Conditioning with a passive person reinforcer and extinction in Shetland sheep dog puppies'

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Abstract

The Ss progressively increased their speed of running to a goal area containing a passive person and progressively decreased their speed when the person was absent. The passive person appears to be a positive (stimulus-presentation) rather than a negative (stimulus-termination) reinforcer in puppies.

Problem

If early social behavior is maintained by reinforcers inherent in social interactions, such reinforcers should be identifiable and subject to parametric study. Previous research on puppies has shown that contact with a passive person fulfills two criteria for defining a reinforcing event. These are: (a) greater improvement in, and maintenance of, behavior when the behavior leads to the event than when it does not (Stanley & Elliot, 1962); and (b) differential level of performance dependent on the immediate prior history of deprivation of the event (Bacon & Stanley, 1963). In the present experiment, evidence was sought on whether the passive person fulfilled the extinction criterion for defining a reinforcer. According to this criterion, presence of the person should produce progressive increments in performance while omission of the person should produce progressive decrements.

Method

The Ss were 18 purebred Shetland sheep dogs from four litters. They were weaned at 4 1/2 wk. and started in training at 6 wk. of age. The apparatus was a 3-ft high white cloth enclosure 12 x 11 1/2 ft, with a start box in one corner and a 3- x 3-ft goal square just under 10 ft away. It differed from that of Stanley & Elliot (1962) in having: the start box door of wood rather than hardware cloth; the start box at square 44 rather than 11; the goal square at 22 rather than 33; and a 4-ft wide screen between the goal square and the start box.

A P-NP-P group (3 males, 6 females) was run with a person present in Phase 1, no person in Phase 2, and a person in Phase 3. An NP-P-NP group (3 males, 6 females) was run with no person in Phase 1, a person in Phase 2, and no person in Phase 3. Assignment of Ss to groups was random except that litter and sex were equated insofar as possible. In the P-NP-P group 4 Ss had a male and 5 a female goal person; in the NP-P-NP group 5 Ss had a male and 4 a female goal person.

There were 3 trials per day for 10 days per phase. The goal person put S in the start box 15 sec. prior to E's opening the start box door. A trial lasted 4 min. or until 2 min. after S reached the goal square, whichever was shorter. About 45 sec. intervened between trials within a daily session. The goal person was attired in

Fig. 1. Mean running speed plotted to show the source of the highest order significant interaction variance.

a white lab coat over regular clothing and sat passively in the goal square during P phases.

Running time from S's leaving the start box to its crossing any line of the goal square was read from an electric timer to 0.1 sec. and transformed to a speed score, 100/sec.

Results

In both groups performance progressively improved or declined depending on whether the person was, respectively, present or absent (Fig. 1). Analysis of variance with Groups, Phases, Trial blocks, and Trials within days as main factors showed that the highest order significant interaction was Group X Phases X Trial blocks, the interaction depicted in Fig. 1. The F was 11.6; conservative df, 1 and 16, and $p < .01$. During Phase 1, running speed was greater under the P than under the NP condition ($p < .01$). During Phases 2 and 3, the increase in running speed over blocks under the P conditions and the decrease in running speed over blocks under the NP conditions were reliable ($ps < .05$).

There was also a highly significant decrement in performance from one trial to the next within daily sessions. This decrement usually appeared after the first block in each phase in both groups (Fig. 2 and 3). The F for the Trial blocks X Trials within days interaction was 4.9 ($p < .05$) and that for Trials within days was 47.3 ($p < .01$). The remaining significant sources of variance were: Phases X Trials within days ($F = 6.5$; $p < .05$); Phases X Groups ($F = 24.6$; $p < .01$); Trial Blocks ($F = 13.8$; $p < .01$); and Phases ($F = 23.8$; $p < .01$). All are based on a conservative 1 and 16 df.

Fig. 2. Mean running speed of the P-NP-P Group, broken down according to trials within daily sessions.

Discussion

The progressive increments and decrements in performance obtained show that conditioning occurred when the person was present and extinction when the person was omitted. Thus, in puppies, a passive person fulfills the extinction criterion for defining a reinforcer.

The temporary decrement in performance correlated with trials within daily sessions may represent, in part, a satiation effect (Stanley & Elliot, 1962; Bacon & Stanley, 1963). When the person was present, the satiation could have been related primarily to the person as a major source of reinforcement. When the person was absent, the satiation could have been related to sources of reinforcement too weak to sustain performance at a high level; e. g., odors from the person or a previous S having been in the goal square.

Can the nature of the passive person reinforcer be specified more exactly? Only tentatively, but Es' observations that Ss' playful and manipulatory behavior in response to the person seemed to increase with training trials and Bacon & Stanley's (1963) finding that deprivation of the passive person reinforcer affects the asymptote of the curve of performance, together, suggest that the passive person reinforcer is a positive

Fig. 3. Mean running speed of NP-P-NP Group, broken down according to trials within daily sessions.

(stimulus-presentation) rather than a negative (stimulus-termination) reinforcer. In line with this suggestion, it might prove fruitful to reassess experimentally and theoretically the possible role of positive reinforcers, as compared with emotional arousal (Scott, 1962) and anxiety (Moltz, 1960), in the emergence and maintenance of mammalian and avian social attachments.

References

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