Evaluating the Effectiveness of Shaping Versus Percentile Shaping for Canine Skill Acquisition

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Introduction

• Shaping has been defined as the differential reinforcement of a series of successive approximations to a target behavior (Miller, 2006). Shaping is a powerful method for creating new behaviors.
• The skill of shaping behaviors has commonly been thought to be an “art,” where the trainers opinion dictates the advancement of the subjects treatment.
• Some researchers have stated that because shaping is an “art” there is a lack of precision and consistency in the implementation of shaping techniques, making the techniques less effective (Galbicka et al., 1993).
• To solve the issue of lack of precision and consistency, past research has used percentile shaping, a technique that uses preset guidelines to determine the advancement of the treatment for the subject.
• The present study examined the effectiveness of shaping versus percentile shaping to determine which technique facilitates faster skill acquisition for canines.

Method

Participants, Setting, & Materials
• 11 dogs of mixed breeds participated in the study, 4 female and 7 males with approximated ages ranging from 4 months to 9 years.
• All sessions were conducted at the Eau Claire County Humane Association.
• Small pieces of hot dog were used as reinforcers for all participants.

Target Behavior
• The participants were shaped to perform the target behavior of touching a mark on the wall with the participant’s nose. The mark on the wall was a 4 inch by 4 inch piece of red cardboard. The height of the mark was adjusted based on the height of each dog, to be level with the each dog’s nose.

Baseline
• Each dog was tested prior to shaping to determine if the dog would exhibit the target behavior. The dog was given 3 minutes to determine if the dog would perform the behavior. Dogs that touched the mark on the wall during baseline were removed from the study.

Approximations
• The target behavior was taught through a series of five successive approximations:
  1. Dog moves head in the direction of the wall with the mark.
  2. Dog moves toward the wall with the mark (1 step or more in the wall’s direction).
  3. Dog moves to within one foot of anywhere on the wall with the mark.
  4. Dog will touch the mark on the wall with the dog’s nose.

Training
• Each session consisted of a maximum of 80 trials.
• One of two shaping methods (shaping or percentile shaping) was randomly assigned to each participant.
• The shaping method consisted of the trainer making judgments of when to advance to the next approximation based on the trainers opinion of the dogs current status.
• The percentile shaping method determined the dogs ability to advance to the next approximation based on the number of successful occurrences that the dog exhibited the correct behavior of the approximation that the dog was being trained.

Procedural Integrity
• Procedural integrity was measured as percentage of trials implemented correctly and was taken for 100% of the trials.

Results

Shaping
• Shaping = 85 trials
• Shaping = 47:12 min.
• Percentile Shaping = 92.2 trials
• Percentile Shaping = 49:04 min.

Percentile Shaping
• Measured for 100% of trials
• Measured as percentage of trials implemented correctly

Mean Trials to Acquisition
• Shaping = 85 trials
• Percentile Shaping = 92.2 trials

Mean Time to Acquisition
• Shaping = 47:12 min.
• Percentile Shaping = 49:04 min.

Discussion

Implications
• Our results indicate that there is no difference in effectiveness when comparing shaping and percentile shaping for facilitating skill acquisition for canines.
• Between shaping and percentile shaping there was no significant difference in the number of trials or the amount of time necessary for skill mastery to be achieved.

Potential Confounding Variables
• Limited subject history, age, and breed information.
• Training setting presented uncontrollable distractions and between session events (e.g., other dogs and potential adopters).
• The trainers shaping the participant’s behavior had previous history shaping behaviors for canines.
• The position of the trainer in regard to the mark on the wall may have acted as a prompt for training approximations 3, 4, and 5.

Future Research
• Could examine the effectiveness of shaping and percentile shaping with trainers that have little or no experience shaping.
• Could study both procedures where prompting is used to teach the skill.

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