

21

THE ETHICS OF BEHAVIORAL RESEARCH
USING ANIMALS: A CLASSROOM EXERCISE

Harold Herzog

The use of nonhuman animals in behavioral and biomedical research raises complex ethical issues. In the activity described in this chapter, groups of students serve as members of hypothetical university animal ethics committees. The groups evaluate the potential costs and benefits of psychology experiments involving animals and decide whether to approve or reject scenarios that are based on actual studies.

CONCEPT

Psychology research with animals has long been controversial. In 1907, John B. Watson, the founder of behaviorism, was attacked by the press for a series of experiments in which rats were blinded and deafened (Dewsbury, 1990). More recently, in his book *Animal Liberation*, often referred to as the “bible of the animal rights movement,” the philosopher Peter Singer (1975) targeted classic behavioral experiments with animals that he deemed cruel and unnecessary. These included Harry Harlow’s studies on maternal deprivation in monkeys and Martin Seligman’s experiments on the use of electric shock to create learned helplessness in dogs.

The debate over the use of animals in research continues today, and public opinion is deeply divided on the issue. A recent survey conducted by the Pew Research Center (2015) found that 47% of American adults approved of the use of animals in scientific research, and 50% disapproved.

The primary legislation governing animal research in the United States is the Laboratory Animal Welfare Act of 1966 (Pub. L. No. 89-544; hereafter AWA). Amendments to the AWA enacted in 1985 required that colleges and universities in which animals are used for research or educational purposes establish Institutional Animal Care and Use Committees (IACUCs). These committees conduct regular inspections of animal research facilities and review experiments involving animal subjects. Note that rats, mice, and birds—the species that make up over 95% of animals used for research in the United States—are exempt from coverage under the AWA. All vertebrate species, however, are covered under the Public Health Service Policy on the Humane Care and Use of Laboratory Animals (Office of Laboratory Animal Welfare, U.S. Department of Health and Human Services, 2015). As a result, in spite of the exemption under the AWA, nearly all university IACUCS do review experiments involving rats, mice, and birds.

The activity described herein is designed to facilitate classroom discussions of ethical issues associated with the use of animals in research. Small groups of students evaluate the costs and benefits of animal research proposals and make decisions about

<http://dx.doi.org/10.1037/0000024-022>

Activities for Teaching Statistics and Research Methods: A Guide for Psychology Instructors, J. R. Stowell and W. E. Addison (Editors)

Copyright © 2017 by the American Psychological Association. All rights reserved.

whether the research should be permitted. In an optional second activity, a brief scale is used to assess student attitudes about the use of animals in research. This can lead to discussions of issues such as the origins of gender differences in beliefs about the treatment of other species.

**MATERIALS
NEEDED**

Appendix 21.1 includes two sample proposals. Additional proposals can be found at <http://files.harpercollins.com/OMM/SomeWeLoveResources.pdf>. Appendix 21.2 includes the 10-item version of the Animal Attitudes Scale (AAS-10; Herzog, Grayson, & McCord, 2015), a measure of individual differences in attitudes toward the treatment of animals.

INSTRUCTIONS

Divide the class into groups of five to seven students and select a group leader, who should be given a copy of the animal research proposal. The leader reads the proposal to the group members and leads a discussion of the proposal. You should encourage the groups to discuss the pros and cons of the study and try to reach a consensus rather than taking a quick vote on whether to approve the research. Among the issues the students should consider are the following: What will be gained by the experiment? Will the research potentially lead to more effective treatments for human disorders? Will it answer an important scientific question? The students should also consider the degree of harm or pain and suffering for the animals in the study.

Depending on the time available, give each group one or two proposals to review. This process usually takes 15 to 20 minutes. Once the groups have made their decisions, ask the group leaders to come to the front of the room and briefly describe the study to the rest of the class. They should report their group's decision to approve or reject the research proposal and their reasons for making that decision. At this point, other students in the class can weigh in on the proposed research. Often, groups will make different decisions for the same proposals. This is to be expected. A study of actual IACUCS found high levels of disagreement in decisions between committees reviewing the same proposals (Plous & Herzog, 2001).

Although not necessary, I have students read and discuss "Human Morality and Animal Research" (Herzog, 1993) before participating in the exercise. Although the article was written in 1993, the issues it raises related to moral consistency and the treatment of animals have not changed.

The research proposals are based on actual experiments. You should, however, feel free to modify the proposals or to write your own that address other ethical issues, such as housing, training of laboratory personnel, and veterinary care. A variant of this exercise can be used to facilitate class discussions of ethical issues associated with the use of human subjects. In this case, the students serve as members of hypothetical institutional review boards.

ASSESSMENT

You may want to administer to your students the AAS-10 (see Appendix 21.2) before and/or after discussion of the animal research proposals, to assess general changes in attitudes about animal research. This is a brief form of a scale that has been widely used to assess attitudes toward the use of other species. The 10-item version has excellent psychometric properties (Herzog et al., 2015), and it can be used to facilitate discussions of an array of topics related to the psychological aspects of relationships with other species. For example, women will usually have, on average, higher AAS-10 scores than men, indicating greater concern for animal welfare.

DISCUSSION	The use of animals in biomedical and behavioral research is among the thorniest of ethical issues associated with the treatment of other species. Group members often initially disagree about approval/rejection decisions. Sometimes group members come to a consensus decision after discussing the costs and benefits of the proposals. In other cases, however, they remain divided. When this happens, I encourage dissenting students to inform the class why they disagreed with their fellow group members. Some students will have strong feelings about the use of animals in science. In my experience, however, they tend to be respectful of each other's views when discussing the merits of specific proposals during this exercise.
ADDITIONAL RESOURCE	Reiss, D., & Marino, L. (2001). Mirror self-recognition in the bottlenose dolphin: A case of cognitive convergence. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 98, 5937–5942. http://dx.doi.org/10.1073/pnas.101086398
REFERENCES	<p>Dewsbury, D. A. (1990). Early interactions between animal psychologists and animal activists and the founding of the APA Committee on Precautions in Animal Experimentation. <i>American Psychologist</i>, 45, 315–327. http://dx.doi.org/10.1037/0003-066X.45.3.315</p> <p>Herzog, H. (1993). Human morality and animal research: Confessions and quandaries. <i>The American Scholar</i>, 62, 337–349.</p> <p>Herzog, H. (2010). <i>Some we love, some we hate, some we eat: Why it's so hard to think straight about animals</i>. New York, NY: Harper.</p> <p>Herzog, H., Grayson, S., & McCord, D. (2015). Brief measures of the Animal Attitude Scale. <i>Anthrozoös</i>, 28, 145–152. http://dx.doi.org/10.2752/089279315X14129350721894</p> <p>Laboratory Animal Welfare Act of 1966, Pub. L. No. 89-544, 7 U.S.C. § 2131 <i>et seq.</i></p> <p>Langford, D. J., Cragger, S. E., Shehzad, Z., Smith, S. B., Sotocinal, S. G., Levenstadt, J. S., . . . Mogil, J. S. (2006, July 27). Social modulation of pain as evidence for empathy in mice. <i>Science</i>, 312, 1967–1970. http://dx.doi.org/10.1126/science.1128322</p> <p>Office of Laboratory Animal Welfare, U.S. Department of Health and Human Services. (2015). <i>Public health service policy on the humane care and use of laboratory animals</i>. Washington, DC: National Institutes of Health. Retrieved from http://grants.nih.gov/grants/olaw/references/phspolicylabanimals.pdf</p> <p>Pew Research Center. (2015, July 1). <i>Americans, politics and science issues</i>. Retrieved from http://www.pewinternet.org/files/2015/07/2015-07-01_science-and-politics_FINAL.pdf</p> <p>Plous, S., & Herzog, H. (2001, July 27). Animal research: Reliability of protocol reviews for animal research. <i>Science</i>, 293, 608–609. http://dx.doi.org/10.1126/science.1061621</p> <p>Singer, P. (1975). <i>Animal liberation</i>. New York, NY: Avon Books.</p>

Appendix 21.1

Animal Research Proposals

Your group is the Institutional Animal Care and Use Committee (IACUC) for your university. It is the committee's responsibility to evaluate and either approve or reject research proposals submitted by faculty members who want to use animals for their studies. The proposals briefly describe the experiments, including their goals, potential benefits, and the costs of the research in terms of possible harm or discomfort to the animals. Your group must either approve or deny permission for the experiment to be conducted. Note that it is not your job to critique technical aspects of the projects, such as the experimental design. You should make your decision on the basis of the information given in the proposal.

**PROPOSAL 1:
THE EFFECTS
OF MATERNAL
DEPRIVATION
ON BRAIN
DEVELOPMENT
IN MONKEYS**

An estimated 3 million adolescents suffer from major depression each year. Dr. Kaleen uses a nonhuman primate model to study the developmental neurobiology of this disorder. He is requesting permission from your committee to conduct a study of the effects of maternal deprivation on brain development in young monkeys. Twenty baby rhesus monkeys will be taken from their mothers at birth. For the first month of their lives they will be raised in isolation. For the next 11 months they will be housed with another baby monkey. Every 3 weeks, the animals will be subjected to a short-term stressor, such as exposure to a harmless snake or a noisy novel toy. Immediately following each of these trials, small amounts of blood will be drawn to assess the animals' levels of cortisol, a stress hormone. In addition, every 4 months the monkeys will be anesthetized and given an MRI (a type of brain scan). This will allow Dr. Kaleen to study the development of areas of the primate brain involved in depression. The control group will consist of 20 monkeys who will stay with their mother for the entire year after they are born. They will also be given the stress tests, blood tests, and MRIs.

After 12 months, animals in both the experimental and the control groups will be painlessly euthanized. Their brains will then be subjected to detailed anatomical and neurochemical analyses.

Dr. Kaleen notes that his research is based on studies of the effects of isolation in monkeys by Harry Harlow, which showed that maternal deprivation can produce long-term depression in animals. But, unlike Harlow's studies, the baby monkeys will be only be completely isolated for 1 month. Kaleen notes that little is known about how maternal deprivation affects brain development. He argues that the results of this study will help lead to the development of new types of treatments for depression in teenagers and young adults.

Approve or reject the study? Give the reasons for your decision.

(Note to instructor: This scenario is based on a protocol that was initially rejected but subsequently approved by the IACUC of a major university with modification [a reduction in the length of social isolation]).

**PROPOSAL 2:
STIMULUS
CONTROL OF
EMPATHY IN MICE**

Dr. Jones studies pain using nonhuman animals. In his laboratory, pain is induced in mice by injecting the animals in their stomachs with a solution of acetic acid. This procedure produces a sequence of behaviors called the “writhing response.” In a previous study, Jones showed that mice are capable of experiencing a type of empathy when in pain: When tested in pairs, mice show higher levels of pain responses than when tested alone—but only if the second mouse is a former cage mate rather than a stranger.

Dr. Jones is requesting permission from your committee to conduct an experiment that will show whether the mice communicate their distress to former cage mates through vision, sound, or smell. The study will involve 150 mice. Half of the mice will be “stimulus” animals. They will simply be injected with the acetic acid solution. The other 75 mice will be “observers.” These animals will also be injected in the stomach with the acid solution, but, in addition, they will be deprived of one of their senses. The first group of animals will be blocked from seeing the stimulus animal by having an opaque barrier placed between them and their former cage mate. The second group of 25 mice will first be permanently deafened by having a chemical injected into their ears every day for 2 weeks. The third group will be permanently deprived of their ability to smell by having a toxin inserted into their noses that destroys odor-detecting nerve cells.

The mice will be given the writhing test in pairs to see which group of the observer animals shows empathy responses in the paired writhing test. Dr. Jones says the design of the experiment will allow him to determine whether the stimulus animals are communicating their pain by visual signals, high-frequency sounds, or chemical signals.

Approve or reject: What is the reason for your decision?

(Note to instructor. This scenario is based on series of studies that provided the first evidence that nonprimate animals experience empathy [Langford et al., 2006]. The experimenters found that mice deprived of their sense of hearing or smell still showed the empathy response, whereas the response was eliminated in mice who could not see other animals in pain. The study involved many hundreds of animals that were subjected to pain and/or permanent destruction of their sensory capacities. Given the degree of suffering involved in the research, it is ironic that it was lauded by some animal activists who argued that it demonstrated parallels between the emotional responses between mice and humans. [See Herzog (2010, Chapter 8) for a discussion of the paradox of using the results of studies of animal behavior to argue that animal research should be eliminated.])

Appendix 21.2

The Animal Attitudes Scale (10-Item Version)

The AAS-10 consists of all the items below. Higher scores indicate more concern for animal welfare. The numbers of points assigned to the response items are in parentheses. Starred items (*) are reverse scored. For psychometrics of the scale, see Herzog, Grayson, and McCord (2015).

Instructions: Listed below are a series of statements regarding the use of animals. Circle the letters that indicate the extent to which you agree or disagree with the statement:

SA = Strongly Agree (5)

A = Agree (4)

U = Undecided (3)

D = Disagree (2)

SD = Strongly Disagree (1)

1. It is morally wrong to hunt wild animals just for sport.
SA A U D SD
2. I do not think that there is anything wrong with using animals in medical research.*
SA A U D SD
3. I think it is perfectly acceptable for cattle and hogs to be raised for human consumption.*
SA A U D SD
4. Basically, humans have the right to use animals as we see fit.*
SA A U D SD
5. The slaughter of whales and dolphins should be immediately stopped even it means some people will be put out of work.
SA A U D SD
6. I sometimes get upset when I see wild animals in cages at zoos.
SA A U D SD
7. Breeding animals for their skins is a legitimate use of animals.*
SA A U D SD

8. Some aspects of biology can only be learned through dissecting preserved animals such as cats.*

SA A U D SD

9. It is unethical to breed purebred dogs for pets when millions of dogs are killed in animal shelters each year.

SA A U D SD

10. The use of animals such as rabbits for testing the safety of cosmetics and household products is unnecessary and should be stopped.

SA A U D SD

Note. From "Brief Measures of the Animal Attitude Scale," by H. Herzog, S. Grayson, and D. McCord, 2015, *Anthrozoös*, 28, p. 152. Copyright 2015 by Routledge. Reprinted with permission.