

This Week's Citation Classic®

Baer D M & Sherman J A. Reinforcement control of generalized imitation in young children.
J. Exp. Child Psychol. 1:37-49, 1964.
[University of Washington, Seattle, WA]

Nodding, mouthing, and unusual verbalizations were established in young children by social reinforcement from a puppet. Bar-pressing, which was never reinforced, was found to increase in strength when reinforcement followed the other three imitative processes. The effects of extinction and time-out on reinforcement were investigated. [The *SCI*® and the *SSCI*® indicate that this paper has been cited in over 190 publications.]

That Shouldn't Have Worked

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We wanted to create an ongoing baseline of child-adult social interaction, so that we could see experimentally what adult behaviors affected it. We soon had children talking freely to a cowboy puppet seated on a puppet stage, rather than to an adult experimenter. If the puppet could speak and make a few movements, the children warmed to it much more quickly than to an adult experimenter. Puppet and child discussed the cowboy's fictitious exploits and the child's presumably real ones; that ongoing conversation became their social context. Within that context, we wanted a specific, easy-to-measure interaction that could reflect momentary changes in the nature of their mutual relationship. Imitation seemed the perfect candidate: Don't children imitate those they like more than those they dislike? We gave the cowboy a puppet-sized bar to press and the children a child-sized version of it. The puppet pressed his bar several times every minute; would the children spontaneously imitate him? No.

We had the puppet ask each child, once, to imitate his bar-pressing; the children did when asked and every time thereafter, to the puppet's contingent approval. Then we had the puppet systematically change the content of their conversation, from

friendly and supportive to challenging and critical, and back again; would the reliability of the children's imitative bar-pressing change with those climatic changes in their relationship to the cowboy model? No. We guessed that we had set up the imitative response too forcefully; perhaps if we developed it indirectly, it would reflect changes in social climate. With new subjects, the cowboy asked each child to imitate some of his head and foot movements and some of his comments, and he approved of those imitations when they occurred; meanwhile, he maintained a steady rate of bar-pressing but never asked that it be imitated. That worked: The children imitated the asked-for, approved-of head and foot motions and comments and shortly began imitating the bar press as well, without instructions or any consequent approval for doing so.

So, we were ready again to ask if social-climate changes would alter that indirectly created, apparently unnoticed, but nonetheless stable imitative response. But we never did. We had created an uninstructed, unreinforced, and yet apparently stable response surviving a perfect extinction schedule and an ongoing contrast to some other responses being richly reinforced. It shouldn't have. We stopped to ask why this behavior was breaking the usual rules of differential reinforcement and extinction.

The study that followed showed some of the conditions that would maintain, diminish, and recover that never-instructed, never-reinforced imitative response. It became a frequent reference illustrating the operant concept of the response class: a group of responses, all of which responded to the changes in contingencies and antecedents applied to only a fraction of them.¹ It also stimulated subsequent studies showing how to create and use generalized imitation in people with such severe retardation that they had never developed the imitation skills so prevalent and useful in the rest of us,² the constant perfection of imitation inherent in the procedure,³ its parallel in matching behavior,⁴ and a variety of theoretical arguments about the nature of generalized imitation and responses classes as such.^{1,5-7}

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2. Baer D M, Peterson R F & Sherman J A. The development of imitation by reinforcing behavioral similarity to a model. *J. Exp. Anal. Behav.* 10:405-16, 1967. (Cited 265 times.)
3. Brigham T A & Sherman J A. An experimental analysis of verbal imitation in preschool children. *J. Appl. Behav. Anal.* 1:151-8, 1968. (Cited 65 times.)
4. Sherman J A, Saunders R R & Brigham T A. Transfer of matching and mismatching behavior in preschool children. *J. Exp. Child Psychol.* 9:489-98, 1970. (Cited 10 times.)
5. Bandura A & Barab P G. Conditions governing nonreinforced imitations. *Develop. Psychol.* 5:244-55, 1971. (Cited 40 times.)
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