



## Nature, Nurture, and Human Diversity

Chapter 3  
Psy12000

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### What Makes You You?

- Each of us is unique.
  - We look different, we have varying personalities, interests, and cultural and family backgrounds

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### What Makes You You?

- We also share a lot in common.
  - We share a biological heritage, cut us, we bleed.
  - Shared brain architecture predisposes us to sense the world, develop language, and feel hunger through identical mechanisms.
  - We prefer sweet tastes to sour; we divide color spectrum into similar colors, we feel drawn to behaviors that produce and protect offspring.

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### What Makes You You?

- We fear strangers at 8 months.
- We prefer company of those with similar attitudes and attributes.
- We know how to read on another's smiles and frowns.
- We affiliate, conform, return favors, punish offenses, organize hierarchies of status, and grieve a child's death.
- This is Human Nature.

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### What Makes You You?

- What causes our diversity, and our shared human nature?
- How much are human differences shaped by our differing genes?
- How much by our environment?
  - From nutrition within the womb to social support while nearing the tomb?
  - Our upbringing? Our culture? Our current circumstances?

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### What is the Nature-Nurture Debate?

- What accounts for our behavioral proclivities, talents, abilities, personality, pre-dispositions, intelligence, temperament?
  - Are we born with these differences? (*Nature*)
  - Or, do we acquire these differences from our parents' influence, societal influence, friends, etc? (*Nurture*)

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## Nature

### Evolutionary Psychology: Understanding Human Nature

- Natural Selection: Variations (from mutations or new gene combinations) that increase the odds of reproducing and surviving are most likely to be passed on to future generations.
- An Evolutionary Explanation of Human Sexuality
  - Males: broadcasting; goal is to increase chances of spreading their genes: seek healthy/fertile/nurturing mate(s)
  - Females: narrowcasting; seek mates with resources and potential for long-term investment in their joint offspring: healthy/security/strong mates

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## Nature

### Evolutionary Psychology: Understanding Human Nature

- Critiquing the Evolutionary Perspective
  - Post-hoc? Starts from an effect and works backward to an explanation.
  - Gives too little emphasis to social influences.
  - Absolves people from taking responsibility for their sexual behavior
  - Promotes Status Quo

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## Nurture and Human Diversity

This perspective emphasizes the influence of parents and peers:

### Cultural Influences

- Variations Across Cultures
- Culture and the Self
  - Collectivistic
  - Individualistic
- Culture and Child-Rearing
  - Protective
  - Punitive
  - Promote independence

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## Nature, Nurture, and Human Diversity

- Developmental Similarities Across Groups
- Gender Development
- Gender Similarities and Differences

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## Nature vs. Nurture

- |  |   |
|--|---|
| <ul style="list-style-type: none"><li>• Genes</li><li>• For “universals,” looks for similarities across cultures (but can account for differences by sex)</li><li>• Universals<ul style="list-style-type: none"><li>– Aggression?</li><li>– Altruism?</li><li>– Nonverbal expressions</li></ul></li><li>• Hereditability<ul style="list-style-type: none"><li>– IQ</li><li>– Personality</li><li>– Temperament</li></ul></li></ul> | <ul style="list-style-type: none"><li>• Environment</li><li>• Looks for differences as a function of culture and immediate environment.</li><li>• Explains common behaviors in terms of reactions to norms, stereotypes, and expectations.</li><li>• Includes prenatal environment.</li></ul> |
|--|---|

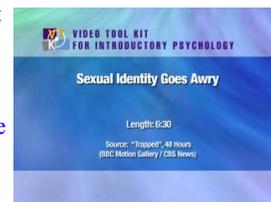
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## Nature, Nurture, and Human Diversity

### Gender Development

- The Nature of Gender
- The Nurture of Gender

### Reflections on Nature and Nurture



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## Nature, Nurture, and Human Diversity

| Similarities                            | Differences  |
|---|--|
| Genes: Same set of chromosomes          | Genes: Genetic anomalies may make us different                             |
| Biology: Organs and body functions same | Biology: May change during development                                     |
| Brain: Same brain architecture          | Brain: Asymmetry of brain across genders, growth can depend on environment |
| Behaviors: Speak language               | Behavior: Speak different languages  |

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## Behavior Genetics: Predicting Individual Differences

**Behavior Geneticists** study our differences and weigh the relative effects of heredity and environment.

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## Genes: Our Codes for Life

**Chromosomes** containing **DNA** (*deoxyribonucleic acid*) are situated in the nucleus of a cell.

**Nucleus**  
(the inner area of a cell that houses chromosomes and genes)

**Chromosome**  
(threadlike structure made largely of DNA molecules)



**Cell**  
(the basic structural unit of a living thing)

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## Genes: Our Codes for Life

Segments within DNA consist of **genes** that make proteins to determine our development.

**Chromosome**  
(threadlike structure made largely of DNA molecules)

**DNA**  
(a spiraling, complex molecule containing genes)



**Gene**  
(segment of DNA containing the code for a particular protein; determines our individual biological development)

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## Genome

**Genome** is the set of complete instructions for making an organism, containing all the genes in that organism. Thus, the human genome makes us human, and the genome for *drosophila* makes it a common house fly.

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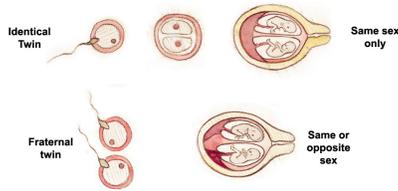
## How Would You Determine Whether Nature or Nurture Were More Influential?

- If you could control your own experiment, what would you do to answer the ultimate questions of nature vs nurture?
- Why can't we do these experiments?
- What do we do instead?

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## Twin Biology

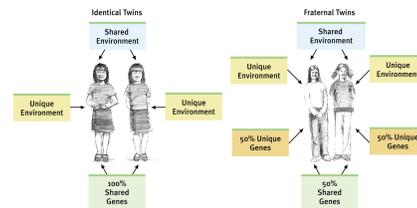
Studying the effects of heredity and environment on two sets of twins, identical and fraternal, has come in handy.



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## Twins and Procedures

Behavior geneticists study the effects of shared and unique environments on total or partial genetic makeup.



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## Twins Separated at Birth

A number of studies compared identical twins raised separately from birth, or close thereafter, and found numerous similarities.

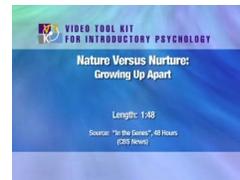
| Separated Twins           |
|---------------------------|
| Personality, Intelligence |
| Abilities, Attitudes      |
| Interests, Fears          |
| Brain Waves, Heart Rate   |



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## Separated Twins

Critics of separated twin studies note that such similarities can be found between strangers. Researchers point out that differences between fraternal twins are greater than identical twins.



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## Adoption Studies

Adoption studies, as opposed to twin studies, suggest that adoptees (who may be biologically unrelated) tend to be different from their adoptive parents and siblings.



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## Adoptive Studies

Adoptive studies strongly point to the simple fact that biologically related children turn out to be different in a family. So investigators ask:

Do siblings have differing environmental experiences?

Do siblings, despite sharing half of their genes, have different combinations of the other half of their genes?

**Ultimate question:** Does parenting have an effect?

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## Parenting

Parenting *does have an effect* on biologically related and unrelated children, but not on everything.

| Parenting Influences children's |
|---------------------------------|
| Attitudes, Values               |
| Manners, Beliefs                |
| Faith, Politics                 |

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## Temperament Studies

Temperament refers to a person's stable emotional reactivity and intensity. Identical twins express similar temperaments, even when reared apart, suggesting heredity predisposes temperament.



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## Heritability

Heritability refers to the extent to which the *differences among people* are attributable to genes.



For Exam 2, I will ask questions up to and including this slide. The remaining slides are for your personal enjoyment. ☺

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## Group Differences

If genetic influences help explain individual diversity in traits, can the same be said about group differences?

Not necessarily. Individual differences in weight and height are heritable and yet nutritional influences have made westerners heavier and taller than their ancestors were a century ago.

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## Nature *and* Nurture

Some human traits are fixed, such as having two eyes. However, most psychological traits are liable to change with environmental experience.

Genes provide choices for the organism to change its form or traits when environmental variables change.

Therefore, genes are pliable or *self-regulating*.

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## Gene-Environment Interaction

Genes can influence traits which affect responses, and environment can affect gene activity.

A genetic predisposition that makes a child restless and hyperactive evokes an angry response from his parents. A stressful environment can trigger genes to manufacture neurotransmitters leading to depression.

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## Videos and Discussion

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## Gene-Environment Interaction

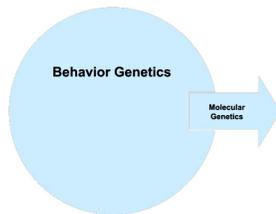
Genes and environment affect our traits individually, but more important are their interactive effects.



People respond differently to Rowan Atkinson (Mr. Bean) than Orlando Bloom.

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## The New Frontier: Molecular Genetics



Molecular genetics is a branch extension of behavior genetics that asks the question, “Do genes influence behavior?”

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## Molecular Genetics: Promises and Perils

Molecular geneticists are trying to identify genes that put people at risk for disorders. With this kind of knowledge, parents can decide to abort pregnancies in which the fetus is suspected of having such disorders.

However, this opens up a real concern regarding ethical issues involving such choices.

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## Evolutionary Psychology: Understanding Human Nature

Molecular genetics studies why we as organisms are distinct.

**Evolutionary psychology** studies why we as humans are alike. In particular, it studies the evolution of behavior and mind using principles of natural selection.

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## Natural Selection

**Natural selection** is an evolutionary process through which adaptive traits are passed on to ongoing generations because these traits help animals survive and reproduce.

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## Artificial Selection

Biologists like Belyaev and Trut (1999) were able to artificially rear and domesticate wild foxes, selecting them for friendly traits.



Any trait that is favored naturally or artificially spreads to future generations.

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## Human Traits

A number of human traits have been identified as a result of pressures afforded by natural selection.

Why do infants fear strangers when they become mobile?

Why are most parents so passionately devoted to their children?

Why do people fear spiders and snakes and not electricity and guns?

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## Human Sexuality

### Gender Differences in Sexuality

Males and females, to a large extent, behave and think similarly. Differences in sexes arise in regards to reproductive behaviors.

| Question (summarized)    | Male | Female |
|--------------------------|------|--------|
| Casual sex               | 60%  | 35%    |
| Sex for affection        | 25%  | 48%    |
| Think about sex everyday | 54%  | 19%    |

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## Mating Preferences

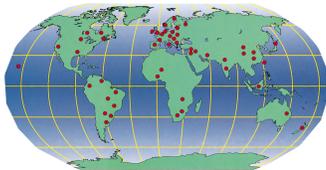
Natural selection has caused males to send their genes into the future by mating with multiple females since males have lower costs involved.

However, females select one mature and caring male because of the higher costs involved with pregnancy and nursing.

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## Mating Preferences

Males look for youthful appearing females in order to pass their genes into the future. Females, on the other hand look for maturity, dominance, affluence and boldness in males.



Data based on 37 cultures.

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## Critiquing the Evolutionary Perspective

Evolutionary psychologists take a behavior and work backward to explain it in terms of natural selection.

Evolutionary psychology proposes genetic determinism and undercuts morality in establishing society.

Where genders are unequal, gender preferences are wide, but when they are closely equal, preferences narrow down.

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## Evolutionary Psychologists Reply

Evolutionary psychologists argue that we need to test behaviors that expound evolutionary principles.

Evolutionary psychologists remind us how we have adapted, but do not dictate how we ought to be.

Males and females are more alike than different, and if we study these differences we can establish their causes.

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## Parents and Peers

### Parents and Early Experiences

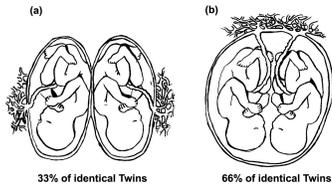
We have looked at how genes influence our developmental differences. What about the environment? How do our early experiences, our family, our community and our culture affects these differences?

We begin with the prenatal environment.

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## Prenatal Environment

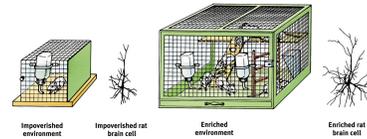
Identical twins who share the same placenta (b) are more alike than those who do not (a), suggesting prenatal influences on psychological traits.



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## Experience and Brain Development

Early postnatal experiences affect brain development. Rosenzweig et al. (1984) showed that rats raised in enriched environments developed thicker cortices than those in impoverished environment.



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## Experience and Faculties

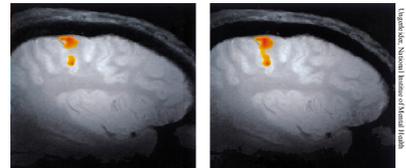
Early experiences during development in humans shows remarkable improvements in music, languages and the arts.



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## Brain Development and Adulthood

Brain development does not stop when we reach adulthood. Throughout our life, brain tissue continues to grow and change.



A well-learned finger-tapping task leads to more motor cortical neurons (right) than baseline.

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## Parental Influence

Parental influence is largely genetic. This support is essential in nurturing children. However, other socializing factors also play an important role.



Although raised in the same family, some children are greater risk takers.

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## Peer Influence

Children, like adults, attempt to fit into a group by conforming. Peers are influential in such areas as learning to cooperate with others, gaining popularity, and developing interactions.



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## Cultural Influences

Humans have the ability to evolve culture. Culture is composed of behaviors, ideas, attitudes, values and traditions shared by a group.



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## Variation Across Culture

Cultures differ. Each culture develops **norms** – rules for accepted and expected behavior. Men holding hands in Saudi Arabia is the norm (closer **personal space**), but not in American culture.



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## Variation Over Time

Cultures change over time. The rate of this change may be extremely fast. In many Western countries, culture has rapidly changed over the past 40 years or so.

This change cannot be attributed to changes in the human gene pool because genes evolve very slowly.

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## Culture and the Self

If a culture nurtures an individual's personal identity, it is said to be **individualist**, but if a group identity is favored then the culture is described as **collectivist**.

A collectivist support system can benefit groups who experience disasters such as the 2005 earthquake in Pakistan.



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## Culture and the Self

| VALUE CONTRASTS BETWEEN INDIVIDUALISM AND COLLECTIVISM |  |   |
|--|--|---|
| Concept  | Individualism  | Collectivism  |
| Self   | Independent (identity from individual traits)                              | Interdependent (identity from belonging)  |
| Life task  | Discover and express one's uniqueness                                      | Maintain connections, fit in, perform role  |
| What matters   | Me—personal achievement and fulfillment; rights and liberties; self-esteem | Us—group goals and solidarity; social responsibilities and relationships; family duty |
| Coping method  | Change reality   | Accommodate to reality  |
| Morality   | Defined by individuals (self-based)  | Defined by social networks (duty-based)   |
| Relationships  | Many, often temporary or casual; confrontation acceptable                  | Few, close and enduring; harmony valued   |
| Attributing behavior                                   | Behavior reflects one's personality and attitudes                          | Behavior reflects social norms and roles  |

Sources: Adapted from Thomas Schoeneman (1994) and Harry Triandis (1994).

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## Culture and Child-Rearing

Individualist cultures (European) raise their children as independent individuals whereas collectivist cultures (Asian) raise their children as interdependent.



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## Culture and Child-Rearing

| Westernized Cultures      | Asian-African Cultures        |
|---------------------------|-------------------------------|
| Responsible for your self | Responsible to group          |
| Follow your conscience    | Priority to obedience         |
| Discover your gifts       | Be true to <i>family-self</i> |
| Be true to yourself       | Be loyal to your group        |
| Be independent            | Be interdependent             |

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## Developmental Similarities Across Groups

Despite diverse cultural backgrounds, humans are more similar than different in many ways. We share the same genetic profile, life cycle, capacity for language, and biological needs.



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## Gender Development

Based on genetic makeup, males and females are alike, since the majority of our inherited genes (45 chromosomes are unisex) are similar.

Males and females differ biologically in body fat, muscle, height, onset of puberty, and life expectancy.

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## Gender Differences in Aggression

Men express themselves and behave in more aggressive ways than do women. This aggression gender gap appears in many cultures and at various ages.

In males, the nature of this aggression is physical.

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## Gender and Social Power

In most societies, men are socially dominant and are perceived as such.

In 2005, men accounted for 84% of the governing parliaments.

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## Gender Differences and Connectedness

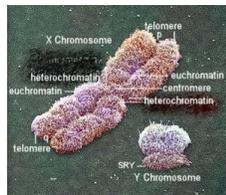
Young and old, women form more connections (friendships) with people than do men. Men emphasize freedom and self-reliance.



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## Biology of Sex

Biological sex is determined by the twenty-third pair of chromosomes. If the pair is XX, a female is produced. If the pair is XY, a male child is produced.



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## Sexual Differentiation

In the mother's womb, the male fetus is exposed to testosterone (because of the Y chromosome), which leads to the development of male genitalia.

If low levels of testosterone are released in the uterus, the result is a female.

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## Sexual Differentiation

Sexual differentiation is not only biological, but also psychological and social.

However, genes and hormones play a very important role in defining gender, especially in altering the brain and influencing gender differences as a result.

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## Gender Roles

Our culture shapes our **gender roles** — expectations of how men and women are supposed to behave.

**Gender Identity** — means how a person views himself or herself in terms of gender.

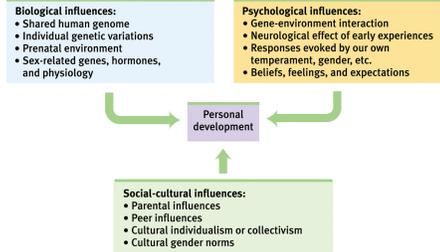
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## Gender Roles: Theories

1. **Gender Schema Theory** suggests that we learn a cultural “recipe” of how to be a male or a female, which influences our gender- based perceptions and behaviors.
2. **Social Learning Theory** proposes that we learn gender behavior like any other behavior— reinforcement, punishment, and observation.

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## Reflections on Nature and Nurture



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