Chapter 3: Nature and Nurture of Behavior
Genetic Ingredients

• Chromosomes
  – threadlike structures made of DNA that contain the genes
  – Total of 46…23 from Mom, 23 from Dad.

• Genes
  – biochemical units of heredity that make up the chromosomes
  – a segment of DNA capable of synthesizing a protein
Charting Dominant vs. Recessive (Punnett Squares)
Positives and Negatives of Genetic Engineering?

- **Human Genome Project**: goal is to map the human genome down to the nucleotide and identify all the genes present in it.
Reflection Questions: Positives and Negatives of Genetic Engineering?

1. If it were possible, would you want to take a genetic test telling you which diseases you are likely to suffer from later in life?

2. If you or your spouse were pregnant, would you want the unborn child tested for genetic defects? Likelihood of diseases? Traits?

3. Do you think it should be legal for employers to use genetic tests in deciding whom to hire?
Evolutionary Psychology

• Based on the ideas of Charles Darwin and natural selection: the principle that, among the range of inherited trait variations, those contributing to survival will most likely be passed on to succeeding generations

• Mutations
  – random errors in gene replication that lead to a change in the sequence of nucleotides
  – the source of all genetic diversity
Evolutionary psychologists believe that nature selects physical as well as behavioral traits that prepare humans to survive, reproduce, and send genes into the future.

Evolutionary Psychologists are concerned with the influence of genetic predisposition on behavior. How much do our genes impact our behavior?
Evolutionary Example

- Evolutionary Psychologists believe we favor sweets and fats now since in the prehistoric era these were harder to come by and allowed ancestors to survive famine.

- Problem today?
Gender and Evolutionary Psychology

- **Gender:** in psychology, the characteristics, where biologically or socially influenced, by which people define male and female

- Evolutionary Psychologists have found major gender differences in both attitudes and behaviors towards sex.
Gender Differences in Attitudes and Behaviors

- **Attitudes:** Males tend to have a much more recreational approach to sex vs. women’s relational approach.

- **Behavior:** Males are more likely to be promiscuous and aggressive towards sex than females.
How would Evolutionary Psychologists Explain this Difference?
Gender Differences and Attraction

Across the board men and women prefer youthful appearance.
Gender Differences and Attraction

• Men tend to be especially drawn to youth and “physical attractiveness.”

• Women especially attracted to males who seem mature, dominant, and affluent.

How would an evolutionary psychologist explain this?
Criticisms of Evolutionary Approach: Do you Buy It?
Behavior Genetics

- **Behavior Genetics**
  - study of the power and limits of genetic and environmental influences on behavior

- **Environment**
  - every non-genetic influence, from prenatal nutrition to the people and things around us
**Behavior Genetics and Use of Twin Studies**

- **Identical Twins**
  - Develop from a single zygote (fertilized egg) that splits in two, creating two genetic replicas.

- **Fraternal Twins**
  - Develop from separate zygotes.
  - Genetically no closer than brothers and sisters, but they share the fetal environment.
What’s the Value of Twin Studies to Behavior Geneticists?
How Have Psychologists Used Adoption Studies?
Behavior Genetics

- Temperament
  - a person’s characteristic emotional reactivity and intensity
Behavior Genetics

- **Heritability**: Heritability is the extent to which the differences between individuals within a group can be explained by genetics (as opposed to environment).

  - Boys raised in barrels example
Behavior Genetics

- **Heritability example:**
  - If children are genetically similar (e.g., identical twins), then any differences between them would have to be explained by environment, making heritability close to 0%.
  - Conversely, children raised in identical environments would have differences that could only be explained by genetics, so heritability would be close to 100%
Influence of Environment Starts in the Womb

• **Prenatal Environment:**
  first stage of nurture, when embryos and fetuses receive differing nutrition and varying levels of exposure to toxic agents.
Influence of Environment Starts in the Womb

- Two placental arrangements in identical twins
More Environmental Influence

- Experience affects brain development

Impoverished environment  Rat brain cell  Enriched environment  Rat brain cell
Environmental Influences

- **Culture**: the enduring behaviors, ideas, attitudes, and traditions shared by a large group of people and transmitted from one generation to the next.

- **Norm**: an understood rule for accepted and expected behavior.
Influence of Culture

• The **sociocultural perspective** looks to investigate how behavior and thoughts change according to the society/culture we were raised in.

• Western cultures tend to be more individualistic while Eastern cultures tend to be more collective.
Environmental Influences

- Personal Space
  - the buffer zone we like to maintain around our bodies is different in different parts of the world.

Seinfeld video (http://www.youtube.com/watch?v=NGVSlkEi3mM)
The Nature of Gender

**X Chromosome**
- the sex chromosome found in both men and women
- females have two; males have one
- an X chromosome from each parent produces a female

**Y Chromosome**
- the sex chromosome found only in men
- when paired with an X chromosome from the mother, it produces a male child
Nature of Gender

**Testosterone**
- the most important of the male sex hormones
- both males and females have it
- additional testosterone in males stimulates
  - growth of male sex organs in the fetus
  - development of male sex characteristics during puberty
Nurture of Gender

• **Gender Role:** a set of expected behaviors for males and females

• Often changes depending on the culture you were raised in.

• Who decorates house? Washes car? Pays for dinner? Mows yard? Picks out child’s clothes?
Nurture of Gender

- **Gender Identity**: one’s sense of being male or female.

- Is a personal feeling of what gender you are separate from biology.

- **Gender Identity Disorder**: when one feels discomfort/discontent about the biological sex they were born.

- **Gender Typing**: refers to the taking on of traditional masculine or feminine roles. Certain individuals take roles on more than others.
Nurture of Gender

- **Social Learning Theory**: behaviorist related theory that argues we learn social behavior by observing and imitating and by being rewarded or punished.

Johnny is about to get another beat down, honey. He needs to learn boys don’t play with dolls!!
Nurture of Gender

- **Gender Schema Theory:** Cognitive theory that children learn from their cultures a concept of what it means to be male and female and that they adjust their behavior according to what their mental frameworks (schema) tell them are “male or female.”