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From a cognitive perspective, observational learning can be operationally defined as a form of learning that does not require direct experience and/or reinforcement, i.e., learning by watching another individual's behavior (Hergenhahn, B.R. and M.H. Olson, An introduction to theories of learning, Prentice-Hall, Inc. pp. 319-351, 1993). This complex phenomenon (in contrast to simple imitative learning) is quite evident in *Homo sapiens*, but in the history of comparative psychology has not been thought to occur in nonhuman animals. For example, Thorndike (Psych. Rev., [Mon. Suppl., 2. No. 8], 1898; Psych. Rev., Mon., 3 (15), 1901) investigated observational learning with cats in a puzzle box problem solving task in which a naive cat in an adjoining cage would observe a sophisticated cat escape from a puzzle box. Thorndike, and subsequently Watson (Psych. Bull., 5. 1908), also explored observational learning with monkeys and concluded that nonhuman animals do not have the ability to learn behavior by watching other organisms. In more recent years, arguments have been made for the occurrence of observational learning in a variety of animal species including birds, otters, bears, porpoises, whales, and nonhuman primates (Griffin, D.R., Animal thinking, Harvard University Press. 237 pp., 1984), but others suggest that this ability is limited to primate species (Bailey M.B. and R.E. Bailey, Changing behavior-for the better, Henderson State Univ. Press. pp. 43-44, 1995). Nevertheless, in the spirit of comparative psychology, we opted to investigate the ability of sable ferrets to demonstrate observational learning.

We assigned six male ferrets (*Mustela putorius furo*) to one of two groups, a direct learning group and a vicarious learning group (observational learners). We constructed a puzzle box (similar to that of Thorndike's) out of a wooden peach crate which was almost totally enclosed and from which a ferret could only escape by flipping a small latch that opened a door. Our initial behavioral observations of ferrets in conjunction with observations from an earlier study (Cormier, S. and T. Wiebers, Proc. J. Ar. Und. Res. Conf., 2, pp. 22-23, 1995) suggested to us that domestic ferrets do not like being confined in small places, thus we expected that they would naturally be motivated to attempt to escape from the puzzle box. We allotted each of the direct learning ferrets ten minutes a day for ten days and recorded their latency to escape from the puzzle box until they had mastered the task. For the next five days we matched naive ferrets (the vicarious group) with sophisticated ferrets (the direct learning group), thus affording the naive animals the opportunity to observe the escape routine. Unlike Thorndike, we placed each of the naive ferrets with their matched partners in the puzzle box as opposed to being placed in an adjacent holding cage. We selected this approach because we doubted whether Thorndike's naive cats could see their counterparts well enough to even engage in imitative behaviors, let alone observational learning. After their observation phase, we put the vicarious learning group through the same ten day regime as the direct learning group to assess possible evidence of observational learning, namely whether the learning curve of the vicarious group surpassed that of the direct group in terms of performance.

Figure 1 depicts the mean learning curves for both groups of ferrets across the ten days of the puzzle box problem solving task. As anticipated, all of the ferrets appeared highly motivated to try to escape from the puzzle box, immediately scratching and biting at the small openings between the slats of the peach crate. We analyzed our latency data using a multifactor analysis of variance, yielding a significant decrease in escape latency across days for both groups of ferrets {$F(9,36) = 15.39, p<.0001$}. Although we did not obtain a significant difference in escape latency between groups, there was a definite trend for the vicarious learning ferrets to solve the puzzle box problem more quickly than the direct learning ferrets. For example, the mean escape latency for the vicarious ferrets dropped to approximately 4.5 minutes by the second day and decreased to approximately 1.5 minutes by day five, whereas the direct ferrets had mean escape latencies of 10 minutes and approximately 7 minutes on days two and five, respectively (Fig. 1). We attribute the lack of a significant effect to the fact that each group had one ferret that performed quite differently from the other members of their respective group, thus yielding a high degree of variability in our data.

We believe that our study provides evidence that observational learning can indeed occur in small animal species such as ferrets, particularly given the fact that two of the vicarious learning ferrets escaped from the puzzle box in less than 2 minutes on their second day, and con-

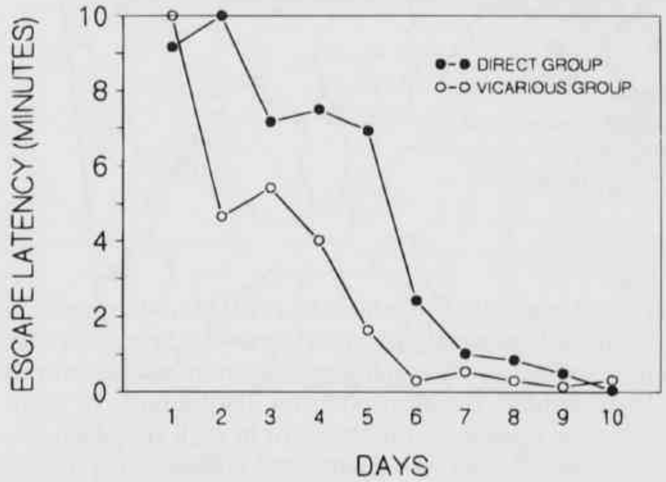

Fig. 1. Escape latency (min.).

sistently improved their performance throughout the remainder of the study (the remaining ferret in this group improved as well, but to a much lesser degree). We hypothesize that Thorndike failed to see observational learning in his cats because they did not get direct exposure to the behavior of his puzzle box sophisticated cats. Perhaps if he had employed procedures similar to ours (i.e., by allowing a naive cat to observe from within the same puzzle box as a sophisticated cat), he may have witnessed observational learning in his species as we did in ours. While observational learning in animal species other than primates is still controversial in the field of animal behavior (Bailey and Bailey, 1995), our study contributes to the knowledge of observational learning in small animal species such as ferrets, and moreover, suggests the need for further study of this phenomenon in the discipline of comparative psychology.