Imitation of Film-Mediated Aggressive Models

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Rising levels of crime and destructive aggression have been studied by psychologists for decades. One ongoing debate has focused on whether or not observation and imitation is a problem with regard to aggression that occurs in the media. Do children imitate the aggressive acts they observe in movies and on television? Through a series of studies, Albert Bandura and his colleagues have begun to answer this question.

Bandura (b 1925), a leading theorist in observational learning, received his Ph.D. from the University of Iowa in 1952. Shortly afterward, he began his academic career at Stanford University, where he has remained. He has written many books, including Aggression: A Social Learning Analysis (Prentice Hall, 1973) and Social Learning Theory (Prentice Hall, 1977). Dorothea Ross and Sheila A. Ross both earned a Ph.D. in developmental psychology from Stanford University. Ross and Ross specialized in children's health and cognitive development prior to their retirement.

This selection is from "Imitation of Film-Mediated Aggressive Models," which was published in Journal of Abnormal and Social Psychology in 1963. It details Bandura et al.'s classic study on aggression imitation in standard research article format. Note the care with which the procedure was carried out. An important point for understanding the statistical results is that a probability (p) level less than .05 is significant and indicates a real difference among experimental conditions. Bandura et al.'s findings go against most of the research reported prior to the study, which maintained that film-mediated aggression reduces aggressive drives through a cathartic process. The research reported in this selection suggests that filmed aggression can facilitate aggression in children. What are the implications of this study for aggression and violence in movies and on television today?

Key Concept: observation learning of aggression


A recent incident (San Francisco Chronicle, 1961) in which a boy was seriously knifed during a re-enactment of a switchblade knife fight the boys had seen the previous evening on a televised rerun of the James Dean movie, Rebel Without a Cause, is a dramatic illustration of the possible imitative influence of film stimulation. Indeed, anecdotal data suggest that portrayal of aggression through pictorial media may be more influential in shaping the form aggression will take when a person is instigated on later occasions, than in altering the level of instigation to aggression.

In an earlier experiment (Bandura & Huston, 1961), it was shown that children readily imitated aggressive behavior exhibited by a model in the presence of the model. A succeeding investigation (Bandura, Ross, & Ross, 1961), demonstrated that children exposed to aggressive models...
generalized aggressive responses to a new setting in which the model was absent. The present study sought to determine the extent to which film-mediated aggressive models may serve as an important source of imitative behavior.

Aggressive models can be ordered on a reality-fictional stimulus dimension with real-life models located at the reality end of the continuum, nonhuman cartoon characters at the fictional end, and films portraying human models occupying an intermediate position. It was predicted, on the basis of saliency and similarity of cues, that the more remote the model was from reality, the weaker would be the tendency for subjects to imitate the behavior of the model.

To the extent that observation of adults displaying aggression conveys a certain degree of permissiveness for aggressive behavior, it may be assumed that such exposure not only facilitates the learning of new aggressive responses but also weakens competing inhibitory responses in subjects and thereby increases the probability of occurrence of previously learned patterns of aggression. It was predicted, therefore, that subjects who observed aggressive models would display significantly more aggression when subsequently frustrated than subjects who were equally frustrated but who had no prior exposure to models exhibiting aggression.

**METHOD**

The subjects were 48 boys and 48 girls enrolled in the Stanford University Nursery School. They ranged in age from 35 to 69 months, with a mean age of 52 months.

Two adults, a male and a female, served in the role of models both in the real-life and the human film-aggression condition, and one female experimenter conducted the study for all 96 children.

**General Procedure**

Subjects were divided into three experimental groups and one control group of 24 subjects each. One group of experimental subjects observed real-life aggressive models, a second group observed these same models portraying aggression on film, while a third group viewed a film depicting an aggressive cartoon character. The experimental groups were further subdivided into male and female subjects so that half the subjects in the two conditions involving human models were exposed to same-sex models, while the remaining subjects viewed models of the opposite sex.

Following the exposure experience, subjects were tested for the amount of imitative and nonimitative aggression in a different experimental setting in the absence of the models.

The control group subjects had no exposure to the aggressive models and were tested in only in the generalization situation.

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 experimenter and a nursery school teacher rated the subjects on four five-point rating scales which measured the extent to which subjects displayed physical aggression, verbal aggression, aggression toward inanimate objects, and aggression inhibition. The latter scale, which dealt with the subjects’ tendency to inhibit aggressive reactions in the face of high instigation, provided the measure of aggression anxiety. Seventy-one percent of the 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 80.0.

**Experimental Conditions**

Subjects in the Real-Life Aggressive condition 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 subject was then seated at one corner of the room and seated at a small table which contained potato prints, multicolor picture stickers, and colored paper. After demonstrating how the subject could design pictures with the materials provided, the experimenter escorted the subject to the opposite corner of the room which contained a small table and chair, a tinker toy set, a malet, and a 5-foot inflated Bobo doll. The experimenter explained that this was the model’s play area and after the model was seated, the experimenter left the experimental room.

The model began the session 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 with highly novel responses which are unlikely to be performed by children independently of the observation of the model’s behavior. Thus, in addition to punching the Bobo doll, the model exhibited the following distinctive aggressive acts which were to be scored as imitative responses:

The model sat on the Bobo doll and punched it repeatedly in the nose.

The model then raised the Bobo doll and pummelled it on the head with a malet.

Following the malet 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...,,” and “Pow.”

Subjects in the Human Film-Aggression condition were brought by the experimenter to the semi-darkened experimental room, introduced to the picture materials, and informed that while the subjects worked on potato prints, a movie would be shown on a screen, positioned...
approximately 6 feet from the subject's table. The movie projector was located in a distant corner of the room and was screened from the subject's view by large wooden panels.

The color movie and a tape recording of the sound track were begun by a male projectionist as soon as the experimenter left the experimental room and was shown for a duration of 10 minutes. The models in the film presentations were the same adult males and females who participated in the Real-Life condition of the experiment. Similarly, the aggressive behavior they portrayed in the film was identical with their real-life performances.

For subjects in the Cartoon Film-Aggression condition, after seating the subject at the table with the picture construction material, the experimenter walked over to the television console approximately 3 feet in front of the subject's table, remarked, "I guess I'll turn on the color TV," and ostensibly tuned in a cartoon program. The experimenter then left the experimental room. The cartoon was shown on a glass lens screen in the television set by means of a rear projection arrangement screened from the subject's view by large panels....

In both film conditions, at the conclusion of the movie the experimenter entered the room and then escorted the subject to the test room.

Aggression Instigation

In order to differentiate clearly the exposure and test situations subjects were tested for the amount of imitative learning in a different experimental room which was set off from the main nursery school building.

The degree to which a child has learned aggressive patterns of behavior through imitation becomes most evident when the child is instigated to aggression on later occasions. Thus, for example, the effects of viewing the movie, Rebel Without a Cause, were not evident until the boys were instigated to aggression the following day, at which time they re-enacted the televised switchblade knife fight in considerable detail. For this reason, the children in the experiment, both those in the control group, and those who were exposed to the aggressive models, were mildly frustrated before they were brought to the test room.

Following the exposure experience, the experimenter brought the subject to an anteroom which contained a varied array of highly attractive toys. The experimenter explained that the toys were for the subject to play with, but, as soon as the subject became sufficiently involved with the play material, 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 some other children. However, the subject could play with any of the toys in the next room. The experimenter and the subject then entered the adjoining experimental room....

Test for Delayed Imitation

The experimental room contained a variety of toys, some of which could be used in imitative or nonimitative aggression, and others which 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....

The subject spent 20 minutes in the 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....

RESULTS

The mean imitative and nonimitative aggression scores for subjects in the various experimental and control groups are presented in Table 1.

Since the distributions of scores departed from normality and the assumption of homogeneity of variance could not be made for most of the measures, the Friedman two-way analysis of variance by ranks was employed for testing the significance of the obtained differences.

Total Aggression

The mean total aggression scores for subjects in the real-life, human film, cartoon film, and the control groups are 83, 92, 99, and 54 respectively. The results of the analysis of variance performed on these scores reveal that the main effect of treatment conditions is significant ($X^2 = p < .05$), confirming the prediction that exposure of subjects to aggressive models increases the probability that subjects will respond aggressively when instigated on later occasions. Further analyses of pairs of scores by means of the Wilcoxon matched-pairs signed-ranks test show that subjects who viewed the real-life models and the film-mediated models do not differ from each other in total aggressiveness but all three experimental groups expressed significantly more aggressive behavior than the control subjects....

Influence of Sex of Model and Sex of Child

In order to determine the influence of sex of model and sex of child on the expression of imitative and nonimitative aggression, the data from the experimental groups were combined and the significance of the differences between groups was assessed by $t$ tests for uncorrelated means. In statistical comparisons involving relatively skewed distributions of scores the Mann-Whitney $U$ test was employed.
### Table 1 Mean Aggression Scores for Subgroups of Experimental and Control Subjects

<table>
<thead>
<tr>
<th>Experimental groups</th>
<th>Real-life aggressive</th>
<th>Human film aggressive</th>
<th>Cartoon film aggressive</th>
<th>Control group</th>
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<tbody>
<tr>
<td></td>
<td>F Model</td>
<td>M Model</td>
<td>F Model</td>
<td>M Model</td>
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<tr>
<td>Total aggression</td>
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<td></td>
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<tr>
<td>Girls</td>
<td>65.8</td>
<td>57.3</td>
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<tr>
<td>Boys</td>
<td>76.8</td>
<td>131.8</td>
<td>114.5</td>
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<td>Imitative aggression</td>
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<tr>
<td>Girls</td>
<td>19.2</td>
<td>9.2</td>
<td>10.0</td>
<td>8.0</td>
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<tr>
<td>Boys</td>
<td>18.4</td>
<td>38.4</td>
<td>34.3</td>
<td>13.3</td>
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<tr>
<td>Mallet aggression</td>
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<tr>
<td>Girls</td>
<td>17.2</td>
<td>18.7</td>
<td>49.2</td>
<td>19.5</td>
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<tr>
<td>Boys</td>
<td>15.5</td>
<td>28.8</td>
<td>20.5</td>
<td>16.3</td>
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<tr>
<td>Sits on Bobo doll^a</td>
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<td></td>
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<tr>
<td>Girls</td>
<td>10.4</td>
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<td>4.5</td>
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<tr>
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<tr>
<td>Nonimitative aggression</td>
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<tr>
<td>Girls</td>
<td>27.6</td>
<td>24.9</td>
<td>24.0</td>
<td>34.3</td>
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<tr>
<td>Boys</td>
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<td>48.6</td>
<td>46.8</td>
<td>31.8</td>
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<tr>
<td>Aggressive gun play</td>
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<tr>
<td>Girls</td>
<td>1.8</td>
<td>4.5</td>
<td>3.8</td>
<td>17.6</td>
</tr>
<tr>
<td>Boys</td>
<td>7.3</td>
<td>15.9</td>
<td>12.8</td>
<td>23.7</td>
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</table>

^aThis response category was not included in the total aggression score.

Sex of subjects had a highly significant effect on both the learning and the performance of aggression. Boys, in relation to girls, exhibited significantly more total aggression ($t = 2.69$, $p < .01$), more imitative aggression ($t = 2.82$, $p < .005$), more aggressive gun play ($z = 3.38$, $p < .001$), and more nonimitative aggressive behavior ($t = 2.98$, $p < .005$). Girls, on the other hand, were more inclined than boys to sit on the Bobo doll but refrained from punching it ($z = 3.47$, $p < .001$).

The analyses also disclosed some influences of the sex of the model. Subjects exposed to the male model, as compared to the female model, expressed significantly more aggressive gun play ($z = 2.83$, $p < .005$). The most marked differences in aggressive gun play ($U = 9.5$, $p < .001$), however, were found between girls exposed to the female model ($M = 2.9$) and males who observed the male model ($M = 19.8$). Although the overall model difference in partially imitative behavior, Sits on Bobo, was not significant, Sex x Model subgroup comparisons yielded some interesting results. Boys who observed the aggressive female model, for example, were more likely to sit on the Bobo doll without punching it than boys who viewed the male model ($U = 33$, $p < .05$). Girls reproduced the nonaggressive component of the male model's aggressive pattern of behavior (i.e., sat on the doll without punching it) with considerably higher frequency than did boys who observed the same model ($U = 21.5$, $p < .02$). The highest incidence of partially imitative responses was yielded by the group of girls who viewed the aggressive female model ($M = 10.4$), and the lowest values by the boys who were exposed to the male model ($M = 0.3$). This difference was significant beyond the .05 significance level. These findings, along with the sex of child and sex of model differences reported in the preceding sections, provide further support for the view that the influence of models in promoting social learning is determined, in part, by the sex appropriateness of the model's behavior (Bandura et al., 1961)....

**DISCUSSION**

The results of the present study provide strong evidence that exposure to filmed aggression heightens aggressive reactions in children. Subjects who viewed the aggressive human and cartoon models on film exhibited nearly twice as much aggression than did subjects in the control group who were not exposed to the aggressive film content....

Filmed aggression, not only facilitated the expression of aggression, but also effectively shaped the form of the subjects' aggressive behavior. The finding that children modeled their behavior to some extent after the film characters suggests that pictorial mass media, particularly television, may serve as an important source of social behavior. In fact, a possible generalization of responses originally learned in the television situation to the experimental film may account
for the significantly greater amount of aggressive gun play displayed by subjects in the film condition as compared to subjects in the real-life and control groups. It is unfortunate that the qualitative features of the gun behavior were, not scored since subjects in the film condition, unlike those in the other two groups, developed interesting elaborations in gun play (for example, stalking the imaginary opponent, quick drawing, and rapid firing), characteristic of the Western gun fighter.

REFERENCES

