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TV Violence on Behavior
in Rhesus Monkeys

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TV Violence on Behavior in Rhesus Monkeys

by

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Introduction

In the field of social sciences, one of the most interesting issues, and one that has great practical importance, is why man aggresses against one another. While theories abound as to its explanation, ranging from the instinct theory of Lorenz (1) to the frustration - aggression hypothesis of Dollard (2), a more recent approach that views aggression as being learned and instigated by the process of "modeling" is receiving increasing interest. This "social learning theory", as expounded by Bandura (3), holds that aggression can be learned by an individual simply observing a model performing the act. Moreover, an act does not have to be a "live" one, for violence on films can also affect aggressive behavior, at least with human subjects (4).

With the advent of TV, that media violence can be imitated has tremendous social implications. The extent to which this relationship holds has been widely investigated in the past two decades (for review see (3, 5)). However, the vast majority of these studies involved the use of human Ss, with obvious implications on how "natural" these studies could be conducted without resulting in injuries to the participants. Ethical limitations therefore pose a severe problem to the validity of all such studies, and attempts to circumvent them were only partially successful (6).

The standard approach in psychology in a situation like this is of course to employ animal Ss. Although it is hardly a problem

at all finding animals that display aggression, and some sub-primates have even been shown to imitate aggression (7), whether animals can be used as tools to study media influence on aggression is an open question. However, if any sub-human species respond to media violence at all, the primates would be the most likely candidates. In addition their close relationship to the human species it will also be much easier to generalize any such findings to our behavior. But surprisingly, studies on media influence on the behavior of sub-human primates have been few. I have reported on a preliminary study which suggested that TV violence increased the "aggressive" behavior of a rhesus monkey towards a rubber doll (8). More recently, it has been reported that Sarah, an African Chimpanzee, could comprehend TV playbacks of demonstrations of problem solving (9).

The purpose of this study is to replicate and improve upon my previous study on the effect of TV violence on the behavior of rhesus monkeys.

The aim of the previous study was to develop a working technique. This was accomplished with reasonable success. However, the study needs replication for the following reasons:

- 1) Only a single subject, a male rhesus monkey, was used, although single-subject research can be useful and even honorable (10). But there are severe limitations on any generalization from the findings. Moreover, in this case, there are additional related

problems (see below).

- 2) The subject was reared in isolation in a small cage. Both these factors are known to cause nervousness, aggression and abnormal behaviors in monkeys (11). In this case, the subject seemed to exhibit extreme swings in his mood, sometimes withdrawn and quiet, other times very aggressive and active. Other signs of abnormality included pacing the cage, and auto-aggression. These conditions are therefore unacceptable, not only because they contribute to noise in the data, but also on humanitarian grounds.
- 3) All trials in each condition (watching violent or nonviolent TV) were performed in one block. It was possible that given the monkey's ups and downs in moods which might last for days, the violent TV condition coincided with an aggressive mood, while the nonviolent TV condition, with a passive mood. This coincidence could give rise to the results obtained. Moreover, in a block of 10 consecutive sessions in which violent TV was presented, the effect could be cumulative. It would be interesting to find out if the data would look different if the conditions alternated, each lasting for a couple of days.

For these reasons the present study was performed. A female rhesus monkey was used as subject, but she was housed together with a male of about the same age and in a much larger cage. Using basically the same technique as in the previous

study, this study replicated the finding that the duration of interacting with a rubber doll was significantly longer after watching violent TV than nonviolent TV ($p < .05$).

Method

Subject. The S is a female rhesus monkey about 2 years old, supplied by a local animal dealer. She was acquired together with a male rhesus monkey of about the same age in March, 1979.

Rearing Condition. The monkeys were housed in a wire cage 6' x 6' x 7' and had been living there for about a month when the experiment began. The cage was placed outdoor but at a location where they could seldom see or be disturbed by people other than their caretakers (myself and technician). They were fed once daily with fruit, vegetables and cookies.

The Dependent Variable. In the previous study the dependent variable was the duration of aggressive acts (kicking, biting, pulling hands and feet) exhibited by the S towards the doll within a 5-minute period. One problem with this index is that it is often very difficult to distinguish an "aggressive" act from "nonaggressive" ones. Since the monkeys' interaction with the rubber doll consisted mainly of acts that could be labelled as aggression, defined as behavior that would result in injury (if the doll were a live animal), in this study the behavioral measure chosen as dependent variable was changed to the duration within a 5-minute period for which the S interacted with the doll. This measure would bypass

the subjective judgment involved in classifying acts as aggressive or otherwise, but at the expense of lowering the sensitivity of the test.

Procedure. The experimental procedure was similar to that in the previous study. Briefly, a session was conducted between 10 and 11 in the morning, after the monkeys were fed. A session began with presenting to the monkeys a recorded TV program on a 19" color TV placed about 5 feet from the side of the cage. The actual viewing time by the female monkey was measured with a stop clock, and the TV turned off when five minutes' actual viewing time was completed (in all sessions, this was completed within 20 minutes after the TV was turned on). A foot-long baby rubber doll was then dangled by hand outside the cage where it was separated from the monkeys by a wire mesh with 3 inch-square holes. The duration within a 5-minute period for which the S interacted with the doll (biting, pulling hands and feet) was recorded with a stop clock. The baby was then withdrawn and placed out of sight of the monkeys until the next session.

In a session, only one of two edited TV programs was presented. One version, presented in sessions belonging to the violent or "V" condition, features continuous fightings from Kung Fu programmes. The other, the nonviolent or "NV" version, was an adventure story - diving for treasures in Manila Bay.

Only one session was conducted each day. There were eight "V"

and eight "NV" sessions in the following sequence: V-V-NV-NV-NV-NV-V-V-NV-NV-NV-V-V-V-V-NV.

All sessions were conducted by myself since the monkeys often got excited by the presence of other people, including the other caretaker.

In contrast to the previous study, no reinforcement was needed to get the present S to watch TV. However, the S's companion, the male monkey, paid very little attention to the TV, which caused no problem at all.

Results

The durations within a 5-minute period for which the S interacted with the doll after viewing violent and nonviolent TV are listed below:

Date (July, 1979)	Duration (seconds)	
	"V" session	"NV" session
10	270	
11	300	
12		45
13		135
14		170
16		0
17	160	
18	123	
19		173
20		110
21		20
23	85	
24	142	
25	170	
26	300	
27		221
Mean/S.D.	193/84.2	109/80.1

Thus, after viewing violent TV the S interacted with the doll longer than after viewing non-violent TV. The difference is only marginally significant ($p < .05$, 1-tail).

Discussion

The present and previous studies therefore indicate that

- 1) Rhesus monkeys do, with or without reinforcement, watch television.
- 2) Watching violence on television can influence the subsequent behavior of these monkeys, as measured by the duration of their interaction with human-like dolls.

The technique developed in these experiments can therefore provide a useful animal model for the study of the influence of media like TV and films on behavior, in particular TV violence and aggressive behavior. Some of the implications and questions arising from these studies will be discussed in greater detail below:

Can Sub-human primates "comprehend" TV? This is more than an interesting academic question. With the rapidly increasing popularity of TV, the extent to which it affects the behavior of billions of human beings, for good or bad, is a serious and very important issue. However, psychological investigations on these questions using human subjects face severe ethical and methodological limitations. An animal model would therefore provide a very useful tool to study the problem. But the question arises as to what impact, if any, watching television has on animals. It is not

enough just getting an animal to watch TV. One can easily get a grasshopper orient towards a TV screen and "watch" it simply by keeping the rest of the room dark. But it means nothing more than another example of phototaxis. To be meaningful, watching television has to change an animal's subsequent behavior in a way related to the events or acts presented on the screen. This requires some form of intelligence or cognitive capabilities on the part of the observer. Can subhuman primates do that? A recent study by Premack et al (9) seems to give the answer "yes".

Sarah, the Chimpanzee that communicates in sign language, watched on TV how a human actor solved some problems (like opening a lock). She was then subsequently presented with and were able to identify photographs representing solutions to the problems. It requires a relatively high degree of mental ability to grasp a series of acts as purposeful problem-solving behavior. It is highly probable therefore, that our rhesus monkeys did comprehend, and actually responded to the aggressive acts displayed on the TV screen. After all, animals less intelligent than rhesus monkeys have been reported to be capable of imitation (7), and the acts imitated in this study are only too familiar to the primate world - the acts of aggression.

Measuring Aggression. The question whether aggression was really measured in the majority of laboratory studies on the issue remains a most difficulty one. It is also of utmost importance for it

concerns the validity of their findings. In human studies measures of aggression have included aggression towards objects (hitting dolls, popping balloons), aggressive play, and delivering sham electric shocks. But aggression defined as acts resulting in injuries to the victim cannot ethically be designed as part of an experiment. The use of animals can partially circumvent the problem. However, ethical standards on the use of animals for laboratory studies do exist, although more relaxed than those on humans. There are still restrictions on experimental designs that may possibly result in serious injuries to animal Ss, especially the protected and endangered species, which include most primates. The behavioral index of aggression used in this study - that of interacting with a rubber ball, causes hardly any ethical problem, but is also scarcely an improvement in validity over measures used in past human studies. However, intraspecies aggression can be studied by measuring naturally occurring but genuine fights between individuals housed in the same cage. For example, the two monkeys reared in our cage do very often fight over food and toys. It would be interesting to observe how the frequency of these fights are affected by viewing TV violence, and this will be the subject of the next experiment in this laboratory.

Conclusions

A technique has been developed that provides a promising animal model for investigating the effects of media violence on aggressive

behavior. Using animal Ss can partially overcome the difficult and important problem of validity of past human studies because of ethical restrictions. In addition, animal subjects offer the following advantages:

- 1) Events that affect behavior outside the laboratory, which cannot be controlled with human Ss, can be reduced or eliminated.
- 2) Longitudinal studies are much easier with captive animals than humans.
- 3) Genetic factors can be manipulated and studied.
- 4) Physiological manipulations, like altering hormonal and neurotransmitter levels, lesioning and stimulating parts of the brain, and administering drugs can be made to study their effects on aggressive behavior, and to delineate its underlying physiological mechanisms.

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