

Effects and Side-Effects of Adults' Reaction to Children: An Experimental Analysis¹

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ABSTRACT

How do adult-child interactions affect children's relationship with adults? Do these interactions determine adults' stimulus value? This paper discusses a program of research designed to study these questions. The research strategy that was used involved providing children with carefully programmed interactional histories with previously unfamiliar adults and then determining how these interactions affect the adults' relationships with the children. Not only did the adults acquire strong discriminative properties, they also obtained differential stimulus value as a function of their serving as agents of reinforcement. The results are discussed in terms of social side-effects of behavior modification.

RESUMEN

¿Cómo afectan las interacciones adulto-niño la relación de los niños con los adultos? ¿Determinan estas interacciones el valor de estímulo de los adultos? Este artículo examina un programa de investigación planeado para estudiar estas cuestiones. La estrategia de investigación empleada consistió en proporcionar a los niños historias de interacción cuidadosamente planeadas con adultos no familiares y luego determinar cómo estas interacciones afectan las relaciones de los adultos con los niños. No sólo obtuvieron los adultos fuertes propiedades discriminativas, sino que también obtuvieron valor de estímulo diferencial como función del haber servido como agentes de reforzamiento. Se examinan los resultados en términos de los efectos sociales colaterales de la modificación de conducta.

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As parents, caretakers, teachers and as behavior modifiers, adults have a powerful impact on children's behavior. From the very first moment of life adults are instrumental in many of the child's contingencies of reinforcement. They are agents of reinforcement and of punishment. My students and I have been interested in the effect of these adult-child interactions on the adult's stimulus value for the child. Specifically, how do these interactions affect the child's relationship with the adult?

Traditional psychologists and educators have been interested in this issue for many years. In the 1960's a large group of investigators at the University of Minnesota studied factors such as the role of adults' socioeconomic status and popularity on their effectiveness as agents of reinforcement with young children. Unfortunately their methodology led to some confusing results and their interest has since extinguished. We have approached this area of research differently. Our strategy has been to expose children to particular patterns of interaction that have been systematically associated with different adults and then to determine the social stimulus value of each particular adult. That is, what we do in our research is to provide children with carefully programmed interactional histories with previously unfamiliar adults and then determine how these interactions affect the adults' relationship with the children.

The first group of studies (Redd and Birnbrauer, 1969; Redd, 1969; Redd, 1970) investigated the development of adults' discriminative properties. The question was: do adults, as agents of social reinforcement acquire discriminative properties? Do they function as discriminative stimuli? In these studies we used mentally retarded and schizophrenic children as subjects. These children were residents of treatment centers for disturbed children. University students served as adult experimenters. During each daily session two adults would work with the children. One adult dispensed positive reinforcement (Praise and "M & M" chocolate candy) on a fixed interval 45 second schedule with a limited hold of 15 seconds. If the child engaged in any cooperative play during the last 15 seconds of each minute the adult would give him an "M & M" and say, "Good boy", "That's great", etc.

Another adult would also work with the children during each play period, but at a different time. The adults were never present at the same time. This adult gave out the same number of reinforcers but without regard to the child's behavior. This adult gave praise and candy once every 60 seconds noncontingently.

The entrance of the adult who dispensed contingent reinforcers for cooperative play evoked the target behavior. Within 60 seconds after he would enter the children would cease their passive, solitary play and begin playing cooperatively. However, the entrance of the adult who dispensed reinforcers noncontingently did not affect the children's behavior. When this adult entered they remained in their passive positions. The contingent adult acquired strong discriminative properties; he functioned as a discriminative

stimuli evoking the previously reinforced behavior. The noncontingent adult did not acquire these properties.

After this effect was demonstrated, the adults withheld all reinforcement until the cooperative play behavior extinguished and the contingent adult lost his discriminative properties. The adults then reversed roles: The adult who was previously associated with contingent reinforcement began dispensing reinforcers noncontingently and the previously noncontingent adult began dispensing reinforcers contingently. The effects were replicated. The adult who was dispensing reinforcers contingently acquired stimulus control of the children's cooperative play behavior.

There was one incident in which a child was emitting psychotic-like self-stimulatory behavior. He was hitting himself on the hip. Within one minute of the entrance of the contingent adult the child stopped hitting himself and began cooperative play. He continued to play as long as the adult was present. When the adult left he returned to his self-stimulatory behavior. When the noncontingent adult entered he did not get up, but continued his bizarre behavior.

We have now replicated these results with 10 children and similar phenomena have been observed by other researchers. Of course adults are rarely as consistent with their reinforcement as these studies but applied research has shown, for example, that children are often well-behaved in one class and in another class five minutes later they are wild.

These results tell us about adults' roles with children and also indicated why it is often difficult to get the effects of our behavioral programs to generalize. The environment in which we trained the behavior acquired stimulus control over the behavior.

In our research we have discovered that aspects of the adults' behavior can also become powerful discriminative stimuli (Redd, 1969). In this study we used the same general procedure: Adults followed prescribed schedules of positive reinforcement. One of the adults used a mixed schedule of contingent and noncontingent reinforcement. He was contingent one-half of the time and noncontingent the other half. The order of the two schedules was randomly determined.

The children were very responsive to the subtleties of the adults' behavior. They did not begin playing as soon as the mixed adult entered but waited to determine what schedule of reinforcement was in effect. If the adult gave out reinforcers while they sat (as he would when he was following the noncontingent schedule), the children would remain in their passive, baseline positions and would not begin cooperative play. However, if the adult withheld reinforcement for more than 60 seconds (as he did when he was following the contingent schedule and the children were not engaging in cooperative play) the children would begin playing cooperatively. The adults' behavior became a cue that signalled the reinforcement schedule and acquired discriminative control, of the children's play behavior.

This series of experiments just described is crucial to all our subsequent

work. We have built on this work and are investigating effects of adult feedback with children. We are especially interested in the effect of negative feedback.

For some children a disapproving glance from a parent or teacher is enough to stop them cold. In a recent study (Redd & Winston, 1974) we found that an adult's expression of dislike or disfavor can control the behavior of 4-year old children. Even though the adult's comments were not made in reference to the child's behavior but in reference to another child's behavior, all of the children stopped making the choice the adult did not like. However, when the adult expressed his preferences with positive statements such as "I like it when Johnny does y", the observing child's behavior was not effected. In all cases negative preference statements were more effective.

Given the very powerful impact that negative reactions from adults have on children's behavior, it is no wonder that psychologists fear that it might have other less immediately apparent effects on children. That is, we fear its possible negative side effects.

The most frequent warning is that the use of any form of punishment will result in the recipient's avoidance of the person who gives the punishment. This is one of the major side effects that Azrin and Holz pointed out in their discussion in Honig's volume of punishment with animals (Honig, 1966). They argued that such procedures may, in fact, reinforce a variety of avoidance behaviors. That is, avoidance of the person dispensing the punishment may function as a negative reinforcer. A common example that is often given is that of the child for whom school is punishing. He may fail, be scolded by his teacher, or miss out on the positive reinforcers from education. In such cases it seems perfectly reasonable for the child to avoid school and seek more positive environments. Many noted behaviorists are quite vehement in their opposition to the use of negative feedback and punishment. Skinner warned that the use of punishment breeds followers of dictators and revolutionaries.

However, when one reviews the literature it is clear that these warnings are based on emotion and conjecture rather than on hard research. When I reviewed the literature I could find only six studies that addressed this issue. Four were clinical case studies involving either institutionalized, self-destructive children or children with behavior problems. The other two studies were my own involving preschool children in controlled laboratory settings. What is even more distressing is the results from these six studies are not completely consistent. Two report avoidance of the punishing adult, four report approach.

In a recent series of studies we investigated the impact of an adult's use of negative feedback on his social valence. That is, under what circumstances does an adult who uses negative feedback acquire negative stimulus properties? Will children avoid that adult in further interaction? We compared children's preferences for adults who were associated with different styles of interacting. The children were 4-years old and the adults were university

students who had had no previous contact with the children. Each adult was assigned to a specific condition based on the children's preferences for pictures of the adults that they saw before the study began. In the first study each of three adults interacted with the child during daily play sessions. At the beginning of each session a fourth adult instructed the children to sort the colored chips and showed them the toys that they could play with when they weren't sorting chips. Then each of the adults supervised the children for two 5-minute periods. There was never more than one adult present at any time. One adult gave praise and attention when the child engaged in color sorting; another adult gave mild reprimands whenever the child was off-task. He would say things like: "Johnny, don't fool around"; "Johnny, don't play with the truck." The third adult did not interact with the children when he was present; he merely sat quietly and observed. During all sessions an observer coded the behavior of the children and the adult. At the end of every session we conducted preference tests. During these tests the three adults were lined up side-by-side and the child was instructed to pick the person he wanted to play with. Within four sessions the children's preferences were clear. In every instance the positive adult was preferred. After establishing this preference we gave each child the opportunity to choose between the noninteractive or neutral adult and the reprimand adult. Again the results were crystal clear; all the children selected the neutral adult. The adults who used reprimands were never selected.

In order to test the generality of these preferences we conducted additional preference tests in new contexts. In one test the child picked the adult he wanted to play a new game with, in another he selected an adult to go to the candy machine with. Again, the results were clear cut. Children always selected the positive adult first, the neutral adult second and never chose the reprimand adult. Without a doubt, the adult who uses reprimands was not liked.

Given the unusual stability of our results it may seem strange that other research in the area does not support our findings. There are at least four instances in the literature in which avoidance of the agent of punishment has not been observed. In fact, in all of these cases the person appeared to have acquired positive valence as a function of his use of punishment. It must be pointed out, however, that three of the studies involve institutionalized, emotionally disturbed children; only one reports data for normal children. While we recognize that this limited data from a very unusual population severely restricts the generalizations we can make, these data may give us some clue as to conditions under which this negative side effect might be expected.

The first study is Lovaas's classic study of the use of electric shock with autistic children (Lovaas, Freitag, Gold, & Kassorla, 1965). Lovaas and his associates were interested in developing an effective means of eliminating the self-destructive and anti-social behavior of two 5-year old twins who were diagnosed as schizophrenic. The treatment procedure involved delivering a

mild electric shock to the child's feet whenever he engaged in various maladaptive, self-destructive behaviors. During these sessions the same two adults were always present. In order to determine whether or not the children's relationship with these adults were affected by the punishment program, social tests were conducted before, during, and after treatment. In these tests each adult made various social overtures to the children; they would ask for a hug or a kiss from the children. Before treatment the children actively avoided the adults; after treatment they readily approached the two adults and were affectionate without hesitation. The nurses on the children's ward also rated them as more responsive and affectionate following treatment.

Another clinical case that showed improvement rather than deterioration in an adult's valence after he has used electric shock punishment is Risley's 1968 report of a 6-year old disturbed child (Risley, 1968). In this case there was a large increase in the amount of eye contact that the child had with the therapist after the treatment program had ended. No negative side effects were observed.

In a case study of a self-destructive adolescent girl, we observed a radical change in adult's valences after they employed a program of timeout and positive reinforcement (Reiss & Redd, 1970). Six adults served as successive therapists, all using the same procedures. All responses that were incompatible with her hitting herself were reinforced with praise and candy, hitting immediately resulted in a brief period of isolation in a hallway. The procedure was extremely effective, after each adult had acquired stimulus control of the child's *non*-self-destructive behavior, we observed an interesting response on the part of the child. Rather than ignoring the adults as she had done before they had used the treatment program, she became very attached to them. She actually clung to the adults whenever they were present and asked for them when they were absent. Even when given a choice between the adults who used punishment and adults who were associated with positive activities such as meals and play time, the girl chose the adults who participated in the treatment program.

Although on the surface these examples might appear inconsistent (approach and avoidance of adults who delivered punishment), a careful examination of the methods the adults used and the benefits that each set of procedures brought to the child may eliminate this contradiction.

The major question is why didn't the children described in the three clinical studies avoid the agents of punishment like my 4-year olds did? Certainly the punishment used in those studies were far more aversive than mild verbal reprimands. One might argue that the difference in results is related to the children's unusual clinical problems. Maybe so, but there are two other possibilities.

Since the adults' valences became more positive after they implemented the behavior modification programs, then there must have been certain aspects of their interaction that were positive. There were. In all the clinical

studies the adults also gave positive reinforcers contingent upon other behaviors. One would certainly expect an adult's valence to improve if he added positive reactions to his repertoire. In a recent study with preschool children we found this to be the case (Redd, Morris, and Martin, 1975; Morris and Redd, 1975). When given a choice between an adult who gave only reprimands and another who gave praise as well as reprimands, the children chose the adult who gave both types of feedback. However, the children still preferred a third adult who gave only praise over either of the other two. The use of positive social reinforcement by the adult did not totally wash out the effect of his reprimands on the children's relationship with him.

While the use of positive reinforcement may have contributed to the punishing adults' positive valence, it seems unlikely that it would have been sufficient to produce such a strong positive attachment by the children. There must have been other positive aspects of the adults' interactions.

In all of the clinical studies the adults' actions toward the children led to the termination of their self-destructive behavior. That is, the adults were instrumental in the children's acquiring self-control of their own negative behavior. The adults' role with the children was shown very dramatically with the emotionally-disturbed girl in the Reiss and Redd case study. The mere presence of the adults who carried out the program resulted in the immediate cessation of her self-destructive hitting and scratching. The adults didn't have to do anything; as soon as one of them would appear she would stop. As an aid in the girl's self-control of her negative behavior the adults acquired positive valence. We often speak of someone's being "good for us" in that their critical reactions help us eliminate unwanted behaviors in ourselves. For example, a colleague whose critical comments result in our improving our work will have a positive valence if his criticisms are instrumental in our subsequent success. The extent to which the resultant success outweighs the aversive properties of his criticisms, he will be viewed by us as positive. In the case of the punishment of self-destructive behavior, the ultimate consequence of the adults interaction was presumably positive for the child. From these examples it appears that the specific characteristic of an adult's reaction is not the only factor that contributes to his social valence. The long-term effects of those reactions for the recipient are also important.

Although my interpretations of the conflicting results regarding the effects of the use of punishment on adults' relationships with children may be interesting, they have not been examined empirically. I would like to end my discussion by outlining how we plan to test them.

The series of studies that we have planned will investigate the effect of adults' using reprimands in order to improve performance and get subsequent reward on the adults' social valence. That is, we are interested in studying the effect of punishment that leads to long-term positive gains for the recipient. Does the use of this type of punishment result in the agent's acquisition of positive valence? Subjects will be second grade children work-

ing in a controlled, though nonlaboratory, setting. During daily sessions each child will be assigned arithmetic problems to complete while being supervised by an adult. These adults will be undergraduate students previously unknown to the children. The number of adults and the particular technique that each uses will depend upon the question being investigated. In the first study we will compare the valence of two adults who differ as to whether or not their punishment facilitates the child receiving increased monetary reinforcement (redeemable tokens). Two adults will participate, each supervising the subject during alternate periods. In addition to social reinforcement from each adult for correct problem solution, children will receive redeemable tokens for problems completed during each session from their classroom teacher. One adult will reprimand the children for off-task behavior and the other will reprimand a behavior that is irrelevant to earning subsequent reinforcement. Thus one adult will use punishment that helps the child earn more tokens and the other adult will use punishment that does not. For example, one adult might reprimand relevant behaviors (off task), and the other adult reprimand irrelevant behavior (e.g., mannerisms). At the beginning of the study and throughout, social valence tests will be conducted. During these tests the children will select the picture of their preferred tutor.

In other studies we plan to compare the valences of adults who have been associated with other reinforcement and punishment procedures. The studies will be similar in design to the one I have just outlined. In all cases they will involve the experimental analyses of each child's behavior.

From the research that has been discussed it is clear that as behavior analysts and as behavior modifiers we must consider the side effects of our procedures. Time on task, number of problems completed may not be sufficient indices of the effectiveness of our program. The children's relationship with the adults who carry out behavior modification programs is a factor that must be considered.

Because we have failed to examine the possible social side effects of our methods, conclusions regarding the long-term effects of various reinforcement and punishment procedures are unwarranted. Researchers and clinicians must use the most sophisticated methodology to study these important issues.

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