

Chapter 15

DEVELOPING A DEVICE TO ASSESS ATTITUDES TOWARD SNAKES

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Introduction

Educational efforts in zoos and museums to increase the public's commitment toward conservation of animal species is complicated by negative attitudes toward some of these species. While there is little resistance among the general public to the idea of conserving primate species that share many characteristics with humans, other animals have not generated as much concern. Reptiles, in particular, stimulate negative affective and cognitive reactions in many people. A large number of individuals fear snakes, believe that snakes are dangerous, and are not aware of the important role of snakes in the ecosystem. Formal and informal educational programs sponsored by schools, museums, and zoos have attempted to change both the emotional and the cognitive (learning) reactions to this animal. However, there apparently has been little evaluation of these educational efforts to determine how they influence the public.

Two recent attempts have been made to evaluate the impact of live and non-live animals (other than snakes) on cognitive and affective responses (Sherwood, 1986; Wakeman, 1986). Sherwood studied the impact of live demonstrations with horseshoe crabs and sea stars on 4th graders under three conditions: (1) a videotaped demonstration plus contact with live specimens; (2) a videotaped demonstration and contact with "dried" specimens; or (3) a videotaped demonstration but no contact with live or "dried" specimens. Both cognitive (learning) and affective (feeling) changes were obtained in the two contact groups (live and "dried"), but not in the videotape-only group. Wakeman, in another study of the effects of live animals, evaluated the cognitive impact of demonstrations on 4-6th graders and found no cognitive learning differences among live, dried, or video animal experimental conditions.

Apparently, for the species studied there was little difference between live and dried specimen. However, one might expect a very different reaction to snakes since emotional responses tend to be more extreme to this species.

The current study had three purposes: (1) to validate a survey device we developed that may prove useful in the evaluation of educational programs geared toward snakes and similar species; (2) to determine how young adults perceive snakes in terms of beliefs, feelings, and behavioral tendencies; and (3) to assess the impact of a live snake demonstration on the beliefs, feelings and behavioral tendencies of young adults.

A useful assessment device for measuring attitudes toward animals should have several characteristics:

- It should be sensitive to techniques that change the attitudes of respondents.
- It should be easy to use.
- It should be cost effective.
- It should have generality across respondents, situations, and animals.

Method

Subjects

A total of 134 undergraduate introductory psychology students, 70 males and 64 females from Jacksonville State University, Alabama, served as subjects. For the control group, 48 males and 49 females were used; in the experimental, or live demonstration group, 24 females and 16 males were included.

Assessment Device

An attitude survey was used that included the following items:

- two items pertaining to beliefs ("Most snakes are dangerous" and "Snakes are useful to man");
- three items pertaining to emotions ("Snakes scare me", "I am afraid of snakes if they are not in cages", and "I feel uncomfortable when close to snakes");
- four items that described behavioral tendencies ("I like to look at snakes when at the zoo", "I would like to touch a snake", "I would like to hold a snake", and "I would like a pet snake"); and
- one item on interest or curiosity ("I would like to know more about snakes").

Results and Discussion

Male vs. female reactions. Figure 1 summarizes the results of the attitude survey device for male and female respondents. Females communicated more negative beliefs than males about snakes. Males were more likely than females to disagree with the statement, "Most snakes are dangerous" ($p < .0001$). In addition, males were more likely to agree with the statement, "Snakes are useful to man" ($p < .005$).

Females also exhibited more negative affective reactions to snakes. Females were more likely to agree that "Snakes scare me" ($p < .0005$), "I am afraid of snakes if they are not in cages" ($p < .0001$), and "I feel uncomfortable when close to snakes" ($p < .01$).

Reported behavioral tendencies were not as consistent. There was no difference between males and females to the item, "I like to look at snakes when at the zoo." However, there were significant differences between genders for the remaining three behavioral tendency items, "I would like to touch a snake" ($p < .0001$), "I would like to hold a snake" ($p < .0001$), and "I would like a pet snake" ($p < .001$).

Finally, females were more likely to disagree with the statement, "I would like to know more about snakes" ($p < .001$).

These results show that males and females of young-adult age respond very differently to snakes, at least in terms of self-report. It is interesting to note that the difference between male and female included beliefs as well as emotional responses, suggesting a connection between these two response systems.

Experimental versus control conditions. Figure 2 contains a summary of the survey results comparing the experimental and control conditions. The two items that referred to beliefs were significantly different between experimental and control subjects. After the lecture/demonstration, subjects were more likely to disagree with the statement, "Most snakes are dangerous" ($p < .001$) and to agree with the statement, "Snakes are useful to man" ($p < .0001$).

Changes in affective reactions (survey items #3-5) were not universal for cognitive responses. Despite the lecture/demonstration, the experimental group subjects were as likely as the control group to report that "Snakes scare me." However, there was a significant difference between groups to the item, "I am afraid of snakes if they are not in cages" ($p < .05$). The greatest difference in affective response between experimental and controls was in response to the item, "I feel uncomfortable when close to snakes" ($p < .005$). Those who had participated in the live demonstration were more likely to disagree with this statement. This suggests that this latter item is the most sensitive of the three in measuring affective changes.

There were no statistically significant changes in the behavioral tendency items. The subjects' tendency to want to look at, touch, hold, or own a snake remained unchanged. This suggests that behavioral tendencies are more resistant to change than cognitive or affective responses. It is interesting to note that, while both experimental and control subjects were neutral with respect to looking at snakes at the zoo, the majority were definitely not interested in touching, holding, or owning a snake.

The interest-curiosity item ("I would like to know more about snakes") was also unaffected by the lecture/demonstration. Improving attitudes toward snakes does not necessarily increase interest or curiosity about them.

Observations during the demonstration lecture. When the snake was first taken out of its bag at the beginning of the lecture, three subjects rose from their chairs and walked rapidly to the back of the room to get as far away from the snake as possible. Others appeared to be anxious about the snake since there were a number of spontaneous comments that indicated sympathetic nervous system arousal. Following the 15-minute lecture, subjects were given the opportunity to touch and hold the snake. Most of the students did not care to get close to the snakes; however, two females and four males went to the front of the room and touched the snake. Subsequently, when given the opportunity to hold the snake, the same two females held the snake, while three of the four males who had touched the snake also held it.

General Discussion

It is not surprising that many of the respondents had misconceptions about the dangerousness and usefulness of snakes. The negative emotional reactions to snakes was also expected. It was gratifying, however, that both cognitions and emotions could be influenced by a brief lecture-demonstration experience. It is not clear if the same impact would have occurred with a videotaped presentation or with a nonliving snake demonstration.

The study also demonstrated that the survey device was sensitive to an educational program geared toward attitude change. Students who participated in the live snake demonstration were more knowledgeable about the danger and usefulness of snakes. To a lesser extent, the emotional responses of the respondents appeared to be affected by the experience of a demonstration. Behavioral tendencies and interest level, however, were resistant to change.

The gender difference in nine of the ten rating scale questions suggest that males and females respond dramatically different to snakes, at least in terms of self-report. Similar gender differences were observed by Mitchell and Bitgood (1982) with respect to the perceived severity of life stressors (e.g., loss of a loved one, divorce). It is difficult to assess whether some

Procedure

For the live snake demonstration, a classroom in the psychology building was used for the presentation. A boa constrictor six years old and six feet long, obtained from the Anniston Museum of Natural History, was used as the live snake in the demonstration. The live snake demonstration was videotaped with a Panasonic VHS recording system. The subjects were exposed to a 15-minute lecture/live snake demonstration, the content of which was designed to address some of the common misconceptions about snakes.

When the participants arrived at the demonstration room, one of the experimenters instructed them to sign an extra-credit sheet and to take a seat anywhere in the room. Subjects were not aware that a live snake would be part of the program. Two data collectors were positioned in the rear of the room before the participants arrived. Their function was to record events and behaviors during the demonstration. At the designated starting time, the door was closed and the subjects were thanked for their participation and informed that a survey would be administered at the end of the demonstration. At this time the demonstrator entered the room with the boa constrictor in a white cloth bag. Not until the demonstrator was positioned by the podium was the snake removed from the bag. For the 15-minute demonstration, the snake was in full view of the audience. The lecture part of the demonstration contained and expanded on the main affective and cognitive components of the attitude survey. The main points were as follows: (1) explicit information about the boa constrictor actually used in the demonstration; (2) the origin of various misconceptions concerning the dangers of snakes; (3) statistical information on poisonous versus nonpoisonous snakes (e.g., number of deaths each year by snake bite and geographical distribution of different types of snakes); and (4) the usefulness of snakes to the environment and to humans.

After the lecture, subjects were given time to ask questions. Subjects were then given an opportunity to touch the snake. Subsequently, they were given the opportunity to hold the snake. The number of students touching and holding were recorded. The same attitude survey administered to the control group was administered upon completion of the demonstration. Surveys were collected by an experimenter as the participants exited the demonstration room.

In the control condition, the survey was administered to four introductory psychology classes. At the end of a regular classroom lecture, the instructor passed out the surveys, asked the students to complete them for extra credit, and turn them in before leaving class. Statistical analysis was completed on a Macintosh computer using the STATVIEW statistical program.

of this gender difference is a difference in self-reporting or a difference that reflects impact on the individual. For example, it may be that males are less likely to admit fear of snakes. It is also possible that males have more exposure to snakes earlier in life due to gender-linked socialization.

References

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Footnote

Rick Bevins is now a graduate student at the University of Massachusetts.

Figure 1

Item		Strongly Agree	Neutral	Strongly Disagree
Most snakes are dangerous. $p < .0001$	Male			3.28
	Female			2.28
Snakes are useful to man. $p < .005$	Male			2.41
	Female			2.89
Snakes scare me. $p < .0005$	Male			2.45
	Female			1.62
I am afraid of snakes if they are not in cages. $p < .0001$	Male			2.63
	Female			1.70
I feel uncomfortable when close to snakes. $p < .01$	Male			2.60
	Female			1.93
I like to look at snakes when at the zoo.	Male			2.08
	Female			2.36
I would like to touch a snake. $p < .0001$	Male			2.94
	Female			3.89
I would like to hold a snake. $p < .0001$	Male			3.03
	Female			4.21
I would like a pet snake. $p < .001$	Male			3.31
	Female			4.24
I would like to know more about snakes. $p < .001$	Male			2.39
	Female			3.19

Figure 2

Item		Strongly Agree	Neutral	Strongly Disagree
Most snakes are dangerous. $p < .001$	Control			2.56
	Treatment			3.27
Snakes are useful to man. $p < .0001$	Control			2.90
	Treatment			2.03
Snakes scare me.	Control			1.96
	Treatment			2.19
I am afraid of snakes if they are not in cages. $p < .05$	Control			2.03
	Treatment			2.43
I feel uncomfortable when close to snakes. $p < .005$	Control			2.05
	Treatment			2.75
I like to look at snakes when at the zoo.	Control			2.29
	Treatment			2.05
I would like to touch a snake.	Control			3.51
	Treatment			3.24
I would like to hold a snake.	Control			3.73
	Treatment			3.43
I would like a pet snake.	Control			3.89
	Treatment			3.57
I would like to know more about snakes.	Control			2.89
	Treatment			2.62