

Name : _____

Types of Correlations

There are two types of **correlations**:

- 1) Positive: As one item increases so does the related item
- 2) Negative: As one item increases the other item decreases

Causation occurs when one item affects another and causes a change.

For the ten statements below, determine if the related events are: *positively correlated*, *negatively correlated*, or *not correlated* at all. Once you have gone through the list once, go back and note the statements that show *causation*. Check the appropriate box(es).

Relationship				Statements
Positive Correlation	Negative Correlation	No Correlation	Causation	
				1. Increased milk drinking occurs with increased cancer rate.
				2. Increased smoking produces increased lung cancer.
				3. Increased absences occur with decreased grades in school.
				4. Increased studying occurs with increased grades.
				5. Increased listening to loud music sometimes increases and sometimes decreases hearing ability.
				6. Moods increase in the summer and decrease in the winter – daylight and mood relationship?
				7. City dwellers have greater cancer rates.
				8. Increasing education occurs with decreasing unemployment.
				9. Full moons increase abnormal behavior.
				10. Eyesight decreases as age increases.

Name: _____

Which Way to Research?

For the ten statements printed below, decide which research method would be most suitable. You should place a ?, N, S, or E on the line provided to the left of the statements. Those symbols stand for the following:

? = It is impossible to study the problem scientifically

N = Naturalistic observation is the appropriate method

S = A survey approach is the appropriate method

E = An experiment is the appropriate method

- _____ 1) Smoking decreases lung capacity.
- _____ 2) Spirits remain on earth when a person commits suicide.
- _____ 3) Children in day-care centers fight more with peers than same age children in home day-cares.
- _____ 4) Individuals exercising two to three times per week report more marital satisfaction than individuals not exercising at all.
- _____ 5) Unmarried teachers talk more with their colleagues than do married teachers.
- _____ 6) Newborn infants have an innate ability to sense trouble.
- _____ 7) Abortions decrease when the economy is stable.
- _____ 8) People living on the streets have greater mental illnesses than people living in temporary shelters.
- _____ 9) More youth than elderly have goals concerning financial gain.
- _____ 10) Music played in the workplace increases productivity.
- _____ 11) Infants roll over more often to their left if they are left-handed and to their right if they are right-handed.
- _____ 12) Student absenteeism in school increases as average family income decreases.

Experimental Design Work Sheet

Name _____

IS-WS3-092005-H-10

Hour _____

1. An investigator wished to study the influence of moderate hunger on the activity level in the white rat. He placed a group of fifty rats on a food deprivation schedule and housed each animal in a running wheel or revolving drum apparatus. In this apparatus the activity of the animal is recorded in terms of number of revolutions of the drum. Each revolution in either direction is recorded on a counter. After one week under these conditions, the experimenter noted that the average running wheel activity level for all subjects was 187 revolutions per hour. He concluded that an increase in hunger results in an increase activity level in the white rat.
 - a) What is the independent variable in this study?
 - b) What is the dependent variable in this study?
 - c) What are some problems with the design of this experiment?

2. A drug company developed a pill to prevent air sickness and asked a researcher to test its effectiveness. For this purpose, the researcher obtained 200 volunteer subjects at a large airport terminal and asked them to participate in his study, testing the pill's effectiveness under rough flying conditions. Half of the volunteers on every trip were given the pill and the other half were not. Thus, the two groups were treated alike except that the subjects in the experimental group received a pill for air sickness and the control group did not receive a pill. Since 18% of the experimental group became air sick, and 76% of the control group became air sick, the investigator concluded that the pill was generally effective.
 - a) Identify the independent variable in the study.
 - b) Identify the dependent variable in the study.
 - c) Is the investigator's conclusion warranted? Explain your decision and suggest a way the experiment could be changed or improved.

3. A high school teacher wanted to discover whether there is a relationship between muscular tension and success in learning. He asked 60 English speaking students to memorize a list of Russian words while sitting still at a desk. This was the control condition. After a rest period, he provided an experimental situation by asking the same students to memorize a similar list of Russian words while lifting weights of several pounds. Thus, the experimental subjects acted as their own controls. Then the performance of each subject under experimental (lifting weights) conditions was compared with his performance under the control procedure. In almost all cases, the number of Russian words correctly recalled was better under the experimental condition. The experimenter concluded that learning improved under conditions of moderate muscular tension.
 - a) Identify the independent variable.
 - b) Identify the dependent variable.
 - c) Cite an important defect or problem in the method of this experiment.
 - d) Suggest an improved experimental design to the above experiment.

Experimental Variables Worksheet

Name _____

MA-WS2-072503-10

Hour _____

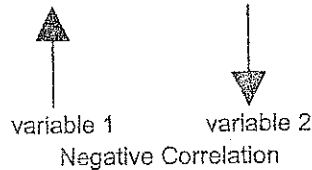
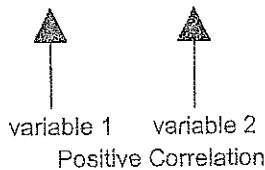
For each of the following experiments, please identify a dependent variable, an independent variable, and a hypothesis that the experimenter might test.

1. Developmental psychologists want to know if exposing children to public television improves their reading skills.
2. Physiological psychologists wonder about the relationship between the intake of wine and emotional reactions to frightening stimuli.
3. Sensory psychologists want to know whether birds also experience visual illusions.
4. Operant psychologists want to know whether reinforcing (rewarding) comments will make people work harder on an assembly line.
5. Cognitive psychologists wonder what kind of diagrams are easiest for people to remember.
6. Comparative psychologist study whether a young monkey will prefer to spend time with a pretend monkey made of wire that also provides milk or a pretend monkey that is covered with cloth but provides no milk.
7. A clinical psychologist wants to know whether people who have had psychotherapy are more or less likely to have problems in the future.
8. A social psychologist wants to know whether being polite or rude to people tends to make them more cooperative.
9. An organizational psychologist test to see if wearing name tags make the employees happier with their work.
10. A personality psychologist explores whether extroverted people have more fun at parties.

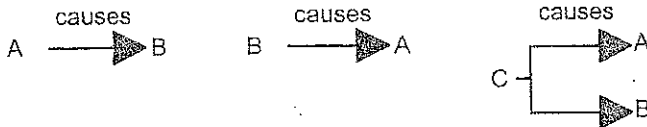
Handout Master 1.6

Critical Thinking Exercise: Understanding Correlations

Correlational studies show relationships between variables. If high scores on one variable predict high scores on the other variable, the correlation is *positive*. If high scores on one variable predict low scores on the other variable, the correlation is *negative*.



Showing that two variables are related does not justify claiming that a causal relationship exists. There may be a causal relationship, but other explanations usually exist. For example, the variables may be related because both have a causal relationship with a third variable.



For each of the correlational studies described below, decide whether the correlation is positive or negative and give two alternative explanations for each finding.

1. A study of married couples showed that the longer they had been married, the more similar their opinions on social and political issues were.
Positive or negative?

Explanation 1:

Explanation 2:

2. An intelligence test was given to all the children in an orphanage. The results showed that the longer children had lived in the orphanage, the lower their IQ scores.
Positive or negative?

Explanation 1:

Explanation 2:

3. In a study of American cities, a relationship was found between the number of violent crimes and the number of stores selling violence-depicting pornography.
Positive or negative?

Explanation 1:

Explanation 2:

4. A college professor found that the more class absences students have, the lower their grade in the course tends to be.
Positive or negative?

Explanation 1:

Explanation 2:

5. A politician running against a candidate who had been in office for eight years pointed out that violent crime had increased steadily during those eight years even though the administration appropriated more and more money to fight crime.
Positive or negative?

Explanation 1:

Explanation 2:

6. It was found that elementary-school children who made high scores on a vocabulary test also tended to make high scores on a test of physical strength and muscular coordination.
Positive or negative?

Explanation 1:

Explanation 2:

Name: _____

Chapter 2 ~ Methods of Psychology

CORRELATION

Consider alternative explanations

Correctional studies examine the relationships between variables in a study.

Direct relationships (positive correlations) exist when high scores on one variable are associated with high scores on another variable, as when intelligence is positively correlated with grade point average. Inverse relationships (negative correlations) exist when high scores on one variable are associated with *low* scores on a second variable, as when the amount of sleep one gets is negatively correlated with levels of irritability and anxiety.

Demonstrating that a correlation exists does not prove that changes in one variable are the cause of changes in the other, partly because other factors which are undetected may be influencing both known variables. Thus, knowing that a correlation exists may lead to two or more different interpretations of the correlation.

For the studies described below, decide whether the correlation is positive or negative and give two explanations for the finding.

1. A government study reveals that the more a mother smokes, the more her children are likely to exhibit behavioral problems

Type of correlation:

One explanation:

Another explanation:

2. The more psychology courses students take during their college years, the higher scores they get on a measure of interpersonal sensitivity.

Type of correlation:

One explanation:

Another explanation:

3. A study on the effects of alcohol found that higher and higher doses of alcohol produced increasingly lower scores on a test of memory recall.

Type of correlation:

One explanation:

Another explanation:

Name: _____

Chapter 2 - Methods of Psychology

4. A college professor notices that the farther students sit toward the back of the room, the worse their grades in the course seem to be.

Type of correlation:

One explanation:

Another explanation:

5. When the physical attractiveness of high school girls was rated by their peers, it was noticed that those with the highest scores tended to do the best on a measure of self-esteem on record in the guidance office.

Type of correlation:

One explanation:

Another explanation:

6. A survey of adolescents being treated for eating disorders noted that those who watched the most TV during the week tended to receive the lowest ratings on a measure of general health.

Type of correlation:

One explanation:

Another explanation:

7. In a study of suburban communities, it was noticed that communities that sex-related crimes was highest in the communities that had the largest number of X-rated adult book stores.

Type of correlation:

One explanation:

Another explanation: