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TRANSMISSION OF AGGRESSION THROUGH IMITATION OF AGGRESSIVE MODELS[1]

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A previous study, designed to account for the phenomenon of identification in terms of incidental learning, demonstrated that children readily imitated behavior exhibited by an adult model in the presence of the model (Bandura & Huston, 1961). A series of experiments by Blake (1958) and others (Grosser, Polansky, & Lippitt, 1951; Rosenblith, 1959; Schachter & Hall, 1952) have likewise shown that mere observation of responses of a model has a facilitating effect on subjects' reactions in the immediate social influence setting.

While these studies provide convincing evidence for the influence and control exerted on others by the behavior of a model, a more crucial test of imitative learning involves the generalization of imitative response patterns to new settings in which the model is absent.

In the experiment reported in this paper children were exposed to aggressive and nonaggressive adult models and were then tested for amount of imitative learning in a new situation in the absence of the model. According to the prediction, subjects exposed to aggressive models would reproduce aggressive acts resembling those of their models and would differ in this respect both from subjects who observed nonaggressive models and from those who had no prior exposure to any models. This hypothesis assumed that subjects had learned imitative habits as a result of prior reinforcement, and these tendencies would generalize to some extent to adult experimenters (Miller & Dollard, 1941).

It was further predicted that observation of subdued nonaggressive models would have a generalized inhibiting effect on the subjects' subsequent behavior, and this effect would be reflected in a difference between the nonaggressive and the control groups, with subjects in the latter group displaying significantly more aggression.

Hypotheses were also advanced concerning the influence of the sex of model and sex of subjects on imitation. Fauls and Smith (1956) have shown that preschool children perceive their parents as having distinct preferences regarding sex appropriate modes of behavior for their children. Their findings, as well as informal observation, suggest that parents reward imitation of sex appropriate behavior and discourage or punish sex inappropriate imitative responses, e.g., a male child is unlikely to receive much reward for performing female appropriate activities, such as cooking, or for adopting other aspects of the maternal role, but these same behaviors are typically welcomed if performed by females. As a result of differing reinforcement histories, tendencies to imitate male and female models thus acquire differential habit strength. One would expect, on this basis, subjects to imitate the behavior of a same-sex model to a greater degree than a model of the opposite sex.

Since aggression, however, is a highly masculine-typed behavior, boys should be more predisposed than girls toward imitating aggression, the difference being most marked for subjects exposed to the male aggressive model.

METHOD

Subjects

The subjects were 36 boys and 36 girls enrolled in the Stanford University Nursery School. They ranged in age from 37 to 69 months, with a mean age of 52 months.

Two adults, a male and a female, served in the role of model, and one female experimenter conducted the study for all 72 children.

Experimental Design

Subjects were divided into eight experimental groups of six subjects each and a control group consisting of 24 subjects. Half the experimental subjects were exposed to aggressive models and half were exposed to models that were subdued and nonaggressive in their behavior. These groups were further subdivided into male and female subjects. Half the subjects in the aggressive and nonaggressive conditions observed

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same-sex models, while the remaining subjects in each group viewed models of the opposite sex. The control group had no prior exposure to the adult models and was tested only in the generalization situation.

It seemed reasonable to expect that the subjects' level of aggressiveness would be positively related to the readiness with which they imitated aggressive modes of behavior. Therefore, in order to increase the precision of treatment comparisons, subjects in the experimental and control groups were matched individually on the basis of ratings of their aggressive behavior in social interactions in the nursery school.

The subjects were rated on four five-point rating scales by the experimenter and a nursery school teacher, both of whom were well acquainted with the children. These scales measured the extent to which subjects displayed physical aggression, verbal aggression, aggression toward inanimate objects, and aggressive inhibition. The latter scale, which dealt with the subjects' tendency to inhibit aggressive reactions in the face of high instigation, provided a measure of aggression anxiety.

Fifty-one subjects were rated independently by both judges so as to permit an assessment of interrater agreement. The reliability of the composite aggression score, estimated by means of the Pearson product-moment correlation, was .89.

The composite score was obtained by summing the ratings on the four aggression scales; on the basis of these scores, subjects were arranged in triplets and assigned at random to one of two treatment conditions or to the control group.

Experimental Conditions

In the first step in the procedure subjects were brought individually by the experimenter to the experimental room and the model who was in the hallway outside the room, was invited by the experimenter to come and join in the game. The experimenter then escorted the subject to one corner of the room, which was structured as the subject's play area. After seating the child at a small table, the experimenter demonstrated how the subject could design pictures with potato prints and picture stickers provided. The potato prints included a variety of geometrical forms; the stickers were attractive multicolor pictures of animals, flowers, and western figures to be pasted on a pastoral scene. These activities were selected since they had been established, by previous studies in the nursery school, as having high interest value for the children.

After having settled the subject in his corner, the experimenter escorted the model to the opposite corner of the room which contained a small table and chair, a tinker toy set, a mallet, and a 5-foot inflated Bobo doll. The experimenter explained that these were the materials provided for the model to play with and, after the model was seated, the experimenter left the experimental room.

With subjects in the *nonaggressive condition*, the model assembled the tinker toys in a quiet subdued manner totally ignoring the Bobo doll.

In contrast, with subjects in the *aggressive condition*, the model began by assembling the tinker toys but after approximately a minute had elapsed, the model turned to the Bobo doll and spent the remainder of the period aggressing toward it.

Imitative learning can be clearly demonstrated if a model performs sufficiently novel patterns of responses which are unlikely to occur independently of the observation of the behavior of a model and if a subject reproduces these behaviors in substantially identical form. For this reason, in addition to punching the Bobo doll, a response that is likely to be performed by children independently of a demonstration, the model exhibited distinctive aggressive acts which were to be scored as imitative responses. The model laid Bobo on its side, sat on it and punched it repeatedly in the nose. The model then raised the Bobo doll, picked up the mallet and struck the doll on the head. Following the mallet aggression, the model tossed the doll up in the air aggressively and kicked it about the room. This sequence of physically aggressive acts was repeated approximately three times, interspersed with verbally aggressive responses such as, "Sock him in the nose . . .," "Hit him down . . .," "Throw him in the air . . .," "Kick him . . .," "Pow . . .," and two nonaggressive comments, "He keeps coming back for more" and "He sure is a tough fella."

Thus in the exposure situation, subjects were provided with a diverting task which occupied their attention while at the same time insured observation of the model's behavior in the absence of any instructions to observe or to learn the responses in question. Since subjects could not perform the model's aggressive behavior, any learning that occurred was purely on an observational or covert basis.

At the end of 10 minutes, the experimenter entered the room, informed the subject that he would now go to another game room, and bid the model goodbye.

Aggression Arousal

Subjects were tested for the amount of imitative learning in a different experimental room that was set off from the main nursery school building. The two experimental situations were thus clearly differentiated; in fact, many subjects were under the impression that they were no longer on the nursery school grounds.

Prior to the test for imitation, however, all subjects, experimental and control, were subjected to mild aggression arousal to insure that they were under some degree of instigation to aggression. The arousal experience was included for two main reasons. In the first place, observation of aggressive behavior exhibited by others tends to reduce the probability of aggression on the part of the observer (Rosenbaum & deCharms, 1960). Consequently, subjects in the aggressive condition, in relation both to the nonaggressive and control groups, would be under weaker instigation following exposure to the models. Second, if subjects in the nonaggressive condition expressed little aggression in the face of appropriate instigation, the presence of an inhibitory process would seem to be indicated.

Following the exposure experience, therefore, the experimenter brought the subject to an anteroom that contained these relatively attractive toys: a fire engine, a locomotive, a jet fighter plane, a cable car, a colorful spinning top, and a doll set complete with wardrobe, doll carriage, and baby crib. The experi-

menter explained that the toys were for the subject to play with but, as soon as the subject became sufficiently involved with the play material (usually in about 2 minutes), the experimenter remarked that these were her very best toys, that she did not let just anyone play with them, and that she had decided to reserve these toys for the other children. However, the subject could play with any of the toys that were in the next room. The experimenter and the subject then entered the adjoining experimental room.

It was necessary for the experimenter to remain in the room during the experimental session; otherwise a number of the children would either refuse to remain alone or would leave before the termination of the session. However, in order to minimize any influence her presence might have on the subject's behavior, the experimenter remained as inconspicuous as possible by busying herself with paper work at a desk in the far corner of the room and avoiding any interaction with the child.

Test for Delayed Imitation

The experimental room contained a variety of toys including some that could be used in imitative or nonimitative aggression, and others that tended to elicit predominantly nonaggressive forms of behavior. The aggressive toys included a 3-foot Bobo doll, a mallet and peg board, two dart guns, and a tether ball with a face painted on it which hung from the ceiling. The nonaggressive toys, on the other hand, included a tea set, crayons and coloring paper, a ball, two dolls, three bears, cars and trucks, and plastic farm animals.

In order to eliminate any variation in behavior due to mere placement of the toys in the room, the play material was arranged in a fixed order for each of the sessions.

The subject spent 20 minutes in this experimental room during which time his behavior was rated in terms of predetermined response categories by judges who observed the session through a one-way mirror in an adjoining observation room. The 20-minute session was divided into 5-second intervals by means of an electric interval timer, thus yielding a total number of 240 response units for each subject.

The male model scored the experimental sessions for all 72 children. Except for the cases in which he served as model, he did not have knowledge of the subjects' group assignments. In order to provide an estimate of interscorer agreement, the performances of half the subjects were also scored independently by a second observer. Thus one or the other of the two observers usually had no knowledge of the conditions to which the subjects were assigned. Since, however, all but two of the subjects in the aggressive condition performed the models' novel aggressive responses while subjects in the other conditions only rarely exhibited such reactions, subjects who were exposed to the aggressive models could be readily identified through their distinctive behavior.

The responses scored involved highly specific concrete classes of behavior and yielded high interscorer reliabilities, the product-moment coefficients being in the .90s.

Response Measures

Three measures of imitation were obtained:

Imitation of physical aggression: This category included acts of striking the Bobo doll with the mallet, sitting on the doll and punching it in the nose, kicking the doll, and tossing it in the air.

Imitative verbal aggression: Subject repeats the phrases, "Sock him," "Hit him down," "Kick him," "Throw him in the air," or "Pow."

Imitative nonaggressive verbal responses: Subject repeats, "He keeps coming back for more," or "He sure is a tough fella."

During the pretest, a number of the subjects imitated the essential components of the model's behavior but did not perform the complete act, or they directed the imitative aggressive response to some object other than the Bobo doll. Two responses of this type were therefore scored and were interpreted as partially imitative behavior.

Mallet aggression: Subject strikes objects other than the Bobo doll aggressively with the mallet.

Sits on Bobo doll: Subject lays the Bobo doll on its side and sits on it, but does not aggress toward it.

The following additional nonimitative aggressive responses were scored:

Punches Bobo doll: Subject strikes, slaps, or pushes the doll aggressively.

Nonimitative physical and verbal aggression: This category included physically aggressive acts directed toward objects other than the Bobo doll and any hostile remarks except for those in the verbal imitation category; e.g., "Shoot the Bobo," "Cut him," "Stupid ball," "Knock over people," "Horses fighting, biting"

Aggressive gun play: Subject shoots darts or aims the guns and fires imaginary shots at objects in the room.

Ratings were also made of the number of behavior units in which subjects played nonaggressively or sat quietly and did not play with any of the material at all.

RESULTS

Complete Imitation of Models' Behavior

Subjects in the aggression condition reproduced a good deal of physical and verbal aggressive behavior resembling that of the models, and their mean scores differed markedly from those of subjects in the nonaggressive and control groups who exhibited virtually no imitative aggression (see Table 1).

Since there were only a few scores for subjects in the nonaggressive and control conditions (approximately 70% of the subjects had zero scores), and the assumption of homogeneity of variance could not be made, the Friedman two-way analysis of variance by ranks was employed to test the significance of the obtained differences.

The prediction that exposure of subjects to aggressive models increases the probabili

of aggressive behavior is clearly confirmed (see Table 2). The main effect of treatment conditions is highly significant both for physical and verbal imitative aggression. Comparison of pairs of scores by the sign test shows that the obtained over-all differences were due almost entirely to the aggression displayed by subjects who had been exposed to the aggressive models. Their scores were significantly higher than those of either the nonaggressive or control groups, which did not differ from each other (Table 2).

Imitation was not confined to the model's aggressive responses. Approximately one-third of the subjects in the aggressive condition also repeated the model's nonaggressive verbal responses while none of the subjects in either the nonaggressive or control groups made such remarks. This difference, tested by means of the Cochran Q test, was significant well beyond the .001 level (Table 2).

TABLE 1

MEAN AGGRESSION SCORES FOR EXPERIMENTAL AND CONTROL SUBJECTS

Response category	Experimental groups				Control groups
	Aggressive		Nonaggressive		
	F Model	M Model	F Model	M Model	
Imitative physical aggression					
Female subjects	5.5	7.2	2.5	0.0	1.2
Male subjects	12.4	25.8	0.2	1.5	2.0
Imitative verbal aggression					
Female subjects	13.7	2.0	0.3	0.0	0.7
Male subjects	4.3	12.7	1.1	0.0	1.7
Mallet aggression					
Female subjects	17.2	18.7	0.5	0.5	13.1
Male subjects	15.5	28.8	18.7	6.7	13.5
Punches Bobo doll					
Female subjects	6.3	16.5	5.8	4.3	11.7
Male subjects	18.9	11.9	15.6	14.8	15.7
Nonimitative aggression					
Female subjects	21.3	8.4	7.2	1.4	6.1
Male subjects	16.2	36.7	26.1	22.3	24.6
Aggressive gun play					
Female subjects	1.8	4.5	2.6	2.5	3.7
Male subjects	7.3	15.9	8.9	16.7	14.3

Partial Imitation of Models' Behavior

Differences in the predicted direction were also obtained on the two measures of partial imitation.

Analysis of variance of scores based on the subjects' use of the mallet aggressively toward objects other than the Bobo doll reveals that treatment conditions are a statistically significant source of variation (Table 2). In addition, individual sign tests show that both the aggressive and the control groups, relative to subjects in the nonaggressive condition, produced significantly more mallet aggression, the difference being particularly marked with regard to female subjects. Girls who observed nonaggressive models performed a mean number of 0.5 mallet aggression responses as compared to mean values of 18.0 and 13.1 for girls in the aggressive and control groups, respectively.

Although subjects who observed aggressive models performed more mallet aggression (M = 20.0) than their controls (M = 13.3), the difference was not statistically significant.

TABLE 2

SIGNIFICANCE OF THE DIFFERENCES BETWEEN EXPERIMENTAL AND CONTROL GROUPS IN THE EXPRESSION OF AGGRESSION

Response category	χ^2_r	Q	p	Comparison of pairs of treatment conditions		
				Aggressive vs. Nonaggressive p	Aggressive vs. Control p	Nonaggressive vs. Control p
Imitative responses						
Physical aggression	27.17		$<.001$	$<.001$	$<.001$	.09
Verbal aggression	9.17		$<.02$	.004	.048	.09
Nonaggressive verbal responses		17.50	$<.001$	.004	.004	*ns*
Partial imitation						
Mallet aggression	11.06		$<.01$	.026	*ns*	.005
Sits on Bobo		13.44	$<.01$	.018	.059	*ns*
Nonimitative aggression						
Punches Bobo doll	2.87		*ns*			
Physical and verbal	8.96		$<.02$	.026	*ns*	*ns*
Aggressive gun play	2.75		*ns*			

With respect to the partially imitative response of sitting on the Bobo doll, the over-all group differences were significant beyond the .01 level (Table 2). Comparison of pairs of scores by the sign test procedure reveals that subjects in the aggressive group reproduced this aspect of the models' behavior to a greater extent than did the nonaggressive ($p = .018$) or the control ($p = .059$) subjects. The latter two groups, on the other hand, did not differ from each other.

Nonimitative Aggression

Analyses of variance of the remaining aggression measures (Table 2) show that treatment conditions did not influence the extent to which subjects engaged in aggressive gun play or punched the Bobo doll. The effect of conditions is highly significant ($\chi^2_r = 8.96$, $p < .02$), however, in the case of the subjects' expression of nonimitative physical and verbal aggression. Further comparison of treatment pairs reveals that the main source of the over-all difference was the aggressive and nonaggressive groups which differed significantly from each other (Table 2), with subjects exposed to the aggressive models displaying the greater amount of aggression.

Influence of Sex of Model and Sex of Subjects on Imitation

The hypothesis that boys are more prone than girls to imitate aggression exhibited by a model was only partially confirmed. t tests computed for subjects in the aggressive condition reveal that boys reproduced more imitative physical aggression than girls ($t = 2.50$, $p < .01$). The groups do not differ, however, in their imitation of verbal aggression.

The use of nonparametric tests, necessitated by the extremely skewed distributions of scores for subjects in the nonaggressive and control conditions, preclude an over-all test of the influence of sex of model per se, and of the various interactions between the main effects. Inspection of the means presented in Table 1 for subjects in the aggression condition, however, clearly suggests the possibility of a Sex × Model interaction. This interaction effect is much more consistent and pronounced for the male model than for the female model. Male subjects, for example, exhibited more physical ($t = 2.07$, $p < .05$) and verbal imitative aggression ($t = 2.51$, $p < .05$), more nonimitative aggression ($t = 3.15$, $p < .025$), and engaged in significantly more aggressive gun play ($t = 2.12$, $p < .05$) following exposure to the aggressive male model than the female subjects. In contrast, girls exposed to the female model performed considerably more imitative verbal aggression and more nonimitative aggression than did the boys (Table 1). The variances, however, were equally large and with only a small N in each cell the mean differences did not reach statistical significance.

Data for the nonaggressive and control subjects provide additional suggestive evidence that the behavior of the male model exerted a greater influence than the female model on the subjects' behavior in the generalization situation.

It will be recalled that, except for the greater amount of mallet aggression exhibited by the control subjects, no significant differences were obtained between the nonaggressive and control groups. The data indicate, however, that the absence of significant differences between these two groups was due primarily to the fact that subjects exposed to the nonaggressive female model did not differ from the controls on any of the measures of aggression. With respect to the male model, on the other hand, the differences between the groups are striking. Comparison of the sets of scores by means of the sign test reveals that, in relation to the control group, subjects exposed to the nonaggressive male model performed significantly less imitative physical aggression ($p = .06$), less imitative verbal aggression ($p = .002$), less mallet aggression ($p = .003$), less nonimitative physical and verbal aggression ($p = .03$), and they were less inclined to punch the Bobo doll ($p = .07$).

While the comparison of subgroups, when some of the over-all tests do not reach statistical significance, is likely to capitalize on chance differences, nevertheless the consistency of the findings adds support to the interpretation in terms of influence by the model.

Nonaggressive Behavior

With the exception of expected sex differences, Lindquist (1956) Type III analyses of variance of the nonaggressive response scores yielded few significant differences.

Female subjects spent more time than boys

playing with dolls ($p < .001$), with the tea set ($p < .001$), and coloring ($p < .05$). The boys, on the other hand, devoted significantly more time than the girls to exploratory play with the guns ($p < .01$). No sex differences were found in respect to the subjects use of the other stimulus objects, i.e., farm animals, cars, or tether ball.

Treatment conditions did produce significant differences on two measures of nonaggressive behavior that are worth mentioning. Subjects in the nonaggressive condition engaged in significantly more nonaggressive play with dolls than either subjects in the aggressive group ($t = 2.67$, $p < .02$), or in the control group ($t = 2.57$, $p < .02$).

Even more noteworthy is the finding that subjects who observed nonaggressive models spent more than twice as much time as subjects in aggressive condition ($t = 3.07$, $p < .01$) in simply sitting quietly without handling any of the play material.

DISCUSSION

Much current research on social learning is focused on the shaping of new behavior through rewarding and punishing consequences. Unless responses are emitted, however, they cannot be influenced. The results of this study provide strong evidence that observation of cues produced by the behavior of others is one effective means of eliciting certain forms of responses for which the original probability is very low or zero. Indeed, social imitation may hasten or short-cut the acquisition of new behaviors without the necessity of reinforcing successive approximations as suggested by Skinner (1953).

Thus subjects given an opportunity to observe aggressive models later reproduced a good deal of physical and verbal aggression (as well as nonaggressive responses) substantially identical with that of the model. In contrast, subjects who were exposed to nonaggressive models and those who had no previous exposure to any models only rarely performed such responses.

To the extent that observation of adult models displaying aggression communicates permissiveness for aggressive behavior, such exposure may serve to weaken inhibitory responses and thereby to increase the probability of aggressive reactions to subsequent frustrations. The fact, however, that subjects expressed their aggression in ways that clearly resembled the novel patterns exhibited by the models provides striking evidence for the occurrence of learning by imitation.

In the procedure employed by Miller and Dollard (1941) for establishing imitative behavior, adult or peer models performed discrimination responses following which they were consistently rewarded, and the subjects were similarly reinforced whenever they matched the leaders' choice responses. While these experiments have been widely accepted as demonstrations of learning by means of imitation, in fact, they simply involve a special case of discrimination learning in which the behavior of others serves as discriminative stimuli for responses that are already part of the subject's repertoire. Auditory or visual environmental cues could easily have been substituted for the social stimuli to facilitate the discrimination learning. In contrast, the process of imitation studied in the present experiment differed in several important respects from the one investigated by Miller and Dollard in that subjects learned to combine fractional responses into relatively complex novel patterns solely by observing the performance of social models without any opportunity to perform the models' behavior in the exposure setting, and without any reinforcers delivered either to the models or to the observers.

An adequate theory of the mechanisms underlying imitative learning is lacking. The explanations that have been offered (Logan, Olmsted, Rosner, Schwartz, & Stevens, 1955; Maccoby, 1959) assume that the imitator performs the model's responses covertly. If it can be assumed additionally that rewards and punishments are self-administered in conjunction with the covert responses, the process of imitative learning could be accounted for in terms of the same principles that govern instrumental trial-and-error learning. In the early stages of the developmental process, however, the range of component responses in the organism's repertoire is probably increased through a process of classical conditioning (Bandura & Huston, 1961; Mowrer, 1950).

The data provide some evidence that the male model influenced the subjects' behavior

outside the exposure setting to a greater extent than was true for the female model. In the analyses of the Sex × Model interactions, for example, only the comparisons involving the male model yielded significant differences. Similarly, subjects exposed to the nonaggressive male model performed less aggressive behavior than the controls, whereas comparisons involving the female model were consistently nonsignificant.

In a study of learning by imitation, Rosenblith (1959) has likewise found male experimenters more effective than females in influencing childrens' behavior. Rosenblith advanced the tentative explanation that the school setting may involve some social deprivation in respect to adult males which, in turn, enhances the male's reward value.

The trends in the data yielded by the present study suggest an alternative explanation. In the case of a highly masculine-typed behavior such as physical aggression, there is a tendency for both male and female subjects to imitate the male model to a greater degree than the female model. On the other hand, in the case of verbal aggression, which is less clearly sex linked, the greatest amount of imitation occurs in relation to the same-sex model. These trends together with the finding that boys in relation to girls are in general more imitative of physical aggression but do not differ in imitation of verbal aggression, suggest that subjects may be differentially affected by the sex of the model but that predictions must take into account the degree to which the behavior in question is sex-typed.

The preceding discussion has assumed that maleness-femaleness rather than some other personal characteristics of the particular models involved, is the significant variable—an assumption that cannot be tested directly with the data at hand. It was clearly evident, however, particularly from boys' spontaneous remarks about the display of aggression by the female model, that some subjects at least were responding in terms of a sex discrimination and their prior learning about what is sex appropriate behavior (e.g., "Who is that lady. That's not the way for a lady to behave. Ladies are supposed to act like ladies. . ." "You should have seen what that girl did in there. She was just acting like a man. I never saw a girl act like that before. She was punching and fighting but no swearing."). Aggression by the male model, on the other hand, was more likely to be seen as appropriate and approved by both the boys ("Al's a good socker, he beat up Bobo. I want to sock like Al.") and the girls ("That man is a strong fighter, he punched and punched and he could hit Bobo right down to the floor and if Bobo got up he said, 'Punch your nose.' He's a good fighter like Daddy.").

The finding that subjects exposed to the quiet models were more inhibited and unresponsive than subjects in the aggressive condition, together with the obtained difference on the aggression measures, suggests that exposure to inhibited models not only decreases the probability of occurrence of aggressive behavior but also generally restricts the range of behavior emitted by the subjects.

"Identification with aggressor" (Freud, 1946) or "defensive identification" (Mowrer, 1950), whereby a person presumably transforms himself from object to agent of aggression by adopting the attributes of an aggressive threatening model so as to allay anxiety, is widely accepted as an explanation of the imitative learning of aggression.

The development of aggressive modes of response by children of aggressively punitive adults, however, may simply reflect object displacement without involving any such mechanism of defensive identification. In studies of child training antecedents of aggressively antisocial adolescents (Bandura & Walters, 1959) and of young hyperaggressive boys (Bandura, 1960), the parents were found to be nonpermissive and punitive of aggression directed toward themselves. On the other hand, they actively encouraged and reinforced their sons' aggression toward persons outside the home. This pattern of differential reinforcement of aggressive behavior served to inhibit the boys' aggression toward the original instigators and fostered the displacement of aggression toward objects and situations eliciting much weaker inhibitory responses.

Moreover, the findings from an earlier study (Bandura & Huston, 1961), in which children imitated to an equal degree aggression exhibited by a nurturant and a nonnurturant model, together with the results

of the present experiment in which subjects readily imitated aggressive models who were more or less neutral figures suggest that mere observation of aggression, regardless of the quality of the model-subject relationship, is a sufficient condition for producing imitative aggression in children. A comparative study of the subjects' imitation of aggressive models who are feared, who are liked and esteemed, or who are essentially neutral figures would throw some light on whether or not a more parsimonious theory than the one involved in "identification with the aggressor" can explain the modeling process.

SUMMARY

Twenty-four preschool children were assigned to each of three conditions. One experimental group observed aggressive adult models; a second observed inhibited nonaggressive models; while subjects in a control group had no prior exposure to the models. Half the subjects in the experimental conditions observed same-sex models and half viewed models of the opposite sex. Subjects were then tested for the amount of imitative as well as nonimitative aggression performed in a new situation in the absence of the models.

Comparison of the subjects' behavior in the generalization situation revealed that subjects exposed to aggressive models reproduced a good deal of aggression resembling that of the models, and that their mean scores differed markedly from those of subjects in the nonaggressive and control groups. Subjects in the aggressive condition also exhibited significantly more partially imitative and nonimitative aggressive behavior and were generally less inhibited in their behavior than subjects in the nonaggressive condition.

Imitation was found to be differentially influenced by the sex of the model with boys showing more aggression than girls following exposure to the male model, the difference being particularly marked on highly masculine-typed behavior.

Subjects who observed the nonaggressive models, especially the subdued male model, were generally less aggressive than their controls.

The implications of the findings based on this experiment and related studies for the psychoanalytic theory of identification with the aggressor were discussed.

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