Effects of amount of relative novelty on children's choice behavior¹

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Sixteen preschool children each had four 1-min (familiarization) trials with two toys, identical except for color, from each of two different sets of toys. On each trial, S chose one of the two toys. Sixteen other children had 16 familiarization trials with each toy set. Alternations of choice on successive trials significantly exceeded chance in both groups. On a special task trial (fifth or 17th trial) for each toy set, S could choose one or both familiar toys or a third novel toy which was damaged. Frequency of choice of the novel toy was higher in Group 16 than in Group 4, but not significantly so. In both groups, however, a significantly greater proportion of Ss chose the novel toy than did Ss in a third group who had no familiarization trials preceding the task trial.

Harris (1965) reported that preschool children prefer a novel toy to familiar toys, even if the novel toy is damaged, or if the choice is two familiar toys vs one novel toy. The novel toy was made novel by first giving the child four 60-sec periods (familiarization trials) with two other toys, identical, except for color, to the novel toy.

The present research replicated part of this study and also examined the effects of number of familiarization trials on frequency of choice of the damaged novel toy. On the basis of the "attraction for novelty" hypothesis (Berlyne, 1960), increasing the number of familiarization trials should increase the number of novel choices.

Method

Subjects. The Ss were 19 boys and 13 girls, 37-66 months of age ($\bar{X}$ =52 months).

Apparatus. The toys were sets of plastic locomotives and friction 'lady-bugs'. Each set contained a red toy, green toy, and yellow toy. The toys of two additional identical sets were deliberately damaged. The locomotive lacked its movable engineer, smoke-stack, and a front wheel. The lady-bug was scratched and dented.

Procedure. *Familiarization trials.* The procedure is described in detail in Harris (1965). The S sat at a table across from E. The toys were concealed beneath the table. The E presented two toys from the first set and asked S to choose one. These toys were undamaged and were identical, except for color. The S played with the chosen toy for 60 sec; E then took it back, removed it from view, and immediately presented both toys again, repeating the procedure for the previous trial. Each S received either 4 or 16 such familiarization trials with both toy sets.

Task trial. After the required number of familiar-

ization trials (4 or 16) for each toy set, each S received an extra trial ('task' trial) involving the third toy in that set. The third toy, hitherto unseen, became the relatively most novel toy of the three. Two tasks were employed; in one, S could choose the third (novel) toy or either one of the two familiar toys (1-of-3 task). In the other (2-vs-1 task), S could choose both familiar toys or the single novel toy. In both tasks, the novel toy was damaged. The S played with his choice for 60 sec.

More Ss were expected to choose the novel toy in the 1-of-3 task than in the 2-vs-1 task, regardless of the number of familiarization trials, since S would be giving up less to get the novel toy in the 1-of-3 task.

Experimental design. The 32 Ss were assigned to the two number-of-familiarization-trials groups (4 and 16) approximately equally by age and sex. Toy- and task-order were counterbalanced within each group. Each S was tested with both toy sets, one for each task. For each set, the two colors presented on the familiarization trials were chosen randomly from among the three constituting the complete set, but no color was twice represented as the novel color for any S.

Scoring procedure. The datum of primary concern was the proportion of Ss in each group, 4 and 16, choosing the novel toy on the task trial. Analyses of scores on the familiarization trials provided additional information on children's preferences for novelty, but in terms of their alternation behavior in a binary-choice situation, i.e., where alternation=shift in choice from toy just previously chosen (thus the relatively more familiar toy) to toy not just previously chosen (thus the relatively more novel toy).

Beginning on Trial 2, S may alternate or persevere. Alternation on Trials 2, 3, and 4 (plus 5 through 16 for Group 16) for each of the two sets of toys would yield a maximum alternation score of 6 for Group 4 (3 trials by 2 sets) and 30 for Group 16 (15 trials by 2 sets).

Results and Discussion

Familiarization trials. The mean number of alternations in Group 4 was 5.06 (chance level=3.0, $t=7.10$, $df=15$, $p<.001$). The mean number of alternations in Group 16 was 25.25 (chance level=15, $t=8.07$, $df=15$, $p<.001$).² The results support results of earlier research (Harris, 1965, 1967): Preschool children alternate their choice of toys in a binary-choice situation.

Task trials. The task trial scores are measures of the frequency of choice of the third (novel) toy in the two tasks.³ Analysis of variance of task trial scores,

Table 1. Proportion of Ss Choosing Novel Toy on Task Trial

Group	Task	
	1-of-3	2-vs.-1
0* (N=30)	1/30 = .033	2/30 = .066
4 (N=16)	11/16 = .688	9/16 = .563
16 (N=16)	16/16 = 1.000	10/16 = .625

* The 30 Ss in Group 0 were tested for the earlier study (Harris, 1965). Their scores were not included with those of Groups 4 and 16 in the analysis of variance of task trial scores reported in the present paper.

with number of familiarization trials (four vs 16) and task (1-of-3 vs 2-vs-1) as the variables, revealed that the expected effect of number of familiarization trials was not significant at the .05 level ($F=3.16$, $df=1/30$, $.05 < p < .10$). In both tasks, however, frequency of choice of the novel toy was higher after 16 familiarization trials than after four familiarization trials, as Table 1 shows. It is likely that with a larger sample, the effect would have been significant, though only for the 1-of-3 task.

Table 1 also depicts proportion-of-choice scores for Group 0 (tested for the earlier study, Harris, 1965). These Ss ($N=30$) each received each task without any preceding familiarization trials. For these Ss, then, the three toys were equally novel. Therefore, comparing Group 0 with Groups 4 and 16 in terms of proportion of Ss making the 'novel' choice permitted estimation of the null, or chance, scores for each task. For both tasks, the proportions of Ss who chose the novel damaged toy in Group 4 and Group 16 were significantly greater than the proportions of Ss in Group 0 who chose the 'novel' damaged toy (all $ts \geq 8.40$, $df=44$, $p < .001$, one-tailed). Thus,

as few as four trials (240 sec) with two toys induced a significant number of Ss to choose a third damaged toy.

Table 1 also reveals the predicted task effect ($F=5.22$, $df=1/30$, $p < .05$). As expected, significantly more Ss in Groups 4 and 16 chose the novel toy on the 1-of-3 task than on the 2-vs-1 task.⁴

The results on the familiarization trials and task trials reflect the powerful incentive value of a novel toy for preschool children. The task trial scores further reveal that this attraction may persist even when novel toys are damaged and familiar ones are not. Finally, there is a suggestion that preference for the novel toy might vary directly with the degree of its relative novelty.

References

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Notes

1. This study was conducted while the author held an N.I.M.H. predoctoral research fellowship (No. 5FL MH-16,208-03) in the Institute of Child Development at the University of Minnesota. The writing of this report was supported by a faculty grant from Michigan State University. Thanks are due Terrence Allen for his criticism of this report.
2. The cell-totals for trial-blocks (3 trials/block) for Ss in Group 16 were nearly identical.
3. The totals for the toy, toy by task, toy color, and toy- and task-presentation-order cells were nearly identical.
4. The task by number-of-familiarization-trials (4 vs. 16) interaction, suggested in Table 1, was not significant ($F = 1.29$, $df = 1/30$; $p > .20$).