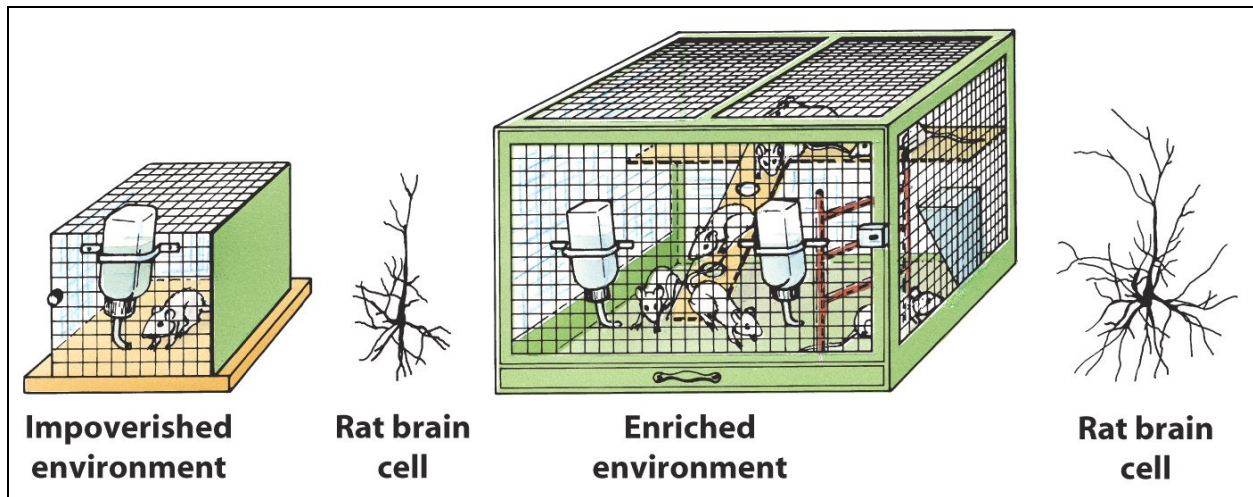


The Interplay of Genes and Environment Wires the Brain

To study the effects of experience on development, researchers reared rates in two different laboratory environments ([page 118](#)).



When you look at the brains of adults who led lives that provided mental challenges such as learning new activities, they developed more neural connections in the brain. Although, these adults were as likely to develop Alzheimer's disease, they were less likely to be impaired by it.

Social and Environmental Contexts Influence Genetic Expression

What factors predicted who became a violent criminal (page 113)

- Do children who are mistreated by their parents more likely to become violent criminals? However, not all mistreated children become violent criminals.

Hypothesis: The enzyme monoamine oxidase (MAO) may be important in determining susceptibility to the effects of maltreatment, because low levels of MAO have been implicated in aggressive behaviors.

Research Method:

1 A group of more than 1,000 New Zealanders were followed from birth to adulthood.

2 Researchers measured which children were mistreated by their parents (nurture).



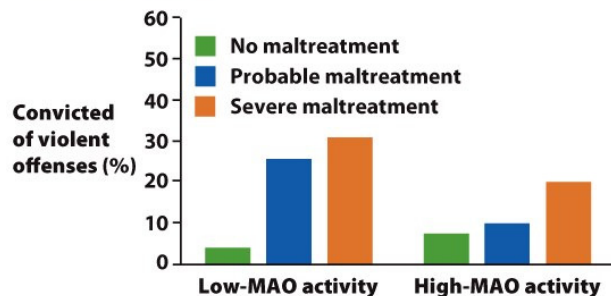
3 Researchers measured the presence of the MAO gene, which comes in two forms. One form leads to higher levels of MAO, and the other form leads to lower levels (nature).



4 Researchers measured the tendency toward criminal behavior.



Results: Those who had the gene for low MAO activity were much more likely than others to have been convicted of violent crimes if they had been maltreated as children. The effects of maltreatment had less influence on those with the high-MAO gene.



Conclusion: Nature and nurture can work together to affect human behavior.

Source: Caspi, A., McClay, J., Moffit, T. E., Mill, J., Martin, J., Craig, I. W., et al. (2002). Role of genotype in the cycle of violence in maltreated children. *Science*, 29, 851–854.

Psychological Science, 4/e Figure 3.36
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Environmental factors influencing intelligence

Average IQ scores, like height and weight, have steadily increased over the last century. As a group, Black Americans once scored about 15 points lower than white Americans; however, this gap has narrowed over the past few decades to 10 points or less. Environmental changes occur much more drastically than the genetic variations in one or two generations.

Economics:

- Being raised in a high-SES (socio-economic status) family rather than a low SES family is worth between 12 to 18 points of IQ (page 347).
- Siblings adopted by a upper-middle SES family had an average IQ of 109, while the sibling raised by a low SES family had an average IQ of 95.
- Black children raised by white families who are highly educated and above average in occupational status and income (families with a high SES) had IQ scores higher than the average scores of other black and white children.

It is believed that a higher SES have better nutrition, better medical care, experience lower stress levels, and less likely to be exposed to environmental toxins such as air pollution and lead (page 347). All of these can influence brain development. In addition those in a higher SES are more likely to be breast fed, which is associated with a higher IQ and provide a more cognitively stimulating environment and interact with their children.

Education:

- When schooling is delayed by war, political strife, or lack of qualified teachers, children show a measurable decline in IQ ([page 412](#)).
- African American children who were exposed to an intensive early-education program that began when they were 6 months old and lasted until they entered kindergarten showed higher IQ scores when compared to a control group of similar children.

Culture:

- In early childhood there is no difference in IQ between Chinese, Japanese and American children. However, Chinese and Japanese middle school children tend to score above white Americans on both math and reading. These differences appear to be due to different educational systems.
- The average IQ is lower for members of a discriminated-against minority group—even when the group is not racially different from the dominant group. The Buraku, the poorest people in Japan have lower IQs than the Japanese. However, when they are treated like "Japanese" in America, they score just as well as any other Japanese-Americans.

It is argued that poor treatment of minority groups can make them pessimistic about their chances of success within their cultures, potentially making them less likely to believe that hard work will pay off for them ([page 349](#))

Environment and Achievement Development of Achievement Motivation

Achievement Motivation: The desire to excel at some task.

How does achievement motivation develop?

- Providing a cognitively stimulating home environment fosters children's intrinsic motivation (doing something for its own reason) to perform academic tasks.
 - A stimulating environment is one that makes the child think, challenges the child, and is engaging. Just listening to "Baby Einstein" CDs may not help the child think, challenge them or engage them.
- As seen in [Chapter 9](#) (Development: Erikson's Psychosocial Conflicts), find something the person finds interesting. This may require you to experiment with a lot of different tasks and provide guidance for that person to succeed.
- Praise of a learning process, hard work, diligence (*you worked hard*) versus praise of innate ability (*you are smart*).
- Caregivers that encourage and reward achievement, but don't punish failure help foster a strong motive for success (remember, punishments can increase anxiety).
- Fear of failure seems to develop when caregivers take success for granted and punish failure. Fear of failure keeps people from taking safe risks.

Different Cultures Interpret the World Differently

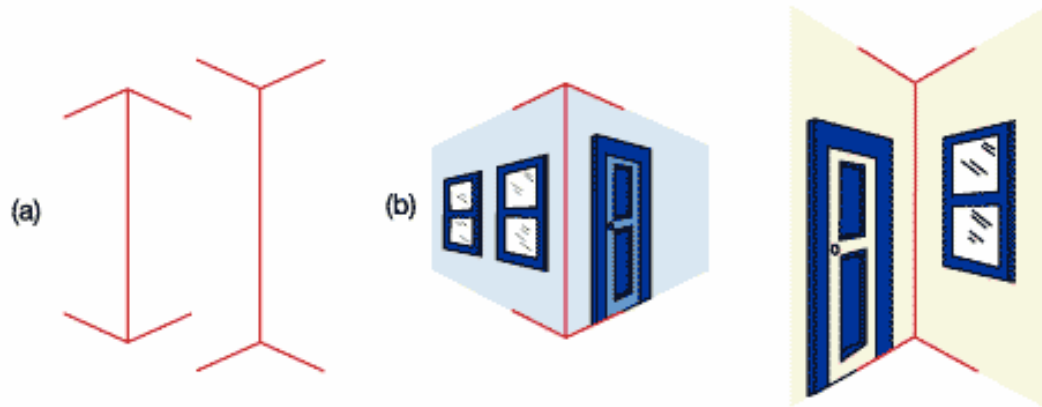
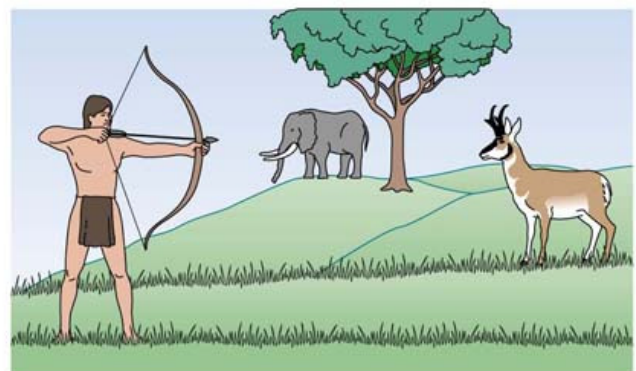


Image source: Unknown

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(a)



(b)

Image source: Psychology: Science and Practice (), Passer and Smith

Expectations for elderly

Cultural

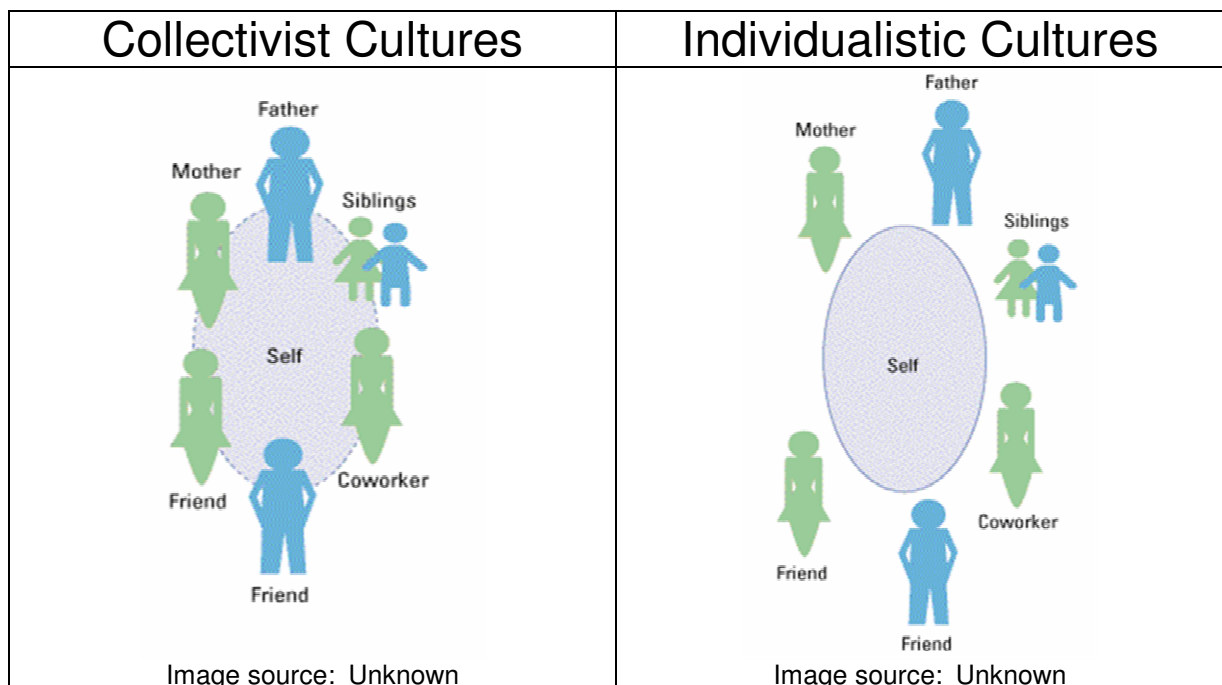
The cultural perspective studies how culture reflect and shape the psychological processes of their members (page 23).

One of the major cultural differences psychologists look at is the collectivist versus individualistic orientation different cultures have

▼ TABLE 4.2
Value Contrasts Between Individualism and Collectivism

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

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



North America (United States and Canada), Western Europe, Australia, New Zealand

East Asian cultures (China, Japan), Native American Cultures

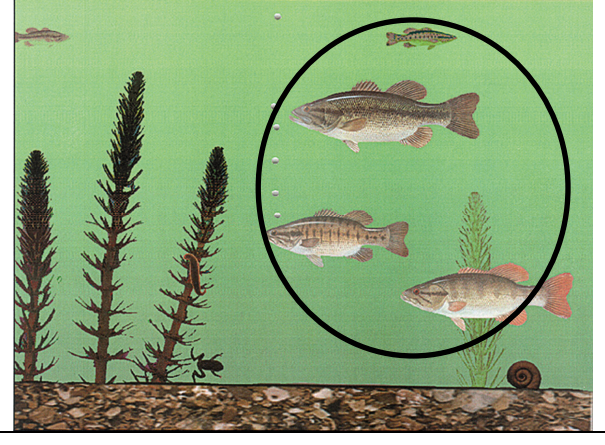
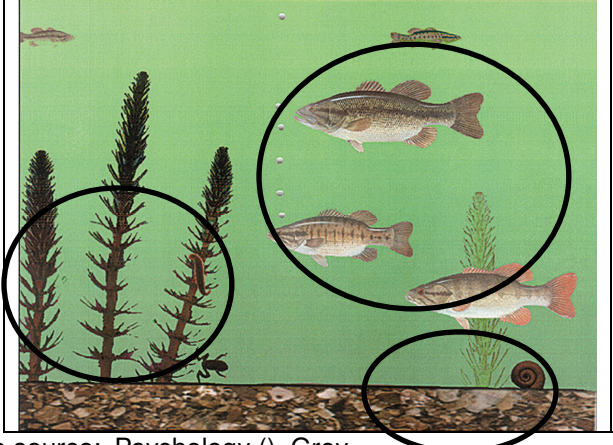


Image source: Psychology (), Grey

Collectivist Cultures

Individualistic Cultures

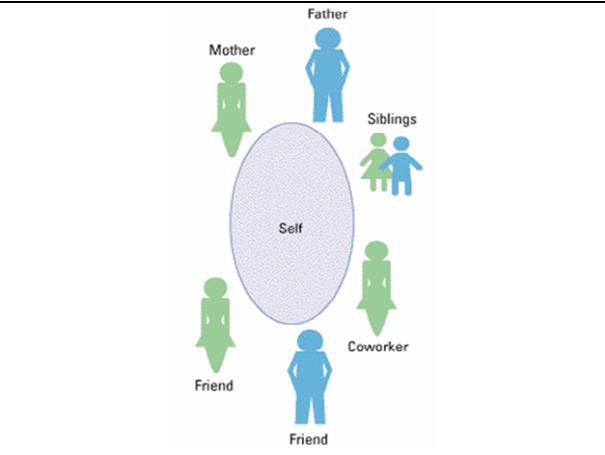
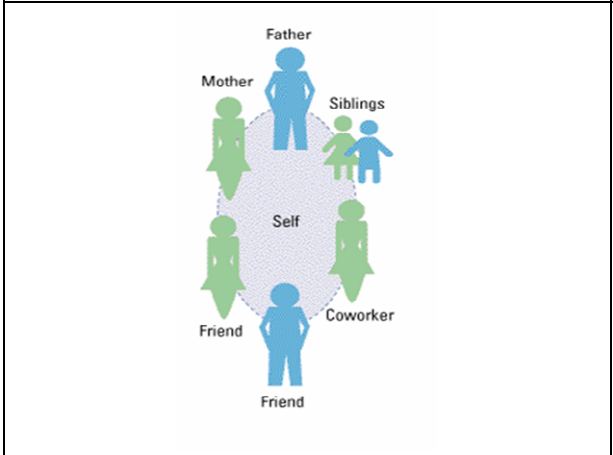
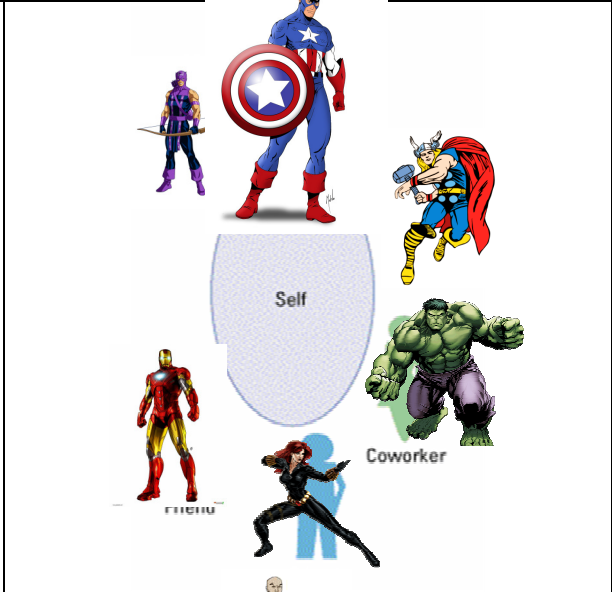




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Collectivist

Individualistic

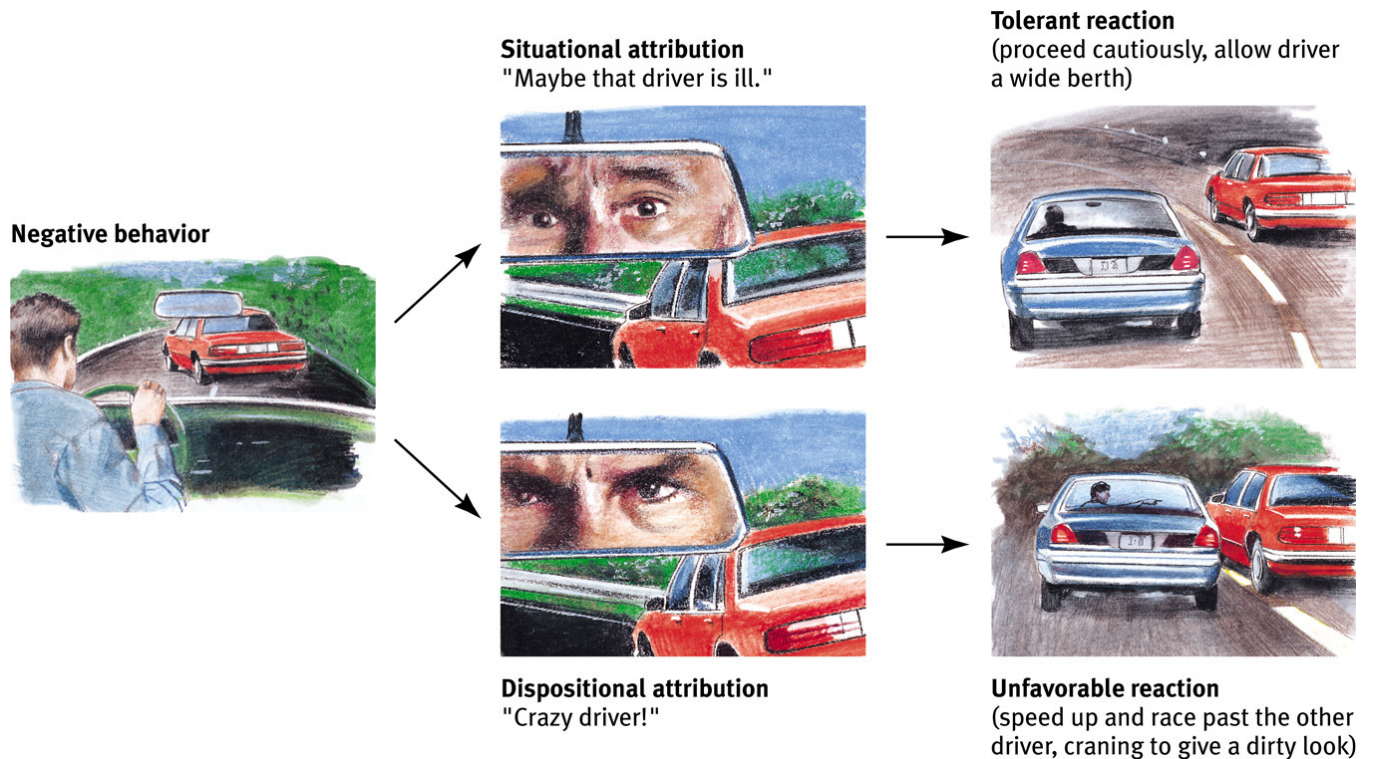
Collectivist Cultures	Individualistic Cultures
 <p data-bbox="418 747 711 779">Image source: Unknown</p>	 <p data-bbox="1019 747 1312 779">Image source: Unknown</p>
Olympic Medalist Reactions (page 159)	
<ul style="list-style-type: none"> Here is the best coach in the world, the best manager in the world, and all of the people who supported me. 	<ul style="list-style-type: none"> I think I just stayed focused It was time to show the world what I could do
Describing friends	
<ul style="list-style-type: none"> She helps her friends 	<ul style="list-style-type: none"> She is helpful
Bryan Cranston's explanation for Breaking Bad's Success	
<ul style="list-style-type: none"> 	<ul style="list-style-type: none">



- What would a collectivist explanation be for its success?
- What would an individualist explanation be for its success?

Individualistic cultures have higher rates of loneliness, divorce, homicide, and stress-related disease compared to collectivist cultures.

Fundamental Attributional Error (FAE)



The fundamental attributional error is the tendency to for individualistic cultures to attribute the behavior of other people to internal, personal characteristics, while ignoring or underestimating the effects of external, situational factors.

Internal and Personal characteristics

External and Situational Factors

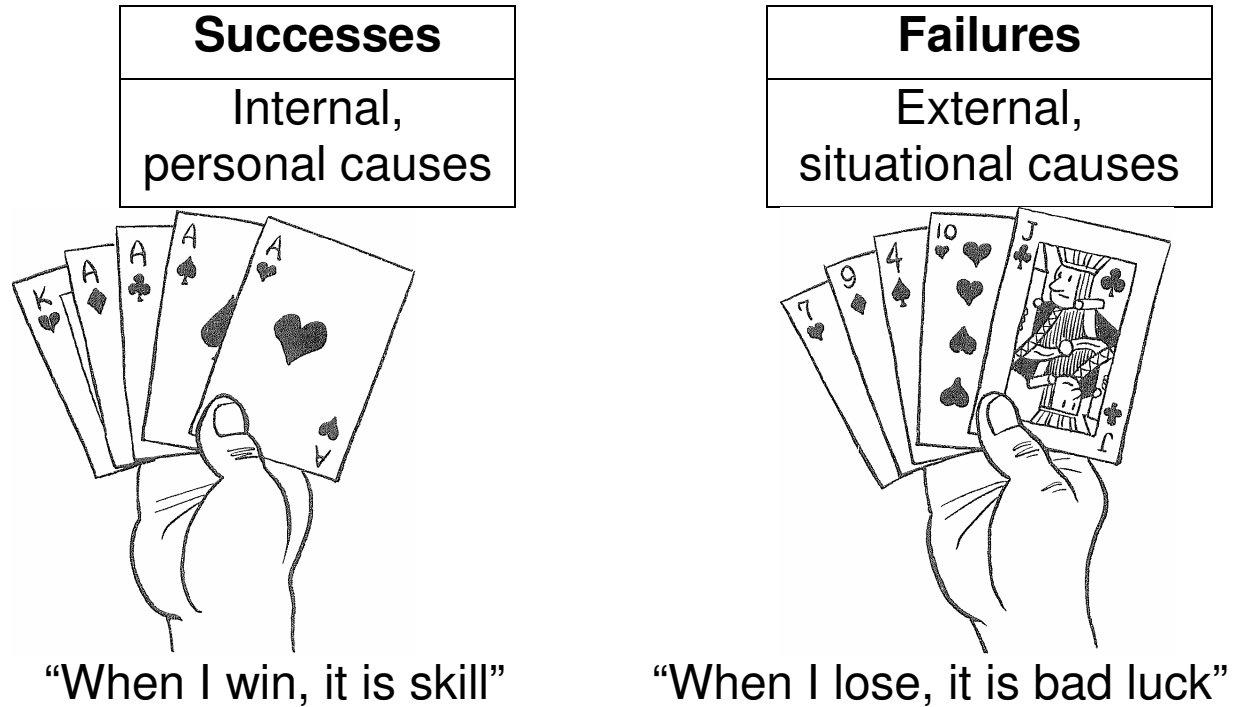
This attributional error is common when bad things happen and observers tend to blame the victim of crime, disaster such as floods, or illness.

For example:

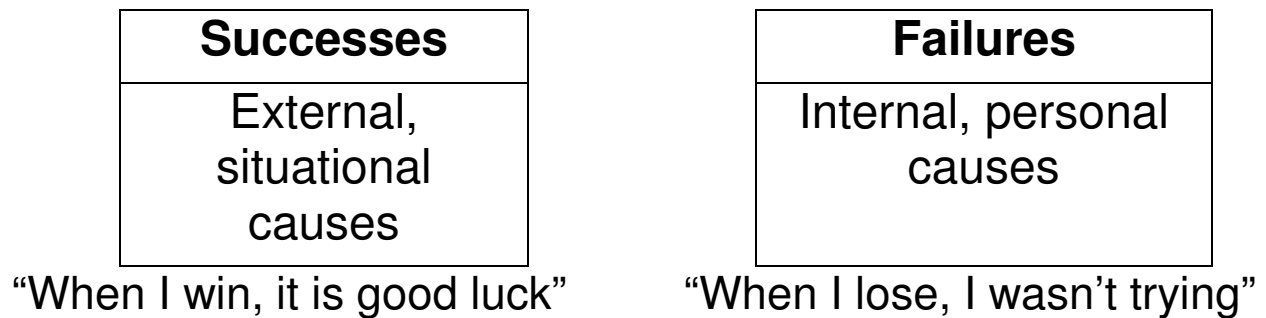
- When people take note of ethnic neighborhoods, dominated by crime and poverty,
 - the personal qualities of the residents are blamed for these problems,
 - while other situational explanations, such as job discrimination, poor police service, etc. are downplayed.
- When one fails to get a job,
 - people can underestimate (social) situational factors such as opportunity, unemployment rates and connections and
 - overemphasize dispositional factors and label people as incompetent or lazy.
- Americans used IQ tests to demonstrate that Caucasians were more intelligent than many immigrants at the turn of the century,
- When explaining why Americans interned the Japanese during WWII, we fail to consider situational factors
- The exposure of an unborn fetus to radiation without the mothers' knowledge. While we agree that these are unacceptable, there is a tendency to discount situational factors and public sentiment at the time.
- When talking about terrorism,
 - we tend to make personality attributions (they are "evil") and
 - discount American foreign policy.

Self-serving bias and Self-effacing bias

Self-serving bias: The tendency for *individualistic* cultures to explain success with internal, personal causes, and failures with external, situational causes.



Self-effacing bias: The tendency to *collectivist* cultures to explain success with external, situational causes, and failures with internal, personal causes.



Effect of the self-serving bias:

Those who tend to commit the self-serving bias tend to be happier, but have a less accurate perception of the world around them.

Context affects perceptions—boundaries

Boundaries can create the perception of differences when they don't exist. The following is a visual illusion from the Discovering Psychology #7: Sensation and Perception at about 20:00 into the video



Most people see two different shades in the left and right side. Now cover up the center line.

Gender Similarities and Differences

When looking at the scientific research on the similarities and differences between females and males, it can be difficult to interpret because

- The differences are reflected in averages, not individuals (e.g. the average height of men is greater than women. This does NOT mean all men are taller than all women)
- When gender differences do occur, there is often a lot of overlap between females and males. Females and males are more alike than different (see figure 12.4). There is much more variation within the sexes than between the sexes.

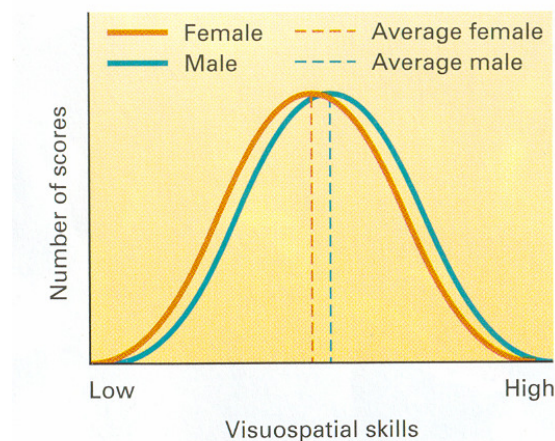


FIGURE 12.4 Visuospatial Skills of Males and Females

Notice that, although an average male's visuospatial skills are better than the average female's, scores for the two sexes almost entirely overlap. Not all males have better visuospatial skills than all females—the overlap indicates that, although the average male score is higher, many females outperform most males on such tasks.

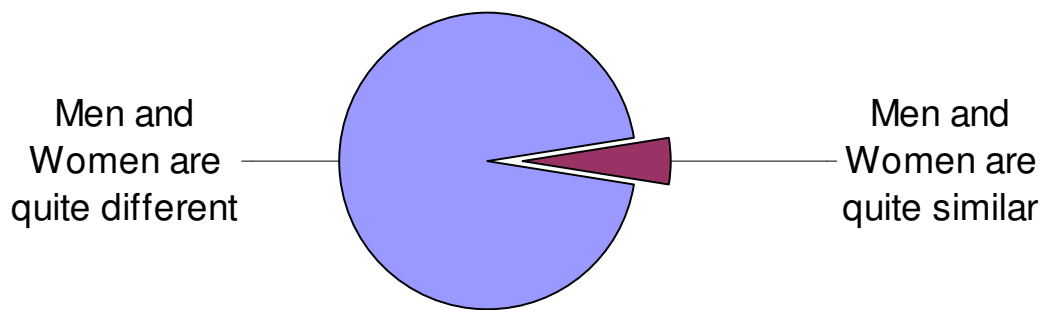
- The differences could be due to biological factors, sociocultural factors or both.

Gender Similarities and Differences

Why do most people think there are more differences between males and females than there actually are?

There is a tendency for gender differences to get the headlines. This attention make it more likely that people think there are more differences than there actually are.

Relative Proportion of the Research on Gender Differences



What does the scientific research show about the similarities and differences among females and males?

Gender differences

Men and women are more alike than they are different. Differences get our attention, make the news, or get published. Differences, in individualistic cultures define who we are.

If we believe that men and women are different, we may exaggerate the differences by giving different explanations for the same behavior.

GENDER BIAS



assertive



bitch



articulate



chatty



stud



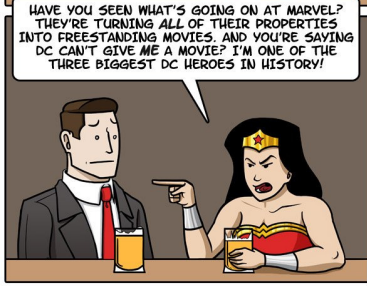
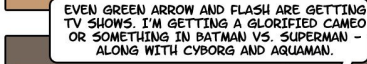
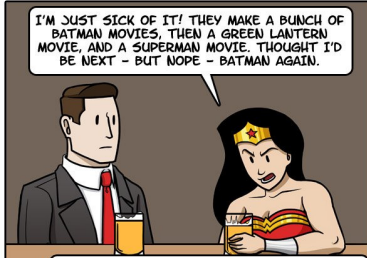
slut



leader



nag



Physical Similarities and Differences

Other than the obvious physical differences between females and males, how do females and males differ?

- Women have twice the body fat of men. Most of it concentrated around the breast and hips. In males, fat is more likely to be concentrated around the abdomen.
- Women tend to have better fine motor skills / manual dexterity.
- Females compared to males
 - have a longer life expectancy than males
 - are less likely than males to develop physical or psychological disorders
 - are more resistant to infection and
 - their blood vessels are more elastic
- Males have higher levels of stress hormones
- The average male is 10% taller than females.

- Although female and male brains are quite similar, some brain differences have been found between males and females
 - One part of the hypothalamus involved with sexual behavior tends to be larger in men than women
 - Portions of the corpus callosum tends to be larger in females than males
 - An area of the parietal lobe that functions in visuospatial skills tends to be larger in males than females
 - The areas of the brain involved in emotional expression tends to show more activity in females than males

These differences could be due to evolution or heredity, as well as social experiences.

Personality Similarities and Differences

For most personality characteristics, there is no significant average difference between men and women. For example, men and women are quite similar in terms of impulsiveness and orderliness.

However, men and women consistently differ on two personality characteristics

- Nurturing:
- Assertiveness:

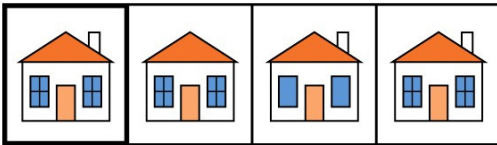
Cognitive Similarities and Differences

The way females and males think are more similar than different. Also remember, there is considerable overlap in cognitive abilities (see figure 12.4). There is no significant difference between men and women in terms of being smarter, more logical, or more creative.

In the 1970's it was found that males had better math and visuospatial skills than females and females have better verbal abilities. However, it was later concluded that differences in verbal abilities had disappeared.

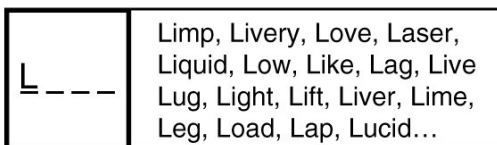
Women generally do better on tests of:

(a) Perceptual Speed



Which house on the right is exactly the same as the house on the far left?

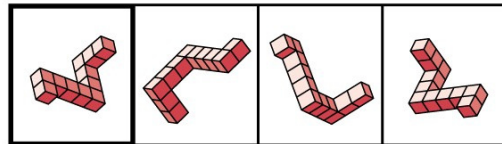
(b) Verbal Fluency



List as many words as you can think of that begin with the letter shown at left.

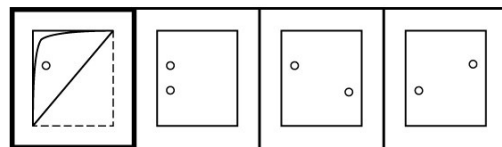
Men generally do better on tests of:

(c) Mental Rotation



Which item on the right is the rotated image of the item on the far left?

(d) Manipulating Mental Images



A hole has been punched through the folded sheet of paper on the far left. Which item on the right accurately shows where the holes will fall when the paper is unfolded?

In school and standardized tests,

- boys are slightly better on math and science than girls
- girls are far superior students and significantly better in reading than boys

In addition, girls had consistently had better writing skills and higher reading achievement than boys in grades 4, 8 and 12.

Socioemotional Similarities and Differences

Communicating Effectively

- Females tend to be stronger interest in relationship talk and greater self-disclosure than males.
- Women's interests and vocations tend to tip more toward people and less toward things ([page 163](#)). Men tend to talk more about hobbies and activities.

Friendship and Love Relationships

- Women have more close friends, engage in more self-disclosure and provide more social support in friendship than males
- Men tend to think of love more in terms of passion, whereas women re more likely to emphasize its similarities to friendship.

Aggression:

One of the more consistent findings in gender differences is that boys are more physically aggressive than girls, and this difference occurs in all cultures and appears at a young age.

- Boys are more physically aggressive than girls
- Girls are as verbally aggressive as boys, if not more so
- Girls show more relational aggression (behaviors such as spreading rumors)

Self-regulation of emotions

- Males usually show less self-regulation of emotions and behavior than females. Self-regulation of emotions is associated with greater aggression, teasing, overreaction to frustration, low cooperation, and inability to delay gratification.

Social Power:

- Men tend to be more directive in their leadership—they tell people what they want and how to achieve it.
- Women tend to be more democratic, more welcoming of other's input in decisions.
- Men are more likely to offer options and solutions
- Women are more likely to offer social support.
- Men talk more assertively, interrupt others, initiating touches, and stare. They are also less likely to smile and apologize ([page 163](#)).