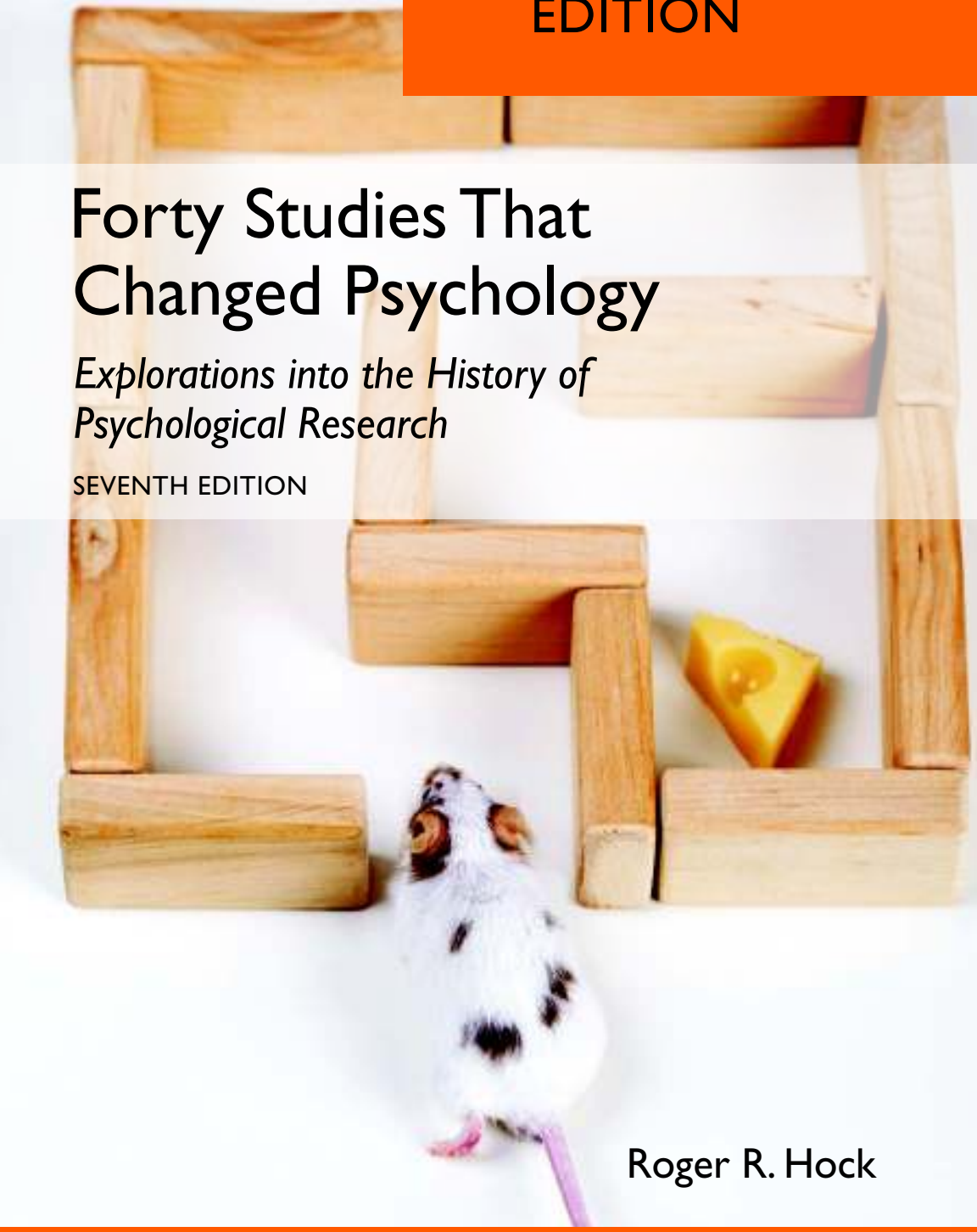
GLOBAL EDITION

Forty Studies That Changed Psychology

Explorations into the History of Psychological Research

SEVENTH EDITION



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ALWAYS LEARNING

PEARSON

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METHOD

This article outlined the methods used in the experiment with great organization and clarity. Although somewhat summarized and simplified here, these methodological steps were as follows.

Participants

The researchers enlisted the help of the director and head teacher of the Stanford University Nursery School in order to obtain participants for their study. A total of 36 boys and 36 girls, ranging in age from 3 years to almost 6 years, participated in the study. The average age of the children was 4 years, 4 months.

Experimental Conditions

The control group, consisting of 24 children, would not be exposed to any model. The remaining 48 children were first divided into two groups: one exposed to aggressive models and the other exposed to nonaggressive models. These groups were divided again into males and females. Each of these groups was further divided so that half of the children were exposed to same-sex models and half to opposite-sex models. This created a total of eight experimental groups and one control group. A question you might be asking yourself is this: What if the children in some of the groups are already more aggressive than others? Due to the small number of participants in each group, Bandura guarded against this potential problem by obtaining ratings of each child's level of aggressiveness. The children were rated by an experimenter and a teacher (both of whom knew the children well) on their levels of physical aggression, verbal aggression, and aggression toward objects. These ratings allowed the researchers to match all the groups in terms of average aggression level.

The Experimental Procedure

Each child was exposed individually to the various experimental procedures. First, the experimenter brought the child to the playroom. On the way, they encountered the adult model who was invited by the experimenter to come and *join in the game*. The child was seated in one corner of the playroom at a table containing highly interesting activities. There were potato prints (this was 1961, so for those of you who have grown up in our high-tech age, a potato print is a potato cut in half and carved so that, like a rubber stamp, it will reproduce geometric shapes when inked on a stamp pad) and stickers of brightly colored animals and flowers that could be pasted onto a poster. Next, the adult model was taken to a table in a different corner containing a Tinkertoy set, a mallet, and an inflated 5-foot-tall Bobo doll (one of those large, inflatable clowns that are weighted at the bottom so they pop back up when punched or kicked). The experimenter explained that these toys were for the model to play with and then left the room.

For both the aggressive and nonaggressive conditions, the model began assembling the tinker toys. However, in the aggressive condition, after a minute the model attacked the Bobo doll with violence. For all the children in

the aggressive condition, the sequence of aggressive acts performed by the model was identical:

> 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 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 non-aggressive comments, "He keeps coming back for more" and "He sure is a tough fella." (p. 576)

All this took about 10 minutes, after which the experimenter came back into the room, said good-bye to the model, and took the child to another game room.

In the nonaggressive condition, the model simply played quietly with the Tinkertoys for the 10-minute period and completely ignored the Bobo doll. Bandura and his collaborators were careful to ensure that all experimental factors were identical for all the groups except for the factors being studied: the aggressive versus nonaggressive model and the sex of the model.

Arousal of Anger or Frustration

Following the 10-minute play period, all children from the various conditions were taken to another room that contained very attractive toys, such as a fire engine; a jet fighter; and a complete doll set including wardrobe, doll carriage, and so on. The researchers believed that in order to test for aggressive responses, the children should be somewhat angered or frustrated, which would make such behaviors more likely to occur. To accomplish this, they allowed them to begin playing with the attractive toys, but after a short time told them that the toys in this room were reserved for other children. They also told the children, however, that they could play with some other toys in the next room.

Test for Imitation of Aggression

The final experimental room was filled with both aggressive and nonaggressive toys. Aggressive toys included a Bobo doll (of course), a mallet, two dart guns, and a tether ball with a face painted on it. The nonaggressive toys included a tea set, crayons and paper, a ball, two dolls, cars and trucks, and plastic farm animals. Each child was allowed to play in this room for 20 minutes. During this period, judges behind a one-way mirror rated the child's behavior on several measures of aggression.

Measures of Aggression

A total of eight different responses were measured in the children's behavior. In the interest of clarity, only the four most revealing measures are summarized here. First, all acts that imitated the physical aggression of the model were recorded. These included sitting on the Bobo doll, punching it in the nose, hitting it with the mallet, kicking it, and throwing it into the air.

Second, imitation of the models' verbal aggression was measured by counting the children's repetition of the phrases "Sock him," "Hit him down," "Pow," and so on. Third, other mallet aggression (e.g., hitting objects other than the doll with the mallet) were recorded. Fourth, nonimitative aggression was documented by tabulating all the children's acts of physical and verbal aggression that had not been performed by the adult model.

RESULTS

The findings from these observations are summarized in Table 12-1. If you examine the results carefully, you will discover that three of the four hypotheses presented by Bandura, Ross, and Ross were supported.

The children who were exposed to the violent models tended to imitate the exact violent behaviors they observed. On average were 38.2 instances of imitative physical aggression for each of the boys, as well as 12.7 for the girls who had been exposed to the aggressive models. In addition, the models' verbally aggressive behaviors were imitated an average of 17 times by the boys and 15.7 times by the girls. These specific acts of physical and verbal aggression were virtually never observed in the participants exposed to the nonaggressive models or in the control group that was not exposed to any model.

As you will recall, Bandura and his associates predicted that nonaggressive models would have a violence-inhibiting effect on the children. For this hypothesis to be supported, the results should show that the children in the

TABLE 12-1 Average Number of Aggressive Responses From Children in Various Treatment Conditions

	TYPE OF MODEL				
TYPE OF AGGRESSION	AGGRESSIVE MALE	NON-AGGRESSIVE MALE	AGGRESSIVE FEMALE	NON-AGGRESSIVE FEMALE	CONTROL GROUP
Imitative Physical Aggression					
Boys	25.8	1.5	12.4	0.2	1.2
Girls	7.2	0.0	5.5	2.5	2.0
Imitative Verbal Aggression					
Boys	12.7	0.0	4.3	1.1	1.7
Girls	2.0	0.0	13.7	0.3	0.7
Mallet Aggression					
Boys	28.8	6.7	15.5	18.7	13.5
Girls	18.7	0.5	17.2	0.5	13.1
Nonimitative Aggression					
Boys	36.7	22.3	16.2	26.1	24.6
Girls	8.4	1.4	21.3	7.2	6.1

(Based on data from p. 579.)

nonaggressive conditions averaged significantly fewer instances of violence than those in the no-model control group. In Table 12-1, if you compare the nonaggressive model columns with the control group averages, you will see that the findings were mixed. For example, boys and girls who observed the nonaggressive male exhibited far less nonimitative mallet aggression than controls, but boys who observed the nonaggressive female aggressed more with the mallet than did the boys in the control group. As the authors readily admit, these results were so inconsistent in relation to the aggression-inhibiting effect of nonaggressive models that they were inconclusive.

The predicted gender differences, however, were strongly supported by the data in Table 12-1. Clearly, boys' violent behavior was influenced more by the aggressive male model than by the aggressive female model. The average total number of aggressive behaviors by boys was 104 when they had observed a male aggressive model, compared with 48.4 when a female model had been observed. Girls, on the other hand, although their scores were less consistent, averaged 57.7 violent behaviors in the aggressive female model condition, compared with 36.3 when they observed the male model. The authors point out that in same-sex aggressive conditions, girls were more likely to imitate verbal aggression, while boys were more inclined to imitate physical violence.

Boys were significantly more physically aggressive than girls in nearly all the conditions. If all the instances of aggression in Table 12-1 are tallied, the boys committed 270 violent acts, compared with 128 committed by the girls.

DISCUSSION

Bandura, Ross, and Ross claimed that they had demonstrated how specific behaviors—in this case, violent ones—could be learned through the process of observation and imitation without any reinforcement provided to either the models or the observers. They concluded that children's observation of adults engaging in these behaviors sends a message to the child that this form of violence is permissible, thus weakening the child's inhibitions against aggression. The consequence of this observed violence, they contended, is an increased probability that a child will respond to future frustrations with aggressive behavior.

The researchers also addressed the issue of why the influence of the male aggressive model on the boys was so much stronger than the female aggressive model was on the girls. They explained that in our culture, as in most, aggression is seen as more typical of males than females. In other words, it is a masculine-typed behavior. So, a man's modeling of aggression carried with it the weight of social acceptability and was, therefore, more powerful in its ability to influence the observer.

SUBSEQUENT RESEARCH

At the time this experiment was conducted, the researchers probably had no idea how influential it would become. By the early 1960s, television had grown into a powerful force in U.S. culture and consumers were becoming concerned

about the effect of televised violence on children. This has been and continues to be hotly debated. In the past 30 years, no fewer than three congressional hearings have been held on the subject of television violence, and the work of Bandura and other psychologists has been included in these investigations.

These same three researchers conducted a follow-up study 2 years later that was intended to examine the power of aggressive models who are on film, or who are not even real people. Using a similar experimental method involving aggression toward a Bobo doll, Bandura, Ross, and Ross designed an experiment to compare the influence of a live adult model with the same model on film and to a cartoon version of the same aggressive modeling. The results demonstrated that the live adult model had a stronger influence than the filmed adult, who, in turn, was more influential than the cartoon. However, all three forms of aggressive models produced significantly more violent behaviors in the children than was observed in children exposed to nonaggressive models or controls (Bandura, Ross, & Ross, 1963).

On an optimistic note, Bandura found in a later study that the effect of modeled violence could be altered under certain conditions. You will recall that in his original study, no rewards were given for aggression to either the models or the children. But what do you suppose would happen if the model behaved violently and was then either reinforced or punished for the behavior while the child was observing? Bandura (1965) tested this idea and found that children imitated the violence more when they saw it rewarded but significantly less when the model was punished for aggressive behavior.

Critics of Bandura's research on aggression have pointed out that aggressing toward an inflated doll is not the same as attacking another person, and children know the difference. Building on the foundation laid by Bandura and his colleagues, other researchers have examined the effect of modeled violence on real aggression. In a study using Bandura's Bobo doll method (Hanratty, O'Neil, & Sulzer, 1972), children observed a violent adult model and were then exposed to high levels of frustration. When this occurred, they often aggressed against a live person (dressed like a clown), whether that person was the source of the frustration or not.

RECENT APPLICATIONS

Bandura's research discussed in this chapter made at least two fundamental contributions to psychology. First, it demonstrated dramatically how children can acquire new behaviors simply by observing adults, even when the adults are not physically present. Social learning theorists believe that many, if not most, of the behaviors that comprise human personality are formed through this modeling process. Second, this research formed the foundation for hundreds of studies over the past 45 years on the effects on children of viewing violence in person or in the media. (For a summary of Bandura's life and contributions to psychology, see Pajares, 2004). Less than a decade ago, the U.S. Congress held new hearings on media violence focusing on the potential negative effects of children's exposure to violence on TV, movies, video games,