Name(s)	Project Number
Samantha Y. Lux	**J1117**

Project Title

How Well Do Horses Learn?

Abstract

Objectives/Goals

An investigation was done to determine whether horses can learn to associate geometric shapes with a food reward. The literature reports numerous instances showing that horses can distinguish between different pairs of patterns. Here, the experimental design tested whether a horse can learn to recognize the difference between three different symbols: triangle, circle, and square.

Methods/Materials

Experimental subjects were 5 horses and ponies selected at a local stable, mature mares and geldings regularly used in riding lessons.

Each subject was tested in 2-4 sessions: 10 or 12 challenge trials after 2 familiarization trials. The subject was released 5-6 meters from the buckets at the end of an 8x16 meter paddock.

The subject was familiarized with the task by being led to a single, triangle-labeled bucket containing the feed reward, followed by a trial where they were allowed to find the bucket on their own. In the challenge trials, the subject was presented with 3 identical 12 liter buckets placed 2 meters apart; each bucket was labeled with the 12-15 cm black shape on a 8½ x11 inch white background. About 100 grams of sweet feed was placed in the bucket labeled with a triangle as a positive reinforcement. A different random assignment of the 3 different shapes to the buckets was used for each trial, with the same assignments was used for all sessions on a single day.

Results

In over 50% of the sessions, the correct bucket was selected more frequently than would be expected from chance. One subject chose the correct bucket 75% of the time, which would be expected only 0.1% of the time by chance. Four of the subjects had accuracies over 40%, compared to 33% expected for random selection.

Conclusions/Discussion

The data show that some horses can learn, but there are significant differences between horses. Qualitative differences between subjects# performance were seen, particularly in the incorrect choices. Some subjects appeared to select on the basis of physical position rather than on the symbol. Some subjects also appeared to use a systematic approach to finding the reward. Additional trials with more horses, as well as more analysis, may provide insight into the nature of learning in horses.

Summary Statement

This research showed that most horses can learn to distinguish between three different shapes for a food reward.

Help Received

Horse trainer loaned horses; Volunteer assisted with handling horses during experiment; Parents reviewed experimental design