THE UNIVERSITY OF MANITOBA

TELEVISION VIOLENCE AND GENERAL DISINHIBITORY EFFECTS ON CHILDREN'S AGGRESSION: THREE NONCONFIRMATIONS

by

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ABSTRACT

In spite of what appears to be a general consensus in the scientific literature that violent television has a general disinhibitory effect on children's aggression, an extensive literature search failed to uncover a single relevant unflawed experiment to produce evidence of such an effect.

Accordingly, a field experiment using 90 children from city playgrounds was designed to examine the effects of frustration and three types of television (nonviolent sports, violent sports, and violent nonsports) on one measure of aggression, the number of hits boys and girls would recommend as punishment of another child for a playground crime. Only the subjects' sex significantly affected the amount of punishment recommended.

A second experiment, employing 96 children, was conducted. This time, all children were frustrated, blocking was done on age and socioeconomic status (SES) as well as sex, and the length of exposure was increased from 5 to 20 minutes. A no-television control group was also added. The dependent measure was the number of wet sponges thrown at a child confederate, as opposed to an inanimate alternative target. Only the sex by television condition interaction was significant, and it was no longer significant when results were analyzed in terms of the proportion of total sponges thrown at the confederate. In a second part of Experiment II, 56 children played with either toy guns or cars

prior to being placed in the dependent measure situation. Both the sex effect and the sex by toy interaction were significant.

Experiment III (N = 105) was essentially a replication of Experiment II, but this time it was the confederate who frustrated the subjects. There were no significant main effects or interactions for either the television or toy conditions of Experiment III. The results of this series of research were discussed in terms of past and future research into disinhibitory effects of televised violence on children's aggression.

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INTRODUCTION

As Liebert, Neale, and Davidson (1973) have noted, social scientists tend to agree that television is an often violent medium (Gerbner, 1972) and that children watch a great deal of television (Lyle & Hoffman, 1972). They thus would agree that violent television has considerable potential for influencing children's aggressiveness. The debate has been over what this influence might be, and lately it has been a rather contentious debate.

Theoretical Considerations

Several theoretical approaches lead to different predictions about television's potential effects in this regard. Both Dollard, Doob, Miller, Mowrer, and Sears (1939) and Lorenz (1966) have argued (from different bases, to be sure) that humans can have aggressive drives, which Feshbach has suggested can be reduced by fantasy as well as by physical aggression (Feshbach, 1964; Feshbach & Singer, 1971). It is not clear, however, that physical and verbal aggression themselves will reduce subsequent aggression (see for example Doob, 1970; Geen, Stonner & Shope, 1975; Hokanson, 1970; Konecni, 1975; Manning & Taylor, 1975), and the little evidence available suggests that fantasized aggression does not have the same effects that overt aggression has on physiological arousal (Hokanson & Burgess, 1962). Several reviewers (Bryan & Schwartz, 1971; Cater & Strickland, 1975; Goranson, 1970; Krebs, 1973; Weiss, 1969) have recently

argued that the "catharsis hypothesis", as it pertains to television violence, is almost entirely without support.

Berkowitz has provided a second theoretical approach to the matter, arguing that violent television will most likely increase children's aggression because it repeatedly associates violence with various stimuli that may be present in the child's environment (Berkowitz, 1965, 1969, 1973). These stimuli might be especially likely to trigger violence, it is argued, when the child is frustrated or otherwise aroused. On the other hand, Berkowitz has argued that cues associated with unjustified or extreme violence can reduce children's aggressiveness because they are associated with anxiety about aggression. The evidence which bears on these two predictions is not altogether supportive, however. The experimental paradigm used to demonstrate the "cue effect" has been sharply criticized by Page and Scheidt (1971), and Meyer (1972) found that witnessing unjustified violence did not inhibit subsequent aggression.

A third approach, pioneered by Bandura and his co-workers (Bandura, Ross,& Ross, 1963a, 1963b) has become quite prominent in recent years. It holds that media violence can affect children's aggressiveness in two ways: a) by adding novel aggressive responses to the child's repertoire through imitation of specific behaviors, or b) by disinhibiting or inhibiting previously learned aggressive responses. The latter possibility, the reader will note, allows for either an increase or a decrease in aggressive behavior. The direction of the effect will be determined, according to Bandura (1973), by the consequences which befall the aggressive model.

But the frequency with which "good guys" save the day on television by out-aggressing the bad guys (e.g. Larsen, Gray & Fortas, 1968; Gerbner, 1972) has led Bandura (1973) and others (Larsen et al., 1968); Liebert et al., 1973; Wertham, 1974) to argue that television violence has, on balance, a general disinhibitory effect on children's aggressiveness ... assuming Bandura is right.

General Disinhibition vs. Specific Imitative Effects

It is important to distinguish specific imitative from general disinhibitory effects. There is not much doubt that children can learn specific aggressive acts from television, which they will sometimes then perform. This is hardly to be condoned, but the question as to what to do about it is complex, for there are a great host of things shown on TV which can result in injury if children attempt them. One can imagine that if the lionization of daredevil stuntmen would end, some children would cease to injure themselves leaping trash cans on their bicycles. But should we cease to televise the Olympics, if it turns out that some children hurt themselves or others "pole vaulting", "shot putting", diving into pools, bobsledding, etc.? Should we restrict cooking shows because some children occasionally set the house afire imitating a TV chef? What about slapstick comedy, adventure shows, and the six o'clock news?

As Liebert et al. (1973) have noted, there is widespread concern over TV violence not because of the (relatively infrequent) tragedies which seem traceable to a specific show, but because it is possible that the enormous carnage shown daily on television causes children in general to be more aggressive against many

potential targets in a large number of situations. The apparent instrumental value of aggression, as depicted on TV, can conceivably lead to its being less inhibited in a million schoolyards, back yards, and back alleys across the land. The question of this hypothesized general disinhibitory effect is the most important and hotly contested issue in the debate over TV violence.

The U.S. Surgeon General's Report

In March of 1971 the U.S. Surgeon General concluded that televised aggression does have a general disinhibitory effect (Steinfeld, 1972). (See Morgenstern, 1972, and "Violence Revisited", 1972 for an account of the controversy surrounding the different conclusion reached by the Scientific Advisory Committee to the Surgeon General). The studies included in the 1972 report added to a literature which has been growing since 1956. Table 1 lists the 36 research papers the author could find in the scientific journals which investigated the effects of media violence on children's aggression. Any study which used children or adolescents as subjects, used filmed stimuli, purported to be measuring aggression, and included at least one group which saw violent television and one that did not is included in that table.

Twenty-nine of the 36 papers listed in Table 1 are relevant to the question of general disinhibition. Of these, 8 reported a positive effect, 13 reported mixed effects, 6 reported finding no effect, and 2 a negative effect. Since the majority of the studies found at least some positive effect, one might be inclined to conclude that the Surgeon

Table 1

A Summary Critique of the literature on Violent Television and Children's Aggression

Study	Studied general disinhibition?	"Aggression" = intent to do interpersonal harm?[a]	Violence unconfounded with excitement?[b]	Real-life viewing conditions and context?	Stimulus material similar to real TV programs?	Normal sample?[c]	Methodological problems?[d]	Reported effects of viewing media violence on aggression:[e]
* Siegel (1956)	Yes	Yes & No	No	Yes	Yes	Presumably	s-g	No effect
Himmelweit, Oppenheim & Vince (1958)	Yes	No	No	Yes	Yes	Yes	Unknown rel.; corr./ n.c.i.	No effect
Lovaas (1961)	Yes	No	Presumably	No	Yes	Yes	No alt. beh.; obs. not bl.; s-g	Mixed effects
Mussen & Rutherford (1961)	Yes	No	Presumably	No	Yes	Yes	s-g	Positive effect
Schramm, Lyle & Parker (1961)	Yes	No	No	Yes	Yes	Yes	Unknown rel.; corr./ n.c.i.	Mixed effects
Bandura, Ross & Ross (1963a)	Yes	No	No	Yes	No	Yes	s-g	Positive effect
Bandura, Ross & Ross (1963b)	Yes	No	Yes	Yes	No	Yes	s-g	No effect on disinhibition
* Eron, 1963	Yes	Yes & No	Yes & No	Yes	Yes	Yes	corr./ n.c.i.	Mixed effects
Kuhn, Madsen & Becker (1967)	Yes	No	No	No	No	Presumably	s-g	Positive effect
Walters & Willows (1968)	No	No	No	No	No	No	low rel.; s-g	Positive effect
Hanratty, Liebert, Morris & Fernandez (1969)	Yes	Yes & No	No	No	No	Yes	s-g	No effect on disinhibition
Hartman (1969)	Yes	Yes	Yes	No	Yes	No	s-g	Positive effect

Kniveton & Stephenson (1970)	No	No	No	No	No	Yes	Grps. init. diff.	Positive effect
* Cameron & Janky (1971)	Yes	Yes & No	No	Yes	Yes	Yes	Obs. not bl.; unkn. rel.	Positive effect
Feshbach & Singer (1971)	Yes	Yes & No	No	Yes	Yes	No	Obs. not bl.; grps. init. diff.	Negative or no effect
*Hapkiewicz & Roden (1971)	Yes	Yes	Presumably	Yes	Yes	Yes	s-g	No effect
Savitsky, Rogers, Izard & Liebert (1971)	No	Yes & No	No	No	No	Presumably	s-g	Positive effect
*Steuer, Applefield & Smith (1971)	Yes	Yes	Insufficient information	Yes	Yes	Yes	Nonind. obs.	Mixed effects
Dominick & Greenberg (1972)	Yes	No	Insufficient information	Yes	Yes	Yes	Low or unkn. rel; corr./ n.c.i.	Mixed effects
*Ellis & Sekyra (1972)	Yes	Yes & No	No	Yes	Yes	Yes	Nonind. obs.	Positive effect
*Eron, Huesmann, Lefkowitz & Walder (1972)	Yes	Yes & No	Yes & No	Yes	Yes	Yes	Biased attrition; unkn. rel. and validity for older subjects	Mixed effects
Feshbach (1972)	Yes	Yes	Yes	No	Yes	Yes	s-g	Mixed effects
* Friedman & Johnson (1972)	Yes	Yes & No	No	Yes	Yes	Yes	Corr./n.c.i.; s-g; unkn. rel.	No effect
Hanratty, O'Neal & Sulzer (1972)	No	Yes & No	No	No	No	Yes	s-g	Mixed effects
Kniveton & Stephenson (1972)	No	No	No	No	No	Yes	s-g	Mixed effects
Leifer & Roberts (1972)	Yes	No	No	No	Yes	Yes	Questionable validity	Mixed effects
Liebert & Baron (1972)	Yes	Yes	Yes	No	Yes	Yes		Mixed effects
*McIntyre & Teevan (1972)	Yes	Yes & No	Yes & No	Yes	Yes	Yes	Corr./n.c.i.; questionable validity	Mixed effects

Study	Studied general disinhibition?	"Aggression" = intent to do interpersonal harm?[a]	Violence unconfounded with excitement?[b]	Real-life viewing conditions and context?	Stimulus material similar to real TV programs?	Normal sample?[c]	Methodological problems?[d]	Reported effects of viewing media violence on aggression:[e]
*McLeod, Atkin & Chaffee (1972)	Yes	Yes & No	No	Yes	Yes	Yes		Positive effect
*Stein & Friedrich (1972)	Yes	Yes	No	Yes	Yes	Yes	Low rel.	Mixed effects
Thomas (1972)	Yes	Yes	No	No	Presumably	Yes	s-g	Negative or no effect
Kniveton (1973)	No	No	No	No	No	Yes		Positive effect
Talkington & Altman (1973)	No	No	No	No	No	No		Positive effect
Wotring & Greenberg (1973)	Yes	No	Yes	No	Yes	Yes	S-g; questionable validity	Mixed effects
*Hapkiewicz & Stone, (1974)	Yes	Yes	No	Yes	Yes	Yes	s-g	Mixed effects
Leyens, Camino, Parke & Berkowitz (1975)	Yes	Yes & No	Yes	Yes	Yes	No	Nonind. obs.	Positive effect

Footnotes:

a - "Yes and No" means that the measure of "aggression" included behaviors intended to do interpersonal harm, but also others, in a summed score. It is unknown then to what extent the aggression score reflects the intent to do interpersonal harm.

b - "Presumably" means that information in the publication suggests that the film stimuli used were not too different in excitement level (e.g. two cartoons with titles both suggesting action).

c - By a "normal" sample is meant one that is not obviously abnormal (e.g. juvenille delinquents, emotionally disturbed children). "Presumably" normal samples are those only vaguely described in the publication.

d -

d - "Methodological problems" are keyed as follows:

"s-g" - it seems quite possible that "sheep" (subjects yet to be run in the study, in a classroom for example) could have been "contaminated" by the behavior of "goats" (subjects already run in the experiment), and the article did not describe any steps taken to prevent this from happening.

"corr./n.c.i." - the study was correlational in nature, and no causal inferences are possible. Correlational studies which used cross-lagged or other statistical techniques to estimate the direction of causation are not labelled "corr./n.c.i."

"no alt. beh." - no alternative, nonaggressive behavior was available to the subjects.

"obs. not bl." - observers who rated the subjects' aggressiveness were not kept blind regarding the subjects' experimental condition.

"low or unkn. rel." - the reliability of the scale measuring aggression, or of the raters who were scoring aggressive behavior, was either very low (less than .80) or was not even reported.

"questionable validity" - the validity of the scale used to measure aggression is highly questionable.

"nonind. obs." - the observations of subjects' aggressiveness were not independent; subjects in a treatment group were scored while interacting with one another.

"gps. init. diff." - the treatment and control groups were initially different in their respective levels of aggressiveness.

e - "Mixed effects" means that the results of the study varied from one dependent measure to another (e.g. a positive effect on one measure, no effect on another) or from one subsample to another (e.g. a positive effect for boys, none for girls). The "effects" being described are general disinhibitory effects (see text).

General's statement is reasonably well (if not unanimously) supported by what Cline (1974, p. 179) calls "the overwhelming consensus of the research".[1]

Criticisms of the Scientific Literature

Before drawing this conclusion however, one would be well advised to consider several criticisms which can be directed at this literature.

1. Dependent variables. First, the measure of "aggression" used in many of these studies lacked social significance as the "victim" was non-human and, in some cases, was a toy whose only purpose is to be hit (Bryon & Schwarz, 1971; Klapper, 1968; Kniveton & Stephenson, 1970; Singer, 1971; Weiss, 1969; Wilson, 1974). The major reason for concern over the effects of TV violence has been that it might lead children to hurt other humans, especially other children. If aggression is defined as behavior intended to cause interpersonal harm (Klapper, 1968), then a number of the studies in the literature have little to say on this point (See Table 1).

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1 Surprisingly, only 10 of the 55 papers in the Surgeon General's Report were found to bear directly on this issue. Much of the report dealt with media content, population use of media, effects of advertising on children and other such matters. Studies of related effects such as Cline, Croft, & Courier's (1973) investigation of physiological desensitization to filmed violence, Drabman & Thomas's (1974) study on tolerance toward aggressiveness in others, and a study on perception of violence (Rabinovitch, 1971) were also left out of Table 1.

2. Failure to control for excitement per se. Violent TV shows are but one kind of television programming intended to be exciting. It is quite possible that effects attributed to TV violence might instead be at least partly, and possibly entirely, attributable to the arousal which follows exciting stimulation, be it violent or non-violent. There are very few studies which controlled for this possibility by studying the effects of non-violent but exciting material.[2]

3. Environmental context of the studies. A number of the studies in the literature can be faulted because they were conducted in settings so unique and foreign to the children involved that the effects found may have little applicability to the real world (Howitt & Dembo, 1974; Klapper, 1968; Kniveton, 1974; Kniveton & Stephenson, 1970; Roberts, 1973; Singer, 1971). An experiment by Grusec (1972) suggests that imitative behavior may just be a response to the informative aspects of a model's behavior about what actions are appropriate in a strange situation. Kniveton & Stephenson (1970) found, furthermore, that the usual high level of post-film imitation

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[2] As in the case of specific imitative effects, this is not an argument that TV violence is harmless or should be condoned, but rather that the harmful effects of television may be more widespread than supposed. They may also be practically impossible to control without major revisions of our lifestyles. If it turns out that exciting programs, be they violent, or non-violent, have general disinhibitory effects upon children's aggressiveness, should only non-exciting programming be allowed on television?

was drastically reduced when the physical setting was no longer novel to the subjects -- even when their prior experience in the situation consisted only of a 20-minute play period.

4. Stimulus material used. Many of the studies listed in Table 1 used as stimulus materials brief (and specially prepared) presentations of simple acts performed in a social vacuum (Klapper, 1968; Noble, 1970; Roberts, 1973; Singer, 1971). Such studies have questionable relevance to the issue of television's actual effects, of course; moreover it can always be countered that such investigations merely demonstrate that psychologists can develop harmful materials, not that actual television programming is dangerous. Studies which use real television programs are obviously more convincing and relevant to the issue.

5. Populations sampled. As can be seen in Table 1, the samples used in a number of the studies deviated considerably from the general population. Findings obtained with juvenile delinquents, the mentally retarded, the emotionally disturbed, etc., are obviously of questionable generalizability.

6. Methodological problems. Finally there are a number of methodological and procedural hesitations about the studies in the literature: (a) the "sheep and goats" problem: it often seems that no steps were taken to insure that subjects who had already served in the experiment were isolated from those yet to be run; (b) the "forced aggression" problem: sometimes the subjects had no alternative but to act aggressively in the dependent variable setting. Such forced

aggression might never have occured in a natural setting where non-aggressive behavior is possible; (c) aware and unreliable observers: persons who scored the aggressiveness of subjects in the dependent variable setting sometimes apparently were not kept blind as to which experimental treatment the subject had received; also, inter-judge reliability in some studies was quite low (i.e. less than .80), or not even reported; (d) interactional confounding: in some studies the aggression scores were obtained from subjects who were induced to interact extensively with one another. The children's scores were analyzed on an individual basis when in fact the behavior of individuals was not, of course, independent; (e) correlation vs. causation: some studies employed simple correlation designs which do not permit causal inferences.

These complaints, some of which have been termed "quibbling" and "nitpicking" (Cline, 1974; Liebert et al., 1973) cut both ways when one re-examines the evidence in Table 1. But if one requires relevant and methodologically sound evidence before making up one's mind on the issue, the truth is there is precious little to be had. Only 12 of the studies in Table 1 (those preceded by an asterisk) are really very relevant to the issue at hand (i.e. they studied the general disinhibitory effects of at least roughly representative TV violence on interpersonal aggression in a "real-life" setting among normal subjects). Nearly all of these suffer from at least one of the above methodological failings, and very few of them controlled for the effects of excitement per se. If one is

willing to consider them anyway, despite these obvious shortcomings, then the 12 "relevant but flawed" studies present a rather confusing picture. One quarter of them found positive evidence for a general disinhibitory effect; half of them found mixed evidence for such an effect (e.g. a positive effect for boys, none for girls, or a positive effect on one measure, none on another); and one quarter of them found no evidence of a general disinhibitory effect. Clearly one cannot reach any sort of simple conclusion on the basis of these results.

The "New York State" Study

Special attention should be given, however, to the impressive study conducted by Eron and his associates in upstate New York during the period from 1960 to 1970. Using the cross-lagged panel correlation technique which allows the researcher to determine causal priority among correlated variables, Eron, Huesmann, Lefkowitz, & Walder (1972) reported evidence that aggressiveness in "Grade 13" males was attributable to some extent to the amount of violent television they had watched in Grade 3.

The study has been criticized from several points of view (Cisin et al., 1972; Howitt & Dembo, 1974; but see also, Kenny, 1972; Neale, 1972) notably on grounds of differential subject loss and the retrospective nature of the aggression ratings obtained in 1970. It should also be noted that this study, like so many others, confounded the effects of excitement per se in its measure of violent TV viewing habits. Nevertheless, the study was truly monumental in its scope,

and is probably the best investigation ever conducted on the topic.

We would point out, however, that the correlation between TV viewing habits and subsequent aggressiveness was rather small (.31), and the "same-time" correlations between TV viewing habits and current aggressiveness were even smaller (.21 for Grade 3 and -.05 for Grade 13 males). Eron et al., it should be noted, observe that the size of these correlations was limited by the skewed distributions of the variables.[3] In this context the only other "unflawed" relevant study in Table 1, by McLeod, Atkins, & Chaffee (1972a, 1972b) also found weak positive correlations (about .30 or less) between

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[3] The correlation between violent TV viewing preferences in Grade 3 and aggressiveness in Grade 13 females was reported by Eron et al.,(1972) to be - .13 and is usually described as being "nonsignificant". But the matter is actually somewhat ambiguous. Eron et al., used a .01 level of significance for testing each correlation in their large battery of measurements. This is normally highly commendable, but in the case of their main variable, one might wonder about the higher chance of a Type II error. The critical value of a two-tailed test of significance of a product - moment correlation at the .05 level with 214 degrees of freedom is $\pm$.134. The significance of the long-range effect for females could be argued to depend on the values in the second and third places of the correlation coefficient, which is getting a little fine --- especially if the distribution of the variables was highly skewed. Those who have concluded that Eron et al. found no significant effect for females, should realize how thin the line is which separates them from a significant (but of course small) cathartic effect for these subjects. It should also be noted that for violent sports programs, there was a small but significant positive effect (r = .33) for females and none for males (Lefkowitz, Walter, Eron, & Huesmann, 1973, in a further report on the same data).

watching violent programs and self-reports of aggression in hypothetical situations. If one were to conclude then, on the basis of the evidence in hand, that TV violence seems to have a general disinhibitory effect (on boys at least), one would also have to add that there is at present no evidence which indicates this effect is a very important or powerful one.

ADDITIONAL RESEARCH: EXPERIMENT I[4]

It must be admitted that the author did not take such an ambivalent view of the literature on TV violence when the initial investigation of the area began. Rather it was expected (largely because of the New York State Study) that exposure to violent television programming would produce a measurable disinhibitory effect. The issue that was accordingly pursued was whether aggressive sports programming, notably football games, would have the same effect that violent non-sports programs allegedly had.

Method

Subjects

The City of Winnipeg conducts a supervised playground program during the summer months in neighborhood recreation centers. Ninety children (54 girls and 36 boys), aged 6 to 10 years, who attended eleven of these playgrounds during July, 1974, served as subjects in Study I. The playgrounds

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[4] "Experiment I" was actually conducted as a course project for 17.770, "Supervised Research" during the author's pre-master's year. It is reported in detail in this M.A. thesis because of its importance in setting the stage for the thesis research itself.

were widely distributed throughout the inner city area, and were chosen on the basis of suitable facilities for the study and the co-operation of the playground supervisor (only two of those approached were unwilling to help). The neighborhoods served by the playgrounds were generally in the "working class" socio-economic category. Only one of the eleven could be considered decidedly middle class. (See Appendix A for a list of playgrounds used in this study).

Subjects were recruited as follows: Playground supervisors handed sealed letters to all 6 - 10 year old children at their playgrounds a day or two before the study was to be run there, and told the children to deliver the letters to their parents. The letter asked parents to give written permission for their children to participate in a small study of "What kids get out of T.V.". (See Appendix B). Each child who participated, the parents were told, would receive an ice cream bar.

Parents were required to send permission slips back to the playground in sealed envelopes provided. They were asked <u>not</u> to discuss the study with their children, except to say that the children would receive some ice cream at the playground one day soon, if their parents said it was alright.

Altogether 96 subjects representing approximately 2/3 of the letters sent home, served in the experiment, but six were dropped from the analysis because it was discovered that they were aware of the general nature of the study before they served in it. Four of these had apparently been told by their parents that their responses to TV were being studied, and one of these

subjects "debriefed" two others as they waited together in the playground for the experiment to begin. (Most of these subjects were 10 years old, and they may, of course, simply have read the letter accompanying the permission slip). None of the remaining 90 subjects betrayed any foreknowledge of the experiment's purpose.

Apparatus and Materials

Recorded excerpts from actual TV programs were shown to the children via a Sony AV8600 color videotape recorder and a Sony CVM-1200U 12-inch color television receiver. (The recorder was hidden from the children.) Each child saw one of three videotaped 5-minute color sequences. All of the recordings were of high, and equal, quality. Those in the "Violent Non-sports" condition saw the major battle scene from a film entitled: Guns for San Sebastian. In it a group of Indians attacked a fortified town, and over a hundred persons were seen being killed (or being very seriously injured) by gunshots, arrows, knifings, spearings, and exploding gunpowder. (Study of the videotape reveals, in fact, that far more Indians were shown being destroyed during the sequence than ever attacked the town in the first place.)

Children in the "Violent Sports" condition saw the Miami Dolphins' second touchdown drive in the 1974 Super-Bowl game. The blocking and tackling was very intense, but "clean". One commercial and a bit of announcer patter was removed from the actual broadcast to condense the drive to five minutes.

Children in the "Exciting but Nonviolent Sports" condition saw excerpts from a 1974 championship American professional track meet. Several pole vault records were seen being set, along with an exciting mile run. The crowd noise heard during the track meet was a little less than that heard during the football game; the announcer on the track meet broadcast was quite a bit more excited than those describing the football game, however.

It should be noted that in each of these segments the episode came to a climax and ended: the Indians were beaten off, a touchdown was scored, a race was won. Whatever means used by the victors were successful.

Procedure

When the children arrived at the playground they were met by the author, who was to play the role of "sheep-keeper". She wore a City of Winnipeg playground supervisor's uniform, and so obviously "belonged" in the playground, but she was unknown to the children. She collected the permission slip envelopes, then involved all of the children in a quiet activity (painting a mural). Over the course of an hour or so the sheep-keeper took each child with a signed permission slip into the playground building, saying "Would you please come with me for a minute? You know (the regular playground supervisor)? She (he) wants to ask a tiny favor of you. Also, I think there is a man here who will give you an ice cream bar."

Once inside, the sheep-keeper pretended to check the playground supervisor's room, then said, "Oh (supervisor's

name) is busy just now. Why don't you wait in here with Tim. He's in charge of the ice cream." The child was then led to another room containing the television equipment and a male experimenter.

An attempt was made at this point to frustrate mildly half of the subjects; the frustration was random across the three viewing conditions with the restriction of blocking for the subject's sex. In the "Frustrated" condition the experimenter told the child, "I'm afraid the ice cream is all gone, and I don't have any to give you. I'm sorry. (Pause). While you're waiting to see (supervisor's name), why don't you watch some TV? In the "Nonfrustrated" condition, the experimenter said, "I had to get some more ice cream, and it will be here in just a few minutes. While you're waiting to see (supervisor's name), why don't you watch some TV?"

The television was turned on, and the videotaped program appeared, apparently on the channel to which the set was tuned. While the child watched the program the experimenter avoided any interaction, sitting at a distance and appearing busily at work. Once the TV sequence had ended, the experimenter turned off the set and said, "Let's go and see if (supervisor's name) is ready now." The two then set off for the supervisor's office.

The supervisor, who was a very familiar person to each child and who had been coached on the importance of being objective and absolutely consistent in the performance of his (or her) role, greeted the subject and said (if the subject

were a boy):

> I want to tell you something about a new boy who came to the playground a couple of days ago. Here's a picture of him (the child was shown a playground snapshot of a 5-year old boy with fair features); his name is Bobby. Bobby just moved into our neighborhood last week, and he is probably going to come to the playground for the rest of the summer. But the first day he was here he stole one of our balls and took it home with him. His mother found out, and thinks that Bobby should be spanked. But we're not sure how much he should be spanked. So here is what I want to ask you. How many good hard spanks do you think Bobby should get for stealing the ball?

The supervisor at this point showed the child a series of six cartoon faces (See Figure 1) which expressed increasing distress as the labels progressed from 0 to 5 hits. Pointing to the corresponding pictures the supervisor said:

> "Should he get no hits?"
> "Should he get one hit?"
> and so on up to
> "Should he get five hits?"

Girls were given the same information, except they were shown a snapshot of a fair-complexioned five-year old girl named "Barbie", etc.

The subject's response to this question, recommending the punishment which this new person in the neighborhood should receive, constituted the measure of aggressiveness (i.e. intent to do harm to another person). The situation had, of course, nothing to do with the material seen in any of the TV sequences, and therefore any effects attributable to the videotape presentations would not constitute specific imitative aggression, but a general disinhibition effect.

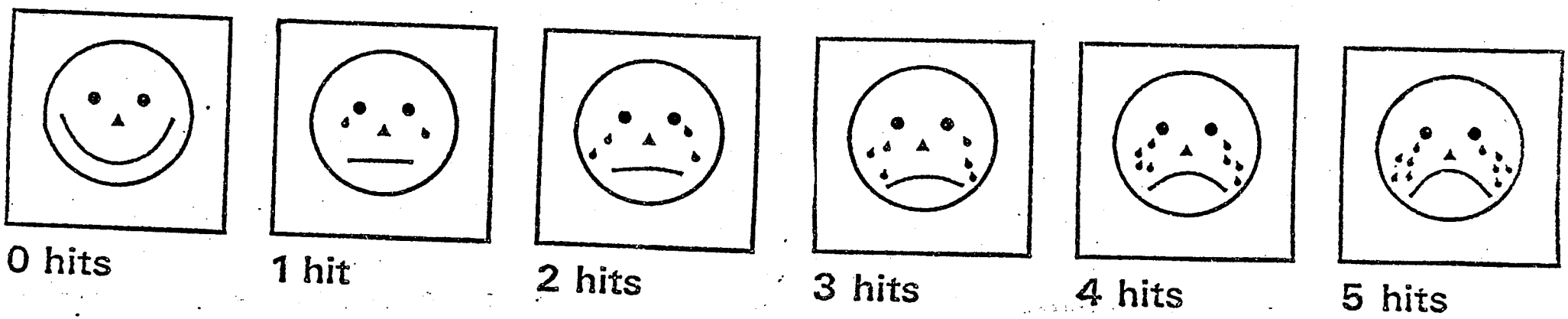

Figure 1

Cartoon Faces Used By The Interviewer In

Taking The Dependent Measure

After the dependent variable response was recorded, the subject was given an ice cream bar and taken to a special play area where a "goat-keeper" kept the experienced subjects occupied for the duration of the testing session. Often the "goats" (and their ice cream) were visible to the subjects yet to be run. But no "goat" ever got close enough to the "sheep" to communicate anything.

Finally, it should be noted that both the sheep-keeper and the playground supervisor were kept blind as to which condition each child was in. Only the experimenter who manipulated the frustration and TV exposure variables knew this; and he went to some length, such as starting the videotape on a different program each day, to keep anyone else from inferring it.

To summarize, then, a field experiment was conducted involving normal children tested in a very familiar setting. They were shown concentrated segments of exciting television material, typical of programming readily available to North American children. The dependent variable involved aggression against a child and fit into the social context of the experimental setting. Steps were taken to avoid the methodological problems which have compromised earlier studies. As shall be seen, the experiment was hardly a perfect test of the issue involved. But reference to Table 1 will reveal that there are few studies in the literature which pursued the matter in as relevant and well-controlled a matter.

Results

The study employed a randomized block factorial design,

(Kirk, 1969) with subjects being randomly assigned to the six frustration-television combinations within blocks for sex. Each of the six cells within the female block contained nine observations, while each of the cells in the male block contained six. The mean aggression scores in each cell are given in Table 2, while the results of an unweighted-means analysis of variance (Winer, 1962) are shown in Table 3.[5] (See Appendix C for a list of all the subjects' scores).

It can be seen that the main effects for the type of television viewed and for frustration were both decidedly non-significant, as were all the interactions. The only significant effect was that for sex; boys were more aggressive (mean score = 3.94) than girls (3.04), F (1,78) = 8.18, $p < .01$.

The data were subjected to a further exploratory analysis to see if the uncontrolled variable of subject's age had obscured the expected relationship. Table 4 shows the mean aggression score for each age. A significant relationship between age and aggression (See Table 5) was found, F (1,88) = 4.70, $p < .05$. (That is, the younger subjects had been somewhat more aggressive than the older ones). The effects

---

[5] The unweighted means analysis for proportional designs is only an approximate solution (Kirk, 1969, p.202). A least squares analysis using Overall & Speigel's Method 1 (Overall & Speigel, 1969) would have been preferable (since a nonadditive model was assumed and there was no *a priori* ordering of hypotheses), although the author was unaware of this when the analysis was performed. However the data, when analyzed by this least squares method (Biomedical Package BMDP 2V, Dixon, 1975, pp.711-712) yield identical F values, within rounding error, to those in Table 3.

Table 2

Mean Aggression Score (Number of Hits Recommended) by Type of Television Exposure, Sex of Subject, and Frustration Condition

Group[a]	Type of Television Exposure		
	Track Meet	Football Game	Western Violence
Boys			
Frustrated	4.00	4.00	3.83
Non-Frustrated	4.17	3.50	4.17
Girls			
Frustrated	3.00	2.67	3.56
Non-Frustrated	3.11	3.11	2.78

Note: Maximum score = 5

[a] n = 6 and n = 9 for each cell in the male and female blocks, respectively.

Table 3

Analysis of Variance Summary Table:
Number of Hits Recommended

Source	df	MS	F
Sex (S)	1	17.7852	8.18*
Frustration (F)	1	.0309	.01
S x F	1	.0296	.01
Television (T)	2	.6617	.30
S x T	2	.0796	.04
F x T	2	.2450	.11
S x F x T	2	1.9019	.87
Within Cells Error	78	2.1738	

*$p < .01$.

Table 4

Mean Aggression Scores by Age of Subjects

AGE				
6	7	8	9	10
4.06	3.33	3.32	3.40	2.79
(18)[a]	(18)	(25)	(15)	(14)

[a] Numbers in parentheses indicate the number of subjects on which the unweighted mean is based.

Table 5

Analysis of Variance Summary Table:

Regression of Aggression Scores on Subjects' Age

Source	df	MS	F
Regression	1	9.822	4.70*
Deviations	88	2.088	

Note: A test for heterogeneity of regression (Meyers, 1969, p. 317) was nonsignificant, F (11,66) = .88

*$p \leq .05$

of age were then statistically controlled through an analysis of covariance (See Table 6). The results were the same as those originally obtained: only sex of subject was statistically significant; none of the other main effects or interactions even approached significance.

Discussion

Some of the noneffects reported above were less surprising than others. Clear-cut theoretical expectations notwithstanding, the literature on the effects of frustration in this area is in something of a shambles (c.f. Kuhn, Madsen, & Becker, 1967; Mussen & Rutherford, 1961; Savitsky, Rogers, Izard, & Liebert, 1971). The frustration manipulation was employed to see if the effects of TV violence would be more obvious among somewhat frustrated children. Not only was there no such interaction, but contrary to expectations there was no effect for TV violence either.

The results of Experiment I sent the author searching in several directions. The many details of the investigation were reconsidered, seeking mistakes that might have been made in design and orchestration. Several changes in the procedure resulted. But it was at this point that a more critical review of the literature on the effects of TV violence was undertaken, to see what " the overwhelming consensus of the research " really indicated. The reader has already seen what was ultimately discovered.

Table 6

Analysis of Covariance Summary Table:
Number of Hits Recommended, with Age as Covariate

Source	df	MS	F
Sex (S)	1	15.968	7.25*
Frustration (F)	1	0.077	0.03
S X F	1	0.033	0.01
Television (T)	2	0.573	0.26
S X T	2	0.061	0.03
F X T	2	0.413	0.19
S X F X T	2	1.214	0.55
Within Cell Error	77	2.202	

* $p < .01$

Mistakes That Might Have Been Made

Brevity of the TV programs. The subjects in Experiment I were given a brief (but action-packed) exposure to TV programming because many other researchers (Ellis & Sekyra, 1971; Hanratty, O'Neal, & Sulzer, 1972; Kniveton, 1973; Kniveton & Stephenson, 1970; Liebert & Baron, 1972; Lovaas, 1961; Savitsky et al., 1971; Talkington & Altman, 1973; Walters & Willows, 1968) had found such exposures produced increased aggression. It was reasoned that while a longer exposure might produce a stronger effect, the subjects would be receiving a concentrated "dose" of action-packed TV, then would be tested in the dependent variable situation within a minute of the end of the segment. Nevertheless, the segments used may have been too short to produce any effect --- earlier findings notwithstanding.

The measure of aggression. A consistent problem experimenters in this field have faced is the invention of realistic yet objective measures of aggression (Cater & Strickland, 1975). Previous attempts to solve it (e.g. Liebert & Baron's 1972 "help-hurt machine") appeared rather artificial and far removed from the real-world situations where TV violence might lead children to attack others. Another tactic, placing the subjects in aggressive games and scoring their violence against one another, has other limitations: the lack of non-violent alternatives, the possibility of behavioral contagion resulting from the interaction rather than the TV shows, and the loss of degrees of freedom when analyzing the scores by groups of competitors. Ethical considerations of

course eliminated the alternative of giving the subjects a real child to pummel. Thus the "punish the thief" measure was the best allowable way the author could invent to measure (an intent) to do harm against another "real" child.

In retrospect, it would have been better to measure the subject actually doing some harming. Also, the recommendation of punishment could have largely represented the child's concept of a just penalty for stealing a ball, rather than his or her aggressive impulses. Beyond this, the scale of punishments shown the children may have been too limited. Quite a few of the subjects, especially among the boys, recommended giving five hits, the maximum punishment available. A wider range of choices might have avoided this ceiling effect.

Using the playground supervisor to collect the dependent variable. The regular summer playground supervisors were used to collect the dependent variable because of their considerable rapport with the subjects and because they made the story concerning the dependent variable credible. Having them play this role may nevertheless have been a mistake, as their (generally negative) attitudes toward aggression were well-known to the children. Alternately, the children may have been estimating the supervisor's attitude toward stealing playground property.

Frustrating the subjects before showing them the tapes. Half of the subjects were frustrated before they saw the tapes, since it was believed that just-angered subjects would be more

likely to show a general disinhibitory effect. This, too, may have been a mistake, however. Other researchers (Doob & Climie, 1972; Donnerstein, Donnerstein, & Evans, 1972) have found that both arousal and aggressiveness decay over time following provocation, and that this decay is facilitated by distracting filmed stimuli. (Note that this is not the "catharsis effect", whereby aggressive impulses diminish through fantasy-identification with violent programming.) Placing the frustrating experience after the television segments would lessen the study's relevance to the question of violent television's influence on the already-frustrated child, but increase its relevance to the equally-likely situation where a child is frustrated after having just viewed violent TV. Such a "rearrangement" would preclude the possibility of frustration markedly decaying, especially if longer segments were used.

Things That Seemed to Go Right

The above represent what seem to be the more obvious reasons why the data failed to threaten the null hypothesis about general disinhibitory effects -- if the null hypothesis is false. On the other hand, several aspects of the experiment seemed to work as planned. The ice cream frustration, for example, appeared to work. No one ever cried and only a few complained, but nearly all of the subjects had appeared at the playground at the time of the experiment specifically to receive the promised ice cream bar, and those who were told there was none for them would

usually admit later to having been saddened by this announcement. Also, the presence of a TV set in the recreation center building, while doubtless unusual, did not seem to arouse the suspicion of these young subjects. They also did not seem to doubt that the segment shown would be on the air at that time of day, although we did get a few requests to turn to a preferred program actually being broadcast at that moment. Finally, the children seemed to make no connection between the TV program being shown them and the dependent variable situation. It may have seemed natural that the "sheep-keeper", in her hurry to return to the other children painting the mural, would "dump" the child onto the experimenter; and that the "busy" experimenter would plop the child before a TV while waiting for the supervisor to be available.

EXPERIMENT II

Method

Experiment II was run during the 1975 Winnipeg summer playground program and followed the same general plan as Experiment I except that the considerations just discussed led to the following changes.

Procedure

Children with permission slips were drawn by a male experimenter in same-sexed groups of two or three from a relatively quiet activity led by the regular summer playground supervisor. He told the subjects, "Somebody's going to bring some ice cream for you in about 15 minutes, and I thought you'd like to watch some TV while you're waiting." The subjects

were then taken to a closed room in the recreation building and exposed to one of the following four sets of stimuli.

TV programs shown. Children randomly assigned to the "Violent Nonsports" condition were shown a 17-minute condensation of a "S.W.A.T." broadcast. The segment opened with three men ambushing two Los Angeles policemen. One of the policemen was wounded before the S.W.A.T. team appeared and drove off the attackers. Subjects then saw a hospital scene in which the wounded policeman died, and his bitter, mourning partner volunteered to join a new S.W.A.T. team. The central part of the segment contained scenes in which the S.W.A.T. leader offered the rationale behind the special force, viz. to deter criminals with heavily armed, well-trained paramilitary units. The commander also introduced a strong revenge motive: "Our present prime target is these bloodsuckers who've declared war on cops. Yes, that's right. We're in a war, nothing less. And we intend to approach it just that way." Scenes featuring the unit's armament and armored truck followed. The subjects then saw a scene in which the ambushers' motive was revealed: They were seeking revenge for an alleged police attack upon a relative. Finally there occurred the resolving gunfight scene, in which one of the ambushers was knocked unconcious and the other two were shot with rifles at close range. The segment ended with the commander and the new recruit agreeing that shooting an enemy is a distressing experience.

While the original broadcast ran to some 50 minutes, this 17-minute excerpt contained all of the essential ingredients of the program. Most conspicuously left out were S.W.A.T. training scenes (scaling fences, etc.) and scenes which portrayed the criminals as being rather crazy. The reader will recognize the story line as a rather common one, except that the consequences of aggression were at least briefly shown (in the hospital scene and in the remorseful ending). "S.W.A.T." had been broadcast in Winnipeg during the preceding months, incidently. Subjects sometimes cheered when it appeared on the screen.

The "Violent Sports" program consisted of 17 minutes of excerpts from the second game of the 1975 Stanley Cup Hockey finals between Philadelphia and Buffalo. There were no fights in the game, but the checking seen in the segment was quite vigorous, the play very exciting, and the spills sometimes spectacular. Officials of the NHL would probably describe the segment as "clean, rough-tough hockey at its best." Early in the segment Buffalo scored and tied the game at 1-1. After a lot of hard play Philadelphia went ahead 2-1, and the segment ended with time expiring and Philadelphia winning by that score. A hockey game was used instead of a football game in Experiment II to see if the use of Canada's most popular sport would make a difference in the results obtained with Canadian subjects.

The "Non-Violent Sports" segment consisted of 17 minutes of excerpts from the 1975 NCAA Track and Field championships,

showing pole vaulting, various sprints and middle distance races, and ending with the mile run. The crowd noise in the track meet in Experiment II was appreciably lower than that at the hockey game, while the announcers of the two events were about equally excited.

The introduction of a non-TV control group. The "Violent Sports" condition was retained in Experiment II so its effects could be compared to the "Violent Nonsports" effect (if there was one). A non-exciting control condition was also added which could put the effects of the three exciting TV shows into perspective. Ideally, interesting but non-exciting TV material would have been used but every program the author could think of seemed to have some arguable amount of excitement in it. Therefore, an audiotape of three "Dr. Seuss" stories was used (taken from a commercially available recording), which the author thought would be interesting to the children but not arousing. (They are in fact commonly used to settle children down before bedtime.) Accordingly other two and three person same-sexed groups listened to approximately 17 minutes of these stories, played over a Sony TC 260 tape recorder, while waiting for their ice cream.

It was necessary to present the tapes to small groups of subjects because the segments' increased length would otherwise have required some subjects to wait, and be kept occupied, for over two hours before they could be run. The subjects, who interacted very little, if at all, during the TV shows, were run in the dependent variable situation

individually, and seven TV commercials were placed at the end of each segment to keep momentarily suspended subjects occupied with realistic but "empty" TV material before their turn with the dependent variable. Seven radio commercials were similarly placed at the end of the "Dr. Seuss" tape.

The frustration manipulation and the dependent variable situation. A randomized block design with more than one experimental variable requires more subjects to be as precise as one which has only one experimental variable (Meyers, 1969, p.147). Since we wished to block on three categorical variables, it was decided to frustrate all of the subjects in Experiment II, rather than manipulate frustration at the expense of running more subjects. Accordingly, when the TV or audio tape segment was over and the commercials had begun, a female experimenter (the author) was signaled to come to the TV room. The children were turned over to her one at a time, and after they had left the area the second experimenter said: "You know there was supposed to be some ice cream for you today. Well, I'm sorry, but there isn't going to be enough for you."

After a pause the child was told, as he approached another room, "But there is something I'd like your help on. There may be a carnival at this playground later on this summer, and there might be a booth there where people throw wet sponges at something." At this point the child was shown into another room, across one end of which a large green plastic curtain had been hung. There were two holes, about 9 inches (22.9 cm.) in diameter, in this curtain; the holes were both 4'1" (1.24 m.)

from the floor, and 6 feet (1.82 m.) apart. A red and black "bullseye" target was visible through one of the holes; the face of a fair-complexioned young boy (our confederate) protruded through the other. (The position of the bullseye and the human target was counter-balanced across all conditions of the study.) A tray containing over twenty wet sponges sat on a table about 12 feet (3.66 m.) away from the curtain, equidistant from the two targets. The child was placed behind this table as the instructions continued:

> We want to see how that idea might work. You can now throw as many sponges as you want at either the (target on the left) or the (target on the right). For each time you hit the (bullseye) target you'll win a prize of one penny. There's no prize for hitting the boy's face, but you can throw at him if you want to. You can switch back and forth if you want to, but always stand somewhere behind this table. And you have just half a minute, from the time I say "Go", until (illustrating with a stop watch) this hand goes around to here. Then I'll say "Stop". Do you understand the game? What happens if you hit the target? Is there a prize for hitting the boy's face? And can you switch back and forth if you want to? All right: Go.

A prize of 1¢ was offered for hitting the bullseye because pretesting indicated subjects had a tendency to throw at the human target, rather than the bullseye, otherwise. It also clarified that hitting the boy's face would be reinforcing to the subject in some way other than demonstrating accuracy, etc., since the subject gave up a chance for another reinforcer (1¢) to throw at the face. The author did not believe this would provide such a strong incentive as to overpower any aggressive

drives inhibited by the TV shows, however. The measure of aggression was, in the first instance, the number of wet sponges thrown at the human target. Records of the percentage of all sponges thrown at this target were also kept.

Only boys were used as the human targets because there appear to be stronger inhibitions for children of both sexes against physical aggression toward girls (Shortell & Miller, 1970).

Once the subject was run he or she was turned over to a "goatkeeper" who kept all the experienced subjects secluded from the "sheep" until the testing session had ended. Then all of the children were given their ice cream and debriefed. None of them expressed any awareness of the purpose of the experiment.

Control of Other Variables

Besides the usual blocking on gender, the subjects were blocked according to age ("young": ages six to seven; and "old": ages eight and nine ;in order to minimize chances of awareness and contamination, no ten year olds were recruited for this study.) In addition, half of the subjects attended playgrounds in "working class" neighborhoods, the other half being drawn from "middle class" neighborhoods. This designation was based on 1971 Census tract information (Statistics Canada, 1974) on six categories: income, home values, rent values, unemployment level, percentage in blue-collar occupations (as defined in Robinson, Athanasiou, & Head, 1972, pp. 342-356) and percentage with University education. There was

usually no overlap in the distribution of these indices; for example, average income in the "working class" neighborhoods ranged from $4,868 to $6,763 in 1971, while that in the "middle class" neighborhoods ranged from $8,635 to $9,795. The subjects were recruited from 14 neighborhoods from both the inner city of Winnipeg and its more suburban municipalities. (See Appendix D for a list of these playgrounds and their associated SES data.) Altogether 96 subjects served in the resulting 4 x 2 x 2 x 2 experiment, with three subjects in each of the 32 cells.

Comparison with Other Determinants of Aggression: the "Guns and Cars" Study

It was mentioned earlier that the research literature in this area has not yet demonstrated that TV violence has a very powerful general disinhibitory effect upon children's aggressiveness. There are many other factors which are also thought to affect children's aggression, notably the behavior of parents, siblings, school officials, etc. in sex-role training, modelling, and the sanctioning of aggression. It was far beyond the scope of this study to compare TV effects against such other influences in any rigorous way. But in a second part of Experiment II, data were collected on the effects of playing with toy guns--behavior which might also have a general disinhibitory effect (Feshbach, 1956; Turner and Goldsmith, 1976).

These subjects (28 boys and 28 girls, aged 6-9) were drawn from the same playgrounds used in the TV study and were

also run in same-sexed groups of two or three, usually while the TV subjects were being debriefed. These groups were taken to a separate room and randomly given either toy guns (a rifle and two "six-shooters") or friction-wind racing cars to play with while "waiting for their ice cream bars". The experimenter suggested the children "play guns" or hold races if they did not spontaneously do so (which they almost always did). The racing cars of course controlled for the exciting and competitive aspects of gun play, but provided "non-violent" entertainment.

The "guns-and-cars" subjects were then collected one at a time, after five minutes of play, by the second experimenter, frustrated as before, and taken to the dependent variable situation. The second experimenter knew, of course, which condition these subjects were in, as she also knew which were the "Dr. Seuss" subjects (from the audio commercials playing when she picked them up.) For what it is worth, this experimenter was the member of the research team who most strongly expected to find the "violent TV effect".

Results

The TV Study

Table 7 lists the mean number of sponges thrown at the human target, and the percentage of the total sponges which that represents, for each of the 32 cells of the experiment (See Appendix E for scores on all subjects in Experiment II). Table 8 displays the results of the analysis of variance for the 4 x 2 x 2 x 2 randomized block design. It can be seen that none of the main effects and interactions reached significance,

Table 7

Mean Number and Percent of Sponges Thrown at Confederate by Television Condition, Sex, Age and SES

Group[a]	Television Condition: No-Television Control (Dr. Seuss)	Nonviolent Sports (Track Meet)	Violent Sports (Hockey Game)	Violent Nonsports (S.W.A.T.)
Number of Sponges Thrown at Confederate				
Boys				
Middle class				
aged 6 and 7	4.00	0.33	2.33	2.33
aged 8 and 9	4.33	3.33	0.67	3.33
Working Class				
aged 6 and 7	1.67	1.33	0.33	4.33
aged 8 and 9	6.67	2.33	0.00	3.00
Girls				
Middle class				
aged 6 and 7	3.00	2.67	1.67	0.67
aged 8 and 9	2.00	1.67	6.00	3.33
Working class				
aged 6 and 7	2.67	1.33	2.67	1.33
aged 8 and 9	2.00	1.33	2.33	1.33
Percent of Sponges Thrown at Confederate				
Boys				
Middle class				
aged 6 and 7	44.10	2.57	31.53	25.17
aged 8 and 9	32.43	29.30	8.60	30.57
Working class				
aged 6 and 7	18.53	13.70	4.17	50.00
aged 8 and 9	66.10	15.57	0.00	23.50
Girls				
Middle class				
aged 6 and 7	32.50	32.33	20.83	16.67
aged 8 and 9	24.07	15.57	41.03	34.83
Working class				
aged 6 and 7	46.67	19.03	26.50	18.07
aged 8 and 9	18.87	15.00	19.43	14.13

[a] n = 3, in each cell.

Table 8

Analysis of Variance Summary Table: Number and Percent of Sponges Thrown at Confederate (Television Experiment)

Source	df	MS	F
Number of Sponges Thrown at Confederate			
Television (T)	3	10.622	1.59
Age (A)	1	11.344	1.69
T x A	3	0.205	0.03
Sex (S)	1	1.760	0.26
T x S	3	21.455	3.20*
A x S	1	0.844	0.13
T x A x S	3	14.594	2.18
Socioeconomic Status (C)	1	4.594	0.69
T x C	3	2.399	0.36
A x C	1	1.760	0.26
T x A x C	3	7.177	1.07
S x C	1	2.344	0.35
T x S x C	3	0.705	0.11
A x S x C	1	5.510	0.82
T x A x S x C	3	6.149	0.92
Error	64	6.698	
Percent of Sponges Thrown at Confederate			
Television (T)	3	1577.223	2.54
Age (A)	1	16.750	0.03
T x A	3	32.312	0.05
Sex (S)	1	0.008	0.00
T x S	3	1008.043	1.63
A x S	1	198.087	0.32
T x A x S	3	1247.816	2.01
Socioeconomic Status (C)	1	261.670	0.42
T x C	3	320.067	0.52
A x C	1	113.318	0.18
T x A x C	3	552.831	0.89
S x C	1	70.556	0.11
T x S x C	3	214.352	0.35
A x S x C	1	559.215	0.90
T x A x S x C	3	1039.413	1.68
Error	64	620.060	

*$p < .05$

except the television by sex interaction, F, (3,64) = 3.20, $p < .05$, for the number of sponges thrown at the human target. Within this interaction the simple main effect for media exposure was significant for males only F, (3,64). = 3.92, $p < .05$ (See Table 9), and the simple main effect for sex was significant only after the hockey game, when girls were more aggressive than boys. A Newman-Keuls post hoc test of the means for the males (See Table 10) found only one significant difference: Exposure to "Dr. Seuss" stories produced more aggression than did exposure to the hockey game (critical value = 2.79). The reader will thus note that the S.W.A.T. program did not produce significantly greater aggression than any of the other programs for either boys or girls in terms of the "raw score" data. And the television by sex interaction was not significant in the "percentage" data, nor was anything else.

Guns and Cars Study

Table 11 presents the mean number of sponges thrown at the confederate and the mean percentage scores for the "guns and cars" part of Experiment II.

Table 12 lists the results of the analysis of variance on these scores. It can be seen that there was both a significant main effect for sex and a significant sex by toy interaction. An analysis of the simple main effects (See Table 13) indicated that the television effect held only for boys and only when raw scores were used in the analysis, F, (1,52) = 5.69) $p < .05$. The sex effect was significant only for the "guns" condition, F (1,52) = 13.46 and 11.91

Table 9

Simple Main Effects for the Sex by Television Interaction: Number of Sponges Thrown at Confederate

Source	df	MS	F
T at S_1	3	26.2431	3.92*
T at S_2	3	5.8333	0.87
S at T_1	1	18.3750	2.74
S at T_2	1	0.0417	0.01
S at T_3	1	32.6667	4.88*
S at T_4	1	15.0417	2.25
Error	52	6.6980	

*$p < .05$

TABLE 10

Newman-Keuls Comparisons Among Means for Number of Sponges Thrown at Confederate (Television Experiment) for Boys

	$\bar{X}_1$	$\bar{X}_2$	$\bar{X}_3$	$\bar{X}_4$
$\bar{X}_1$ (Dr. Seuss)=4.17	___	0.92	2.34	3.34*
$\bar{X}_2$ (S.W.A.T.)= 3.25		____	1.42	2.42
$\bar{X}_3$ (Track) = 1.83			____	1.00
$\bar{X}_4$ (Hockey) = 0.83				____

Note: Critical values for means 2, 3, and 4 steps apart, respectively, are 2.11, 2.54, and 2.79.

Table 11

Mean Number and Percent of Sponges Thrown at Confederate, by Toy Condition and Sex

Groups[a]	Toy Condition: Guns	Toy Condition: Cars
Number of Sponges Thrown at Confederate		
Boys	5.43	2.64
Girls	1.14	2.21
Percentage of Sponges Thrown at Confederate		
Boys	42.41	25.54
Girls	11.09	23.52

[a] n = 14, for each cell.

Table 12

Analysis of Variance Summary Table: Number and Percent of Sponges Thrown at Confederate ("Guns and Cars" Experiment)

Source	df	MS	F
	Number of Sponges Thrown at Confederate		
Sex (S)	1	77.7853	8.14*
Toy (T)	1	10.2856	1.08
S x T	1	52.0711	5.45*
Error	52	9.5522	
	Percent of Sponges Thrown at Confederate		
Sex (S)	1	3887.7703	6.75*
Toy (T)	1	69.0858	0.12
S x T	1	3004.7048	5.21*
Error	52	576.3633	

*$p < .05$

Table 13

Simple Main Effects for the Sex by Toy Interaction: Number and Percent of Sponges Thrown at Confederate

Source	df	MS	F
	Number of Sponges		
T at S 1	1	54.3214	5.69*
T at S 2	1	8.0357	0.84
S at T 1	1	128.5714	13.46*
S at T 2	1	1.2856	0.13
Error	52	9.5522	
	Percent of Sponges		
T at S 1	1	1992.1783	3.46
T at S 2	1	1081.5343	1.88
S at T 1	1	6866.5968	11.91*
S at T 2	1	28.5628	0.05
Error	52	576.3633	

*$p < .05$

respectively, for raw and percent scores, $p < .05$.

Discussion

Despite the changes made in the design and procedures of Experiment II, the results replicate those found in Experiment I in that there is no convincing evidence that violent television programming had a general disinhibitory effect. The one significant interaction to be found in Table 8 may have been due to an experimental miscalculation: boys may have been particularly aggressive following the Dr. Seuss stories because they were bored by these materials. But that still does not account for the failure of the Violent Nonsports program to have significantly greater effects on children's aggression than the other programs -- a noneffect found among girls and boys, young and older children, the poor and the relatively well-off.

By comparison, letting boys play with guns for five minutes did produce significantly more aggression than letting them play with racing cars. The effect was not overpowering and, as shall be seen, not all that reliable either. Furthermore, "gunplay" had no effect upon girls. But one can hardly argue that the noneffect for violent television in Experiment II was a result of the dependent variable situation being insensitive to general disinhibitory effects.

A Possible Explanation of the Noneffect

It seemed in retrospect that one reason why the violent TV effect might not have been forthcoming was because it is too weak to appear when subjects have a chance to aggress against someone at whom they were not particularly angry.

The human target in the sponge-throwing situation was an "innocent bystander" to the child's frustration, and there may be overriding inhibitions against attacking an uninvolved party. But what would happen if the subject were somewhat angry at the victim? Would violent television's disinhibitory effects be detectable against a target who had helped to frustrate the subject?

EXPERIMENT III

Procedure

The procedure in Experiment III replicated that of Experiment II, except that subjects were not blocked on age and SES.[6] When the second experimenter picked up each subject from the TV room and led him (her) down the hall, she took an ice cream bar out of an otherwise empty box and said, "You know, you're kind of lucky,because this is the last ice cream bar." They then encountered a fair-complexioned six year old boy in the hallway who said, "Is this where you get the ice cream? Bob said I could have one." To which the experimenter replied, in apparent confusion, "Well, I only have one left, and I just promised it to (subject's name)." After a pause, she then said, "But I guess if Bob said you could have it, I have to give it to you. Come with me, though. There's something you could help me with."

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[6] Efficiency calculations from the results of Experiment II indicated that blocking on sex, age, and SES was only 93% as efficient as blocking on sex alone.

The trio proceeded to the sponge-throwing situation, the experimenter directed the confederate to his position behind the curtain, and the dependent variable situation proceeded as before.

Altogether 22 boys and 24 girls from 12 Winnipeg playgrounds served in this segment of Experiment III during August, 1975. In addition, data were collected on a "guns and cars" version of this procedure whenever subjects were available at these playgrounds.[7] (See Appendix F for a list of all playgrounds which were used in Experiment III).

Results and Discussion

T.V. Study

Table 14 lists the mean number and percentage of sponges thrown at the human target for each of the four cells. Table 15 gives the results of the 2 by 2 ANOVA carried out on the data. Neither the main effects nor the interaction were significant for either aspect of the dependent variable, and the trends in the data were opposite those found in Experiment II. Thus Experiment III, like its predecessors, failed to find any evidence that televised violence has a general disinhibitory effect upon children's aggression.

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[7] It was necessary to collect guns and cars data at three community centers in November, 1975 to complete the design. These subjects, who were attending special programs (gymnastics and floor hockey) were probably less representative of the general population than those who attend the more popular summer program. Because of the active and (in the case of floor hockey) competitive nature of these activities, these later subjects were separated from the other children and kept busy with a quieter activity until called in for the experimental treatment.

Table 14

Mean Number and Percent of Sponges Thrown at Confederate by Television Condition and Sex

Group[a]	Television Condition	
	Violent (S.W.A.T.)	Nonviolent (Track Meet)
	Number of Sponges Thrown at Confederate	
Boys	3.09	2.91
Girls	2.83	2.17
	Percent of Sponges Thrown at Confederate	
Boys	27.04	30.93
Girls	29.38	22.99

[a] n = 11 for boys, 12 for girls in each television condition cell.

Table 15

Analysis of Variance Summary Table: Number and Percent of Sponges Thrown at Confederate (Television Experiment)

Source	df	MS	F
Number of Sponges Thrown at Confederate			
Sex (S)	1	2.8694	0.32
Television (T)	1	2.0657	0.23
S x T	1	0.6746	0.08
Error	42	8.9321	
Percent of Sponges Thrown at Confederate			
Sex (S)	1	89.9141	0.11
Television (T)	1	18.0742	0.02
S x T	1	302.8633	0.37
Error	42	818.5000	

Note: The analysis of variance was Overall & Speigel's least squares analysis, Method 1 (Overall and Speigel, 1969)

The "Guns and Cars" Study

The results of the second "Guns and Cars" study are shown in Tables 16 and 17. (See Appendix G for the complete data for Experiment III). The trends in the data resemble those found in Experiment II, but here the interaction was not statistically significant: F (1,55) = 0.14 p = .711, for "raw" aggression scores and F (1,55) = 0.69, p = .409 for the percent aggression scores. The results of Experiments II and III suggest to us that playing with guns may have a general disinhibitory effect on boys, but this effect has not yet been shown reliable.

CONCLUSIONS

The logic of research does not permit one to conclude that the null hypothesis is true, and so one cannot state that violent television does not have a general disinhibitory effect upon children's aggression. It is always possible that it does, but that peculiarities in the samples and testing procedures described in this paper led the investigator astray. The reader knows that several attempts were made to find such flaws, and these were "unsuccessful". But one can expand the search further; perhaps the reader can add to the following list: (a) the effect may be much weaker in Canadian children than in Americans, since Canadians probably see less aggression on television than do Americans; (b) the effect may not occur among children in the age range tested; (c) the self-selection of subjects, caused by attending the playgrounds and the necessary permission slips, may have produced a seriously atypical sample; (d) the exposure to violent TV may still have been too short; (e) the subjects may not have been

Table 16

Mean Number and Percent of Sponges Thrown at Confederate by Toy Condition and Sex

Group	Toy Condition: Guns	Toy Condition: Cars
	Number of Sponges Thrown at Confederate	
Boys	4.13 (15)	2.88 (16)
Girls	2.93 (14)	2.21 (14)
	Percent of Sponges Thrown at Confederate	
Boys	34.51 (15)	21.13 (16)
Girls	24.48 (14)	21.21 (14)

Note: Numbers in parentheses are the number of subjects on which each mean is based.

Table 17

Analysis of Variance Summary Table: Number and Percent of Sponges Thrown at Confederate ("Guns and Cars" Experiment)

Source	df	MS	F
	Number of Sponges Thrown at Confederate		
Sex (S)	1	12.7927	1.63
Toy (T)	1	14.3044	1.81
S x T	1	1.0879	0.14
Error	55	7.8685	
	Percent of Sponges Thrown at Confederate		
Sex (S)	1	363.5781	0.67
Toy (T)	1	1017.8320	1.87
S x T	1	375.8164	0.69
Error	55	544.0105	

Note: The analysis of variance was Overall and Speigel's least squares analysis, Method 1 (Overall & Speigel, 1969)

frustrated enough; (f) the sponge-throwing measure may not have assessed an intent to do harm, but merely to cause discomfort.

All of these possibilities are testable, and future research may demonstrate that it was one or a combination of such flaws that kept these experiments from discovering what is apparently an obvious truth to some. At the moment however, this author has doubts; most of the above considerations in fact seem to argue that the violent TV effect does not exist. If it does, why is it not more detectable in Canadian children who have not been quite as "stuffed" with TV violence as their American counterparts? And if it will not appear immediately after viewing a condensed presentation of violence, why should it be found following full length programming, with its "character development" scenes, side issues, commercial interruptions, and intervening nonviolent programs? And if violent TV does not have an effect in a situation involving discomfort, why should it be expected to have an effect in a more serious situation involving real harm?

One rather serious possibility, in cases of failure to reject the null hypothesis, is that a meaningfully signficant effect does exist in the population but that the test of the hypothesis was not powerful enough to detect it. For purposes of power analysis (Kirk, 1968, p. 179), .80 standard deviation units was chosen as the minimum effect size considered meaningful to detect, an effect size which accounts for just

under 14% of the total variance in the dependent variable (Cohen, 1969, p.276).[8] The power for detecting a main effect of television condition was .81 for Experiment I, .62 for Experiment II, and .77 for Experiment III. (Power for the "Toys" main effect, incidentally, was .83 and .84 for Experiments II and III respectively.) The power for Experiments I and III can be considered satisfactory, in terms of Cohen's recommended power level of .80 (Cohen, 1969, p.54) but the power for Experiment II is considerably lower. In fact, chances were only about 6 in 10 of detecting an effect of .80 standard deviation units or less in Experiment II. Hays has recommended estimation of proportion of variance accounted for by an effect, in situations where the null hypothesis has not been rejected (Hays, 1973, p.419), in order for the experimenter to determine whether it is "worthwhile to spend more time and effort in this direction". Calculation of the proportion of variance accounted for (Haldorson & Glassnap, 1972, pp.306-307) revealed that television condition accounted for none of the variance in number of hits recommended in Experiment I ($\omega^2 = -.016$)[9], less than 2% of the variance in the number of sponges thrown at the confederate ($\omega^2 = .018$) and less than 5% of the variance in percent aggression scores ($\omega^2 = -.048$) in Experiment II, and

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[8] Cohen (1969, p.280) refers to .80 standard deviation units as a "large" effect size. An effect which accounts for merely 14% of the variance, in this author's opinion, can hardly be considered large.

[9] Hays (1973, p.487) notes that a negative value of ω^2 indicates a population value of zero.

none of the variance in Experiment III (ω^2 =-.018 and -.020 respectively for raw aggression and percent scores). In order to have a power level of .80 in detecting an effect size which accounts for 5% of the variance in Experiment II, it would be necessary to more than triple the sample size (to N=348; ϕ = 1.65; df = 3,∞). Of course, it is up to others in the field to decide whether the "pay-off" in predictive power is worth this additional effort and expense to them. In this investigator's opinion, the goal of predicting behavior could be better served in other ways.

This investigator has no interest in proving the null hypothesis, and in the absence of any evidence for a "catharsis effect" one cannot see that violent television does any social good. But to those who have concluded that it does a great deal of social harm, it must now be asked, "What is the evidence?"

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APPENDIX A

Playgrounds at Which Experiment I Was Carried Out

Playground	Date	Male Subjects	Female Subjects
Norquay	July 10, 1974	2	1
Weston	July 15, 1974	5	6
River-Osborne	July 16, 1974	1	9
Crescentwood	July 17, 1974	7	8
Tyndall Park	July 23, 1974	8	7
East Elmwood	July 24, 1974	4	4
Chalmers	July 29, 1974	1	7
Broadway Optimist	July 30, 1974	3	4
West End Memorial	Aug. 1, 1974	3	3
Clifton	Aug. 6, 1974	1	1
Sinclair	Aug. 8, 1974	1	4

APPENDIX B

Permission Letter Sent Home to Parents

THE UNIVERSITY OF MANITOBA

EPARTMENT OF PSYCHOLOGY

WINNIPEG, CANADA
R3T 2N2

Dear Parent:

A few days from today I shall be conducting a little study up at the neighborhood community centre on the things that children get from watching television. I would like to use your son or daughter (ages 6 to 9 only) as one of the subjects in this study, and am asking you to return the attached permission form, signed, if you are willing to help us out.

In my study children will be shown part of an ordinary television program. We will then find out, by asking a few questions and playing a game, what they "got" from it. All the children who participate in the study will be given an ice cream bar afterwards as a little reward for helping us out.

If you are willing to have your child participate in this study just sign the permission slip at the bottom of the page and have it returned to the regular supervisor at the playground today or tomorrow. I would appreciate it if you would not say anything more about this to your child other than "some people are going to have some ice cream for you in a few days at the playground if I say it's OK." I would not want some of the kids all primed to get everything they can from the TV show, and others not.

If you have any questions you would like to ask me about the study, please call me at 474-8120. I will send home a report of the results of the study once they are available.

Yours sincerely,

Robert A. Altemeyer

Robert A. Altemeyer, Ph.D.
Associate Professor

My child _____ has my permission to serve in the "ice cream" study. My child is _____ years old.

(signed) _____

(Parent or Guardian)

(Please return in envelope.)

APPENDIX C

Age and Aggression Scores for all Subjects in Experiment I by Sex, Frustration Level, and Television Condition

	Frustrated						Unfrustrated					
	Western		Football		Track		Western		Football		Track	
	Age	Score	Age	Score	Age	Score	Age	Score	Age	Score	Age	Score
Males	6	5	7	1	6	5	6	3	6	5	6	5
	7	5	7	5	6	5	8	4	6	5	6	5
	8	2	7	5	7	5	8	5	7	5	7	1
	9	5	7	5	8	5	9	3	8	1	7	5
	10	5	8	5	8	1	9	5	9	2	8	5
	10	1	10	3	9	3	9	5	10	3	10	4
Females	6	3	7	3	6	2	7	1	6	5	6	3
	6	5	8	5	6	3	7	5	6	5	6	1
	6	3	8	1	6	5	7	3	7	1	8	2
	7	3	8	3	7	3	7	1	7	3	8	3
	8	5	9	2	8	1	8	2	8	2	8	5
	8	5	9	2	8	2	8	5	8	3	8	4
	8	2	10	4	9	4	9	3	8	5	9	5
	9	3	10	2	9	5	10	3	9	3	10	3
	10	3	10	2	10	2	10	2	9	1	10	2

APPENDIX D1

Socioeconomic Status Data on all Playgrounds Available for Experiment II

Census Tract Figures and Ranks

Census Tract	Playground	Average total income: family head	R	Median value of owner occupied dwellings	R	Average cash rent of tenant occupied dwellings	R	% of labour force unemployed	R	% of blue-collar workers in labour force	R	% of pop. 15 years and over with Univ. educ.	R	Median Rank	Rank of Median Rank
503	Wildwood	11,180	1	20,343	8	101	12	6.5	11	21.8	1	32.4	1	4.5	5
111	Gen. Vanier	9,795	2	23,209	4	151	2	4.6	2.5	31.0	6.5	15.8	5	3.25	2
500	Ryerson	9,733	3	24,898	2	145	3	4.6	2.5	28.4	4	30.3	2	2.75	1
540	Crestview	9,306	4	24,148	3	158	1	4.8	4	31.0	6.5	14.7	7	4.0	4
110	Niakwa Place	8,979	5	26,313	1	134	5	5.1	5	31.3	8	14.2	8	5.0	6
535	Silver Heights	8,828	6	22,073	7	98	13	5.5	8	26.9	3	14.0	9	7.5	7
534	Sturgeon	8,635	7	23,108	5	141	4	4.2	1	26.5	2	19.7	3	3.5	3
502	Victoria	8,372	8	18,951	10	90	16.5	5.3	6	42.2	16	15.1	6	9.0	8
130	Morse Place	7,879	9	19,151	9	133	6	6.3	10	40.1	14	10.0	15	9.5	9
1	Riverview	7,629	10	17,830	11	107	11	6.8	13	30.0	5	17.3	4	10.5	10
551	West Kildonan	6,892	11	22,259	6	108	10	8.2	17	36.1	12	10.6	14	11.5	12
102	Riel & Glenlee	6,763	12.5	15,853	12.5	131	7.5	6.8	13	34.4	9.5	13.2	10.5	11.5	12
105	Glenwood	6,639	14	13,001	19	94	14	5.7	9	44.7	17	5.8	18.5	15.5	16
114	Champlain	6,473	15	15,163	14	88	18	8.5	19	36.3	13	11.7	12	14.5	15
19	Isaac Brock	6,394	16	14,171	16	126	9	7.7	15.5	40.4	15	9.4	16	15.75	17
113	Archwood	6,338	17	13,414	17	91	15	7.7	15.5	45.9	18	5.8	18.5	17.0	18
117	Tache	5,959	18	14,893	15	84	19	5.4	7	35.7	11	10.9	13	14.0	14
21	Orioles	5,161	19	13,155	18	90	16.5	8.3	18	47.4	19	7.1	17	18.0	19
44	Old Ex	4,868	20	11,048	20	78	20	9.2	20	52.1	20	4.0	20	20.0	20

Note: The columns labeled "R" give the rank of each playground on each socioeconomic indicator.

APPENDIX D2

Playgrounds at Which Experiment II (Television Experiment) Was Run

Playground	Socioeconomic Status Rank (from Appendix D1)	Date	Male Subjects	Female Subjects
Champlain	15	July 10, 1975	0	6
Old Exhibition	20	July 11, 1975	3	3
Crestview	4	July 14, 1975	6	6
Glenwood	16	July 15, 1975	3	3
Sturgeon	3	July 16, 1975	6	3
Archwood	18	July 18, 1975	3	6
Glenlee	12	July 21, 1975 (a.m.)	6	0
Isaac Brook	17	July 21, 1975 (p.m.)	3	6
Niakwa Place	6	July 22, 1975 (a.m.)	3	3
Silver Heights	7	July 22, 1975 (p.m.)	9	6
Orioles	19	July 24, 1975 (a.m.)	6	0
General Vanier	2	July 25, 1975 (p.m.)	0	6

APPENDIX D3

Playgrounds at Which Experiment II ("Guns and Cars") Was Run

Playground	Date	Male Subjects	Female Subjects
Champlain	July 10, 1975	2	0
Sturgeon	July 16, 1975	0	2
Archwood	July 18, 1975	2	0
Isaac Brock	July 21, 1975 (p.m.)	2	5
Silver Heights	July 22, 1975 (p.m.)	2	0
Riel	July 23, 1975 (a.m.)	2	2
Riverview	July 23, 1975 (p.m.)	0	2
Orioles	July 24, 1975 (a.m.)	2	0
Tache	July 24, 1975 (p.m.)	5	11
General Vanier	July 25, 1975 (p.m.)	11	6

APPENDIX E1

Number and Percent of Sponges Thrown at Confederate for Subjects in Experiment II (Television Experiment), by Socioeconomic Status (SES), Sex, Age, and Television Condition

		No-Television Control		Track Meet		Hockey Game		S.W.A.T.	
		No. of Sponges	Percent	No. of Sponges	Percent	No. of Sponges	Percent	No. of Sponges	Percent
High SES		6	75.0	1	7.7	4	57.1	1	11.1
	aged 6 & 7	3	30.0	0	0	0	0	4	44.4
Males		3	27.3	0	0	3	37.5	2	20.0
	aged 8 & 9	2	20.0	5	50.0	0	0	2	16.7
		7	58.3	4	30.8	1	9.1	5	41.7
		4	19.0	1	7.1	1	16.7	3	33.3
	aged 6 & 7	0	0	5	45.5	0	0	0	0
Females		3	37.5	1	33.3	0	0	0	0
		6	60.0	2	18.2	5	62.5	2	50.0
	aged 8 & 9	2	22.2	1	12.5	3	23.1	2	25.0
		4	50.0	1	11.1	15	100.0	2	25.0
		0	0	3	23.1	0	0	6	54.5
Low SES		0	0	3	30.0	0	0	4	50.0
	aged 6 & 7	0	0	1	11.1	1	12.5	5	50.0
Males		5	55.6	0	0	0	0	4	50.0
	aged 8 & 9	7	77.8	0	0	0	0	0	0
		7	53.8	7	46.7	0	0	2	16.7
		6	66.7	0	0	0	0	7	53.8
	aged 6 & 7	6	100.0	0	0	0	0	3	37.5
Females		0	0	4	57.1	6	54.5	0	0
		2	40.0	0	0	2	25.0	1	16.7
	aged 8 & 9	5	45.5	0	0	0	0	1	9.1
		0	0	2	20.0	0	0	0	0
		1	11.1	2	25.0	7	58.3	3	33.3

APPENDIX E2

Number and Percent of Sponges Thrown at Confederate for Subjects in Experiment II ("Guns and Cars" Experiment) by Sex and Toy Condition

	Guns		Cars	
	No. of Sponges	Percent	No. of Sponges	Percent
Males	16	84.2	1	8.3
	7	70.0	1	16.7
	6	54.5	3	25.0
	2	16.7	7	70.0
	8	61.5	1	11.1
	0	0	0	0
	5	83.3	1	9.1
	1	9.1	2	28.6
	14	82.4	0	0
	6	37.5	1	12.5
	6	50.0	9	69.2
	1	7.7	6	42.8
	2	11.8	1	7.1
	2	25.0	4	57.1
Females	1	14.3	0	0
	0	0	0	0
	5	50.0	6	50.0
	2	25.0	6	66.7
	2	14.3	2	40.0
	0	0	3	33.3
	0	0	1	7.1
	2	16.7	0	0
	0	0	3	42.8
	1	8.3	0	0
	2	16.7	4	40.0
	1	10.0	0	0
	0	0	1	7.7
	0	0	5	41.7

APPENDIX F1

Playgrounds and Recreation Centers at Which Experiment III (Television Experiment) Was Carried Out

Playground	Date	Male Subjects	Female Subjects
Heritage-Victoria	August 13, 1975 (a.m.)	0	6
Northwood	August 13, 1975 (p.m.)	6	0
Van Belleghem	August 14, 1975 (a.m.)	3	9
Wildwood	August 14, 1975 (p.m.)	5[a]	0
Morse Place	August 15, 1975 (a.m.)	3	3
Victoria	August 15, 1975 (p.m.)	5	3
Pierre Radisson	August 19, 1975 (a.m.)	0	3

[a] Originally, 6 male subjects served in the television experiment, but one was eliminated because he was allergic to ice cream, and therefore could not be assumed to be "frustrated" in the same sense as the other subjects by the loss of his ice cream to the confederate.

APPENDIX F2

Playgrounds and Recreation Centers at Which Experiment III ("Guns and Cars" Experiment) Was Carried Out

Playground	Date	Male Subjects	Female Subjects
Northwood	August 13, 1975 (p.m.)	2	0
Wildwood	August 14, 1975 (p.m.)	1[a]	2
Victoria	August 15, 1975 (p.m.)	0	2
St. Boniface East	August 18, 1975 (a.m.)	3	0
Frank White	August 18, 1975 (p.m.)	2	2
Pierre Radisson	August 19, 1975 (a.m.)	5	4
Clifton	August 19, 1975 (p.m.)	0	4
Prendergast	August 20, 1975 (a.m.)	2	4
Howden	August 21, 1975 (a.m.)	2	3
Lipsett Hall	November 8,1975 (p.m.)	2	3
Earl Grey	November 29,1975(a.m.)	0	4
Rockwood	December 4,1975 (p.m.)	12	0

[a] Two male subjects served originally in the "Guns and Cars" experiment at Wildwood, but one was eliminated because he was allergic to ice cream. (See the note to Appendix F1; two subjects at Wildwood were eliminated for this reason.)

APPENDIX G1

Number and Percent of Sponges Thrown at Confederate for Subjects in Experiment III (Television Experiment) by Sex and Television Condition

	Track Meet		S.W.A.T.	
	No. of Sponges	Percent	No. of Sponges	Percent
Males	2	16.7	2	22.2
	7	46.7	3	23.1
	0	0	1	16.7
	1	14.3	4	44.4
	3	23.1	5	45.4
	7	100.0	0	0
	7	63.6	4	23.5
	0	0	2	16.7
	1	9.1	12	100.0
	4	66.7	0	0
	0	0	1	5.5
Females	1	11.1	4	50.0
	0	0	3	33.3
	0	0	4	50.0
	0	0	3	37.5
	1	12.5	2	22.2
	2	28.6	1	11.1
	1	11.1	6	50.0
	0	0	4	40.0
	12	100.0	0	0
	5	55.5	0	0
	4	57.1	5	38.5
	0	0	2	20.0

APPENDIX G2

Number and Percent of Sponges Thrown at Confederate for Subjects in Experiment III ("Guns and Cars" Experiment) by Sex and Toy Condition

	Guns		Cars	
	No. of Sponges	Percent	No. of Sponges	Percent
Males	8	57.1	0	0
	0	0	1	12.5
	0	0	5	45.5
	2	10.5	1	10.0
	3	30.0	4	44.4
	10	58.8	5	31.2
	6	54.5	2	5.4
	6	75.0	1	8.3
	2	33.3	1	6.2
	5	50.0	2	22.2
	0	0	1	8.3
	4	33.3	2	15.4
	11	84.6	0	0
	2	10.5	5	35.7
	3	20.0	7	41.2
			9	50.0
Females	5	33.3	8	61.5
	5	33.3	0	0
	1	10.0	0	0
	6	54.5	1	7.7
	4	28.6	6	85.7
	0	0	6	60.0
	0	0	0	0
	1	12.5	3	30.0
	6	54.5	2	10.7
	1	11.1	1	7.1
	3	25.0	0	0
	4	30.8	0	0
	4	40.0	3	20.0
	1	9.1	1	8.3