Instructions for the group activity:

Once all members of the group are in the chat room, determine someone to serve as recorder for the group. The recorder will be responsible for posting the group's answers to the "Practicing scientific methods" discussion forum. The easiest method would be to create a Microsoft Word document, then copy and paste the document into a message in the discussion forum.

Instructions for the recorder:

Use the following format for posting the group's work:

Group name:
Members present:

Operational definitions:

1. Memory improves with regular exercise.

> Operational definitions:
> Memory – score on a 20-item recall test of memory
> Regular exercise – 30 minutes of aerobic activity, five times per week

Correlation :

1. The more teens are loved by their parents, the less likely they are to behave in unhealthy ways (early sex, smoking, abusing alcohol and other drugs, exhibiting violent behavior. (Resnick & others as reported in Myers, 2001)

   Type of correlation: <u>negative</u> (the more love, the fewer risk-taking behaviors, that is, as the perception of love increases, risk-taking decreases)

   Explanation one: well-behaved teens are less likely to be scolded by their parents, therefore they feel loved and accepted which influences their behavior

   Explanation two: out-of-bound teens feel their parents disapproval which leads to resentment and rejection of the parents' beliefs and more risk-taking

Identification of the independent and dependent variable:

> 1. In studying the effects of hunger…….
>
> IV – hunger or number of meals skipped
>
> DV – points scored on the game

OPERATIONAL DEFINITIONS

Defining terms

Whenever we have to investigate some aspect of behavior that is vague or may have multiple meanings, we must define such terms or concepts in ways that are precise, measurable, and concrete. Such definitions are called operational definitions. Below are some hypotheses that are being researched. Identify which terms in each hypothesis should be operationally defined, and then give an example of how each of these terms might be defined so that the hypotheses can be more clearly tested.

For example:

Memory improves with regular exercise.

> Operational definitions:
> Memory – score on a 20-item recall test of memory
> Regular exercise – 30 minutes of aerobic activity, five times per week

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1. Proper nutrition aids alertness in the classroom.
   Operational definitions:

2. Tall people are likely to be extroverts.
   Operational definitions:

3. Watching television causes aggression in children.
   Operational definitions:

4. Lack of sleep impairs ones judgment.
   Operational definitions:

5. Caffeine consumption disrupts sleep.
   Operational definitions:

Correlational studies examine the relationships between variables. Positive correlations exist when large values on one variable are associated with large values on another variable. For example, more study time is positively correlated with better test scores. Inverse relationships (negative correlations) exist when high values on one variable are associated with low values on a second variable, as when the greater amount of exercise people perform is associated with lower weight.

Demonstrating that a correlation exists does not prove that changes in one variable are the cause of changes in the other, because other undetected factors (intervening variables) 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.

For example:

People low in self-esteem are more likely to report depression than those high in self-esteem. (Myers, 2001).

Type of correlation: <u>negative</u> (the lower one's self-esteem the more likely the report of depression or the higher one's self-esteem the less likely the occurrence of depression.)

Explanation one: low self-esteem leads to depression

Explanation two: depression leads to low self-esteem

Explanation three: a third factor, such as distressing events, lead individuals to be down on themselves (low self-esteem) or heredity (biological predisposition) influences both self-esteem and depression.

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

    Type of correlation: _____

    Explanation one:

    Explanation two:

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: _____

    Explanation one:

    Explanation two:

3. When peers rated the physical attractiveness of high school girls, it was noticed that those with the highest scores tended to have the strongest measure of self-esteem on record in the guidance office.

   Type of correlation: _____

   Explanation one:

   Explanation two:

4. 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: _____

   Explanation one:

   Explanation two:

5. A survey reveals that college students who eat breakfast regularly have a higher GPA than those that don't eat breakfast regularly.

   Type of correlation: _____

   Explanation one:

   Explanation two:

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Consider the following experimental briefs. For each experiment identify the independent variable (the variable the experimenter manipulates) and the dependent variable (the variable that is measured).

For example:

In studying the effects of hunger on competition, a researcher has subjects skip no meals, or one, two, or three meals and then play a competitive game. She notes the number of points scored by participants in the four groups.

Independent variable: hunger or number of meals skipped

Dependent variable: points scored on the game

_____

1. A marketing specialist is assessing the effectiveness of TV commercial on consumer interest in the product. Fifty-four regular TV watchers are randomly selected and then assigned to watch one of two formats of a car commercial. They are then given a consumer interest survey concerning car preference.

    Independent variable:

    Dependent variable:

2. Dr. J. S. of Loma Linda University reports that including nuts in the everyday diet may help reduce cholesterol. Dr. Sabate placed 18 volunteers on one of two low cholesterol diets. One diet was nut-free; in the other diet, 20% of calories came from walnuts. After two months on the nut-free diet, cholesterol dropped an average of 6%. Subjects eating nuts experienced a total drop of 18%. The reason for the drop is unclear but may be due to a difference in the type of fats consumed although fat consumption was the same in both diets, the nuts contained less saturated fats.

    Independent variable:

    Dependent variable:

    Did you wonder why the researchers chose walnuts as the particular type of nuts to use in their study? An association of walnut growers provided their funding. How might this affect the validity of their findings?

3. Pregnant women can have their tea and safe babies too. A study of 431 expectant mothers found that those who consume up to 300 mg of caffeine daily (the equivalent of 3 cups of coffee, 7 cups of tea, or 8 colas) had no greater rate of miscarriage or small fetuses than women who consumed no caffeine during their pregnancies. Dr. James M., the lead researcher, said that while they found no evidence that even higher rates of caffeine consumption caused problems, they did not have enough subjects to assume that the problems are not there. Mills was careful to point out that he has no personal interest in exonerating caffeine and that his study was funded by the National Institute of Child Health and Human Development and not by tea, coffee, or cola companies.

    Independent variable:

    Dependent variable:

4. Smoking cigarettes may boost a person's risk of getting leukemia by 30%, according to an analysis co-authored by R. B. of the Missouri Department of Health in Columbia. R. B. combined the results of 15 studies that looked at a total of 4.5 million people (smokers and non-smokers). The studies could only demonstrate an association between smoking and leukemia, not that smoking causes the disease. But the consistency of results from different researchers lends credence to the idea that cigarettes are responsible. While a 30% increase is small compared to the 1000% increased risk of lung cancer in smokers, R.B. says the leukemia link gives you one other good reason not to smoke.

Independent variable:

Dependent variable:

5. A psychology instructor studying the effects of order of test items on test scores gave half the class a test in which the item order reflected the order in the textbook. The other half received the same questions in random order.

Independent variable:

Dependent variable: