Theory
An orderly, integrated set of statements that:
- describes
- explains
- predicts
Behavior
Must be tested and validated scientifically

Basic Issues in Development
Continuous or discontinuous?
One course of development or many?
Nature or nurture?

Basic Issues: Continuous or Discontinuous
1. Continuous or discontinuous?
   a) Quantitative or Qualitative (stages)
   b) Gradual vs. Sudden changes
Unique combinations of personal (genetic) and environmental circumstances can result in different paths of development.

Basic Issues: Nature and Nurture

Nature
- Inborn, biological givens
- Based on genetic inheritance

Nurture
- Physical and social world that influences biological and psychological development

Stability and Plasticity

Stability
- Individuals high or low in a characteristic remain so at later ages.
- Early experience may have lifelong impact.

Plasticity
- Change is possible, based on experiences.
Development as a Dynamic System

Perpetually ongoing process
Conception to death
Influences on development
- biological
- psychological
- social

Lifespan Perspective

Development as
- lifelong
- multidimensional and multidirectional
- highly plastic
- influenced by multiple, interacting forces

Periods of Development

<table>
<thead>
<tr>
<th>Period</th>
<th>Age Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prenatal</td>
<td>Conception to birth</td>
</tr>
<tr>
<td>Infancy and toddlerhood</td>
<td>Birth to 2 years</td>
</tr>
<tr>
<td>Early childhood</td>
<td>2 to 6 years</td>
</tr>
<tr>
<td>Middle childhood</td>
<td>6 to 11 years</td>
</tr>
<tr>
<td>Adolescence</td>
<td>11 to 18 years</td>
</tr>
<tr>
<td>Early adulthood</td>
<td>18 to 40 years</td>
</tr>
<tr>
<td>Middle adulthood</td>
<td>40 to 65 years</td>
</tr>
<tr>
<td>Late adulthood</td>
<td>65 years to death</td>
</tr>
</tbody>
</table>
Philosophies of Adulthood and Aging

- Tetens
  - Origin and extent of individual differences
  - Change during adulthood - compensation for declines
  - Impact of historical era on life course

- Carus
  - Identified four periods of life
    - Childhood
    - Youth
    - Adulthood
    - Senescence

Philosophies of Childhood

- Medieval: Contradictory beliefs about children’s basic nature
- Puritan: Children as inherently evil and stubborn
- Locke: Tabula rasa
  - Children as blank slates shaped by experience
- Rousseau: Noble savages
  - Children as naturally healthy and moral

John Locke famous quote

"Let us then suppose the mind to be, ... white paper, void of all characters, without any ideas; how comes it to be furnished? Whence comes it by that vast store, which the busy and boundless fancy of man has painted on it with an almost endless variety? Whence has it all the materials of reason and knowledge? To this I answer, in one word, from experience; in that, all our knowledge is founded, and from that it ultimately derives itself”

- Locke, 1690/1963 pp 82-3
Famous Watson Quote

“Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in, and I’ll guarantee to take any one at random and train him to become any type of specialist I might select—a doctor, lawyer, artist, merchant-chief, and, yes, even into a beggar-man and thief, regardless of his talents, penchants, tendencies, abilities, vocations and race of his ancestors”. [Watson, 1924, p. 10]
Resilience
The ability to adapt effectively in the face of threats to development

Factors in resilience
- personal characteristics
- warm parental relationship
- social support outside family
- community resources and opportunities

Key Principles of Darwin’s Theory of Evolution

Natural Selection
Species have characteristics that are adapted (or fit) to their environments.

Survival of the Fittest
Individuals best adapted to their environments survive to reproduce. Their genes are passed to later generations.

Early Scientific Study of Development

<table>
<thead>
<tr>
<th>Normative Approach</th>
<th>Hall, Gesell</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Measured large numbers of people</td>
</tr>
<tr>
<td></td>
<td>Age-related averages</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mental Testing Movement</th>
<th>Binet and Simon</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intelligence tests</td>
</tr>
</tbody>
</table>
Psychoanalytic Perspective

Conflicts
- biological drives
- social expectations

Freud and Erikson
Emphasis on unique life history

Freud’s Three Parts of the Personality

<table>
<thead>
<tr>
<th>Id</th>
<th>Largest portion of the mind</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unconscious, present at birth</td>
</tr>
<tr>
<td></td>
<td>Source of biological needs/desires</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ego</th>
<th>Conscious, rational part of mind</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Emerges in early infancy</td>
</tr>
<tr>
<td></td>
<td>Redirects id impulses acceptably</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Superego</th>
<th>The conscience</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Develops from ages 3 to 6 from</td>
</tr>
<tr>
<td></td>
<td>interactions with caregivers</td>
</tr>
</tbody>
</table>

Freud’s Psychosexual Stages

Oral
Anal
Phallic
Latency
Genital
**Erikson’s Psychosocial Theory**

Development is influenced by common cultural demands.
Ego – develops attitudes and skills at each stage
Each stage of development requires the solution of a crisis or psychological conflict.
Healthy development requires a favorable ratio of positive to negative.

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**Erikson’s Psychosocial Stages**

<table>
<thead>
<tr>
<th>Stage</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic trust v. mistrust</td>
<td>Birth to 1 year</td>
</tr>
<tr>
<td>Autonomy v. shame/doubt</td>
<td>1–3 years</td>
</tr>
<tr>
<td>Initiative v. guilt</td>
<td>3–6 years</td>
</tr>
<tr>
<td>Industry v. inferiority</td>
<td>6–11 years</td>
</tr>
<tr>
<td>Identity v. role confusion</td>
<td>Adolescence</td>
</tr>
<tr>
<td>Intimacy v. isolation</td>
<td>Early adulthood</td>
</tr>
<tr>
<td>Generativity v. stagnation</td>
<td>Middle adulthood</td>
</tr>
<tr>
<td>Integrity v. despair</td>
<td>Late adulthood</td>
</tr>
</tbody>
</table>

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**Behaviorism and Social Learning**

<table>
<thead>
<tr>
<th>Conditioning</th>
<th>Stimulus–response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classical</td>
<td></td>
</tr>
<tr>
<td>Operant</td>
<td>Reinforcers and punishments</td>
</tr>
<tr>
<td>Social Learning</td>
<td>Modeling</td>
</tr>
</tbody>
</table>
Learning Theories

Ivan Pavlov

- Classical Conditioning
  - Reflex
    - Stimulus – Response connection
  - Unlearned
    - Unconditioned Stimulus elicits Unconditioned Response
      - Food automatically elicits Salivation
  - Learned
    - Conditioned Stimulus elicits Conditioned Response
      - Sound of tone (paired with bacon) elicits Salivation

Learning Theories

B.F. Skinner

- Operant Conditioning
  - Behaviors are dependent on "Reinforcement"
    - Positive Reinforcement
      - Increased chance behavior occurs again
    - Negative Reinforcement
      - Learning that occurs when behavior causes something unpleasant to stop
  - Punishment
  - Shaping
  - Extinction

Learning Theories

Watson and Little Albert

"Conditioned Emotional Reactions" (Watson & Raynor, 1920, JEP).

Fear of white rat - making loud noise behind Albert’s head whenever rat appeared
Generalized to white rabbit, fur coat, Santa Claus whiskers etc.
All fears conditioned in early childhood
Learning Theories

Mary Cover Jones
The mother of behavior therapy
Could conditioning technique be used to remove children's fears?

Systematic Desensitization

3 year-old Peter (Cover-Jones, 1924)
Feared rabbits
Brought rabbit progressively closer to Peter always while child was eating
Extinguished fear to rabbit and generalized fear response to other objects as well

Albert Bandura

- Social Learning Theory
  - Observational Learning
    - Learning that results from seeing a model reinforced or punished for a behavior.
  - Dependent on four factors
    - Attention
    - Memory
    - Physical capabilities
    - Motivation
Vicarious Reinforcement

We don’t have to be reinforced ourselves in order to learn something.
See the consequence of other’s behavior.
Visualize yet unexperienced consequence of particular behavior.
Mediating mechanism between S & R = the person’s cognitive processes.
The imagined RS affects behavior more than actual RS does.
Whoever controls society’s models controls behaviors.

Models that Influence Human Behavior

Person of same sex and age, peers with similar problems.
High status and prestige.
Simple behaviors more likely to be imitated than highly complex behaviors.
Hostile and aggressive behaviors strongly imitated.
Can not ignore relevance of social situations.

Bandura’s Bobo Doll experiment
Contributions/Limitations of Behaviorism

Behavior modification
- modeling, observational learning

Narrow view of influences
Too little emphasis on unique environmental influences

Cognitive Theories

Jean Piaget
- **Scheme**
  - internal cognitive structure.
- **Assimilation**
  - process of using schemes to make sense of experiences.
- **Accommodation**
  - changing a scheme to incorporate new information.
- **Equilibration** –
  - balancing assimilation and accommodation

Cognitive-Developmental Theory

Piaget
- Children actively construct knowledge.
- Adaptation to environment is made in order to achieve equilibrium.
- All children move through four broad stages.
Piaget’s Stages

- Sensorimotor
- Preoperational
- Concrete operational
- Formal operational

Information-Processing Theory

- Human brain is symbol-manipulating system
  - input equals experiences
  - output equals behavioral response
- Development seen as continuously changing, not formal stages

Cognitive Theories
Information-Processing Flowchart

Figure 1.4

Developmental Cognitive Neuroscience
Study of relationships between
- changes in the brain
- development of cognition, behavior
Brings together researchers from
- psychology
- biology
- neuroscience
- medicine

Ethology
Study of adaptive value of behavior and its evolutionary history
- critical period
- sensitive period
Critical Period

Individuals:
- biologically prepared to acquire adaptive behaviors during limited time span
- need support of an appropriately stimulating environment

Sensitive Period

Optimal time
Individual is especially responsive
Later development hard to induce
Boundaries less defined

Evolutionary Developmental Psychology

Seeks to understand adaptive value of human competencies
Studies cognitive, emotional, and social competencies and change with age
Expands upon ethology
Vygotsky's Sociocultural Theory
Transmission of culture to a new generation
- values, beliefs, customs, skills
Social interaction necessary
- cooperative dialogues with more knowledgeable members of society

Ecological Systems Theory
Includes all environments
- microsystem
- mesosystem
- exosystem
- macrosystem
- chronosystem
Dynamic
Comparing Theories

Evaluation of Usefulness of each theory

- Generate predictions that can be tested.
- Heuristic value – the degree to which it stimulates research.
- Practical value.
- Explain the basic facts of development.

Choosing a Research Strategy

Research Methods
Basic approach to gathering information
- systematic observations
- self-reports
- clinical or case studies
- ethnographies

Research Design
Overall plan for study
- permits the best test of research question
**Systematic Observation**

**Naturalistic Observation**
- In the "field" or natural environment where behavior happens

**Structured Observation**
- Laboratory situation set up to evoke behavior of interest
- All participants have equal chance to display behavior

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**Self-Reports**

**Clinical Interview**
- Flexible, conversational style
- Probes for participant's point of view

**Structured Interview**
- Each participant is asked same questions in same way
- May use questionnaires, get answers from groups

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**Clinical/Case Study**

Brings together a wide range of information on one person:
- Interviews
- Observations
- Test scores
Ethnography

Descriptive, qualitative technique
Goal is to understand a culture or social group

Participant observation
- researcher lives in community for months or years

General Research Designs

Correlational
- Reveals relationships between variables
- Does NOT reveal cause-and-effect

Experimental
- Allows cause-and-effect statements
- Lab experiments may not apply in the real world

Correlation Coefficients

Magnitude
- Size of the number between 0 and 1
- Closer to 1 (positive or negative) is a stronger relationship

Direction
- Indicated by + or – sign
- Positive (+): as one variable increases, so does the other
- Negative (–): as one variable increase, the other decreases
Correlations

![Correlation Chart]

**Independent and Dependent Variables**

**Independent**
- Changed or manipulated by experimenter
- Expected to cause changes in another variable

**Dependent**
- Measured, but not manipulated, by experimenter
- Expected to be influenced by the independent variable

**Random Assignment**

Researchers use *unbiased procedure* to assign participants to treatment conditions.

Increases chances that characteristics will be *equally distributed* across conditions.
### Modified Experiments

<table>
<thead>
<tr>
<th>Field Experiment</th>
<th>Natural or Quasi-Experiment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capitalize on opportunities for random assignment in natural settings</td>
<td>Compare differences in treatment that already exist Match groups as much as possible</td>
</tr>
</tbody>
</table>

### Developmental Research Designs

<table>
<thead>
<tr>
<th>Research Design</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Longitudinal</strong></td>
<td>Same group studied at different times</td>
</tr>
<tr>
<td><strong>Cross-Sectional</strong></td>
<td>Differing groups studied at the same time</td>
</tr>
<tr>
<td><strong>Sequential</strong></td>
<td>Several similar cross-sectional or longitudinal studies at varying times</td>
</tr>
</tbody>
</table>

### Sequential Design

[Diagram of Sequential Design]

Figure 1.7
Problems in Conducting Longitudinal Research

Participants drop out, move away
Practice effects
Cohort effects

Use of Experimental and Longitudinal Research Strategies

Rights of Research Participants

Protection from harm
Informed consent
Privacy
Knowledge of results
Beneficial treatments