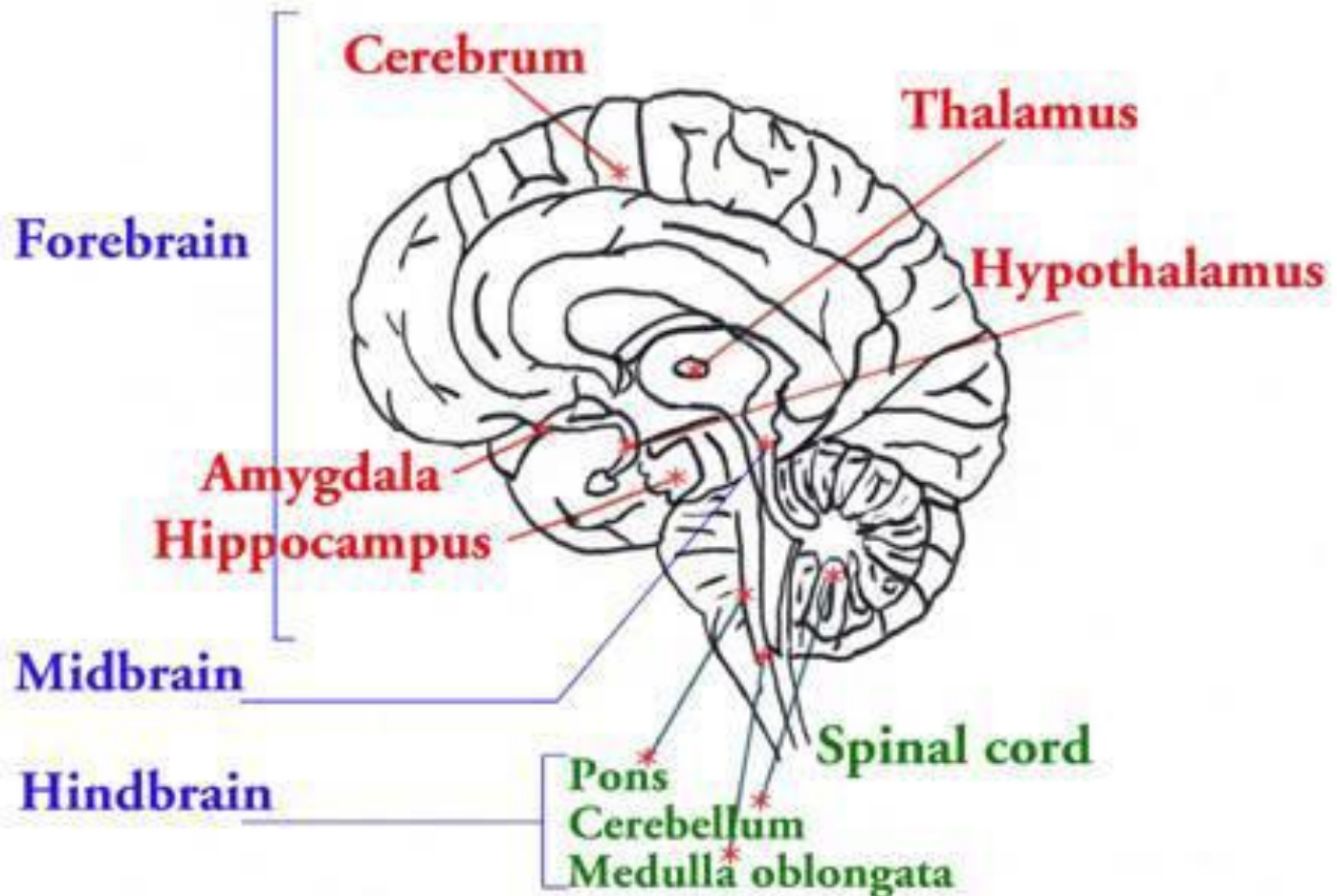




Use It or Lose It

- Between 0-3 years the brain develops many more synapses than are need
- Synapses that are not used are eliminated
- Early experience is crucial to determining which synapses remain
- Repeated activation of a neural pathway strengthens it's synapse and ensures it's survival

Brain





Brain Structure and Function

- Brainstem: controls basic activities that sustain life
- Midbrain: controls motor activity, appetite and sleep
- Cerebellum: coordination of movement and balance
- Limbic System: amygdala, hippocampus; controls emotions, learning and memory
- Cortex: regulates decision making ,language and reasoning



Critical Periods for Brain Development

- refers to a narrow window of time when a specific brain function is most vulnerable to the lack of stimulation
- Example: if a child does not see light in the first 6 months of life, the nerves leading from the eye to the visual cortex of the brain will degenerate

Please refer to the attached “Best Times for Wiring”



Sensitive Periods for Brain Development

- These are broad windows of opportunity for certain types of learning
- They represent the “best time” for optimal learning
- Potential for learning remains throughout lifetime
- Early Brain Development research has shown that birth - 3 years is a sensitive period for all areas of learning




“Early neurological development is shaped not only by physical conditions, but also by the individual’s social environment”

(Shore, R. 1997)



Nurture: the Impact of Environment on Early Brain Development

- Experience is responsible for fine tuning the architecture of the brain, creating and strengthening neural pathways
 - From 0 - 3 years learning occurs primarily through the senses
 - importance of providing opportunities for multi-sensory learning experiences

- 
- Infants and toddlers learn about themselves in the context of relationships
 - Responsive and predictable care that generates the formation of secure attachments is *key* to learning and regulating emotional responses
 - Secure attachments have a protective biological function against the effects of stress or negative experiences to the developing brain



When Things Go Wrong.....

Toxic Stress

- Strong, frequent or prolonged activation of stress response system
- Chronic, uncontrollable stressful events with no caregiver support or response
- May lower threshold of response to stressful situations



Tolerable Stress

- Brief periods of stress
- The brain is able to recover, reversing any harmful effects
- Supportive, responsive caregiver present to help child cope with the stressful experience



Positive Stress

- Moderate, short-lived stress
- Stress response: increased heart rate, mild release of stress hormones
- Normal life experience: child learns positive control and management of stress with support of responsive caregivers



Stress continued.....

- Early stressful experiences shape the neural pathways that control the brain's response to what is being sensed
- Hormones are released in response to stress (cortisol)
- High levels of cortisol destroy brain cells and reduce connections within the brain
- Supportive, responsive care reduces the levels of cortisol produced



In Conclusion.....

- Children are born with a genetic map that is the foundation for future learning
- The shape of this map is determined by the everyday experiences found within their environment
- Nurturing relationships actively support the child's ability to learn

What is Play?

- Play is fun
- Play can be individual or group
- Play is how children practice new skills
- Play develops as the child develops





Play continued

- Play becomes more child directed after a six month developmental level
- Play activities and games nourish the roots of learning and help children to develop a sense of trust and security
- Play is the method that infants and children use to learn about their world

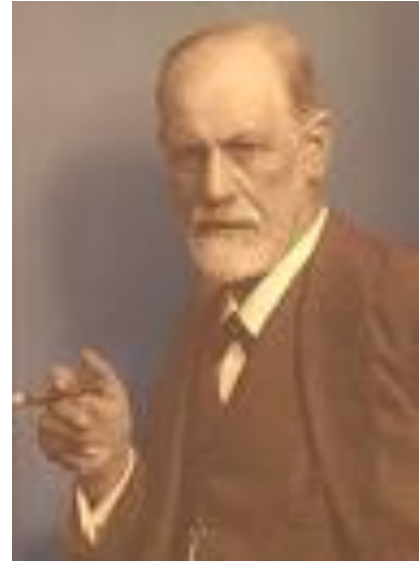


Types of Play

| | | |
|-----------------------|------------------------|------------------------|
| Stage 1 Reciprocal | Stage 2 Onlooker | Stage 3 Solitary |
| Stage 4 Parallel | Stage 5 Associative | Stage 6 Cooperative |

Overview of Human Development

- Freud's Oral Stage
- Kohlberg's Premoral Stage
- Erikson's Trust vs. Mistrust
- Piaget's Sensorimotor Stage





Piaget's Sensorimotor Period

Sensory Motor Period
0-24 Months

Reflexive Stage
0-2 months

Primary Circular Reactions
2 - 4 months

Secondary Circular Reactions
4-8 months

Coordination of Secondary Reactions
8-12 months

Tertiary Circular Reactions
12-18 months

Invention of New Means Through Mental Combination
18-24 months



Cognitive Functions

are thinking skills which include:

- ✓ learning
- ✓ understanding
- ✓ problem-solving
- ✓ reasoning
- ✓ and remembering



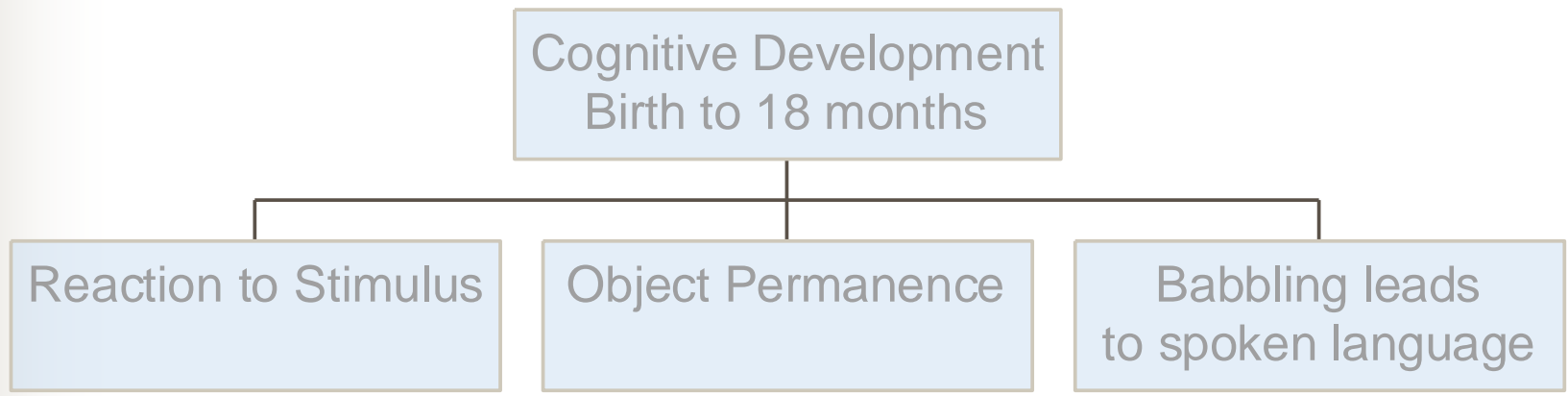
Learning

“A relatively durable change in behavior or knowledge that is due to experience.”
(Weiten, 2001)



Learning Theories

- Social Learning Theory
- Evolutionary Theory



Reaction to Stimulus

Primitive reflexes lead to controlled movement

- Rooting
- Moro
- Babinski
- Tonic neck
- Darwinian
- Swimming
- Babkin
- Walking
- Ocular neck





Object Permanence

“A development that leads to the understanding that objects exist even when out of sight.”

(Browne, B., Jarrett, M., Hovey-Lewis, C., Freund, M., 1995)



Stages of Object Permanence

- 4 - 6 Months

Children look briefly for an object that has been removed from sight

Activities:

- Elbow game
- Oversize glasses



Object Permanence continued

- 7 - 9 Months

Children look toward an object that has disappeared

Activities:

Boo play with a blanket

Where Is It



Object Permanence continued

- 10 – 12 Months

Children will search for an object that has disappeared.

Activities:

Shell game with one container

Dropping toys into a container



Object Permanence continued

- 13 - 18 Months

Children remember an object that is out of sight (memory)

Activities:

Shell game with two like containers

Requesting an item from another room



Cause and Effect

- One action making another action happen in children's cognitive development
- Develops from accidental to intentional



Promoting Cause and Effect

- Early Stage:

Provide objects for accidental touching

Such as a baby gym with bells

Use links so accidental swatting rewarded with a sound

- Later Stage:

Provide toys with sounds and cranks

such as activity centre

Turn the button and the animal pops out or shut the lid and the animal disappears

Cash Register Toy



- Coins in slot disappear
- Push red button button rolls down the slide
- Push green button money in register
- Turn crank and push green button register opens

Learning cause and effect is more than a button and a noise

Functional Use of Objects and Object Manipulation

- Children use objects in the way that it is intended
- Children begin by mouthing objects such a block then stacking





Functional Use and Object Manipulation continued

■ 3- 6 Months

Focus on action of objects bangs shakes and mouthes

Provide toys that are easy to hold

■ 7- 9 Months

Explores characteristics (mouth and visual)

Provide various textures

■ 8- 12 Months

Increases range of exploration (pulls, pokes, tears)

More complex relations

Provide container for in/out play and lids

■ 13- 15 Months

Links objects in simple combinations

Provide dolls and bottles

Why Block Play?

Stages of Block Play

1. Holding the block
2. Manipulating the block
3. Transferring hand to hand
4. Banging two blocks together
5. Stacking the blocks
6. Building a mouse house (bridge)



Why Play Ready Set Go?

Ready set go (1, 2, 3 Go)

- Use a tube and car
- Wait for the child look at you and repeat



The child learns to wait and to look at you to communicate his needs.

Why Rolling a Ball Play?

Ball Play or turn taking play

- Wait for eye gaze
- Hold the ball at your mouth
- Vocalize “ball”
- Finally roll the ball



The child's attention span, language, motor skills and sense of imitation is being developed.



The Mailbox Game

- Mac tac a small box
- Leave a slot big enough to drop in toys
- Use between 5 – 10 common objects
- Create pictures to match the objects and laminate the pictures



Why The Mailbox Game

- Pointing to requested objects
- Following one step commands
- Fun with in/out play
- Matching pictures to object
- One word labeling

*This leads to a development of the child's
symbolic play skills*



Setting the Stage for Play

- Time and space
- Supply of toys
- Companionship
- Age appropriate activities



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Questions or Comments

