

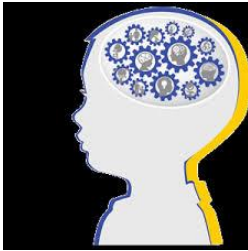
Cognitive and Concept Development

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Cognitive Development



<http://www.piq2.usc.edu>

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How are Concepts Acquired?

- **Concrete** – knowledge of specific characteristics.
- **Functional** – understanding of purpose or function.
- **Abstract** – understanding of characteristics and purposes and ability to generalise to other uses and situations.

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How are Concepts Acquired?



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Movement and Cognitive Development



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The Importance of Attachment

- Secure attachment between the infant and family is the foundation for development in all domains.
- Motivates infants to interact with their caregivers by communicating with, reaching to, and moving towards those caregivers.

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Movement and Cognitive Development

- Infants and toddlers with vision impairment do not reach or move independently toward a goal until they acquire **object concept (object permanence)**.



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Lack of Interest in Movement

- May not be securely attached to caregivers:
 - Cannot be easily enticed to reach for or move to their caregivers.
 - Do not see the parent as a secure base to support movement in unfamiliar space.

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What Role Does O&M Play?

- Working with families and early educators to **facilitate attachment** and the **acquisition of object concepts** during the first few years to provide **motivation** and **encouragement** for movement.

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Concepts important for O&M

- Body concepts
- Directionality
- Spatial
- Environmental

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Facilitating the Acquisition of Body Concepts

- Provide consistent, nurturing, and responsive care with appropriate sensory cues.
- Encourage families to play interactive, turn-taking games involving whole body movement such as horsey games, roughhousing, or gently swinging in a sling or hammock.

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Facilitating the Acquisition of Body Concepts

- Activities within **daily routines**
- **Naturally occurring** learning opportunities

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Object Concepts



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Object Concepts

- Object schemes
- Object permanence
- Object constancy
- Comparative learning
- Cause and effect
- Means-end relationships

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Object Concepts



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Promoting Object Permanence

- Recognize signals that convey interest in items recently removed from touch.
- Provide tactile and, later, sound cues to encourage reaching for objects.

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Promoting Object Permanence

- Provide organized consistent and defined play spaces.
- Little Room (Dr. Lilli Nielsen) -<http://www.lilliworks.com/>



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Object Constancy

- Ability to perceive an object as unchanging even under different conditions of observation (e.g., seeing half of the object).
- Children acquire object constancy through **multiple, hands-on experiences** with objects.

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Facilitating Comparative Learning and Object Constancy



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Cause and Effect Relationships

- By 4 months, sighted infants engage in hand watching and learn that hands are tools that can make things happen.

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Facilitating Acquisition of Cause and Effect

- Arrange the environment so it entices children to move to find desired objects.
- Encourage children to use gestures or vocalizations before they receive “more” of their favorite activities or foods.
- Use a resonance board to provide subtle vibrations and auditory feedback from movement (can be used in conjunction with a Little Room).

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Means-End Relationships

When children problem solve to identify a method for securing a desired object or accomplish a task, they demonstrate an understanding of means-end relationships.

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Means-End Behaviors: Using Tools

The tool is an object unrelated to the goal that can be used to attain the goal.

Introduction of a mobility aid can facilitate the development of means-end behaviours.

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The Long Cane is a Tool!



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Early Concepts

- Use hand-under-hand guidance.
- Support parents to use **consistent language** in daily routines.
- Include O&M specific language – e.g. guiding, trailing, searching – when applicable.

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Environmental Concepts



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Environmental Concepts

- Cot
- Highchair tray
- Defined play spaces
- Specific rooms
- Entire house
- Yard
- Childcare center
- Neighborhood
- Community



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Facilitating Acquisition of Environmental Concepts

Allow children to explore environments in a systematic manner **without intruding**.



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Facilitating Acquisition of Environmental Concepts

- Environmental concepts are best taught **within daily routines**.

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Reinforcing Environmental Concepts in Children who do not Initiate Movement

- Facilitate **active reach** and **movement into space** by providing sensory incentives, **small defined spaces**, and frequent opportunities for success.

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Spatial and Positional Concepts

- Often acquired in conjunction with body concepts.
- Learn about space their bodies occupy, and the surrounding space.



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Neuroplasticity Research

- Recent research into neuroplasticity has found:
 - “congenitally blind participants who attended O&M training early in life were very accurate in space perception, approaching the performance level of sighted controls” (Fiehler, Reuschel, & Rosler, 2009, p. 903)

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Neuroplasticity Research

- Early movement experiences can compensate for blindness.
- “the earlier blind individuals started O&M, the more accurate and the more precise was their space perception....visually impaired people (need to) start intense O&M training as early as possible” (Fiehler & Rosler, 2010, p. 200)

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Strategies for Facilitating Concept Development

- Engaging materials
- Repetition
- Consistency/routines

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Strategies for Facilitating Concept Development

- Guided and independent experiences



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Functional Outcomes of Concept Development

- Demonstration of more cause and effect and means-end behaviours.
- Searching for objects and events beyond arm's reach.
- Goal-oriented travel to a desired location.
- Exploration of defined play spaces.

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