Chapter 12: Development
Developmental Psychology

• Developmental psychology
  – Branch of psychology that studies the patterns of growth and change that occur throughout life

Definition and what to study is debated
Does development mature over time or in stages?
Questions to consider

• How do psychologists define and measure growth across a lifespan?
• What factors cause growth and change? What criteria determine growth and change?
• What factors affect our social development? Emotional? Physical?
• Evaluate the effectiveness of daycare on development.
• How much influence do parents have on a child’s development?
• Why even study development?
• To what extent does gender affect development? When?
Areas of study for Ch 12

- For this unit:
- Main ideas of prenatal growth:
- Theorist and all terms associated with development from in-utero to death.
- Piaget and his cognitive stages.
- Bowlby - attachment
- Ainsworth attachment
- Erikson social crisis
- Lorenz early attachment - imprinting
- Harlow - monkey studies
- Vgotsky ZPD
- Hoffman and Baumrind parenting/ discipline
- Rogers self esteem, conditional
- Kohlberg moral dev
- Know physical stages of dev
- Temperament theorists and studies ( Kagan, Thomas/Chess, etc)
- Highlighted studies: Can children do arithmetic?
- Adolescence into the later years: you will receive another outline for this tba

Nature and Nurture: The Enduring Developmental Issue

• Hereditary
  Influences based on the genetic makeup of an individual that influence growth and development throughout life

• Environment
  The influence of parents, siblings, family, friends, schooling, nutrition, and all other experiences in which a child is exposed
Nature and Nurture

<table>
<thead>
<tr>
<th>Physical Characteristics</th>
<th>Intellectual Characteristics</th>
<th>Emotional Characteristics and Disorders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>Memory</td>
<td>Shyness</td>
</tr>
<tr>
<td>Weight</td>
<td>Intelligence</td>
<td>Extraversion</td>
</tr>
<tr>
<td>Obesity</td>
<td>Age of language acquisition</td>
<td>Emotionality</td>
</tr>
<tr>
<td>Tone of voice</td>
<td>Reading disability</td>
<td>Neuroticism</td>
</tr>
<tr>
<td>Blood pressure</td>
<td>Mental retardation</td>
<td>Schizophrenia</td>
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<td>Tooth decay</td>
<td></td>
<td>Anxiety</td>
</tr>
<tr>
<td>Athletic ability</td>
<td></td>
<td>Alcoholism</td>
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<tr>
<td>Firmness of handshake</td>
<td></td>
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<tr>
<td>Age of death</td>
<td></td>
<td></td>
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<tr>
<td>Activity level</td>
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</tbody>
</table>

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Strategies for Studying Development

• Determining the relative influence of nature and nurture

  Study of identical twins (those who are genetically identical)
Specific Research Approaches

• Cross-sectional research  
  People of different ages are compared at the same point in time

• Longitudinal research  
  Behavior of one or more participants is traced as the participants age

• Cross-sequential research  
  Combines above by taking a number of different age groups and examining them over several points in time
Prenatal Development: The Basics of Genetics

• Chromosomes
  – Rod-shaped structures that contain the basic hereditary information

• Genes
  – Smaller units through which genetic information is transmitted

• DNA
  – Biological equivalent of “software” that programs the future development of all parts of the body’s hardware
Prenatal Development: The Basics of Genetics

a. Conception
b. 23 pairs of chromosomes
c. DNA sequence
d. Genes

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Prenatal Development: The Basics of Genetics

• Gene therapy
  – Heath care providers inject corrective or remove defective genes to correct particular diseases directly into a patient’s bloodstream
  – Raises ethical and moral issues
  – Cloning
    • Most Americans oppose cloning human embryos
Prenatal Development: The Basics of Genetics

Female

The 23rd pair of chromosomes of the ovum is comprised of chromosomes XX

Male

The 23rd pair of chromosomes of the sperm is comprised of chromosomes XY

Baby girl

XX

Baby boy

XY

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The Earliest Development

• Germinal period
  – First two weeks
  – Zygote
    • The new cell that is formed by fertilization

• Embryonic period
  – 2 to 8 weeks
  – Embryo
    • Rapid growth of the zygote that has developed a heart, brain, intestinal tract, and other organs
The Earliest Development

• Fetal period
  – 8 weeks until birth
  – Fetus

• Age of viability
  – Point at which it can survive if born prematurely (about 24 weeks)

• Critical periods (Sensitive period)
  – Times during development when specific events have their greatest impact
Progress Before Birth:  
Prenatal Development

• 3 phases

  – germinal stage = first 2 weeks
    • conception, implantation, formation of placenta
  – embryonic stage = 2 weeks – 2 months
    • formation of vital organs and systems
  – fetal stage = 2 months – birth
    • bodily growth continues, movement capability begins, brain cells multiply
    • age of viability
Genetic Influences on the Fetus

- Phenylketonuria (PKU)
  Cannot produce enzyme required for normal development
- Sickle-cell anemia
  Abnormal red blood cells
- Tay-Sachs disease
  Body unable to break down fat
- Down syndrome
  Extra chromosome
Prenatal Environmental Influences

• Teratogens
  – Environmental agents that produce a birth defect
• Mother’s nutrition and emotional state
• Mother’s illness
• Mother’s drug use
• Alcohol and nicotine
  – Fetal alcohol syndrome
# Prenatal Environmental Influences

## Table 12-2 Environmental Factors Affecting Prenatal Development

<table>
<thead>
<tr>
<th>Factor</th>
<th>Possible Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rubella (German measles)</td>
<td>Blindness, deafness, heart abnormalities, stillbirth</td>
</tr>
<tr>
<td>Syphilis</td>
<td>Mental retardation, physical deformities, maternal miscarriage</td>
</tr>
<tr>
<td>Addictive drugs</td>
<td>Low birth weight, addiction of infant to drug, with possible death, after birth, from withdrawal</td>
</tr>
<tr>
<td>Smoking</td>
<td>Premature birth, low birth weight and length</td>
</tr>
<tr>
<td>Alcohol</td>
<td>Mental retardation, lower-than-average birth weight, small head, limb deformities</td>
</tr>
<tr>
<td>Radiation from X-rays</td>
<td>Physical deformities, mental retardation</td>
</tr>
<tr>
<td>Inadequate diet</td>
<td>Reduction in growth of brain, smaller-than-average weight and length at birth</td>
</tr>
<tr>
<td>Mother’s age—younger than 18 at birth of child</td>
<td>Premature birth, increased incidence of Down syndrome</td>
</tr>
<tr>
<td>Mother’s age—older than 35 at birth of child</td>
<td>Increased incidence of Down syndrome</td>
</tr>
<tr>
<td>DES (diethylstilbestrol)</td>
<td>Reproductive difficulties and increased incidence of genital cancer in children of mothers who were given DES during pregnancy to prevent miscarriage</td>
</tr>
<tr>
<td>AIDS</td>
<td>Possible spread of AIDS virus to infant; facial deformities; growth failure</td>
</tr>
</tbody>
</table>
Alternate Paths to Conception

• *In vitro* fertilization (IVF)
  – Woman’s eggs are removed from her ovaries, and a man’s sperm is used to fertilize the eggs in a laboratory, then is implanted in a woman’s uterus
Alternate Paths to Conception

- Gamete intrafallopian transfer (GIFT)
- Zygote intrafallopian transfer (ZIFT)

- Both GIFT and ZIFT are procedures in which an egg and sperm or fertilized egg are implanted in a woman’s fallopian tubes
Figure 11.1 Overview of fetal development
The Extraordinary Newborn

- Senses
  - Hearing
  - Sight
  - Taste
  - Touch

- The Neonate
  - Reflexes
    - Rooting reflex
    - Sucking reflex
    - Gag reflex
    - Startle reflex
    - Babinski reflex
    - Other reflexes we keep:
      - Blinking, swallowing, etc
    - We do learn to eliminate
During the First Year

- Rolls over at 3 months
- Sits without support at 6 months
- Stands alone at about 11 months
- Walks at just over one year old
Development of the Senses: Taking in the World

- Habituation
  - The decrease in the response to a stimulus that occurs after repeated presentations of the same stimuli

Perception in infants:
Visual Cliff Study
Infant temperament

- **What is temperament?**
- Most infants were thought to fit into 3 groups: easy, slow to warm up, or difficult.
- Various studies defined or clarified temperament in infants such as:
  - Sigelman and Rider 03 - emotionality, activity level, sociability
  - Twins - Wilson and Mattheny 86
  - Thomas/Chess - culture and temperament, temp is stable in infancy
  - Cross cultural - 1974 study Freedman
  - Kagan - studied inhibited kids
- Some biological connections to temperament found as well - ex: Coll 1990 role of mother blood pressure to irritability in infants
Physical Development
The Childhood Years: Motor Development

• Basic Principles
  – Cephalocaudal trend – head to foot
  – Proximodistal trend – center-outward

• Maturation – gradual unfolding of genetic blueprint

• Developmental norms – median age
  – Cultural variations
Development of Social Behavior

• Attachment
  – The positive emotional bond that develops between a child and a particular individual
• Lorenz and imprinting
• http://www.youtube.com/watch?v=hsA5Sec6dAI
• Harlow and infant monkeys
• Bowlby
• http://www.youtube.com/watch?v=VAAmSqv2GV8
• Father’s role
• What is your attachment style?
• http://www.web-research-design.net/cgi-bin/crq/crq.pl
Early Emotional Development: Attachment

• **Separation anxiety**
  – Ainsworth (1979)
  – The *strange situation* and patterns of attachment
    • Secure
    • Anxious-ambivalent
    • Avoidant

• **Developing secure attachment**
  – Bonding at birth
  – Daycare
  – Cultural factors

• **Evolutionary perspectives on attachment**
Measuring Attachment

- Ainsworth “strange situation”
  - Securely attached
  - Avoidant
  - Ambivalent
  - Disorganized-disoriented
    - Example of:
      - [http://www.youtube.com/watch?v=W5ljfcK3a_Y](http://www.youtube.com/watch?v=W5ljfcK3a_Y) Strange situation
      - Videos on attachment styles
      - [http://www.youtube.com/watch?v=aDh1C-PubYQ](http://www.youtube.com/watch?v=aDh1C-PubYQ)
      - [http://www.youtube.com/watch?v=qgYJ82kQlyg](http://www.youtube.com/watch?v=qgYJ82kQlyg)
      - [http://www.youtube.com/watch?v=nGhZtUrpCuc](http://www.youtube.com/watch?v=nGhZtUrpCuc)
Attachment

**Infant signals**
- Crying
- Smiling
- Reaching
- Clinging
- Bicycling with legs
- Looking at caregiver

**Caregiver responds**
- Picks up
- Cuddles
- Rocks baby
- Soothes
- Talks to

**Infant signals**
- Smiles
- Looks at caregiver

**Caregiver begins playful interactions**
- Talks to baby
- Tickles baby
- Uses very expressive face
- Touches baby

**Infant learns to recognize caregiver**
- Recognizes voice, face, smell
- As cognitive skills mature, recognizes the caregiver

**Caregiver becomes more attached to infant**
- Feels competent as a caregiver
- Learns to "read" the infant

**Infant becomes attached to caregiver**
- Smiles more at caregiver
- Looks warily at strangers
- Goes to caregiver when frightened or upset
Social Relationships with Peers

• Play
  – Cultural differences
  – Helps children interpret the meaning of others’ behavior and develop the capacity to respond appropriately

• Daycare
  – High-quality, enriching care can stimulate
  – Low-quality can cause insecurity
Parenting Styles

- Authoritarian
  - Rigid, punitive, strict standards

- Uninvolved
  - Detached emotionally, sees role only as providing food, clothing, and shelter

- Styles of parenting explained
  - http://www.youtube.com/watch?v=H9GAjT46-aQ

- Tiger Mother?
  - http://www.youtube.com/watch?v=eDdEnKPA5_s
  - http://www.youtube.com/watch?v=ivqYcbI MBjo

- Authoritative
  - Firm, sets limits and goals, uses reasoning, and encourages independence

- Permissive
  - Lax, inconsistent, undemanding
Discipline styles

- Baumrind’s work expanded upon
- Hoffman: 3 styles
  Love withdrawal, power assertion, induction
# Parenting Styles

<table>
<thead>
<tr>
<th>Parenting Style</th>
<th>Parent Behavior</th>
<th>Type of Behavior Produced in Child</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authoritarian</td>
<td>Rigid, punitive, strict standards (example: &quot;If you don't clean your room, I'm going to take away your iPod for good and ground you.&quot;)</td>
<td>Unsociable, unfriendly, withdrawn</td>
</tr>
<tr>
<td>Permissive</td>
<td>Lax, inconsistent, undemanding (example: &quot;It might be good to clean your room, but I guess it can wait.&quot;)</td>
<td>Immature, moody, dependent, low self-control</td>
</tr>
<tr>
<td>Authoritative</td>
<td>Firm, sets limits and goals, uses reasoning, encourages independence (example: &quot;You'll need to clean your room before we can go out to the restaurant. As soon as you finish, we'll leave.&quot;)</td>
<td>Good social skills, likable, self-reliant, independent</td>
</tr>
<tr>
<td>Uninvolved</td>
<td>Detached emotionally, sees role only as providing food, clothing, and shelter (example: &quot;I couldn't care less if your room is a pigsty.&quot;)</td>
<td>Indifferent, rejecting behavior</td>
</tr>
</tbody>
</table>
Psychosocial Development

Erikson’s Theory

• Psychosocial development
  – Involves changes in our interactions and understanding of one another as well as in our knowledge and understanding of ourselves as members of society
  – Stages are a pairing of the most positive and most negative aspects of the crisis of that period
Erikson’s Psychosocial Stages

• Trust versus mistrust
  – Birth to 1 ½ years
• Autonomy versus shame and doubt
  – 1 ½ to 3 years
• Initiative versus guilt
  – 3 to 6 years
• Industry versus inferiority
  – 6 to 12 years
Cognitive Development

• Cognitive development
  – Process by which a child’s understanding of the world changes as a function of age and experience
  – Jean Piaget
  – Clip on modern cognition:
    • http://www.cbsnews.com/video/watch/?id=50135408n
Cognitive Development: Piaget’s View

• Sensorimotor
  – Birth – 2 years
  – Object permanence, motor skills

• Preoperational
  – 2-7 years
  – Language, symbolic thinking, egocentric thinking
Cognitive Development: Piaget’s View

• Concrete operational
  – 7-12 years
  – Conservation, mastery of concept reversibility

• Formal operational
  – 12 years – adulthood
  – Logical and abstract thinking
Cognitive Development: Piaget’s View

<table>
<thead>
<tr>
<th>Conservation of...</th>
<th>Modality</th>
<th>Change in physical appearance</th>
<th>Average age at full mastery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>Number of elements in a collection</td>
<td>Rearranging or dislocating elements</td>
<td>6–7 years</td>
</tr>
<tr>
<td>Substance (mass)</td>
<td>Amount of a malleable substance (e.g., clay or liquid)</td>
<td>Altering shape</td>
<td>7–8 years</td>
</tr>
<tr>
<td>Length</td>
<td>Length of a line or object</td>
<td>Altering shape or configuration</td>
<td>7–8 years</td>
</tr>
<tr>
<td>Area</td>
<td>Amount of surface covered by a set of plane figures</td>
<td>Rearranging the figures</td>
<td>8–9 years</td>
</tr>
<tr>
<td>Weight</td>
<td>Weight of an object</td>
<td>Altering shape</td>
<td>9–10 years</td>
</tr>
<tr>
<td>Volume</td>
<td>Volume of an object (in terms of water displacement)</td>
<td>Altering shape</td>
<td>14–15 years</td>
</tr>
</tbody>
</table>

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Cognitive Development: Piaget’s View

Stage 1: Sensorimotor period
- Coordination of sensory input and motor responses; development of object permanence

Birth to 2 years

Stage 2: Preoperational period
- Development of symbolic thought marked by irreversibility, centration, and egocentrism

2 to 7 years

Stage 3: Concrete operational period
- Mental operations applied to concrete events; mastery of conservation, hierarchical classification

7 to 11 years

Stage 4: Formal operational period
- Mental operations applied to abstract ideas; logical, systematic thinking

Age 11 through adulthood
Information Processing Theory

• Information processing
  – Way in which people take in, use, and store information

• Metacognition
  – Awareness and understanding of one’s own cognitive processes
Cognitive Development: Vygotsky’s View

- Zone of proximal development (ZPD)
  - The level at which a child can almost, but not fully, comprehend or perform a task on his or her own
  - Scaffolding
Discipline styles

Hoffman:

- Induction
- Power assertion
- Love with-drawl

Parents do not usually fall into one category all the time, but inductive parenting is optimal and usually matches authoritative parenting preferences.
Adolescence: Becoming an Adult

- Adolescence
  - The developmental stage between childhood and adulthood
- Puberty
  - The period at which maturation of the sexual organs occurs
    - begins at about age 11 or 12 for girls and about age 13 or 14 for boys
Adolescence: Physiological Changes

• Pubescence

• Puberty
  – Secondary sex characteristics
  – Primary sex characteristics
    • Menarche
    • Sperm production
  – **Maturation: early vs. late**
    • Sex differences in effects of early maturation
Adolescence: Becoming an Adult

- Height spurt
- Penis growth
- First ejaculation
- Pubic hair

**Average male**

**Average female**

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Figure 11.19 Physical development at puberty
Adolescence: Neural Changes

- Increasing myelinization
- Synaptic pruning
- Changes in prefrontal cortex
Kohlberg’s Theory of Moral Development

- People move through a three-level sequence of moral reasoning in a fixed order
  - Level 1: Preconventional morality
  - Level 2: Conventional morality
  - Level 3: Postconventional morality
- Few people ever reach the highest level
Kohlberg’s Theory of Moral Development

<table>
<thead>
<tr>
<th>Level</th>
<th>Sample Moral Reasoning of Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1</strong> Preconventional morality: At this level, the concrete interests of the individual are considered in terms of rewards and punishments.</td>
<td></td>
</tr>
<tr>
<td>In Favor of Stealing the Drug</td>
<td></td>
</tr>
<tr>
<td>“If you let your wife die, you will get in trouble. You’ll be blamed for not spending the money to save her, and there’ll be an investigation of you and the druggist for your wife’s death.”</td>
<td></td>
</tr>
<tr>
<td>Against Stealing the Drug</td>
<td></td>
</tr>
<tr>
<td>“You shouldn’t steal the drug because you’ll be caught and sent to jail if you do. If you do get away, your conscience will bother you thinking how the police will catch up with you at any minute!”</td>
<td></td>
</tr>
<tr>
<td>“After you steal the drug, you’ll feel bad thinking how you’ve brought dishonor on your family and yourself; you won’t be able to face anyone again.”</td>
<td></td>
</tr>
<tr>
<td><strong>Level 2</strong> Conventional morality: At this level, people approach moral problems as members of society. They are interested in pleasing others by acting as good members of society.</td>
<td></td>
</tr>
<tr>
<td>“If you let your wife die, you’ll never be able to look anybody in the face again.”</td>
<td></td>
</tr>
<tr>
<td><strong>Level 3</strong> Postconventional morality: At this level, people use moral principles which are seen as broader than those of any particular society.</td>
<td></td>
</tr>
<tr>
<td>“If you don’t steal the drug, and if you let your wife die, you’ll always condemn yourself for it afterward. You won’t be blamed and you’ll have lived up to the outside rule of the law, but you won’t have lived up to your own conscience and standards of honesty.”</td>
<td></td>
</tr>
<tr>
<td>“If you steal the drug, you won’t be blamed by other people, but you’ll condemn yourself because you won’t have lived up to your own conscience and standards of honesty.”</td>
<td></td>
</tr>
</tbody>
</table>
Moral Development of Women

• Kohlberg’s research primarily used men
• Carol Gilligan (1996) argues that a fundamental difference exists in the way each gender views moral behavior
  – Morality of caring
Psychosocial Development
Erikson’s Theory

• Identity versus role confusion
  – Time of major testing, as adolescents try to determine what is unique and special about themselves

• Intimacy versus isolation
  – Developing close relationships
Psychosocial Development

Erikson’s Theory

- Generativity versus stagnation
  - Contributions to one’s family, community, work, and society, assisting the development of the younger generation

- Ego-integrity versus despair
  - Reviewing life’s successes and failures
Psychosocial Development
Erikson’s Theory

- **Stage 1**: Trust versus mistrust
  - Is my world predictable and supportive?
- **Stage 2**: Autonomy versus shame and doubt
  - Can I do things myself or must I always rely on others?
- **Stage 3**: Initiative versus guilt
  - Am I good or am I bad?
- **Stage 4**: Industry versus inferiority
  - Am I competent or am I worthless?
- **Stage 5**: Identity versus confusion
  - Who am I and where am I going?
- **Stage 6**: Intimacy versus isolation
  - Shall I share my life with another or live alone?
- **Stage 7**: Generativity versus self-absorption
  - Will I produce something of real value?
- **Stage 8**: Integrity versus despair
  - Have I lived a full life?
The Search for Identity

- **Erik Erikson (1968)**
  - Key challenge - forming a sense of identity

- **James Marcia (1988)**
  - 4 identity statuses
    - Foreclosure
    - Moratorium
    - Identity Diffusion
    - Identity Achievement
Stormy Adolescence: Myth or Reality

• Adolescent egocentrism
  – A state of self-absorption in which the world is viewed from one’s own point of view

• Personal fables
  – The view that what happens to them is unique, exceptional, and shared by no one else
Adolescent Suicide

**FACTS:**
- Third leading cause of death for adolescents
- Male adolescents are 5 times more likely to commit suicide than females, although females attempt suicide more often than males
- Rate higher among whites than nonwhites

**WARNING SIGNS**
- School problems
- Frequent incidents of self-destructive behavior
- Loss of appetite or excessive eating
- Withdrawal from others
- Sleeping problems
- Signs of depression
- Preoccupation with death
- Putting affairs in order
- Announcement of thoughts of suicide
Adolescent Suicide

[Bar chart showing the percentage of calls mentioning various concerns. The chart lists topics such as Family problems, Peer relationships, Self-esteem, Just to talk, Drugs and alcohol, Abuse, Sexuality, School problems, Death, Mental illness, Spirituality, Pregnancy, Other, Legal issue, Eating disorder, and AIDS. The chart indicates that Family problems have the highest percentage.]
The Expanse of Adulthood

- Personality development
- Social development
- Career development
- Physical changes
- Cognitive changes
Early and Middle Adulthood

• The peak of health (18 – 25)
• Body begins to become slightly less efficient and more susceptible to disease at age 25
• Menopause
  – The point at which they stop menstruating and are no longer fertile
Early and Middle Adulthood

- Hormone therapy for menopause
  - Poses several dangers
  - Medical consensus
    - Younger women with severe menopausal symptoms ought to consider HT on a short-term basis
    - For older women, it provides little benefit, and potential harm
Social Development

• During their early forties, as the idea that their life will end becomes prominent, people may face a *Midlife transition* where they begin to question their lives.

• Feelings of dissatisfaction with one’s life in the face of physical aging may bring about a *Midlife crisis*
Marriage, Children, and Divorce

- Two-fifths of children will experience the breakup of the parents’ marriage before they are 18 years old.
- More than one quarter of all family households are now headed by one parent.
Changing Roles of Men and Women

• Close to 75% of all married women with school-age children are now employed outside the home

• Women’s “second shift”
  – Women who work full-time and also carry most of the responsibility for child-care
The Later Years of Life: Growing Old

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The Later Years of Life: Physical Changes

• Wear-and-Tear Theories of Aging
  – Suggest that the mechanical functions of the body simply stop working efficiently as people age
  – Waste by-products of energy production eventually accumulate, and mistakes are made when cells divide

• Genetic Preprogramming Theories of Aging
  – Suggest that there is a built-in time limit to the reproduction of human cells, and that after a certain time cells stop dividing or become harmful to the body
The Social World of Late Adulthood

• Disengagement theory of aging
  – Aging produces a gradual withdrawal from the world on physical, psychological, and social levels
The Social World of Late Adulthood

• Activity theory of aging
  – Suggests that the people who age most successfully are those who maintain their interests, activities, and level of social interaction they experienced during middle adulthood
Memory Changes in Late Adulthood

- Fluid intelligence declines over time
- Crystallized intelligence remain steady and in some cases improve
Memory Changes in Late Adulthood

• Alzheimer’s disease
  – Progressive brain disorder that leads to a gradual and irreversible decline in cognitive abilities
Adjusting to Death

• Denial
• Anger
• Bargaining
• Depression
• Acceptance