

Second Writing Assignment

Write a short paper (1-2 pages, double-spaced, typed) on the question assigned for your section. These are to be turned in by Noon on Friday, March 6. Papers should be submitted electronically to your TA in .doc or .rtf format. If this is not possible, you may deliver them to your TA's mailbox by Noon. The goal of this paper is to explain clearly the central concepts employed in the question you are to address. Assume that your audience is a fellow student not in this class. To explain the material to that person you cannot just use the concepts we have developed in class but *explain* them. Present your answers totally in your own words—do not quote material either from the website, the lecture powerpoints, or anyone else.

A-01. Your university does a study and finds that women in sororities (at this particular university) have, on average, higher GPAs than those in the general student population. As a result, sorority women begin to advertise this finding as a recruitment tool. Design a **retrospective** study to determine whether joining a sorority is a causal factor in above average GPA. Identify the target group, the control group, and the independent and dependent variables. Discuss possible extraneous and confounding factors and how these might affect your findings. What errors in reasoning should you be particularly concerned to guard against in carrying out such a study? Under what conditions can you conclude that joining a sorority is a causal factor in above-average GPA? One factors should be considered in deciding whether the results from your university be generalized to others?

A-02. Consider the attached description of a study “For kids, reducing TV viewing may be a key to preventing obesity.” What are the main theoretical constructs being studied, and what are the operational definitions of these constructs used in the study? Briefly describe the critical features of the design of this experiment: what the research hypothesis was, what the independent and dependent variables were, whether the study used a within subjects or between subjects design. How did the experimenters attempt to control for possible confounding subject variables? Are there any potential confounds which were not controlled for? Discuss the study's external validity. Are there any features of the experiment which limit its external validity? If you don't think so, explain why not.

A-03. You are often heard that children who study music have above-average ability in mathematics. Design a study to test whether studying music is A cause of (or a causal factor in) above-average mathematical ability. Discuss all of the critical factors involved (operational definitions, values of independent variable, possible extraneous variables, possible confounding variables, etc.). How might you control confounds in this study? What errors in reasoning should researchers be particularly concerned about in evaluating the results of their study?

A-04. Consider the attached description of a study “Do Sexy Examples Distract?” What are the main theoretical constructs being studied, and what are the operational definitions of these constructs used in the study? Briefly state what the research hypothesis was, what the independent and dependent variables were, and whether the study used a within subjects or between subjects design. How did the experimenters attempt to control for possible confounding subject variables and/or confounding procedural variables? Discuss the study's external validity. Are there any features of the experiment which limit its external validity? If you don't think so, explain why not.

Study for Section A02: For kids, reducing TV viewing may be a key to preventing obesity

American children have become fixated on television and now spend, on average, more than four hours a day watching TV and videos or playing video games, according to nationwide surveys. And more and more children and adults are now overweight. A Stanford study suggests that, for grade-school children, watching less television may be a key to preventing obesity.

The study's participants were 192 third- and fourth-graders from two elementary schools in San Jose, CA. Local education officials picked two schools with similar ethnic composition, socioeconomic standing and scholastic achievement. One of the schools was randomly selected to receive the experimental intervention. At this school, the third- and fourth-graders ($n = 92$) received an intervention designed to reduce TV and videotape watching and video game playing. No changes were required of the third- and fourth-graders at the other school ($n = 100$). Both schools agreed to participate before learning which school would receive the intervention, and the students at each school were found to be similar in age (mean of 8.95 vs. 8.92 years for intervention and control participants, respectively), gender (44.6% vs. 48.5% girls), TV viewing habits (20.2 vs. 20.8 hours watched per week) and average body fat percentage (18.5% vs. 19.4%) at the beginning of the school year.

Children in the intervention group were put on a budget of 7 hours of TV-watching per week. To enforce this, devices were attached to all TVs in their homes, which required a code to be entered before the child could turn on the TV, and kept track of how much time they spent watching TV and videos and playing video games. When children reached their 7 hrs of TV-watching for the week, the TVs in their house would shut off and could not be turned back on until the start of the next week. Parents had their own codes to turn on the TVs, but agreed not to let their children watch TV after they had reached their 7-hr limit for a given week. Surveys given to parents indicate they were compliant in doing so 96% of the time.

At the beginning and the end of the school year, body fat percentage was measured for students at both schools. Children required to limit their TV-watching showed a significantly smaller increase in body fat percentage compared to children at the other school who were not limited in their TV-watching (0.3% increase vs. 1.4% increase, $p < 0.01$). Thus, watching less TV seems to be a causal factor in lowering body fatness.

Study for Section A04: Do Sexy Examples Distract?

Teachers are often tempted to bring up interesting but irrelevant details (like SEX) in order to maintain student interest in a lesson. Do “sexy” examples distract students from learning more than do less “sexy” examples?

A team led by Richard Mayer created two different versions of a lesson on how viruses attack humans. The lesson consisted of eight paragraphs. The first two paragraphs described what a virus is and how a virus is different than a cell. Each of the last six paragraphs described a step in the process of infection. In one version of the lesson, each of the last six paragraphs was interrupted by an interesting anecdote (i.e., high-interest statement) such as this one:

A study conducted by researchers at Wilkes University in Wilkes-Barre, Pennsylvania, reveals that people who make love once or twice a week are more immune to colds than folks who abstain from sex. Researchers believe that bedroom activity somehow stimulates an immune-boosting antibody called IgA.

In the other version, boring anecdotes (i.e., low-interest statements) were used instead:

A virus is about 10 times smaller than a bacterium, which is approximately 10 times smaller than a typical human cell. A typical human cell is 10 times smaller than a human hair. Therefore, it can be concluded that a virus is about 1,000 times smaller than a human hair.

The six high-interest statements (mostly about sex or death) averaged 42 words per statement (for a total of 249 additional words) while the six low-interest or boring statements (random virus facts) averaged 44 words per statement (for a total of 262 additional words). These anecdotes were inserted within existing paragraphs at points in the lesson in which they were thematically related, and they were not explicitly highlighted as extraneous.

The participants in the study were 88 college students (30 men, 58 women; mean age 19.2 years). The lesson was presented to them in the form of a printed booklet. Half of the participants were given the lesson with the high-interest anecdotes, and the other half given the lesson with the low-interest or boring anecdotes. They had five minutes to read the booklet. Then they were tested to see how well they could apply the information in the lesson. This “transfer test” contained five questions, such as “what would happen to viruses if the cells in our bodies developed thicker membranes?” Participants were given 2.5 minutes to answer each question on the transfer test.

The students who saw the boring extra details performed significantly better ($p < 0.01$) on the transfer test than the students who saw the more interesting extra details. Sexy examples, it seems, distract from the learning task.