

Lovaas O I, Berberich J P, Perloff B F & Schaeffer B. Acquisition of imitative speech by schizophrenic children. *Science* 151:705-7, 1966.
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This paper reports a procedure and data on teaching imitative verbal behavior to two previously mute, autistic (schizophrenic) children. Imitation was defined as the teaching of a discrimination where the children's verbal responses became increasingly similar to their discriminative stimulus (the adults' verbal responses). The acquisition was positively accelerated. [The *Science Citation Index*® (SCI)® and the *Social Sciences Citation Index*® (SSCI)® indicate that this paper has been cited in over 230 publications since 1966.]

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"Autistic children evidence extreme social isolation and fail to develop affective attachments to other people. They typically have failed to develop language, show little or no play behavior, and are grossly deficient in self-help skills. They show limited or no affect such as anxiety, sadness or grief, etc. In a way they are people without the behavior of persons. The prognosis for such children is extremely poor and it is estimated that 99 percent of adult autistic persons are institutionalized. The etiology of the condition is not known.

"In formulating a treatment program for such children we chose a behaviorally based, educational program where we slowly built together behaviors, piece by piece, so as to make the children act more like normal people. We taught these children using explicit rewards, such as food, for appropriate behavior and explicit punishment, such as spanking, for inappropriate behavior; we used prompt and fading techniques, etc. The basic model for this kind of program derives from modern learning theory which goes as far back as Thorndike's work in 1898 and is the mainstay of American psychology.¹

"There were two major challenges that faced us. The first one was whether this particular teaching/treatment intervention could in fact produce complex behavior changes such as language. The second big challenge concerned the children's own 'capacity' to learn complex behaviors, because most people in the field felt that the autistic children were damaged to such a severe degree, either organically or psychologically, that they could not acquire complex behaviors in the first place.

"We used the same conceptual framework which we had used in building simpler behaviors, specifically we followed a program known as discrimination learning. Much to our joy, the children acquired imitative verbal behavior. This was a major breakthrough in the program of treating autistic and other retarded children because the acquisition of language is so important in order to function as a more competent human being. We initially ran this program on two previously mute autistic children (Michael and Marty) and then replicated these procedures on a number of other disabled children as well. Once we had taught the children verbal imitation, we could teach the children to appropriately use this verbal behavior (as in grammar) as well as the meaning (semantics) of this newly acquired behavior.²

"There are certain limitations on these findings which are not immediately apparent in examining these data. The most important is that this kind of verbal behavior does not constitute meaningful language. Rather it is an essential first step. Meaning had to be taught separately at a later time. Secondly, there were large individual differences in the rate at which the children acquired verbal imitation. About half of the previously mute children, even after several years of training, struggled with their verbal expressions, while the other half of the children became truly skillful at imitation and in a way never stopped talking. We are not able to account for this variability at this time.

"I think the article is cited so often because it has been the aim of teachers, psychologists, and other professional people for a long time to help mute children talk, and this is the first time that such a program was successful. For example, the famous physician and educator Itard, who is considered the father of special education, worked with the Wild Boy of Aveyron (Victor), tried very hard to teach Victor speech, but failed in his attempts.³ Many thought that Itard had failed to a significant degree in his program. It was hoped that acquisition of language on Victor's part would have revealed a great deal of 'innate' knowledge on Victor's part about God, what is right or wrong, space and time, and so on. Actually, Itard's work was very ingenious and much ahead of its time, and there are procedures which Itard developed which are still used some 150 years later. However, Itard did not have the advantage of drawing upon information from experimental psychology which has accrued since 1900. We had that advantage."

1. Thorndike E L. *Animal intelligence: an experimental study of the associative processes in animals*. New York: Macmillan, 1898. 109 p.
2. Lovaas O I. *The autistic child: language development through behavior modification*. New York: Irvington, 1977. 246 p.
3. Lane H L. *The Wild Boy of Aveyron*. Cambridge, MA: Harvard University Press, 1976. 351 p.