

Experimental Design and Ethical Considerations

Background: Federal law mandates that behavioral and biomedic research be reviewed by either an Institutional Review Board in the case of research with humans subjects or an institutional Animal Review Care and Use Committee in the case of research with animal subjects.

Directions: Pretend that you are the Institutional Review Board for the University of Wahoo, Nebraska. Read each proposal. Focusing on the ethics as well as the technical details, consider and discuss the costs, benefits, ethical and design issues that are raised. After the discussion has come to a close, decide as a group if you will “Accept” or “Reject” the proposal. Then, identify the elements of each experiment.

Roles: **Secretary**- creates a complete and neat copy of the worksheet to be turned in and graded

Spokesperson- presents main ideas to rest of the class

Reader- Reads the proposal to the group

Facilitator- Makes sure the discussion remains on task, re-directs, plays devil’s advocate.

Proposal One

Dr. Harold Newsome is interested in how IQ scores are affected by stress. He feels that IQ tests, which are widely used in public schools, give misleadingly low scores to kids under stress.

Dr. Newsome places an ad in his college’s newspaper, asking for participants in an experiment focused on memory and intelligence. Dr. Newsome will tell the respondents all that he can about the experiment, without giving away certain information essential to the success of the experiment. The participants will also sign an informed consent form. He will divide his subjects (college students) into two groups of twenty. All subjects will take a fake intelligence pre-test and will be given their “results.” The first group will be told that they failed the test and that it is surprising that they were able to do well enough in high school to even get into college. The second group will be told that they passed the test. All of the students will then be given a real intelligence test to see how well they perform. Dr. Newsome will use the McCord Intelligence test, form B. The entire experiment will occur over the course of a four hour period.

Dr. Newsome’s hypothesis is that the first group will not do as well on the intelligence test as the second group. Immediately at the end of the experiment, all students will be debriefed and told that the results of the pre-test were not real. The true purpose of the study will be revealed and there will be an opportunity for participants to ask questions.

Proposal Two

Dr. Wendell Johnson of the University of Iowa and his graduate assistant, Mary Tutor are interested if stuttering is a learned behavior. They believe that if young children receive negative feedback regarding their speech patterns, they will develop speech disorders such as stuttering.

Dr. Johnson and Ms. Tutor have gathered orphan children to serve as their participant group. They have been given a baseline assessment of their speaking abilities to identify stutterers and “normal” speakers. Twelve children were identified as normal speakers. In one part of the experimental procedure, six “normal” speakers will be told that their speech is not normal at all, that they are beginning to stutter and that they must correct this immediately. They will be belittled for every mistake. The other six “normally speaking” orphans will be treated as such and given compliments. After a sufficient period of therapy, both groups will be retested and the data will be compared to the original baseline results.

Dr. Johnson and Ms. Tudor feel that they will gain a better understanding of the role that reinforcement and punishment plays in the development of speech. They hope their experiment will lead to new speech therapy methods and eventually a cure for stuttering. If it can be learned, it can be unlearned.

Proposal Three

Dr. Athena Papadopoulous is interested in the placebo effect. She believes that the power of suggestion can lead patients to report less pain.

She will focus her experiment on 100 patients suffering from angina pectoris (chest pain). They will be told of a new surgical procedure that results in 90% of patients reporting relief from their pain. Half of the participants will have the simple operation to relieve chest pain. The other half of the patients will be treated exactly the same but will not actually have the surgery. They will be put under anesthesia, have surgical incisions made in their chest, and then be stitched up. In the recovery room, both groups of patients will be told that the operation had been performed successfully. The participants were never told that they are part of an experiment or that they had possibly received a sham surgery.

In the following weeks, Dr. Papadopoulous and her associates will have their patients rate their chest pain on a scale of 1 to 10. Each value on the pain scale will be carefully explained. They will also have several follow up appointments to check on the patients' progress. She never tells the placebo group that they did not really receive the surgery.

Dr. Papadopoulous expects that the group that did not actually have the surgery will report less pain than the group that did have the surgery.

Proposal Four

Carney Landis, a psychology graduate at the University of Minnesota is interested in whether different emotions trigger facial expressions specific to that emotion. He plans on conducting an experiment to see if all people have a common expression when feeling disgust, shock, joy, etc. He believes that all people truly do have common expressions when feeling common emotions.

Participants will be recruited from the student body of the University of Minnesota. They will be taken to a lab and their faces painted with black lines, in order to study the movements of their facial muscles. They will then be exposed to a variety of stimuli designed to create a strong reaction. As each person reacts, they will be photographed by Landis. The stimuli will include being made to smell ammonia, to look at pornography, and to put their hands into a bucket of frogs.

Participants will also be shown a live rat and given instructions to behead it. If the participant refuses to perform the decapitation, Landis will pick up the knife and cut the animal's head off for them to elicit their facial response.

At the conclusion of the experiment, all subjects will be fully debriefed and the results kept confidential through the use of subject numbers instead of names.

Experimental Design and Ethical Considerations Worksheet

Proposal One:

1. ACCEPT or REJECT? Explain Why?
2. If you rejected, what could be done to make this experiment ethical?
3. What is the population? What is the sample?
4. What is the independent variable?
5. How is it operationally defined? (If it is not, state that it is not)
6. What is the dependent variable?
7. How is it operationally defined? (If it is not, state that it is not)
8. Are there any design flaws? If so, explain.
9. What is the control group?
10. What is the experimental group?

Proposal Two:

1. ACCEPT or REJECT? Explain Why?
2. If you rejected, what could be done to make this experiment ethical?
3. What is the population? What is the sample?
4. What is the independent variable?
5. How is it operationally defined? (If it is not, state that it is not)

6. What is the dependent variable?
7. How is it operationally defined? (If it is not, state that it is not)
8. Are there any design flaws? If so, explain.
9. What is the control group?
10. What is the experimental group?

Proposal Three:

1. ACCEPT or REJECT? Explain Why?
2. If you rejected, what could be done to make this experiment ethical?
3. What is the population? What is the sample?
4. What is the independent variable?
5. How is it operationally defined? (If it is not, state that it is not)
6. What is the dependent variable?
7. How is it operationally defined? (If it is not, state that it is not)
8. Are there any design flaws? If so, explain.
9. What is the control group?

10. What is the experimental group?

Proposal Four:

1. ACCEPT or REJECT? Explain Why?
2. If you rejected, what could be done to make this experiment ethical?
3. What is the population? What is the sample?
4. What is the independent variable?
5. How is it operationally defined? (If it is not, state that it is not)
6. What is the dependent variable?
7. How is it operationally defined? (If it is not, state that it is not)
8. Are there any design flaws? If so, explain.
9. What is the control group?
10. What is the experimental group?