

Introduction

History, Issues, Concepts, & Theory



Infant Development, Fall, 2005 (Prof. Lewkowicz)

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The Bout of the Centuries

Descartes
(1596-1650)



Knowledge
is Innate!

It's
Learned!

Locke
(1632-1704)



Of course,
it's innate!

Kant
(1724-1804)



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Conceptions of Development

➤ Preformationism - oldest view

- Changes during development are quantitative
- Fully formed organism simply gets bigger over time



Old

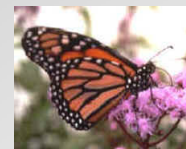


Young

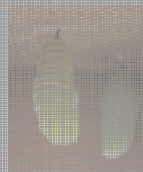


Conceptions of Development

➤ Preformationism did not acknowledge stages



Adult



Pupa



Larva



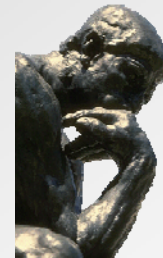
Egg



Conceptions of Development

- Predeterminism (19th Century, Rousseau)
 - Development is a series of pre-determined stages

All knowledge



- All knowledge is given at birth
- The stages are qualitatively different
- Associated with the idea of predeterminism
 - E. Haeckel: Ontogeny recapitulates phylogeny
 - G. Stanley Hall – postembryonic development recapitulates historical course of western civilization



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Historical Context

- Principles of evolution:
 - Continuity of biological structure and function across species
 - Process of natural selection & adaptation responsible for observed similarities & differences in structure & function
- Theory of evolution gave rise to:
 - Comparative Psychology
 - Study of different animals, their behavior & underlying physiology
 - Developmental Psychology
 - Study of the emergence of new behaviors in different animals
 - Functional analysis of behavior
 - How does a given behavior facilitate survival?
 - Possibility of studying phylogenetic precursors of mind in animals
 - Current species display phylogenetic precursors to human mind
 - Theory-of-mind, basic cognitive abilities, etc.



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Theoretical Roots

- Anthropomorphism (espoused by anecdotalists)
 - Attribution of human characteristics to animals
 - Goals, planning, feelings, etc. (e.g., bees, ants, spiders)
 - Incorrect because of differences in underlying mechanisms
 - Von Frisch's "dance language of bees" & Wenner's critique
 - Von Frisch claimed that bees use the sun as a compass & then transpose the information regarding direction & distance into gravity-based and dance-based signals
 - Wenner claims source-finding is based on smell maps of experienced bees & the smell of a source on dancing bee
 - Web-building in spiders
 - Is it planned, purposeful use of architectural knowledge?
 - No, due to "local" factors



Theoretical Roots

- Adultomorphism
 - Assigning adult characteristics to infants
 - plans, goals, wishes, intentions
 - Morgan's Cannon says that you should seek simplest explanation
 - Are infant behaviors "simpler"? Wrong question!
 - The question is: can they be explained at a simpler level, but see Schneirla below?
 - Schneirla's Levels Principle suggests that organisms at different developmental levels are organized differently
 - Food preferences in babies are not influenced by advertising but they certainly are in adults
 - Visual preferences are influenced by experience but experience of babies is different from that of adults. Babies prefer faces & voices of mom and dad but not of strangers and have no preferences for particular cars; adults do prefer certain cars based on advertising



Early Scientific Roots of the Study of Infants

- Ancient philosophers: Plato, Aristotle
 - Is knowledge innate or learned?
- Charles Darwin's observations of his son
 - Anecdotal, non-systematic observations of a single infant
- Sigmund Freud's theories
 - Arm-chair theory of development based on observations of abnormal adults
- Mark Baldwin's baby biographies
 - Highly subjective & open to adultomorphism
- Watson's Behaviorism



Early Conceptions of Development

- Behaviorism and radical environmentalism (early 20th century):

John B. Watson: "Give me a dozen healthy infants, well-formed, and my own specified world to bring them up and I'll guarantee to take any one at random and train him to become any type of specialist I might select-- doctor, lawyer, merchant-chief, and yes, even beggarman and thief, regardless of his talents, penchants, tendencies, abilities, vocations, and race of his ancestors." (1930)

- Good – because it introduced experimental study of development
- Bad – because qualitative change not acknowledged
- Bad – because all behavior boiled down to S-R connections

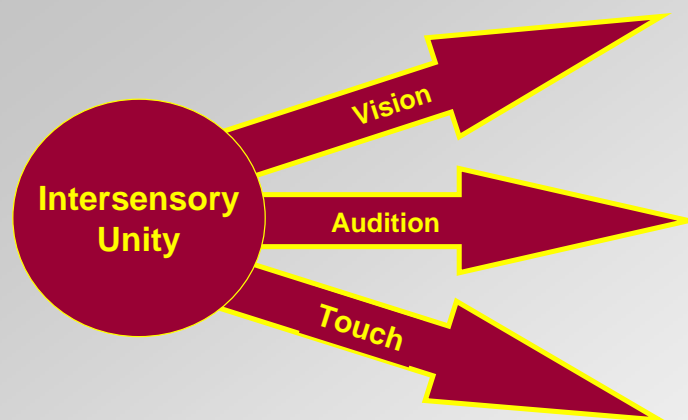


Stage Theories

- Sigmund Freud (early 20th Century)
 - Different stages of development (oral, anal, etc.)
 - Emphasis on concept of early experience
- E. Erickson
 - Different stages in the development of trust
- Jean Piaget (1930's-1970's)
 - Was concerned with acquisition of knowledge in children
 - Development consists of 3 distinct stages (sensorimotor, concrete operations & formal operations)
 - Experience is critical to the acquisition of skills & knowledge
 - Organism-environment interaction is critical
- Heinz Werner (1950's)
 - Differentiation of behavior from global to specific



Heinz Werner's Concept of Differentiation

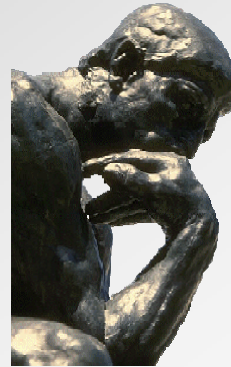


Birth —————> ?



Infancy Is Characterized by Developmental Transformation!

Vegetative existence \Rightarrow To a cogitative one



Development = Transformation



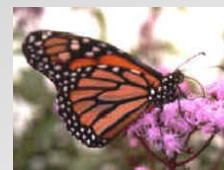
Egg



Larva



Pupa



Adult



Infancy: Initial & Most Important Part of Development

➤ Infancy is:

- a time when new behaviors & skills emerge (e.g., vision, hearing, reaching, walking, speech, language, understanding)
- a time when some functions are lost as well (canalization)!
- a time of rapid change that is due to re-organization of functional and structural systems and the relationship between them
- is not static; it is dynamic

➤ Question:

- how do we explain the dynamic nature of infancy & the resulting changes (i.e., what is responsible for the changes: genes, experience, neural factors, structural factors, etc?)

➤ Answer

- we need to recognize that the answer is complex because no single factor can account for the dynamic nature of infancy & development

