

DOCUMENT RESUME

ED 065 175

PS 005 689

AUTHOR Thomas, Sally  
TITLE The Role of Cognitive Style Variables in Mediating the Influence of Aggressive Television upon Elementary School Children.  
SPONS AGENCY California Univ., Los Angeles. Early Childhood Research Center.  
PUB DATE 72  
NOTE 73p.  
EDRS PRICE MF-\$0.65 HC-\$3.29  
DESCRIPTORS Age; \*Behavior Change; \*Cognitive Development; Control Groups; \*Elementary School Students; Experimental Groups; Films; Hypothesis Testing; \*Males; Mass Media; \*Television; Test Results

ABSTRACT

A study was conducted to investigate the impact which certain cognitive styles or structures have in mediating the influence of aggressive television on young boys. The subjects were 143 boys, ranging in age from 5-1/2 to 8-1/2 years, attending elementary school in the Santa Monica area. During the first of two sessions, each child was administered various tests. During the second session, the experimental subjects were exposed to one of two experimental conditions: an aggressive film or a nonaggressive film. The control subjects saw no film. Following exposure to the film for the experimental subjects, an aggression measure was obtained in the guise of a guessing game played with a second experimenter (male) who acted as a confederate. Four major experimental hypotheses were advanced: (1) For the 7-1/2 and 8-1/2 year olds, it was hypothesized that the more differentiated the level of cognitive functioning, the less would be the impact of the films; (2) For the 5-1/2 and 6-1/2 year olds, it was hypothesized that the more differentiated, organized, and articulated the level of cognitive functioning, the greater would be the impact of variations in the experimental film condition; (3) It was hypothesized that the level of cognitive functioning would be more differentiated, more elaborated, and articulated as a function of maturity; and (4) It was hypothesized that the level of aggression would be a function of the age of the child with the younger children being more aggressive than the older. Hypotheses 1, 3, and 4 were generally supported by the results of the study. Hypothesis 2 was not supported. The findings of this study indicate that the effects of media depend not only on the nature of the content, but also upon the child's individual cognitive styles.  
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The Role of Cognitive Style Variables in  
Mediating the Influence of Aggressive Television  
Upon Elementary School Children

1972

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PS 005689

This study was a doctoral dissertation under the supervision of Dr. Norma Feshbach and Dr. Evan Keislar. It was carried out through the UCLA Center for Research in Early Childhood Education, sponsored by the United States Office of Economic Opportunity, Contract No. CG 9938, Dr. Carolyn Stern, Director.

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## ABSTRACT OF THE DISSERTATION

### The Role of Cognitive Style Variables in Mediating the Influence of Aggressive Television Upon Elementary School Children

Sally Thomas

The problem of assessing the influence of the mass media, in particular television, upon the aggressive attitudes and behavior of children has been a matter of increasing public concern. Parents, educators, and others have been especially concerned about the potential long term effects of continued exposure to aggressive television. Although there has been considerable research conducted in relation to this issue, the evidence concerning the aggression-stimulating and aggression-reducing effects of exposing children to violent mass media content is conflicting, the results being dependent upon a number of stimulus, situational, and population parameters.

In an effort to resolve the conflicting evidence in the literature, an analysis of the individual differences in cognitive functioning which could mediate the influence of television content on aggression was undertaken. The purpose of the study, therefore, was to investigate the impact which certain cognitive styles or structures have in mediating the influence of aggressive television on young boys.

The subjects were 143 boys, ranging in age from 5 1/2 to 8 1/2 years, attending elementary school in the Santa Monica area. During the first of two short experimental sessions, each child was administered a modification of the Witkin Rod and Frame Test, measuring Field-Independence-Dependence; the Kagan Matching Familiar Figures test, measuring Reflection-Impulsivity; and the Maccoby Draw-A-Line-Slowly test, measuring Motoric-Inhibition-Impulsivity. During the second session, the experimental subjects were exposed to one of two experimental conditions, an aggressive film or a nonaggressive film. The control subjects saw no film. Following exposure to the film for the experimental subjects, an aggression measure was obtained in the guise of a guessing game played with a second experimenter (male) who acted as a confederate.

Four major experimental hypotheses were advanced:

1. For the older boys, the 7 1/2 and 8 1/2 year olds, it was hypothesized that the more differentiated, organized, and articulated the level of cognitive functioning, the less would be the impact of variations in the experimental film condition.
2. For the younger boys, the 5 1/2 and 6 1/2 year olds, it was hypothesized that the more differentiated, organized, and articulated the level of cognitive functioning, the greater would be the impact of the variations in the experimental film condition.



3. It was hypothesized that the level of cognitive functioning would be more differentiated, more elaborated, and articulated as a function of maturity.
4. It was hypothesized that the level of aggression would be a function of the age of the child with the younger children being more aggressive than the older.

Hypotheses 1, 3, and 4 were generally supported by the results of the study. Hypothesis 2 was not supported.

The findings of this study indicate that exposure to aggressive TV content does not necessarily lead to an increase in aggressive responding. Rather, the results indicate that the effects of the media depend not only on the nature of the content, but also upon the children's individual cognitive styles and their characteristic ways of responding to the environment. One important implication of this study is that an evaluation of the ways in which cognitive styles influence children's responses to film media is critical to the development of effective multi-media teaching methods and strategies.

## CHAPTER 1

### INTRODUCTION AND STATEMENT OF THE PROBLEM

It was the purpose of this study to determine the extent to which cognitive style variables mediate the impact of aggressive television on children's behavior. Although a considerable amount of research has been conducted in regard to the impact of the media on children's aggression, it has been exceedingly difficult to demonstrate, empirically, that the violence presented in television is responsible for the development of aggressive behavior in children. The nature of the functional relationship between television and aggression has been and continues to be the subject of considerable controversy and sharp disagreement (Feshbach & Singer, 1970). One argument in this controversy has been that exposing children to violence in the media stimulates and reinforces aggression by providing aggressive role models for imitation and by facilitating the acceptance of violence as an appropriate way of solving social and personal problems (Bandura, Ross, & Ross, 1961; Lovaas, 1961). According to this view, the mass media are seen as contributing to social unrest, crime, warfare, and other forms of aggressive expression.

An opposing argument has been that exposure to the presentation of violence in the media does not necessarily lead to an increase in aggressive behavior. Instead, according to this view, exposure to violent content, and in particular to aggressive fantasy content in television, may serve to reduce and control the expression of aggression in children (Bercovici, 1970; Feshbach, 1968). From this perspective, it has been proposed that exposure to the depiction of violence in the media, permits children to discharge vicariously, in fantasy, aggressive impulses which might otherwise appear as overt behavioral responses.

The results of the research bearing on this issue are inconsistent and frequently conflicting in that both stimulating and inhibiting effects on aggressive behavior have been obtained (Arons & May, 1963; Feshbach, 1970). Correlational studies, relating children's television viewing behavior to personality measures have indicated that highly aggressive children watch more hours of television and have a greater preference for programs depicting aggression than less aggressive children (Eron, 1963; Schramm, Lyle, & Parker, 1961). Other laboratory studies in which children were exposed to aggressive film content and their subsequent behavior was compared with controls who witnessed a neutral film have, with few exceptions, provided substantial evidence of a stimulating effect on aggressive behavior by such processes as modeling and reduced inhibition (Bandura, Ross, & Ross, 1962; Lovaas, 1961; Walters & Thomas, 1963).

The results of a number of field studies have either been ambiguous or have failed to support the proposition that exposure to the media enhances children's aggressive behavior (Bailyn, 1959; Eron, 1963; Schramm,

Lyle, and Parker, 1961). For example, an extensive field study in Great Britain by Himmelweit, Oppenheim, and Vince (1958) in which children who had access to television were carefully matched with children for whom television was not available, failed to yield any significant differences between television "viewers" and "nonviewers" on measures of aggression, delinquency, and maladjustment. The results of a field study reported by Feshbach and Singer (1971) in which laboratory methods were employed in a naturalistic setting indicated that exposure to aggressive content in television may serve to modulate rather than stimulate aggressive behavior in certain groups of preadolescent and adolescent boys.

While some of these discrepancies in the literature may be attributed to differences in experimental procedures or in the nature of the response measures employed, it seems evident that differences in subject factors must also be involved. For example, there may be consistent, reliable differences in the effects of exposing children to violence in the media which are related to such factors as the subject's age, ability to imitate responses, initial level of aggression inhibition, ability to fantasize aggressive activity rather than performing overt behaviors, and ability to differentiate reality from the fantasy provided by the media presentation.

In recognition of the possible effects of these and other individual difference variables in mediating the exposure of children to aggressive media content, it has been suggested that the task of assessing the impact of the mass media on children's aggression is one which must include the identification and measurement of those individual differences in affect, perception, and cognition which mediate exposure (Bailyn, 1959; and Maccoby, 1964). The need for further research in this area seems evident. Such investigations should attempt to determine which particular factors have the greatest effect in mediating exposure. Furthermore, the investigations should attempt to determine how these effects are obtained. Despite the need for such information, except for a number of studies of aggressive personality predispositions (Albert, 1957; and Guilford, 1959), very little research has been specifically directed to the question of the effects of individual differences in cognition, perception, or motivation as key variables mediating exposure to aggressive content in television.

There has, however, been a considerable research effort in recent years which has focused on the related dimensions of individual differences in cognition and perception known as cognitive styles. These constructs or dimensions have been described by various researchers as the basic schemas by means of which individuals relate to the environmental events that they experience (Santostefano, 1970), the stable individual preferences in modes of perceptual organization and conceptual categorization by which one relates to the external environment (Kagan, 1963, 1964, 1965), and the individual differences in a variety of cognitive functions which pertain to the structuring of the inner self, the outer world and the interactions between both (Witkin, 1954). Therefore, it seems reasonable to assume that such variables may mediate the impact of television content upon behavior.

The purpose of this investigation was to clarify the role of certain cognitive structures or styles in mediating the impact of violent television content on the aggressive responses of children. The primary intent of the study was not to gain information in regard to the long term, cumulative effects of the continued exposure of children to televised violence. Rather, it was to provide information in regard to the immediate, direct, and specific effects of exposing children with varying cognitive predispositions and perceptual modes to violent content in television. It was also an attempt to test some theoretical issues concerning the effects of individual variation in cognitive structure in mediating a child's interactions with his environment. Although these effects were sought under laboratory conditions in the attempt to gain a relatively high degree of precision in measurement, it was the ultimate concern of the study to consider the effects which might be found in more naturalistic settings.

For the purposes of this study three conceptual or cognitive style measures were employed to investigate the effect of differences in preferred strategies for perceptual analysis in mediating exposure to aggressive television. The selected measures included:

1. A modification of Witkin's Rod and Frame Test
2. Kagan's Matching Familiar Figures test
3. Maccoby's Draw-A-Line-Slowly test.

The underlying dimensions of cognition which these three tests are designed to tap were considered to be particularly relevant to the problem of determining the effects of exposure to aggressive television content upon the performance of subsequent aggressive behaviors. These dimensions or constructs are:

1. Field-Independence-Dependence (Rod and Frame Test)
2. Reflection-Impulsivity (Matching Familiar Figures test)
3. Motoric-Inhibition-Impulsivity (Draw-A-Line-Slowly test).

In consideration of the related research, these particular dimensions of cognitive functioning were selected in order to investigate the impact that such structures might have in mediating the effect of violent television upon children. The complex of cognitive style variables which was selected includes those dimensions which seem especially relevant to the task of attending to, perceiving, and responding to the stimulation which television provides. In addition, they happen to be among the measures of cognitive style for which the greatest amounts of relevant data are already available in the literature, thus providing an opportunity to further extend cognitive theory.

The dimensions which were assessed and the particular tests used in the assessments are, in summary:

1. Field-Independence-Dependence--A modification of the Witkin Rod and Frame Test.
2. Reflection-Impulsivity--Kagan's Matching Familiar Figures test.
3. Motoric-Inhibition-Impulsivity--Maccoby's Draw-A-Line-Slowly test.

### Field-Independence-Dependence

Field-Independence-Dependence is a construct which refers to the way in which an individual organizes his perceptual field. The field-independent person would be relatively more able to perceive a number of discrete parts or sub-elements of a complex perceptual stimulus than would a field-dependent person. The field-dependent individual, on the other hand would tend to perceive a total gestalt of the perceptual field with relatively little differentiation of the complex stimulus into its parts (Santostefano, 1970). Field-dependence, furthermore, is characterized by the tendency to use external cues from the visual world as the basis for spatial orientation. Field-independence, in contrast, is characterized by the tendency to rely upon internal kinesthetic or bodily cues as the basis for spatial orientation. The critical element in performance on the Rod and Frame Test, which is used to tap the Field-Independence-Dependence dimension, is the ability to overcome an embedding context (Kagan, 1966). In this case, it is the ability to separate a rod from the context of a tilted frame in which it is embedded in an effort to adjust the rod to the true vertical.

In terms of implications for the effects of this cognitive style dimension upon exposure to aggressive television, it has been suggested that field-dependent children are more alert and more receptive to social influence of which television is a prime example (Kagan, 1966). Therefore, it seems reasonable to hypothesize that children who are more field-dependent will be more easily and profoundly influenced by what they are exposed to in television than will field-independent children.

### Reflection-Impulsivity

The second dimension to be assessed, Reflection-Impulsivity, refers to the extent to which an individual reflects on the validity of his response or his solution to a problem in situations which allow for response uncertainty (Kagan, 1966). This measure taps the ability of an individual to delay perceptual or conceptual responses until he feels he has analyzed or processed information accurately. A child who is characterized as reflective on this dimension would tend to spend more time and would deploy his attention with a greater degree of concentration to a perceptual task than would a child rated as impulsive. The latter child would be rather more unfocused and distracted in his orientation to the problem. The time taken to solve a perceptual problem would be greater for the reflective child, but the number of errors would be smaller. Analytic or reflective individuals typically spend more time scanning stimulus displays than do impulsive subjects who scan the display more rapidly, respond quickly and are more likely to make errors (Kagan, 1964). The Matching

Familiar Figures test is the specific test of this disposition which is most frequently used. The child's task in this test is to select the one stimulus figure from an array of seven, which is exactly identical to the standard. The other six comparison figures differ from the standard only in slight details. The number of errors to the correct choice and the response time to the first guess are the two most important measures. A long response latency and a low error total indicate a reflective attitude.

In regard to implications of the effects of this conceptual style upon exposure to aggressive television, it has been suggested that Impulsivity is related to a relative lack of anxiety about making a potentially inaccurate or socially inappropriate response (Kagan, 1966). Reflectivity, on the other hand is said to be related to an over concern with the making of an incorrect or inappropriate response. Therefore, in regard to the learning and performance of social behaviors such as aggression, one investigator (Kagan, 1970) has hypothesized that the reflective child might be the one who has been continually reinforced for the inhibition of impulsive, antisocial or other inappropriate behaviors and has therefore developed anxiety over it in terms of commitment of socially inappropriate behaviors. The impulsive child on the other hand, might be the one who has experienced most of his reinforcement in terms of adult approval for active performance or accomplishment rather than for inhibition of inappropriate behavior. A study by Weintraub which was reported by Kagan provides some support for these propositions in that boys who exhibited externally directed, antisocial behaviors such as "aggression, lying, cheating, and delinquency were dramatically more impulsive on the Matching Familiar Figures test" than children who were either normal or overly inhibited in terms of social behaviors. In light of the above implications, then, it seems reasonable to hypothesize that reflective boys will be more likely to inhibit the expression of aggressive, antisocial behavior following exposure to aggressive television than will boys who are impulsive.

#### Motoric-Inhibition-Impulsivity

The dimension of Motoric-Inhibition-Impulsivity which was developed by Maccoby and her associates (1965), refers to an individual's ability to inhibit spontaneous motor activity in the service of a task. The cognitive process which underlies an individual's ability to maintain a set to respond to a task, particularly when under instruction to do so, is according to Kagan, an important variable in mediating the quality of performance in young children. In attempting to assess the differential impact of a stimulus presentation upon a child, one must have some measure of the child's motivation and/or ability to attend to that presentation. The lack of ability to inhibit spontaneous motoric discharge in terms of restlessness, distractibility and competing activities may be a central factor in accounting for differential performance of various response groups who have been exposed to the same materials (Kagan & Kagan, 1970; Maccoby, Dowley, Hagen, & Degerman, 1965).

The Draw-A-Line-Slowly test is one of several assigned activities which have been developed to tap this disposition. In this test the child is instructed to draw a straight line from a point at the top of an unlined

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sheet of paper to a point at the bottom. Length of time for the child to draw the line from the upper point to the lower point is the measure of Motoric-Inhibition-Impulsivity. The longer the time taken, the greater the child's motoric-inhibition in the service of the task.

In regard to the implications for the effects of this particular characteristic upon exposure to aggressive content in television, it seems reasonable to hypothesize that whatever the effect of the exposure is, the impact will be greater for those children who were able to maintain a set to respond to the presentation. It may also be that this construct is related to the Impulsivity-Reflectivity dimension as a motoric rather than perceptual measure. If this is the case, one could also hypothesize that the more impulsive an individual child is across modalities (perceptual and motoric), the more likely he is to fail to inhibit antisocial, aggressive behavior.

In order to determine the nature of the effects of age differences in regard to the cognitive style measures and in regard to the expression of aggression following exposure to aggressive and non-aggressive television films, subjects were drawn from four age levels (5 1/2, 6 1/2, 7 1/2, and 8 1/2 years).

In order to assess the effects of exposure to variations in television film content, one-third of the subjects at each age level were exposed to an experimental condition of a six-minute aggressive film (videotape), one-third were exposed to an experimental condition of a six-minute non-aggressive film, and one-third were assigned to a no film control group. Following this exposure, in order to assess the effects on the children's aggressive behavior, a measure of aggression was obtained in the guise of a "guessing game" played with the experimenter and a second experimenter who acted as a confederate. During the "game" each subject was given the option of exposing the confederate to a very noxious noise whenever he made an incorrect guess. The frequency with which the subject administered the most noxious noise to the confederate constituted the dependent measure of aggression.

#### Experimental Hypotheses:

The following hypotheses were advanced for this study.

Hypothesis 1: For the older boys it was hypothesized that the more differentiated articulated, controlled, and organized the level of cognitive functioning, the less the impact of the variations in the experimental television film conditions.

#### Predictions:

- 1) For the older boys who are highly field-independent (in terms of the Witkin measure) there will be significantly smaller discrepancies between the mean scores for the experimental and control groups on the aggression measure than those for the field-dependent boys.

- 2) For the older boys who are highly reflective (in terms of the Kagan Matching Familiar Figures Test) there will be significantly smaller discrepancies between the mean scores for the experimental and control groups on the aggression measure than those for the less reflective boys.
- 3) For the older boys who are motorically inhibited (in terms of the Maccoby-Draw-A-Line-Slowly test) there will be significantly smaller discrepancies between the mean scores for the experimental and control groups on the aggression measure than those for the boys who are motorically impulsive.

Hypothesis 2: For the younger boys, it was hypothesized that the more differentiated, articulated, controlled, and organized the level of cognitive functioning, the greater the impact of the variations in the experimental film condition.

Predictions:

- 1) For the younger boys who are highly field-independent (in terms of the Witkin measure) the discrepancies between the mean scores, on the aggression measure for the experimental and control groups will be significantly greater than the comparable discrepancies for the field dependent boys.
- 2) For the younger boys who are highly reflective (in terms of the Kagan Matching Familiar Figures test) there will be significantly greater discrepancies between the mean scores for the experimental and control groups on the aggression measure than those for the less reflective boys.
- 3) For the younger boys who are motorically inhibited (in terms of the Maccoby Draw-A-Line-Slowly test) there will be significantly greater discrepancies between the mean scores for the experimental and control groups on the aggression measure than those for the boys who are motorically impulsive.

Hypothesis 3: It was hypothesized that the level of aggression would be a function of the age of the child; that is, that the younger children would be significantly more aggressive than the older ones.

Hypothesis 4: It was hypothesized that the level of cognitive functioning would be more differentiated, more organized, elaborated, and more articulated a function of maturity.

Predictions:

- 1) The older boys would be significantly more field-independent (in terms of the Witkin measure) than the younger boys.
- 2) The older boys would be significantly more reflective (in terms of the Kagan Matching Familiar Figures test) than the younger boys.



- 3) The older boys would be significantly more motorically inhibited in the service of a task (in terms of the Maccoby Draw-A-Line-Slowly test) than the younger boys.

It will be noted that no specific predictions were made concerning the direction of influence of the violent television content on the children's aggressive behavior. Evidence concerning the aggression stimulating and aggression decreasing effects of observation of TV aggression is conflicting, the effects being dependent upon a number of stimulus, situational, and population parameters. It is essentially proposed here that, whatever the direction of the effect, it will be greater for field dependent children in the younger age group.

While no specific predictions were made, the interrelationships between the measures of cognitive style and the measure of aggression were also analyzed.

## CHAPTER 2

### REVIEW OF LITERATURE

The problem of assessing the influence of the mass media, in particular television, upon the development of aggression in children has been a matter of increasing public concern. Parents, educators, and others dealing with children have been particularly concerned about the potential effects of continued long term exposure to aggressive content in television (Feshbach, 1970; Klapper, 1960; and Smythe, 1955). This concern has been reflected in the passionately stated opinions of non-professionals as to the good and evil effects of the media as well as in the relatively dispassionate efforts of researchers to delineate the specific effects.

The task of the researchers in this area has been difficult because of the variety and complexity of factors involved. First, the effects of the mass media on children's aggression can be both general and specific. In studying general effects, one is concerned with the psychological and social problems of a large society in which the media, especially television, play a very important role. In studying specific effects, the concern is with the personal exposure of the individual child or group of children. When the level of inquiry is restricted to that of specific effects, the researcher must still decide whether to study the direct or the indirect effects. Direct effects have to do with the influence of the media on a particular child's overt aggressive behaviors as well as on his attitudinal and response characteristics (Bailyn, 1959), whereas indirect effects have to do with those influences on parents, teachers, and others whose behavior affects the individual child or group of children.

Furthermore, even when the consideration is limited to the specific and direct effects of the media upon the individual child, there still remains the problem of determining which of the range of possible effects are to be studied. For example, the research may be most concerned with whether the media have a great or small effect upon the child's attitudes toward aggression; whether his rate or frequency of aggressive responding is increased or decreased; or whether his mode of aggressive responding is affected.

Finally, after the investigation is focused upon a particular set of variables, the investigator must take into account the nature and effects of the mediating factors which affect the responses of the child to the media content. Such mediating factors include the child's general attentiveness to visual and auditory stimuli, his characteristic ways of perceiving and processing information, and his perception of the content as either real or unreal. The major focus of this study was on the identification and measurement of such mediating factors as they relate to aggressive responding in children.

## Effects of the Media on Aggression

According to Maccoby (1964), the nature of the effects of the media on the development of aggression in children is dependent upon a number of limiting variables or conditions. Loosely categorized, such variables might include the quality of the individual child's personal adjustment and needs, the strength of his existing values, attitudes and beliefs in regard to aggression prior to exposure, the nature of his temperament and intelligence, and finally the opportunities which occur in real life for the child to put into practice what he has learned from the mass media. It seems apparent then that the necessary data for a study of the effects of the media on children's aggressive behavior would include knowledge of:

1. The medium of presentation
2. The kind of material to be presented
3. The pre-exposure psychological or emotional conditions of the children
4. The children's individual characteristic ways of perceiving material
5. The opportunities available for the expression of aggression after exposure.

A considerable effort has been expended in the investigation of some of these variables, less in the case of others. The problem of determining differences in the effects of various forms of the mass media has been fairly well examined (Feshbach, 1970; Houtt, 1949; Klapper, 1960; Lewin, 1953; and Riccutti, 1951). Differences in the content of the aggressive materials and the ways in which crime and violence are presented have also been studied to moderate extent (Aarons & May, 1963; Banay, 1955; Head, 1954; and Siegal, 1958).

Perhaps the variables which have received the most attention are those which are concerned with the pre-exposure psychological and emotional conditions of the subjects. Some of these investigations were studies of aggressive personality predispositions and preferences for aggressive content in pictorial media (Albert, 1957; Bailyn, 1951; Emery, 1959; Eron, 1963; Feshbach, 1970; and Schramm, Lyle, & Parker, 1961). Others were concerned with investigating the effects of pre-exposure frustration and arousal upon the subject's physical and verbal responses to the media content (Berkowitz, 1966; Dollard et al, 1939; Feshbach, 1955, 1956, 1961, 1964, 1970; Lesser, 1962; Lovaas, 1961; Mallick & McCandless, 1966; and Mussen & Rutherford, 1961).

The purpose of these studies and others was to determine the extent to which pre-exposure frustration influences the impact which mass media content has in terms of stimulating post exposure aggression. Another impetus for such studies was the desire to gain a better understanding

of some of the antecedent conditions under which exposure to aggressive television content may provide a cathartic effect in reducing the instigation to aggression.

Another set of variables for which a considerable amount of data is available are those which are concerned with response measures following exposure to the media (Bandura, 1961; Bandura, Ross, & Ross, 1963; Feshbach, 1955, 1956; and Lovaas, 1961). For example, much information has been obtained from the studies of modeling effects, in regard to the post exposure conditions under which a stimulating effect on aggressive responding has been obtained. Likewise, a number of studies have been conducted, utilizing a variety of paradigms, which have employed different response measures of aggression such as balloon breaking (Mussen & Rutherford, 1961), the administration of aversive stimuli to peers (Buss, 1961; Williams, 1967), verbal and written expressions of hostility (Feshbach, 1955, 1956; and Mallick & McCandless, 1966), physical attacks against inanimate objects (Lovaas, 1961), memory for aggressive materials (Maccoby, Lewin, & Selye, 1956; Maccoby & Wilson, 1957), and changes in social interaction and play (Feshbach, 1967; Siegal, 1956; and Walters, et al., 1962).

The literature provides ample evidence that the mass media content to which children are exposed, does have an effect. However, there appear to be a number of areas of conflict or disagreement as to the nature of the effects. This is largely due to the variety of ways in which the effects have been sought, and the types of variables with which the research was concerned.

For example, a number of experimental studies have been conducted which pertain directly to the question of the stimulating and shaping effects of the media on children's aggression. Such studies have yielded fairly consistent data indicating either relative or absolute increases in children's aggressive responding (Feshbach, 1970). The results from laboratory studies primarily concerned with the effects of imitation and modeling, indicate that aggression in the media can lower aggressive inhibitions, and elicit and shape the aggressive responses of children (Bandura, 1962; Bandura, Ross, & Ross, 1963; Bandura & Walters, 1963; Berkowitz, 1962, 1969; and Lovaas, 1961). Such findings provide support for the hypothesis that one effect of the media is to stimulate and reinforce aggressive behavior.

It should be noted, however, that the modeling studies in which stimulating effects were found have demonstrated only short term effects on young children's aggressive responding. They have not shown media-induced changes in children's persistent modes of conduct over long periods of time nor more generalized changes in attitudes toward aggression (Berkowitz, 1962). Additionally, the question remains as to whether similar effects would be obtained with older children. It seems clear that the evidence for increased aggression provided by the modeling studies, may be due, in some part, to the experimental situations or the nature of the response measures employed. It has been noted that "the more similar the response assessed in the dependent measure to a rewarded

aggressive act in the film presentation, the greater the likelihood of finding evidence of an increment in aggression" (Feshbach, 1968).

In contrast to the stimulation effects generally obtained in the laboratory studies of modeling and imitation, a recent field investigation by Feshbach and Singer (1970) has provided some evidence that the long-term effect of viewing aggressive television may be to reduce or control the expression of aggression in some children rather than to stimulate or increase it. In this study, differential exposure to aggressive and non-aggressive television viewing was varied experimentally over a six-week period in order to assess the effect on the aggressive attitudes and behaviors of 665 boys in seven different settings. The most impressive finding was that the frequency of verbal and physical interpersonal aggression was consistently higher for boys in the control group exposed to non-aggressive television content as compared to the experimental group who had viewed only aggressive television programs throughout the six-week period. In contrast to the modeling studies, the results from this extended field study offer little support for the hypothesis that exposure to aggressive content in television necessarily leads to an increase in aggression.

A close examination of this finding indicates that the greatest difference between the experimental and control groups in aggressive behavior directed toward peers was for those boys who were initially predisposed to aggression and hostility. That is, for those boys who were above the mean on a questionnaire measure of hostility, the effect of continued exposure to aggressive television was a reduction or inhibition of aggressive behavior. Feshbach (1970) interprets this specific finding as well as his main experimental finding in terms of the "cognitive support hypothesis." This hypothesis proposes that aggressive television content provides some cognitive support in terms of "binding" and regulating the aggressive impulse of boys with strong aggressive tendencies. Removal of this cognitive support by the elimination of aggressive television programs may have produced the increment in overt aggressive behavior obtained from the control group. Such an interpretation of these findings suggests the importance of considering the role of individual differences in cognitive structures or needs for external cognitive supports in mediating the impact of aggressive television upon children (Feshbach, 1971).

Numerous researchers have directly or indirectly referred to the need for clarification of the function of individual variations in cognitive process in accounting for differential responses to aggression in the media. Berkowitz (1961) suggests that individual differences in terms of "predispositions to be readily aroused, or to be quick to respond" are mediating processes which predispose children to be particularly susceptible to the influence of the mass media in the eliciting or shaping of their aggressive behaviors. Buss (1961) in his review of the psychology of aggression has hypothesized that the stylistic or typical modes of responding of an individual, influence to a fairly great extent, the development of aggression and the nature of that individual's responses to aggressive stimulation. Such stylistic variables according to Buss are:

impulsiveness, independence, activity level and intensity of reaction (liability). He also points out that very little, if any research has focused on the function of such variables. Maccoby (1964) has stated clearly her position on the importance of individual differences in cognition as mediating the effects of violence in the media upon children:

It would be a mistake to assume that the impact of the mass media would be constant or even similar, from one child to the next. The child is not a passive entity, simply absorbing like a sponge whatever is offered to him. He is an active selector of what mass media materials he will expose himself to in the first place; and even during exposure ... he deploys attention selectively and what he remembers varies accordingly. Furthermore, what a child does take in has a different aspect, depending upon his pre-existing level of information, the nature of his needs, and the quality of his adjustment to his life situation.

Maccoby's point is that the appropriate question is not whether the media have an effect, but rather, what kind and how much of an effect on which kinds of children? Secondly, under what conditions will these effects be exhibited?

Over and above the differences due to the experimental settings, or the particular response measures employed, it would appear that some of the areas of conflict or disagreement in the literature may be due to differences in subject factors. A review of the research seeking possible correlations between predispositional characteristics of children and various indices of aggression reveals much concern with the physical, social, and personality dimensions of development as they may be related to aggressive behavior. Some researchers have focused upon the relations between physique, temperament and aggressive disposition (Davidson, McInness, & Parnell, 1957; Walker, 1962). Others have investigated the effects of age, sex, and birth order upon aggressive behavior (Koch, 1955; MacFarlane, Allen, & Honzik, 1954; and Sears, P., 1951). Still others have been concerned with the effects of socialization variables such as those reflected in dependency behavior (Beller, 1959; Sears, Whiting, Nowlis, & Sears, 1953), empathy behavior (Feshbach & Feshbach, 1968), and measures of aggression-anxiety (Ross, 1963; Sanner, 1964; and Sears, 1961).

Such studies are of theoretical and practical importance in terms of clarifying the different influences on the development of aggressive behavior patterns. However, they are not directly relevant to understanding the nature and effects of individual difference variables which mediate the relations between the child, his exposure to aggressive content in television, and his subsequent aggressive responses. In this regard, the appropriate question to be asked is: What are the influencing factors which mediate the impact of aggressive television upon the responses of children?

To address this question, one must consider the possible effects of a number of affective, perceptual, and cognitive variables which directly

pertain to how individuals perceive, process, and respond to auditory and visual stimulation. First, individual differences in emotional lability or the tendency to be easily aroused could mediate the impact of television content on children's responses. In one study where vigorous, exciting but non-aggressive behavioral stimulation was provided by means of a film, the results indicated an apparent disinhibition of aggressive behavior along with generalized arousal in young boys (Bandura, Ross, & Ross, 1963). This suggests that an exciting stimulus, regardless of its aggressive content may facilitate the expression of aggression in some individuals.

Secondly, differences in children's abilities to clearly distinguish between reality and unreality could be of considerable importance in mediating the impact of that presentation upon a child. For example, there could be individual differences in children's abilities to discriminate between situations in which violence is presented on television and the events occurring in their real life situations.

Thirdly, differences in children's susceptibility to modeling influences could mediate the impact of aggressive television. For example, the fact that younger children are more likely to imitate than older, or that children are more likely to imitate a model of the same sex indicates that there are fairly reliable differences in the effects which televised violence could have on children. Such variability in the tendency to incorporate and reproduce the aggressive behaviors of models is to a great extent dependent upon the particular motivational consequences of the behaviors for the children (Feshbach, 1970).

In addition to differences in emotionality, affective responding, and tendencies to imitate certain classes of behaviors, there are also important individual differences in children's perceptual modes, intellectual functions, and cognitive structures which may mediate the impact of television on children's aggression. Included among such elements of cognition are variables such as attending behaviors. This general category might include differences in: the child's level of orienting or attending to the visual and auditory stimulation, his ability to sustain attention to a continuing stimulus presentation, and his ability to inhibit distracting motor behaviors while attending.

Another set of cognitive variables are those which relate to an individual's characteristic ways of perceiving his environment. For example, individual children might differ in the rate at which they are able to deal with the visual and auditory perceptual stimulation which television provides. Children might also differ in terms of preferred perceptual strategies. Some might, for example, tend to scan the visual field rapidly while others would focus and re-focus upon different aspects of it. Children might also differ perceptually according to whether they tend to break down a complex stimulus into many discrete parts or whether they tend to perceive the visual field as a whole with relatively little differentiation (Kagan & Kagan, 1970).

A third category of cognitive variables which could mediate the impact of television includes those which are involved in information

processing and problem solving. For example, individuals might differ in their ability to delay or inhibit the making of overt behavioral responses to stimulation in order to allow for more carefully rehearsed or elaborated responses. The lack of this ability would be expressed by some individual's relatively short latencies of response to stimulation and by the relatively poor quality of their responses. Individuals also differ in their preferred strategies for hypothesis testing. These are the particular patterns of ideation which individuals employ in considering alternative solutions and arriving at decisions or final behavioral responses. For some individuals this process of hypothesis testing may be very methodical and lengthy, for others the process may be very brief.

There are a number of other cognitive structures or processes which ought to be enumerated since they could have considerable influence upon the child's response to aggressive content in television. But these particular structures are not easily categorized nor are their effects as clearly distinguishable. Such variables would include differences in the individual's abilities to rely upon internal fantasy resources, such as day dreaming, night dreaming, imagining, story writing, pretending, and role playing. Closely related are differences in abilities to think creatively versus concretely, to formulate novel responses and to find more than one solution to a given problem. Differences in the ability to break set or to reinterpret the significance of familiar stimulus patterns would also be included in this general category.

In order to determine whether such differences in characteristic ways of perceiving, thinking, and responding to stimuli could mediate the effect of exposure to aggressive television, one would first have to identify the presence of such perceptual and cognitive structures in children. Secondly, one would have to provide for controlled exposure of the children to aggressive television content. Finally, one would have to obtain evidence of differential aggressive responding related to the cognitive variables in test situations following the exposure. With such evidence, one could reject the notion that the exposure of children to violent television content has a nonspecific or generalized effect in terms of either stimulating or inhibiting aggression. The focus of this investigation, therefore, was upon identifying and measuring the extent to which such cognitive variables mediate the impact of violent television content on aggressive responding in children.

### Cognition

One line of research which would seem to be particularly relevant to the stated focus of this study is that which has been conducted in the area of cognition. The term "cognition" according to one of the leading researchers in the field, typically refers to those hypothetical psychological processes which are invoked to explain overt verbal and motor behaviors as well as some physiological responses (Kagan & Kogan, 1970). Generally included are such functions as imagination, attention, perception, reflection, hypothesis formation, dreaming, problem-solving, decision-making, memory, thought, and reason. Research in the area of cognition in recent years has been particularly concerned with attempting to provide structure in regard to the reliable variability which is so



characteristic of human cognitive functioning. For within the normal range of individual differences in perceptual and intellectual behavior, there would appear to be large variations in cognitive organization which both distinguish individuals from one another and are related to other aspects of intellectual and affective development (Bercovici, 1970). Despite considerable renewed interest in the area of cognition beginning approximately 20 years ago (Kagan, 1966) the empirical evidence for relationships between variations in cognitive structure, and variations in overt behavioral responding is as yet incomplete.

### Cognitive Style

As a consequence of the renewed interest in the broader topic of cognition, there has developed an important area of psychological investigation which is concerned with the problem of individual variation in cognitive processes. This line of research includes the study of affective, motivational, and personality traits, as well as perceptual, intellectual, and conceptual processes. The aim of such research has been to define and measure the stable stylistic preferences in mode of perceptual organization and conceptual categorization which an individual employs in organizing and responding to his environment (Gardner, Holzman, Klein, Linton, & Spence, 1959; Kagan, Moss, & Sigel, 1963; and Witkin, Dyk, Goodenough, & Karp, 1962).

A number of constructs of cognitive or conceptual style have been identified or developed. Among such constructs are the dimensions of Reflection-Impulsivity, Field-Independence-Dependence, Motoric-Inhibition-Impulsivity, and Leveling-Sharpening. According to Kagan (1965) a careful analysis and evaluation of these and other variables which influence an individual's way of perceiving and responding to stimulation from his environment is essential to gaining an understanding of his final behavioral performance. Kagan has suggested that all of the overt behavioral responses of an individual are to some extent determined by his preferred modes of interpreting, transforming, and integrating the information with which he is presented. Thus, the obtaining of independent measures of reliable differences in modes of cognitive functioning is basic to an understanding of the dynamics of overt behavioral performance.

The relevance of this line of investigation and conceptualization to the problem of the effects of the media on children's aggression seems clear. If one is to understand why consistent individual differences occur in overt behavioral responding following exposure to violent content in television, one must have information as to the nature of the cognitive structures which influence exposure to and perception of that content.

## CHAPTER 3

### METHOD

#### Subjects

A total of one hundred forty-three white male children were randomly selected from a population of middle class children enrolled in a public school in the Santa Monica area. Of the total number of children, 36 were 5 1/2 year-old kindergarteners, 30 were 6 1/2 year-old first graders, 36 were 7 1/2 year-old second graders, and 41 were 8 1/2 year-old third graders.

#### Procedure

The procedures were administered to the subjects in two experimental sessions. The subjects were selected in a randomized order from those available in the four classrooms at each grade level. Each child was escorted individually by the experimenter (E) to a small experimental room. Before each session E tried to establish rapport with each child by chatting with him in an effort to make him comfortable in the situation. The nature of each task was explained to the child by E to make certain that each child understood what was expected of him before the beginning of each experimental task. At the end of the experimental session, each boy was escorted back to the classroom or yard by E.

#### First Experimental Session

During the first experimental session the Draw-A-Line-Slowly test (DALs), the Matching Familiar Figures test (MFF), and a modified Rod and Frame Test (RFT) were given to each child individually by E.

Description and Administration of the Draw-A-Line-Slowly test. To assess the ability to inhibit spontaneous motor activity in the service of a task, the DALs was administered to each subject in the following manner. The child was seated by E in a chair in front of a table and a blank sheet of 8 1/2 x 11 inch white unlined paper was placed before him. E handed a crayon to the child and took one of a different color for himself. E then demonstrated the first part of the task to the child while saying:

"I am going to draw a line real fast."

E very quickly drew a line from the top to the bottom of the page. E then said to the child:

"Now you draw a line real fast, right here" (showing the child where to begin by pointing to the top of the page).

After the child had drawn his line next to E's, E gave him another blank sheet of paper and said:

"Now watch what I'm going to do. I'm going to draw a line ver-r-r-y slo-o-o-wly ... just as slo-o-o-wly as I can" (dragging out the words in the instructions to emphasize the slowness).

This time E took approximately 20 to 25 seconds time to draw the line. E then said to the child:

"Now you draw a line just as slo-o-o-wly as you can."

This time E began timing the child with a stop watch as soon as the child's crayon touched the paper and he began to draw. He stopped the watch when the child was finished. If the child lifted the crayon off the paper, E stopped the watch. He started it again as soon as the child's crayon touched the paper and he resumed the task. The time taken to draw the line was recorded, to the nearest half second on the bottom of the response sheet. These first two tasks constituted the practice trials for each subject.

E then gave the child a third sheet of paper which had two large X's printed on it. The X's were at top and bottom of the otherwise blank page and were exactly 8 inches apart. The child was then told:

"Now I want you to draw a line just as slowly as you can from here to here" (pointing to the X's).

As he was speaking E ran his finger very slowly down the sheet from the top X to the bottom X. Then E pointed to the top X and said:

"Start here."

As in the previous trial E began timing the child as soon as he touched his crayon to the paper to begin drawing and stopped timing as soon as the child lifted his crayon at the bottom of the page. Interruptions in the performance of the task were handled as above and again the drawing time was recorded to the nearest half second on the sheet.

E then placed a fourth sheet of paper in front of the child. This sheet also had the large X's printed at the top and bottom. E said to the child:

"I want you to draw a line from here to here, this time even slower than before."

As in the previous trial, E pointed to the X's as he spoke and again timed and recorded the child's drawing time.

The child's final score was obtained by taking the average length of the lines drawn on the 3rd and 4th trials divided by the average time taken to draw the lines. The obtained score, therefore, was the average

number of inches drawn per second on the 3rd and 4th trials. The smaller the figure thus obtained, the more motorically-inhibited the child was in the service of the task.

Following the administration of the DALs, each child was given an opportunity to stand up, have a drink of water and otherwise relax.

Description and Administration of the Children's Version of the Matching Familiar Figures Test. For this task each boy was seated in a chair at a desk. The selection items for each test trial were placed on the desk, and the standard stimulus was placed perpendicular to the desk and the selection items. Thus, it was possible for the child to view the standard and the variant stimuli (one of which was identical to the standard) at the same time.

E then gave the following instructions to the child.

"I am going to show you a picture of something you know and then some pictures that look like it. You will have to point to the picture on this bottom page (pointing) that looks just like the one on this top page (pointing). Let's do some for practice."

E showed the child the first two practice items. If the subject's first selection was incorrect, E told him so and asked him to try again; if necessary helping him to find the correct answers. Then E said:

"Now we are going to do some that are a little bit harder. You will see a picture on top and six pictures on the bottom. Find the one down here (pointing) that is just like the one on top and point to it."

E then recorded the latency to the first selection to the nearest half second, the total number of errors for each item, and the order in which the errors were made. When the child made a correct response E would praise him. When he made an error, E would say:

"No, that is not the right one. Find the one that is just like this one: (pointing to top picture)."

Whenever the child made a maximum of six errors, E would show him the right answer. A long-response latency and low-error total were taken as indicative of a reflective style; and conversely, a short-response latency and high-error total were indicative of an impulsive cognitive style.

Following the administration of the MFF, each child was given an opportunity to stand up, stretch and walk about the room before going on to the next test.

Description and Administration of the Rod and Frame Test. Each subject individually, was given the RFT to assess Field-Independence-Dependence. The Rod and Frame Test which was used is a modification of Witkin's original RFT, developed by T. Nickel (1970). In the original, the subject was placed in a chair in a totally darkened room. The luminescent rod and frame were mounted on a wall of the room. In the Nickel modification the luminescent rod and frame were mounted on the far end of a totally blackened box, the approximate size of a small suitcase. Both rod and frame could be independently moved or tilted to different angles by E according to the directions of the subject. A black plastic hood which did not allow light to enter was attached to the box. Soft rubber goggles were attached to the hood. The rubber goggles could be slipped over the head of the child and tightened around his head by means of an elastic band. The child was instructed to tell the E when the rod appeared perfectly vertical, disregarding the influence of the tilted frame as much as possible.

The Nickel's modified version of the original Witkin RFT apparatus has been shown to correlate positively with the Children's Embedded Figures Test which Witkin utilized as one measure of Field-Independence (Nickel, 1970). Additional evidence of its construct validity and empirical validity has been reported in a number of other investigations (Bercovici, 1970; Hirsch, 1969).

Since it was essential that the child understand the concept of verticality in terms of "straight up and down" and that he be able to communicate easily to E the direction and amount of adjustment in the position of the rod necessary to bring it to the upright, a practice procedure and comprehension measure were devised.

RFT Comprehension Procedure. The child was seated in a chair in front of E.

1. In order to be sure the child understood the meaning of straight up and down, E said:

"I want to ask you a couple of questions." (E held up pencil, straight up and down) "Do you know what straight up and down is? I'm holding this pencil straight up and down." (E emphasized the verticality by pointing to the pencil with his other hand, moving his hand up and down parallel to the pencil. E then tilted the pencil 45 degrees to the left) "Is it straight up and down now?" (If child answered correctly he was praised. If he was incorrect E corrected him) "No, this isn't straight up and down (then moving pencil slowly to upright), now, it's straight up and down, isn't it?"

This procedure was repeated, alternating the direction of the tilt from left to right until the child made three successive correct responses when the pencil was not vertical and three successive correct responses

when it was. E was not concerned with correcting minor deviations from the upright, an approximate estimate of straight up and down was the desired response.

2. In order to be sure the child could communicate easily to E the direction and degree of change in the rod which he wished to make, E said:

"Now I want you to tell me which way I have to move this pencil to make it straight up and down (holding pencil tilted). You show me which way by pointing with your finger. You say this way and point with your finger like I'm doing" (E pointed with his other hand, the direction which the pencil had to be moved to make it upright), "then I'll move the pencil the way you tell me. Let's try it." (E gave the child four practice trials of pointing the direction, alternating right, left, etc.) "Now this time, I'm going to move the pencil the way you tell me, but I'm only going to move it a little bit and then I'll stop. I want you to tell me if it's straight up and down, or if I need to move it more. You keep telling me 'move it more, this way' and point the way with your finger until it's really straight up and down. Then you say 'stop, now it's straight up and down.'"

E then gave the child a minimum of two practice trials with these directions. E allowed as many repetitions as seemed necessary until the child could communicate easily both the direction and amount of adjustment necessary to bring the pencil to what the child deemed to be the upright.

RFT Procedure for Each Subject. Following completion of the RFT comprehension procedure, the subject was seated in front of the portable RFT so that he might comfortably slip the soft rubber goggles over his head. E then gave the following instructions:

"You put on the rubber goggles which are attached to this box. Inside the box it will be very dark. Against the far wall you'll see a lighted frame. Inside the frame is a lighted rod or stick. You are to tell me if the rod is straight up and down like a telephone pole or a flag pole. If you don't think it's standing up straight like a flag pole, you tell me to move it. You say: 'Move it this way' and point the way with your hand; or 'move it that way' and point the way with your other hand. Then I will move it a little bit and stop. If it is not enough, you say: 'Move it more.' Keep telling me to move it until you think the rod or stick is standing straight up and down like this" (E held up pencil). "When you feel the rod is standing straight up and down, you tell me to stop. If you have no questions, we can begin."

If the child asked questions, answers were avoided except as they related to a further definition of "straight up and down" or to the mode of communication between E and the child.

Using the dials on the back of Nickel's portable RFT, the rod was moved, one degree at a time, in the direction desired by the child. When the child said that the rod appeared straight up and down, the position of the rod was noted.

The next trial began after both the rod and frame were placed at their correct positions for the next trial.

The placement of rod and frame for the four trials were randomly selected. They were:

	<u>Rod</u>	<u>Frame</u>
Trial 1	Left 10°	Right 28°
Trial 2	Right 20°	Right 28°
Trial 3	Right 10°	Left 28°
Trial 4	Left 30°	Left 28°

The use of 28° shifts for the frame is according to Witkin and Asch (1948). The positions of the rod were those which had been used by Nickel (1970). (No information by Witkin or Asch on the placement of the rod was found.)

Each subject's score was the difference in degrees of deviation between the true vertical and the vertical of the rod which the subject indicated while under the interfering influence of the tilted frame. A high score indicated Field-dependence, while a low score indicated Field-independence.

Following the administration of the RFT, each child was escorted back to his classroom or playground by E. The total length of time, including rest breaks, for the first experimental session was approximately 20 minutes per child.

### Second Experimental Session

The experimental measure of post-film aggression was obtained for each child individually during the second experimental session.

Description and Administration of the Experimental Videotape Condition and the Aggressive Measure. Prior to obtaining of the experimental measure of post-film aggression the children were randomly assigned to either one of the two experimental conditions or to the control conditions. The experimental subjects were exposed either to a six-minute aggressive film (videotape) or to a six-minute non-aggressive film. The control subjects were not exposed to any TV films. The aggressive videotape consisted of a six-minute sequence of violent fighting, hand-to-hand combat

and sword play edited from the movie, Prince Valiant. The non-aggressive videotape consisted of a six-minute sequence from a circus movie, carefully edited to control for aggressive content. The appropriate videotaped sequence was displayed to each child individually, on a 16-inch Sony TV monitor. The videotape playback machine was completely hidden from the subject's view. The boy was seated on a chair three feet from the TV screen.

Following exposure to the videotape, each child was asked to play a guessing game with E and a second E (hereafter referred to as the confederate). The boy was told that Mr. X (the confederate) was supposed to guess the color of cards which the child has in front of him. Mr. X could not see the cards as he was seated in a small adjoining room behind a screen. The child was given the option of exposing the confederate to a very noxious noise whenever he made an incorrect guess. The frequency with which the subject administered the most noxious noise to the confederate constituted the dependent measure of aggression. The apparatus and procedure for both the videotaped stimulus presentation and the aggression measure were employed by Bercovici in a master's thesis study of children's aggression (1970).

The apparatus for providing the noxious noise to the confederate and the equipment for recording the level of noise selected by the subject is a modification of Buss' (1961) aggression machine with four intensities of noxious noise substituted for the electric shock of the original apparatus. The redesigned subject's console provides four noise buttons labeled 1 - 3 - 5 - 7.

Aggression Measure Procedure for Each Child. After viewing the appropriate videotape, each subject was told by E:

"Now we are going to play a guessing game with Mr. X" (the confederate, who was sitting in a chair by a desk across the room from the subject during the videotape procedures). "We want to see if Mr. X can guess the color of the cards. If he guesses right, you can press this button and he gets a green light (subject was shown and allowed to push button on left side of console labeled RIGHT). If he guesses wrong, you can press a noise button giving him a loud, unpleasant noise. These are the noise buttons (E pointed to four buttons on right side of console). The number 1 noise is a little loud and unpleasant, the number 3 noise is much louder and very unpleasant, the number 5 noise is still louder and very much more unpleasant, and the number 7 noise is so loud that it really hurts the ears of anyone wearing those earphones like Mr. X has on."

The subject was shown the noise buttons labeled 1 - 3 - 5 - 7 and the first three buttons were pressed successively to demonstrate to the child the different intensities of noise. E demonstrated noise level 1 to the boy while he was wearing the earphones. For the demonstration of



noise levels 3 and 5 the subject held the earphones away from his head. When he reached noise level number 7, the E said:

"This noise is so loud and painful that I'm not even going to show it to you right now."

Noise level number 1 was actually only slightly above threshold, with 3 and 5 both noxious in an increasing order. Noise level 7 was equal in intensity to noise level 5.

After the demonstration of the buttons and noise levels, the confederate put the earphones back on his head and walked into a small adjoining room. At this time E placed a large screen between the child and the confederate so the child could not see him. E then told the subject:

"We'll put this screen up so Mr. X won't be able to see the color of the card you have in front of you."

After the screen was in place, the confederate very quietly removed the earphones and placed them on the table beside him so that the noxious noises were still slightly audible to the boy during the procedure.

At this time E placed 22 colored 7" x 4" cards into a holder in front of the child, which allowed the child to see one card at a time. Each session was programmed for 22 trials, 15 of which were potential aggression trials in which the confederate "guessed" the wrong color. Whether the subject pressed the button labeled RIGHT, or one of the noise buttons was conveyed to the confederate by means of indicator lights on his console. The console also indicated to the confederate which intensity of noise the subject had selected. The confederate then recorded these responses on a data sheet for each subject. The frequency with which he administered the loudest, most noxious noise to the confederate constituted the primary measure of aggression for each child. The use of noxious noise stimuli to measure interpersonal aggression was previously employed by Williams (1967) who has also provided evidence of construct validity for such a measure.

At the completion of the guessing game, E escorted the child back to the classroom or playground. The total length of time for the second experimental session was approximately 25 minutes per child for those in the experimental film condition and approximately 15 minutes for those in the no film control condition.

## CHAPTER 4

### RESULTS

The results of this study will be presented in four major sections. In the first section data bearing on each of the three dimensions of cognitive style will be presented in terms of the effects of the cognitive styles and age in mediating the impact of exposure to aggressive and nonaggressive television content. The second section will relate the findings to the three major experimental hypotheses. In the third section, the data bearing upon the question of developmental trends in cognitive styles will be presented. The fourth and final section will contain additional findings concerning the interrelationships among the measures of cognitive style and aggression for which no specific predictions were made.

In sections one and two reference will be made to the three experimental television film conditions and to the experimental measure of aggression. For purposes of simplification, the identification of the experimental film conditions and the description of the children's aggression scores will be given here, as they are the same for each measure of cognitive style.

#### Description of the Experimental TV Conditions

The three experimental television film conditions were:  
1) Aggressive TV film condition, described earlier as a six-minute videotaped sequence edited from the movie "Prince Valiant;" 2) Non-aggressive TV film condition, described earlier as a six-minute videotaped sequence edited from the movie "The Circus Comes to Our Town;" and 3) No film control condition.

#### Description of the Aggression Scores

Each child's aggression score was calculated by summing the number of instances in which he administered the loudest, most noxious noise (level four) to the second experimenter (the confederate) over the fifteen error trials of the guessing game. This score was selected as the primary measure of aggression since it clearly reflected the most aggression option available to the child in the guessing game. The range of the aggression scores was 0-11 for the 5 1/2 year olds, 0-10 for the 6 1/2 year olds, 0-11 for the 7 1/2 year olds, and 0-9 for the 8 1/2 year olds.

When presenting the data bearing upon the various hypotheses and predictions, the term "older children" will be used to refer to the 7 1/2 and 8 1/2 year old boys while "younger children" will refer to the 5 1/2 and 6 1/2 year olds.

SECTION 1

The Impact of the Cognitive Style Variables in Mediating the Effects of the Experimental Film Conditions

In order to assess the role of the cognitive style variables in mediating the influence of aggressive and nonaggressive television content upon the children's aggressive behavior, a series of five 2 x 3 x 4 analyses of variance were carried out. The first analysis dealt with the effects of the Field-Independence-Dependence cognitive style dimension (the F-I-D analysis). The second, third, and fourth analyses dealt with the three aspects of the Reflection-Impulsivity dimension (the MFF errors, MFF latencies, and MFF R-I analyses). The fifth analysis dealt with the Motoric-Inhibition-Impulsivity cognitive style dimension (the M-I-I analysis). Each of the three-way analyses of variance included two levels of cognitive functioning, three experimental film conditions, and four levels of age.

The Field-Independence-Dependence Dimension: Table 1 presents the mean aggression scores for the field-independent and field-dependent children at each of the four age levels (5 1/2, 6 1/2, 7 1/2, and 8 1/2 years) for the three experimental TV film conditions. These children were classified

Table 1  
Mean Aggression Scores for the Four Age Groups as a Function of Field-Independence-Dependence and Experimental TV Film Conditions

Group	Age	N	Aggressive Film	Nonaggressive Film	No Film
Field Independent	5 1/2	16	4.6	6.1	5.5
	6 1/2	15	2.8	5.0	4.6
	7 1/2	17	3.2	4.0	3.0
	8 1/2	19	2.1	4.2	1.0
Field Dependent	5 1/2	17	6.3	7.0	4.4
	6 1/2	15	2.1	7.2	4.3
	7 1/2	17	0.5	3.0	7.0
	8 1/2	20	4.0	3.7	3.4
Total		136	2.2	5.0	4.2

as either field-independent or field-dependent according to the following procedure. Each child was given four trials on the Rod and Frame Test. The average degrees of deviation from the true vertical over the four trials constituted his score on the test. The children at each age level were then divided into two groups according to whether their scores were above or below the median for their age level. The children whose scores

fell within the median interval on the RFT were not included in the further analysis of this dimension. The children who scored below the median for their age level were categorized as field-independent and those who scored above the median were categorized as field-dependent. The range of the RFT scores was from 2.5 - 25.0 for the 5 1/2 year-olds, 2.0 - 21.0 for the 6 1/2 year-olds, 1.75 - 36.50 for the 7 1/2 year-olds, and 0.75 - 30.0 for the 8 1/2 year-olds.

Table 2  
Analysis of Variance of Aggression Scores as a Function of  
Field-Independence-Dependence, Experimental TV Film Condition and Age

Source	df	MS	F
Field-Independence-Dependence (A)	1	10.68	1.48
TV Film Condition (B)	2	35.77	4.96**
Age (C)	3	42.76	5.93**
A X B	2	4.10	0.57
A X C	3	1.91	0.26
B X C	6	14.09	1.95
A X B X C	6	15.59	2.19*
Error	105	7.21	

\*p<.05  
\*\*p<.01

Table 2 presents the analysis of variance of aggression scores as a function of Field-Independence-Dependence, TV film condition and age. This analysis reflects significant main effects for the TV film conditions (p<.01) and for age (p<.01). The analysis of variance also yielded a significant second order interaction (p<.05) between the cognitive style dimension of Field-Independence-Dependence, the experimental film conditions, and the age of the children. The results of the analysis are presented graphically in Figures 1 and 2.

Since a significant interaction was obtained, an analysis of the simple effects was carried out in order to determine where the significant differences between experimental conditions and between age levels occurred for the field-independent and field-dependent children. The Duncan's Multiple-Range Test was used for the post hoc comparisons (Winer, 1962).

5 1/2 years ———  
 6 1/2 years - - - -  
 7 1/2 years - . - . -  
 8 1/2 years - - - - -

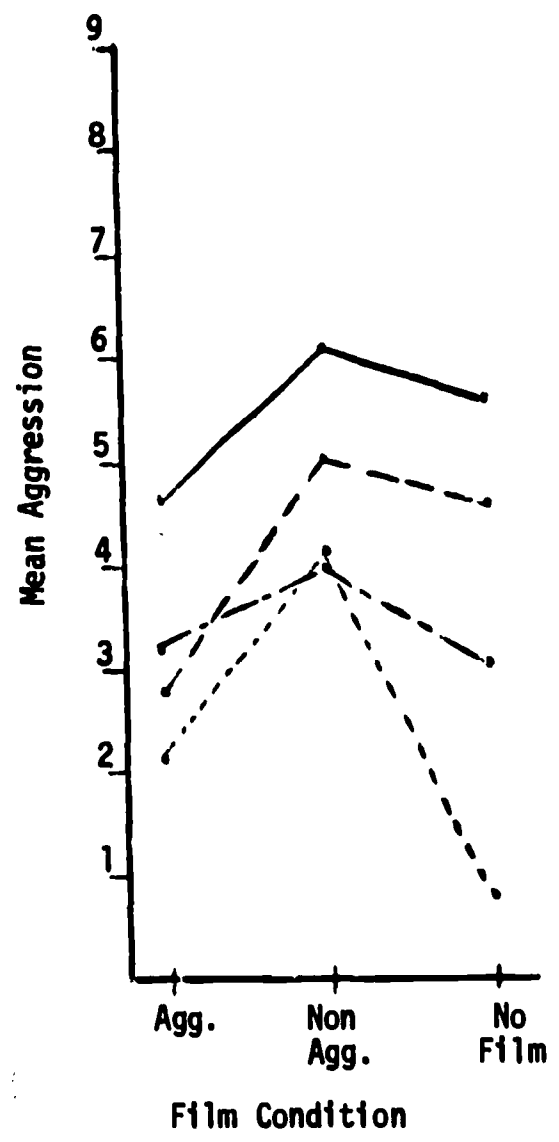


Figure 1

Mean Aggression Scores as a Function of Film Condition for Field Independent Subjects at Four Age Levels.

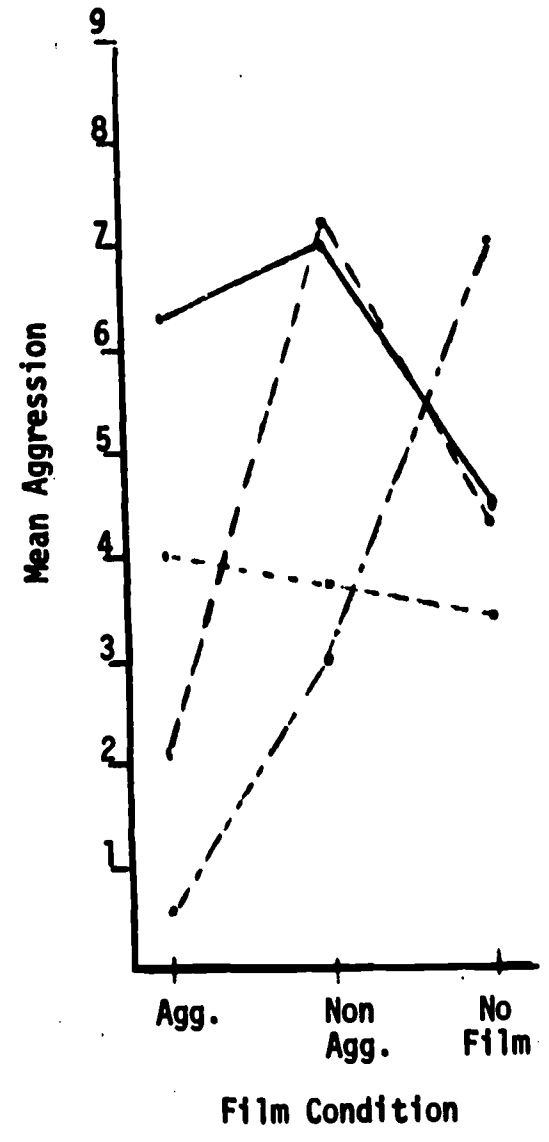


Figure 2

Mean Aggression Scores as a Function of Film Condition for Field Dependent Subjects at Four Age Levels.

### Effects of Film Conditions

The differences in experimental film conditions were significant for one of the older and one of the younger field-dependent groups but for none of the field-independent groups. An analysis of these differences indicated that the field-dependent children who displayed the least amount of aggression were those 7 1/2 and 6 1/2 year-olds who had been exposed to the aggressive TV films.

Specifically, for the older children: The 7 1/2 year-old field-dependent children who had been exposed to the aggressive TV film were significantly ( $p < .01$ ) less aggressive than those in the no-film control group. The difference between the aggressive film and nonaggressive film condition was in the same direction but was not significant. The 7 1/2 year-old field-dependent boys who had viewed the nonaggressive TV film were significantly less aggressive ( $p < .05$ ) than those in the corresponding control group.

For the younger children: the 6 1/2 year-old field-dependent boys were significantly less aggressive after viewing the aggressive TV film than were their field-dependent 6 1/2 year-old counterparts who had viewed the nonaggressive film ( $p < .01$ ). The difference between the aggressive film and the no-film condition was in the same direction but was not significant.

### Age

The differences between the age groups were significant for both the field-independent and field-dependent children, with the younger children being generally more aggressive than the older. Specifically, for the field-independent children in the no-film control condition, the 5 1/2 and 6 1/2 year-old children were significantly more aggressive ( $p < .05$ ) than the 8 1/2 year-old children.

For the field-dependent children in the aggressive film condition, the 5 1/2 year-old boys were significantly more aggressive than the 6 1/2 and 7 1/2 year-old boys ( $p < .05$  and  $< .01$ , respectively). The 7 1/2 year-old boys were significantly less aggressive ( $p < .05$ ) than the 8 1/2 year-olds providing the one exception to the usual findings that young children are more aggressive.

In the nonaggressive film condition the 5 1/2 and 6 1/2 year-olds were significantly more aggressive ( $p < .05$ ) than the 7 1/2 and 8 1/2 year-olds.

In the no-film control condition the 7 1/2 year-old boys were significantly more aggressive ( $p < .05$ ) than the 8 1/2 year-olds.

The Reflection-Impulsivity Dimension. The data bearing upon the Reflection-Impulsivity cognitive style dimension are contained in three separate, but related analyses. The MFF errors analysis employs the error scores for the classification of the subjects on the R-I dimension. The

MFF latencies analysis employs the latency scores for the classification on the cognitive style factor. The MFF R-I analysis employs a combination of the component error and latencies scores for the classifications on the cognitive style factor. The results of the three analyses will be presented separately.

**MFF Errors.** Table 3 presents the mean aggression scores under three experimental film conditions for the children at each of the four age levels who were below and above the mean in errors. In preparing for further analysis of the MFF error scores, the children at each age level were divided into two groups according to whether they had scored below or above the mean in errors for their age group. Each child's score consisted of the mean number of errors made before arriving at the correct choice, over the twelve items of the test.

Table 3  
Mean Aggression Scores for the Four Age Groups as a Function of Errors on the Matching Familiar Figures Test and Experimental TV Film Conditions

Group	Age	N	Aggressive Film	Nonaggressive Film	No Film
Below Mean (Analytic)	5 1/2	19	4.7	6.3	3.4
	6 1/2	16	2.1	4.8	4.6
	7 1/2	20	1.7	3.7	2.6
	8 1/2	19	1.9	4.0	2.6
Above Mean (Impulsive)	5 1/2	15	5.7	7.0	6.0
	6 1/2	13	2.3	7.0	4.3
	7 1/2	13	1.8	3.4	9.0
	8 1/2	20	4.6	3.9	1.3
Total		135	3.1	5.0	4.2

A low error score was taken as indicative of a more analytic style of cognitive functioning and conversely a high error score was taken as indicative of a less analytic style of cognitive functioning.

Those children who scored at the mean for their age group were not included in the further analysis of this variable. The ranges of the MFF mean error scores were 0.4 - 3.0 for the 5 1/2 year-olds, 0.3 - 2.5 for the 6 1/2 year-olds, 0.4 - 2.1 for the 7 1/2 year-olds, and 0.1 - 2.0 for the 8 1/2 year-olds.

Table 4 presents the analysis of variance of aggression scores as a function of errors on the MFF, TV film condition and age. This analysis reflects significant main effects for the measure of cognitive style, MFF errors ( $p < .05$ ), for the TV film conditions ( $p < .01$ ), and for a age ( $p < .01$ ).

Table 4  
 Analysis of Variance of Aggression Scores as a Function of  
 Errors on the Matching Familiar Figures Test,  
 Experimental TV Film Condition and Age

Source	df	MS	F
Errors-MFF (A)	1	41.71	5.56*
TV Film Condition (B)	2	37.74	5.03**
Age (C)	3	33.64	4.48**
A X B	2	3.97	0.53
A X C	3	4.27	0.57
B X C	6	20.06	2.67*
A X B X C	6	16.68	2.23
Error	98	7.51	

\*p .05

\*\*p .01

It also yielded a significant ( $p < .05$ ) first order interaction between the experimental film conditions and age. The analysis of variance also yielded a significant second order interaction ( $p < .05$ ) between the cognitive style variable (MFF errors), the experimental film conditions and the age of the subjects. The results of this analysis are presented graphically in Figures 3 and 4.

Since both a second order and first order interaction were found to be significant, analyses of the simple effects were conducted in order to determine where the significant difference occurred for the children who were below and above the mean in errors, under the different TV film conditions and within the different age groups. The Duncan's Multiple-Range Test was again used for the post hoc comparisons.

#### Effects of Film Conditions

For the reflective boys, there were significant differences between the experimental film conditions for one of the older and one of the younger age levels, but the film condition differences were not significant for the more analytic boys. Specifically, the 7 1/2 year-old less analytic boys who had been exposed either to the aggressive TV film or to the nonaggressive TV film were significantly less aggressive ( $p < .01$ ) than those in the no-film control condition. The 6 1/2 year-old less analytic boys who were exposed to the aggressive TV film were significantly less aggressive ( $p < .05$ ) than were similar children who had been exposed to the nonaggressive TV film.



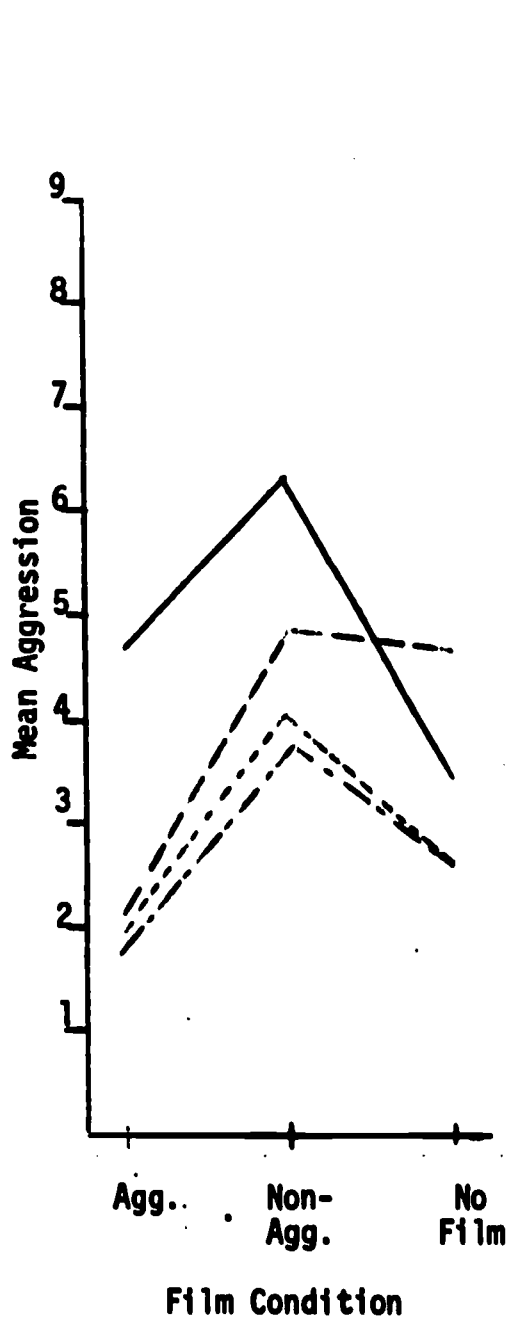


Figure 3

Mean Aggression Scores for Analytic Subjects (Below Mean in Errors on MFF) as a Function of Film Condition.

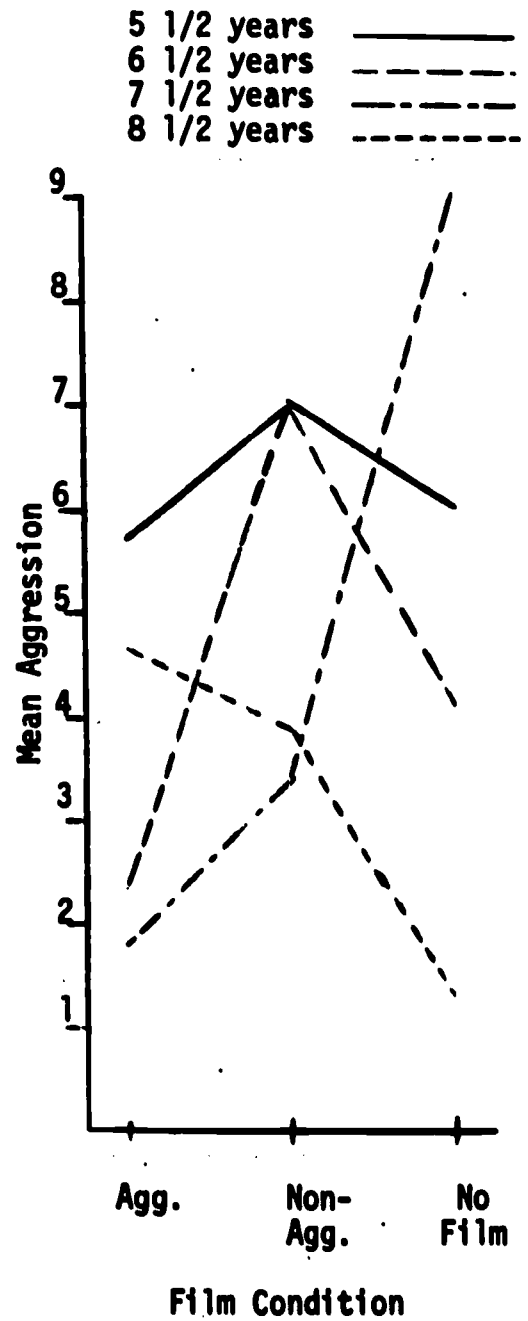


Figure 4

Mean Aggression Scores for Impulsive Subjects (Above Mean in Errors on MFF) as a Function of Film Condition.

### Cognitive Style

The difference between the children who were below the mean in errors and those who were above the mean in errors was significant ( $p < .01$ ) for the 7 1/2 year-olds in the no-film control condition. In this case as can be seen by comparing Figures 3 and 4, the less analytic boys (those above the mean in errors) were far more aggressive than were the more analytic boys (those below the mean in errors).

### Age

The differences in aggression between the age groups were significant only for those children who were less analytic. In the aggressive film condition the 5 1/2 year-old less analytic boys were significantly more aggressive ( $p < .05$ ) than the corresponding 6 1/2 and 7 1/2 year-olds. In the nonaggressive TV film condition the 5 1/2 year-old less analytic boys were also significantly more aggressive ( $p < .05$ ) than the corresponding 7 1/2 year-olds. In the no-film control condition the 5 1/2 and 7 1/2 year-old less analytic boys were significantly more aggressive than the corresponding 8 1/2 year-olds ( $p < .05$  and  $< .01$ , respectively). The 6 1/2 year-old less analytic boys were significantly less aggressive than the corresponding 7 1/2 year-olds providing the second exception to the usual finding of greater aggression in the younger children than in the older children.

MFF Latencies. Table 5 presents the mean aggression scores under three experimental conditions for the children, at each of the four age levels, who were above and below the median in latencies to the first response. In preparing for further analyses of the MFF latency scores,

Table 5

Group	Age	N	Aggressive Film	Nonaggressive Film	No Film
Above Median (Reflective)	5 1/2	17	5.0	6.1	4.3
	6 1/2	15	1.8	5.9	5.0
	7 1/2	17	0.8	3.4	3.8
	8 1/2	18	2.9	4.3	2.6
Below Median (Impulsive)	5 1/2	17	5.6	7.0	4.7
	6 1/2	15	3.0	6.7	4.3
	7 1/2	17	3.2	3.6	5.3
	8 1/2	21	3.3	3.8	2.8
Total		137	3.2	5.8	4.1

the children at each age level were divided into two groups according to whether they had scored above or below the median in latencies.. Each

child's score consisted of the mean latencies to the first response over the twelve test items. A higher latency score was taken as indicative of a more reflective style and a lower latency score was taken as indicative of a more impulsive style. Those children whose scores fell within the median interval for their age group were not included in the further analysis of this variable. The range of the MFF mean latency scores was 1.4 - 20.5 seconds for the 5 1/2 year-olds, 1.4 - 25.5 seconds for the 6 1/2 year-olds, 2.1 - 20.8 seconds for the 7 1/2 year-olds, and 2.2 - 16.3 seconds for the 8 1/2 year-olds.

Table 6 presents the analysis of variance of aggression scores as a function of latencies on the MFF, TV film condition and age. This analysis reflects significant main effects for TV film condition ( $p < .05$ ) and age ( $p < .05$ ). The main effect for the cognitive style variable, MFF

**Table 6**  
**Analysis of Variance of Aggression Scores as a Function of**  
**Latencies on the Matching Familiar Figures Test,**  
**Experimental TV Film Condition and Age**

Source	df	MS	F
Latencies - MFF (A)	1	11.68	1.26
TV Film Condition (B)	2	37.07	4.01*
Age (C)	3	32.67	3.54*
A X B	2	1.96	0.21
A X C	3	2.32	0.25
B X C	6	11.39	1.23
A X B X C	6	1.38	0.15
Error	98	9.24	

\* $p < .05$

latencies, was not significant. There were no significant interactions reflected in this analysis. The results of this analysis are presented graphically in Figures 5 and 6.

In contrast to the previous analyses, no significant interactions were obtained between the experimental film conditions and age or cognitive style, although significant main effects were obtained. Using the Duncan Multiple Range Test, the post hoc comparisons indicated that the experimental effects were not uniform for all conditions.

5 1/2 years —————  
 6 1/2 years - - - - -  
 7 1/2 years - - - - -  
 8 1/2 years - - - - -

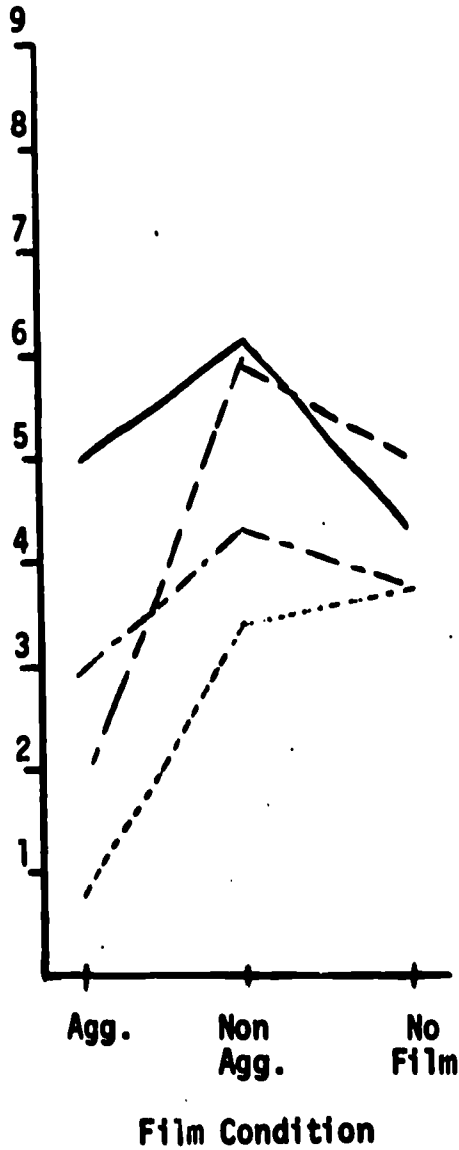


Figure 5

Mean Aggression Scores for  
 Reflective Subjects (Above  
 the Median Latency on  
 the MFF) as a Function of  
 the Film Condition.

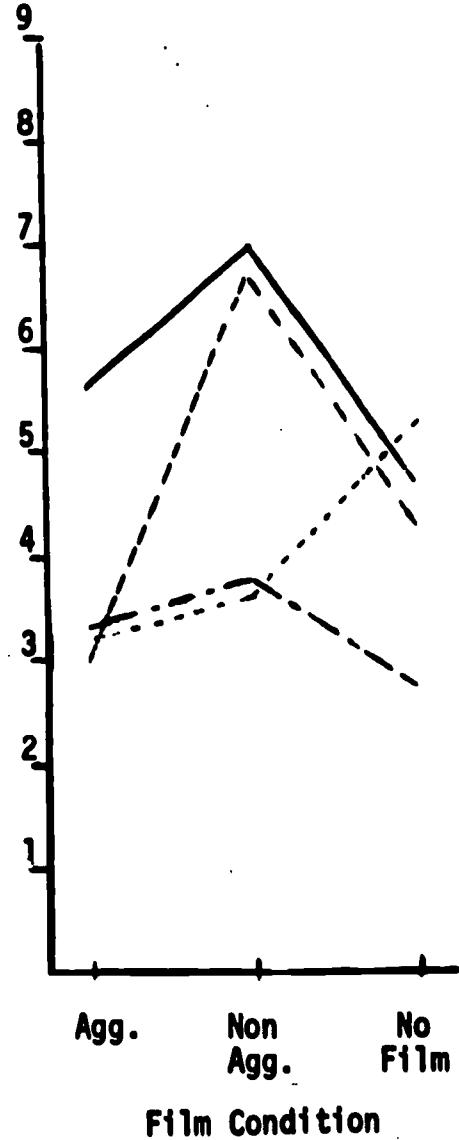


Figure 6

Mean Aggression Scores for  
 Impulsive Subjects (Below  
 the Median Latency on  
 the MFF) as a Function of  
 the Film Condition.

### Effects of Film Conditions

The difference in experimental TV film conditions was significant only for the younger more impulsive children. Specifically, the 6 1/2 year-old more impulsive boys who had viewed the aggressive TV film were significantly less aggressive ( $p < .05$ ) than those who had viewed the nonaggressive TV film.

### Age

The difference in aggression which resulted in a significant main effect for age occurred between the 5 1/2 and 7 1/2 year-old more impulsive boys in the aggressive TV film condition. In this case, the 5 1/2 year-old boys were significantly ( $p < .05$ ) more aggressive than the 7 1/2 year-olds.

MFF Reflection-Impulsivity. Table 7 presents the mean aggression scores for the reflective and impulsive children at each of the four age levels under the three experimental TV film conditions. The children were classified as either reflective or impulsive according to the following procedure. Those children who were below the mean in errors on the MFF for their age group and above the median in latencies for their age group were categorized as reflective. Those children who were above the mean in errors on the MFF for their age group and below the median in latencies for their age group were categorized as impulsive. All children whose scores fell either at the mean in errors or within the median interval in latencies were not included in the further analysis of this dimension. Furthermore, all the children whose scores fell

Table 7  
Mean Aggression Scores for the Four Age Groups as a Function of Reflection-Impulsivity and Experimental TV Film Conditions

Group	Age	N	Aggressive Film	Nonaggressive Film	No Film
Reflective	5 1/2	12	4.2	5.4	3.5
	6 1/2	11	1.8	4.8	5.0
	7 1/2	10	1.0	3.8	2.7
	8 1/2	12	2.2	5.0	3.6
Impulsive	5 1/2	9	5.2	6.0	7.0
	6 1/2	9	2.3	6.7	4.3
	7 1/2	9	2.7	3.7	11.0
	8 1/2	13	4.8	4.0	2.5
Total		85	3.0	4.9	5.0

either at the mean in errors or within the median interval in latencies were not included in the further analysis of this dimension. Furthermore, all the children whose scores fell either above both the mean in errors and the median in latencies were likewise not included in the further analysis. This is the method of categorizing subjects into the decision-time dimension of Reflection-Impulsivity which was developed by Kagan (1965). According to this method Reflectivity is operationally defined as a long-response latency and few errors while Impulsivity is operationally defined as a short-response latency and frequent errors. The ranges of the MFF error and latency scores were given in the two preceding sections dealing with those variables.

Table 8 presents the analysis of variance of aggression scores as a function of Reflection-Impulsivity, TV film condition and age. This analysis reflects significant main effects for Reflection-Impulsivity ( $p < .05$ ) and experimental TV film condition ( $p < .05$ ). The main effect for age was not significant. There were no significant interactions reflected in this analysis. The results of the analysis are presented graphically in Figures 7 and 8.

Table 8  
Analysis of Variance of Aggression Scores as a Function of  
Reflection-Impulsivity, Experimental TV Film Condition and Age

Source	df	MS	F
Reflection-Impulsivity (A)	1	36.88	4.38*
TV Film Condition (B)	2	29.11	3.46*
Age (C)	3	7.68	0.91
A X B	2	7.00	0.83
A X C	3	8.71	1.03
B X C	6	11.57	1.37
A X B X C	6	11.76	1.40
Error	48	8.42	

\* $p < .05$

Although significant main effects without significant interactions were obtained, the Duncan's Multiple Range Tests for post hoc comparisons again indicated that the experimental effects were not uniform for all conditions. However, in view of the lower number of subjects available for this analysis, the absence of significant differences in sub groups must be interpreted with caution.

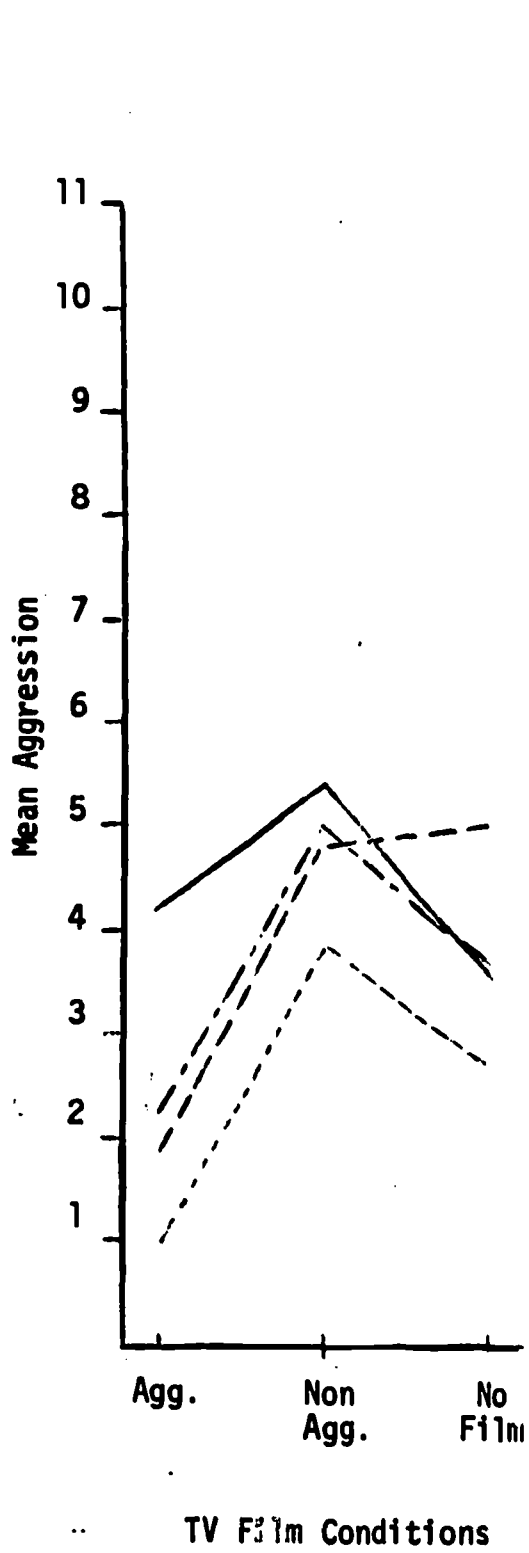


Figure 7

Mean Aggression Scores for Reflective Subjects at Four Age Levels as a Function of the TV Film Conditions.

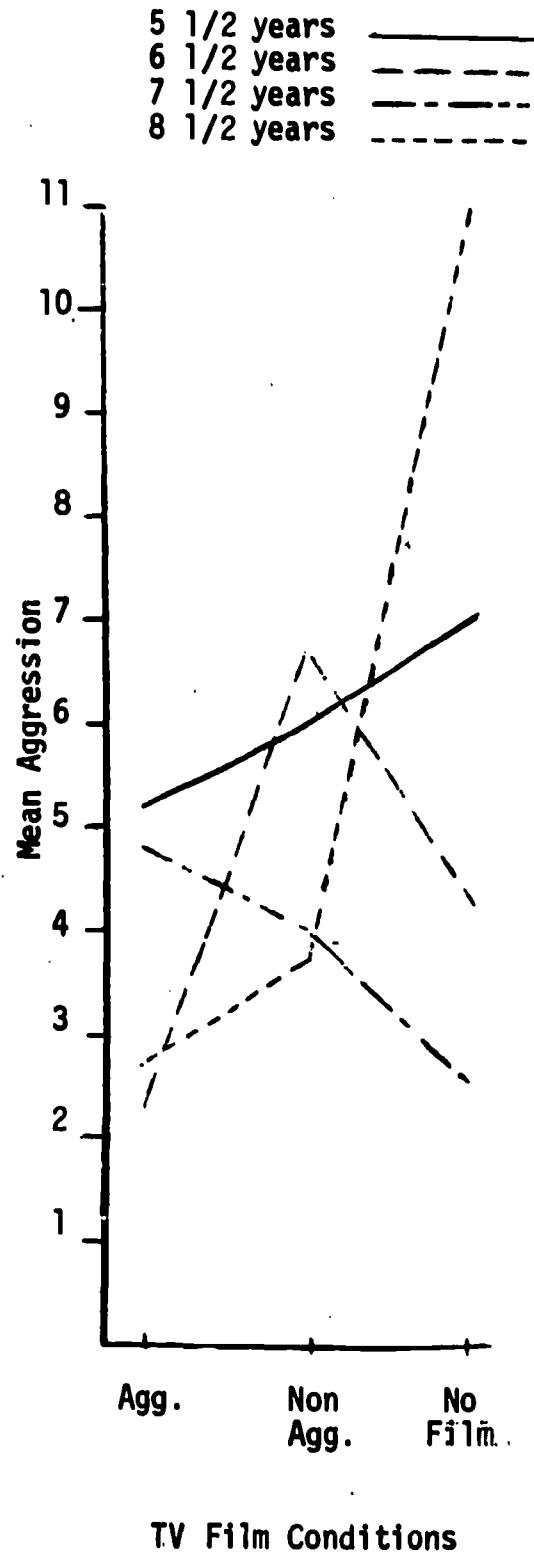


Figure 8

Mean Aggression Scores for Impulsive Subjects at Four Age Levels as a Function of the TV Film Conditions.

### Effects of Film Conditions

The differences in experimental TV film conditions were significant only for the older, more impulsive boys. The 7 1/2 year-old impulsive boys who viewed either the aggressive or the nonaggressive TV film were significantly less aggressive ( $p < .01$ ) than the impulsive 7 1/2 year-olds who were in the no-film control condition.

### Cognitive Style

The significant main effect for the cognitive style, Reflection-Impulsivity, was largely attributable to the difference in the level of aggression between the reflective and impulsive 7 1/2 year-old boys who were in the no-film control condition. In this case the reflective boys were significantly less aggressive ( $p < .05$ ) than their impulsive counterparts.

The Motoric-Inhibition-Impulsivity Dimension. Table 9 presents the mean aggression scores for the motorically-inhibited and motorically-impulsive children at each of the four age levels under the three experimental TV film conditions. The children were categorized as either motorically-inhibited or motorically-impulsive according to the following procedure. Each child was given two recorded time trials on the Draw-A-Line-Slowly test. The average length of line drawn per second over the two trials constituted his score on the test. Those children who were below the median for their age group in inches-per-second on the Draw-A-Line-Slowly test were classified as being motorically-impulsive in the service of a task. This is the method which was developed by Maccoby, Dowley, Hagen, and Degerman (1965) in their study of the relationship

Table 9  
Mean Aggression Scores for the Four Age Groups as a Function of  
Motoric-Inhibition-Impulsivity and Experimental TV Film Conditions

Group	Age	N	Aggressive Film	Nonaggressive Film	No Film
Motorically Inhibited	5 1/2	17	6.3	6.0	5.0
	6 1/2	14	1.7	6.5	3.3
	7 1/2	16	2.2	3.0	4.5
	8 1/2	19	3.4	5.0	2.8
Motorically Impulsive	5 1/2	16	5.6	7.4	4.0
	6 1/2	12	3.0	7.3	5.2
	7 1/2	16	1.6	4.5	5.6
	8 1/2	18	2.0	3.6	2.6
Total		128	3.2	5.4	4.1



between the ability to inhibit motor activity under instruction and the quality of intellectual and cognitive functioning. The ranges of the DALS inches-per-second scores were 0.07 - 0.65 for the 5 1/2 year-olds, 0.08 - 0.41 for the 6 1/2 year-olds, 0.05 - 0.46 for the 7 1/2 year-olds, and 0.04 - 0.63 for the 8 1/2 year-olds.

Table 10 presents the analysis of variance of aggression scores as a function of Motoric-Inhibition-Impulsivity, TV film condition and age. This analysis reflects significant main effects for TV film condition ( $p < .01$ ) and age ( $p < .05$ ). The main effect for the cognitive style dimension, Motoric-Inhibition-Impulsivity, was not significant. There were no significant interactions reflected in the analysis. The results of the analysis are presented graphically in Figures 9 and 10.

Table 10  
Analysis of Variance of Aggression Scores as a Function of Motoric-Inhibition-Impulsivity (Sustained Attention-Inattention to Task), Experimental TV Film Condition and Age

Source	df	MS	F
Motoric-Inhibition-Impulsivity	1	1.73	0.19
TV Film Condition	2	45.39	4.97**
Age	3	34.89	3.82*
A X B	2	2.08	0.23
A X C	3	6.76	0.74
B X C	6	15.24	1.67
A X B X C	6	2.21	0.24
Error	88	9.13	

\* $p < .05$

\*\* $p < .01$

The Duncan's Multiple Range Test was again used for the post hoc comparisons.

#### Effects of Film Conditions

The differences in the experimental TV film conditions were significant for both the motorically-inhibited and motorically-impulsive younger boys, but the film condition differences were not significant for the older boys. Specifically, both the motorically-inhibited and the motorically-impulsive 6 1/2 year-old boys who viewed the aggressive TV film were significantly less aggressive ( $p < .05$ ) than comparable boys who viewed the nonaggressive film. It may be noted that this is the only

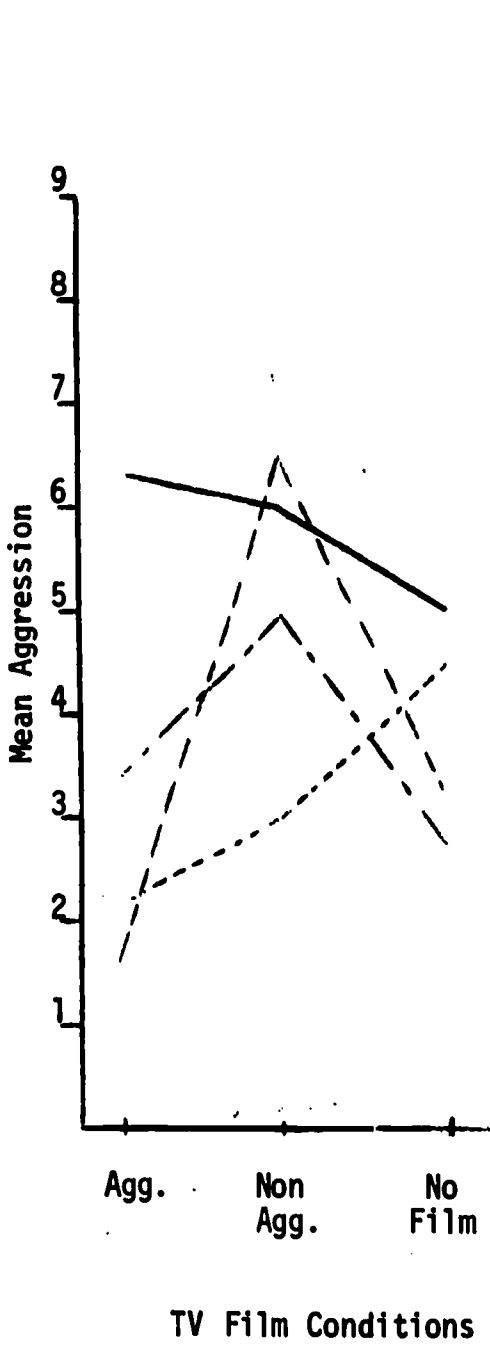


Figure 9

Mean Aggression Scores for Motorically Inhibited Subjects at Four Age Levels as a Function of the TV Film Conditions.

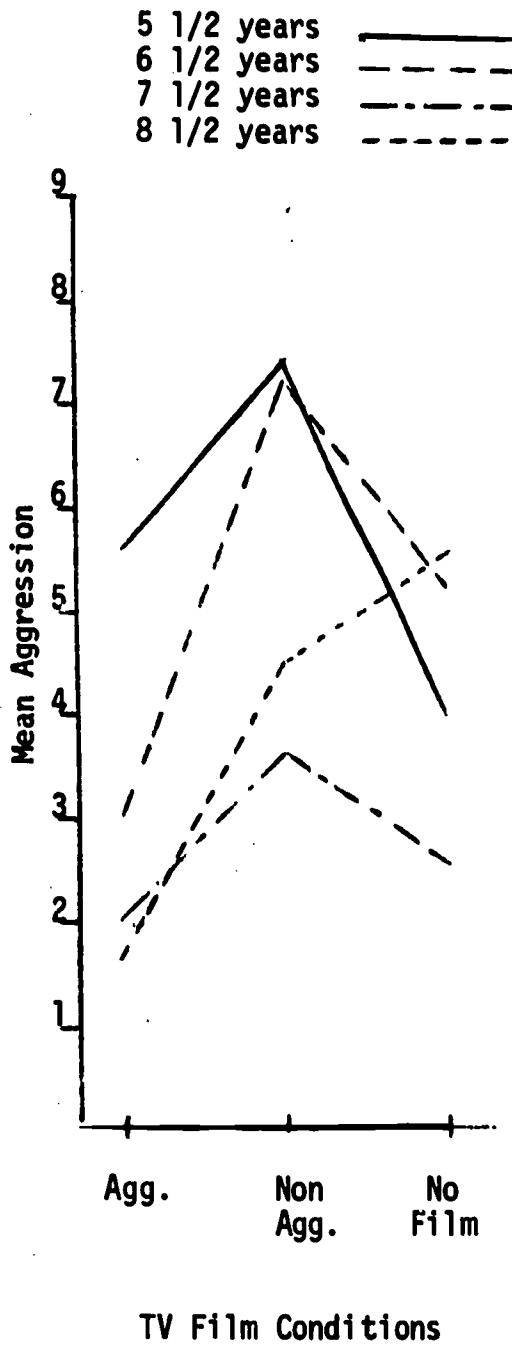


Figure 10

Mean Aggression Scores for Motorically-Impulsive Subjects at Four Age Levels as a Function of the TV Film Conditions.

instance in which a significant difference was obtained for a presumably more cognitively differentiated group of subjects.

### Age

The significant main effect for age was attributable to the difference in the levels of aggression between the 5 1/2 and 6 1/2 year-old motorically inhibited boys in the aggressive TV film condition. In this case, the 5 1/2 year-old boys were significantly less aggressive ( $p < .05$ ) than the 6 1/2 year-old boys.

## SECTION II

### The Relationship of the Findings to the Hypotheses

In this section the data from each of the five analyses of variance which were presented in the preceding section will be related to the three major experimental hypotheses of the study. The impact of the cognitive style variables and the effects of the film conditions upon the older children's aggressive behavior will be related to the expectation and specific predictions of hypothesis one. The expectations and predictions of hypothesis two, on the other hand, will be discussed in terms of those findings for the younger children. Hypothesis three will be related to the differences in the level of aggression which occurred as a function of age.

Hypothesis 1. For the older boys it was hypothesized that the more differentiated, articulated, controlled, and organized the level of cognitive functioning, the less the impact of the variations in the experimental television film conditions. The first prediction stated that for the older boys who were highly field-independent (in terms of the Witkin measure) there would be significantly smaller discrepancies between the mean scores for the experimental and control groups on the aggression measure than those for the field dependent boys.

Support for the first prediction of hypothesis one, is provided by the F-I-D analysis as cited previously in that all of the statistically reliable differences between the experimental film conditions for the older children were attributable to differences among the field-dependent boys. The 7 1/2 year-old field-dependent children who had been exposed either to the aggressive or nonaggressive TV film were significantly less aggressive than those in the no-film control group ( $p < .01$  and  $p < .05$ , respectively).

The second prediction of hypothesis one stated that for the older boys who were more reflective (in terms of the Kagan Matching Familiar Figures test) there would be significantly smaller discrepancies between the mean scores for the experimental and control groups than those for the motorically-impulsive boys. The data bearing upon this prediction are derived from the three separate MFF analyses: MFF errors, MFF latencies, and MFF Reflection-Impulsivity.

Support for the second prediction of hypothesis one is provided by the MFF errors analysis, in that all of the statistically reliable differences between the experimental TV film conditions for the older children were attributable to differences among the less analytic boys (those above the mean in errors). The 7 1/2 year-old less analytic boys who had been exposed either to the aggressive or nonaggressive TV film were significantly less aggressive ( $p < .01$ ) than those in the no-film control condition.

The results of the MFF latencies analysis indicated that there were no significant differences among experimental conditions for either the boys above the median in latencies or those who were below the median in latencies at the older age levels (7 1/2 and 8 1/2). Therefore, the prediction that the older more reflective boys would be significantly less influenced by variations in the experimental conditions than the older more impulsive boys, was not supported by this analysis.

Support for the second prediction of hypothesis one is provided by the MFF R-I analysis as cited previously in that all of the statistically reliable differences between the experimental film conditions were attributable to differences among the older impulsive boys. Specifically, the 7 1/2 year-old impulsive boys who viewed either the aggressive or non-aggressive TV film were significantly less aggressive ( $p < .01$ ) than the impulsive 7 1/2 year-olds who were in the no-film control condition.

The third prediction of hypothesis one stated that the older boys who were motorically-inhibited in the service of a task (in terms of the Maccoby-Draw-A-Line-Slowly test) would be significantly less influenced by the variations in the experimental TV film conditions than would the boys who were more motorically-impulsive. The M-I-I analysis, as cited previously, indicated that there were no significant differences between the experimental film conditions among either the motorically-inhibited or the motorically-impulsive older children. Therefore, the third prediction of hypothesis one which stated that the older children who are more motorically-inhibited in the service of a task would be less influenced by variations in the experimental TV film conditions, is not supported.

In summary, the data bearing on hypothesis one indicate:

1. Support for the first prediction regarding the older field-independent boys.
2. Support in two out of three cases for the second prediction regarding the older reflective boys.
3. Lack of support for the prediction regarding the older motorically-inhibited boys.

These results reflect consistent support for the overall expectation of hypothesis one, which states that, for the older boys, the more differentiated, articulated, organized, and controlled the level of cognitive

functioning, the less the impact of the variations in the experimental film conditions.

Hypothesis 2. For the younger boys, it was hypothesized that the more differentiated, articulated, controlled, and organized the level of cognitive functioning, the greater the impact of the variations in the experimental film conditions. The first prediction stated that for the younger boys who were highly field-independent (in terms of the Witkin measure) there would be significantly greater discrepancies between the mean scores for the experimental and control groups on the aggression measure than those for the field-dependent boys.

The results of the F-I-D analysis do not support this prediction. Instead, in agreement with the findings for the older children, the younger field-independent boys were also significantly less influenced by the variations in the experimental TV film conditions than were the field-dependent boys.

The second prediction of hypothesis two stated that for the younger boys who were more reflective (in terms of the Kagan Matching Familiar Figures test) there would be significantly greater discrepancies between the mean scores for the experimental and control groups on the aggression measure than those for the more impulsive boys.

The results of the MFF errors analysis do not support this prediction. Instead, in agreement with the findings for the older children, the more analytic boys (those who were below the mean in errors) in one of the younger age groups were also significantly less influenced by the variations in the experimental TV film conditions than were the less analytic boys (those who were above the mean in errors). The results of the MFF latencies analysis indicate that the difference in experimental TV film conditions was significant only for the more impulsive children in one of the younger age groups. The MFF R-I analysis shows no significant differences between the experimental film conditions among either the younger reflective or impulsive boys. The third prediction of hypothesis two, that the younger boys who were more motorically-inhibited in the service of a task (in terms of the Maccoby Draw-A-Line-Slowly test) would be significantly more influenced by variations in the experimental TV film conditions than would the boys who were more motorically impulsive, is also not supported. Both the motorically-inhibited and motorically-impulsive 6 1/2 year old boys who viewed the aggressive TV film were significantly less aggressive ( $p < .05$ ) than those who viewed the nonaggressive film.

In summary, the data bearing on hypothesis two do not support any of the specific predictions of the hypothesis. Therefore, hypothesis two which stated that for the younger boys, the more differentiated, articulated, organized, and controlled the level of cognitive functioning, the greater the impact of the variations in the experimental film condition, is likewise not substantiated by the results. Instead, in three out of the five analyses, the results indicated that for one of the younger age groups, the 6 1/2 year old boys, just as for the 7 1/2

year old boys, the higher the level of cognitive organization the less the impact of the variations in the experimental film conditions.

Hypothesis 3. It was hypothesized that the level of aggression would be a function of the age of the child, that is, that the younger children would be significantly more aggressive than the older ones. The data bearing upon this hypothesis indicate that in the Field-Independence-Dependence analysis, the younger field-independent boys in the no-film control condition were significantly more aggressive than the older boys, whereas the younger field-dependent boys were significantly more aggressive than the older boys under all three experimental conditions. However, among the older field-dependent boys there was one exception to the hypothesis in that the 7 1/2 year old boys in the aggressive film condition were significantly less aggressive than the corresponding 8 1/2 year olds. In the MFF Errors analysis the younger boys were significantly more aggressive than the older boys under all three experimental conditions. There was one exception to the prediction in that the 6 1/2 year old impulsive boys in the no-film control condition were significantly less aggressive than the corresponding 7 1/2 year olds.

In the MFF Latencies analysis the younger impulsive boys in the aggressive TV film condition were significantly more aggressive than the older boys. In the Reflection-Impulsivity analysis there were no significant differences in aggression as a function of age. In the Motoric-Inhibition-Impulsivity analysis there was a significant effect for age in the predicted direction, however, it was restricted to the younger age group (between the 5 1/2 and 6 1/2 year old motorically-inhibited boys in the aggressive film condition).

In summary, the data bearing on hypothesis three provide substantial support, with several minor exceptions, that the level of aggression would be a function of the age of the child and that the younger children would be significantly more aggressive than the older.

### SECTION III

#### Developmental Trends in Cognitive Style

The data bearing on the question of developmental changes on the three cognitive style dimensions will be presented in this section. These results will be related to the expectation of hypothesis four which stated that the level of cognitive functioning would be more differentiated, more organized, more elaborated and articulated as a function of maturity, and to the specific predictions which were made for each cognitive style dimension.

Field-Independence-Dependence. Table 11 presents the scores on Witkin's Rod and Frame Test, the test used in this study as the measure of the Field-Independence-Dependence cognitive style dimension. Figure 11 presents these results in graphic form. The analysis of variance of these

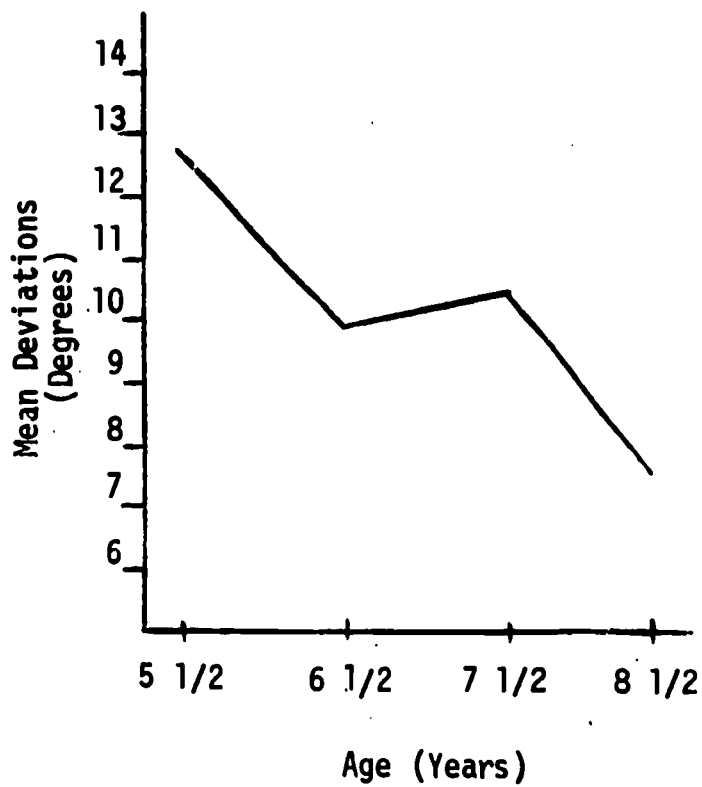


Figure 11

Developmental Trend in Field Independence-Dependence for Four Age Groups (RFT Deviance Scores).

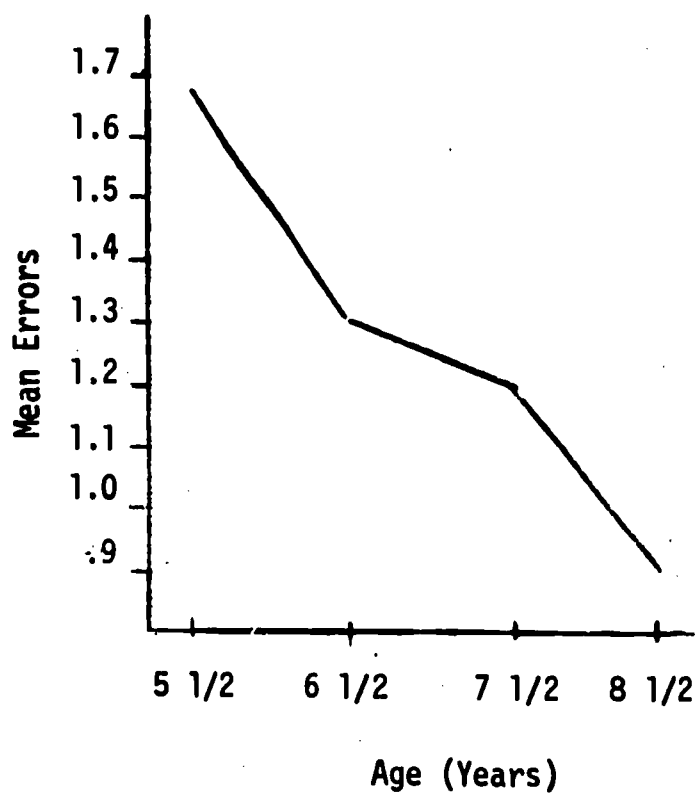


Figure 12

Developmental Trend in Reflection-Impulsivity for Four Age Groups (MFF Error Scores).

Table 11  
Mean Deviation in Degrees on the Rod and  
Frame Test for Four Age Groups

N	Age	Mean Deviations
36	5 1/2	12.7
30	6 1/2	9.9
36	7 1/2	10.4
41	8 1/2	7.6

data, presented in Table 12 reflects a significant effect for age ( $p < .01$ ). The results of the Duncan's Multiple Range Test for post hoc comparisons indicate that the 8 1/2 year old boys were significantly more field-independent than the 5 1/2 year olds ( $p < .05$ ). While there is a slight inver-

Table 12  
Analysis of Variance of Rod and Frame Test  
Scores as a Function of Age

Source	df	MS	F
Age	3	167.94	4.09**
Error	139	41.05	

\*\* $p < .01$

sion in means between the 6 1/2 and 7 1/2 year olds, on the whole, these findings provide confirmation of the first prediction in hypothesis four, that the older boys would be significantly more field-independent than the younger boys.

Reflection-Impulsivity. The data bearing on developmental changes on this dimension will be presented in two parts: 1) errors, and 2) latencies scores derived from Kagan's Matching Familiar Figures test, used to measure the Reflection-Impulsivity dimension.

MFF Errors. Table 13 presents the mean error scores on the Matching Familiar Figures test for the four age groups. These results are graph-



Table 13  
Mean Errors on the Matching Familiar Figures  
Test for Four Age Groups

Age	N	Mean Errors
5 1/2	36	1.7
6 1/2	30	1.3
7 1/2	36	1.2
8 1/2	41	0.9

ically presented in Figure 12. The analysis of variance of these data, presented in Table 14, reflects a significant effect for age ( $p < .001$ ). The results of the Duncan's Multiple Range Test for post hoc comparisons indicate that the 8 1/2 year old boys made significantly fewer errors

Table 14  
Analysis of Variance of Errors on the Matching  
Familiar Figures Test for Four Age Groups

Source	df	MS	F
Age	3	3.83	13.44***
Error	139	0.28	

\*\*\* $p < .001$ .

than did the 5 1/2 year old boys ( $p < .001$ ). The other intergroup comparisons although in the predicted direction, were not significant. Therefore, taking low errors as one indication of Reflectivity, it can be seen that the second prediction of hypothesis four, that the older boys would be significantly more reflective than the younger boys, is substantially supported.

MFF Latencies. Table 15 presents the mean latencies on the Matching Familiar Figures test for the four age groups. These results are graphically presented in Figure 13. The analysis of variance of these data presented in Table 16, does not reflect a significant effect for age.

Table 15

Mean Latencies on the Matching Familiar  
Figures Test for Four Age Groups

Age	N	Mean Latencies
5 1/2	36	5.2
6 1/2	30	4.8
7 1/2	36	6.0
8 1/2	41	7.6

Therefore, even though direction of the trend was consistent with the prediction, the second prediction of hypothesis four which stated that the older boys would be significantly more reflective (in terms of longer latencies on the Kagan measure) than the younger boys, is not confirmed.

Motoric-Inhibition-Impulsivity. Table 17 presents the scores on Maccoby's Draw-A-Line-Slowly test, the test used in this study as the measure of the Motoric-Inhibition-Impulsivity cognitive style dimension.

Table 16

Analysis of Variance of Latency Scores on the Matching  
Familiar Figures Test as a Function of Age

Source	df	MS	F
Age	3	12.12	0.53
Error	139	23.06	

These results are presented graphically in Figure 14. The results of the analysis of variance of this data, presented in Table 18, reflect a significant effect for age ( $p < .05$ ). The results of the Duncan's Multiple Range Test for post hoc comparisons indicate that the 8 1/2 year old boys were significantly more motorically inhibited in the service of a task than were the 5 1/2 year olds ( $p < .05$ ). These findings are consistent with the third prediction of hypothesis four, that the older boys would be significantly more motorically inhibited than the younger boys. Again, of developmental interest is the similarity in performance of the 6 1/2 and 7 1/2 year olds.

In summary, the data bearing on hypothesis four indicate:

1. Confirmation of the first prediction in regard to the Field-Independent-Dependent dimension.
2. Confirmation in one of two cases, of the second prediction in regard to the Reflection-Impulsivity dimension.
3. Confirmation of the third prediction in regard to the Motoric-Inhibition-Impulsivity dimension.

Table 17

Mean Inches-Per-Second on the Draw-A-Line-Slowly Test for Four Age Groups

Age	N	Mean Inches Per Second
5 1/2	36	0.19
6 1/2	30	0.15
7 1/2	36	0.17
8 1/2	41	0.13

These findings provide substantial, if not unanimous, support for the overall expectation of hypothesis four that the level of cognitive functioning would be more differentiated, more organized, elaborated, and more articulated as a function of maturity.

Table 18

Analysis of Variance of Scores on the Draw-A-Line-Slowly Test as a Function of Age

Source	df	MS	F
Age	3	0.03	2.70*
Error	139	0.01	

\*p < .05

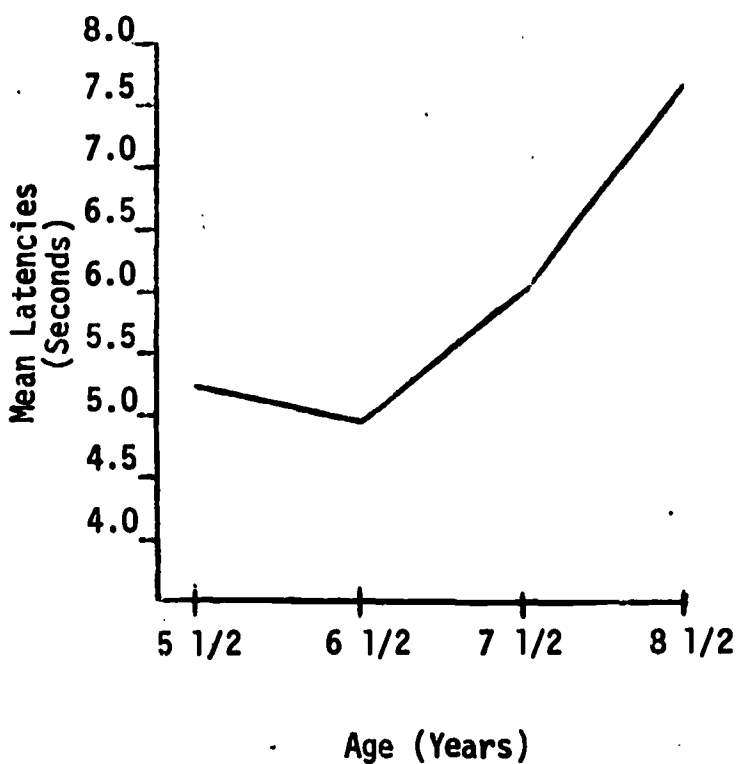


Figure 13

Developmental Trend in Reflection-Impulsivity for Four Age Groups (MFF Latency Scores).

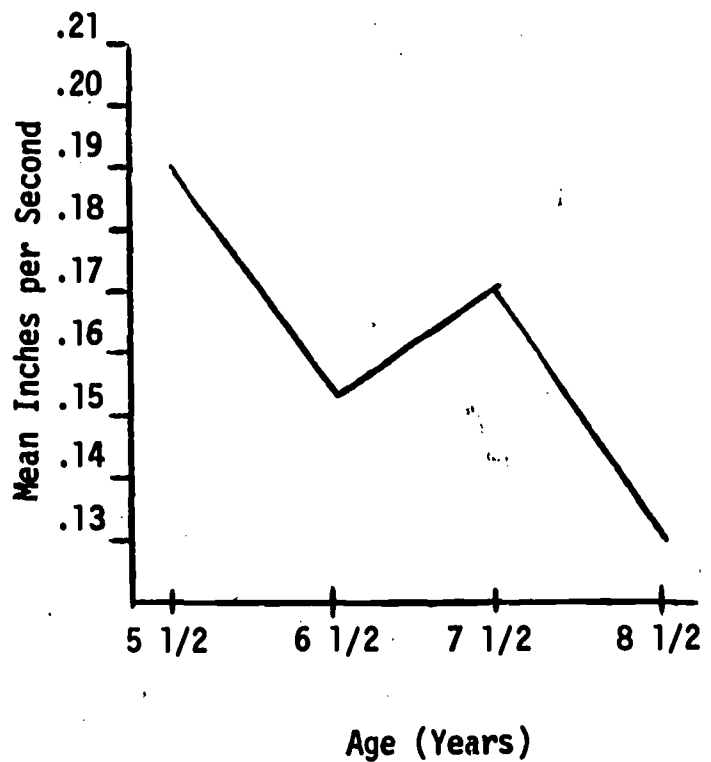


Figure 14

Developmental Trend in Motoric-Inhibition-Impulsivity for Four Age Groups (DALs Inches-per-second Scores).

SECTION IV

The Interrelationships Among the Aggression Measure and Measures of Cognitive Style

The scores on the aggression measure and the four measures of cognitive style (RFT, MFF errors, MFF latencies, and DALS) were correlated (Pearson product moment r's) for each of the four age

Tables 19 and 20

Correlations Among Aggression and the Four Measures of Cognitive Style for 5 1/2 and 6 1/2 Year-old Children

5 1/2 Year-old (N=36)					
	Agg.	RFT	MFF-L	MFF-E	DALS
Aggression		-.04	-.29	.32	.23
RFT (Deviance Scores)	-.04		.08	-.00	-.06
MFF (Latencies)	-.18	-.14		-.36*	-.02
MFF (Errors)	.01	.50**	-.48**		.22
DALS (Inches Per Second)	.19	.07	-.09	.17	
6 1/2 Year-old (N=30)					

\*p < .05  
\*\*p < .01

Tables 21 and 22

Correlations Among Aggression and the Four Measures of Cognitive Style for 7 1/2 and 8 1/2 Year-old Children

7 1/2 Year-old (N=36)					
	Agg.	RFT	MFF-L	MFF-E	DALS
Aggression		.23	-.42*	.26	.32
RFT (Deviance Scores)	.07		-.43*	.41*	.26
MFF (Latencies)	.11	-.06		-.18	-.31
MFF (Errors)	.10	.28	-.39*		.08
DALS (Inches Per Second)	-.08	.23	-.01	.02	
8 1/2 Year-old (N=41)					

\*p < .05

groups separately. The results of these correlational analyses are presented in Tables 19 and 20.

Table 19 presents the correlation matrixes for the 5 1/2 and 6 1/2 year old children. The one significant correlation for both age groups is the negative correlation between the MFF errors and latency scores, a finding consistent with results reported by a number of previous investigators (Eskola & Black, 1971; Kagan, 1965).

For the 6 1/2 year old children a significant positive correlation ( $p < .01$ ) was found between the RFT deviance scores and MFF errors. This finding indicates that field-dependence and one aspect of impulsivity (frequent errors) are related for the latter group.

Table 20 presents the matrix for the 7 1/2 and 8 1/2 year old children. The correlations for the 7 1/2 year olds, in agreement with that for the 6 1/2 year olds, also reflect a significant positive correlation between the RFT deviance scores and MFF errors ( $p < .05$ ). This finding substantiates the indication that field-dependence and one aspect of impulsivity (frequent errors) are related. A significant negative correlation ( $p < .05$ ) was found between the RFT deviance scores and MFF latencies and between aggression and MFF latencies ( $p < .05$ ), indicating a relationship between aggression and the second aspect of impulsivity (short latencies).

The significant negative correlation ( $p < .05$ ) between MFF errors and latencies for the 8 1/2 year olds is in line with findings of other investigators.

To summarize, significant correlations were found between:

1. The MFF errors and latencies scores, within three of the four age groups;
2. Field-dependence and one aspect of impulsivity (frequent errors) within two of the age groups; and
3. Field-dependence and the second aspect of impulsivity (short latencies) within one age group.

## CHAPTER 5

### DISCUSSION

The primary purpose of this study was to investigate the effects of exposure to violent content in television upon the aggressive behavior of young boys. The study was particularly concerned with evaluating the impact which certain cognitive structures or processes have in mediating the influence of the television content.

In summary, the major findings regarding the main experimental effects are:

Hypothesis 1: The data for the 7 1/2 year olds provide consistent support for the expectation that: for the older boys, the more differentiated the level of cognitive functioning, the less would be the impact of the variations in the experimental TV film conditions. This support is evidenced by the fact that for the older boys, all of the statistically reliable differences in aggression between the experimental film conditions were attributable to differences among the 7 1/2 year old cognitively immature boys.

Hypothesis 2: The data for the younger children do not support the expectation that: for the younger boys, the more differentiated the level of cognitive functioning, the greater would be the impact of the variations in the experimental TV film condition. Instead, the data for the 6 1/2 year olds are in direct opposition to the prediction. These results indicate, for the younger children, that all but one of the statistically reliable differences in aggression between the experimental film conditions were attributable to differences among the 6 1/2 year old boys with the less differentiated cognitive styles. It is of interest to note that these findings are very similar to those for the older 7 1/2 year old boys.

Hypothesis 3: The data bearing on hypothesis three provide substantial support, with several minor exceptions, for the expectation that the younger children would be significantly more aggressive than the older.

Hypothesis 4: The data bearing on hypothesis four provide substantial support for the expectation that the level of cognitive function would be more differentiated, organized, and elaborated and articulated as a function of maturity.

## The Effects of the Media, Cognitive Style, and Age on Aggression

The data for the 6 1/2 and 7 1/2 year olds in regard to Hypotheses 1 and 2 are consistent with the general theoretical expectation that the less cognitively organized and differentiated children are, the more subject they are to the influence of stimulation such as television provides (Kagan, Moss, & Sigel, 1963; Witkin, Dyk, Paterson, Goodenough, & Karp, 1962). These results provide empirical support for the major premise of this study that the effect which exposure to television has upon a child depends not only on the nature of the content, but also upon the child's individual cognitive style and the way in which he responds to the environment in general.

These findings pertain directly to the question of the functional relationship between the presentation of violence in the media and its influence upon the aggressive attitudes and behaviors of boys. The nature of this relationship has been and is the subject of considerable controversy and sharp disagreement (Feshback, 1968; Maccoby, 1964).

One argument in this controversy has been that exposing children to violence in the media stimulates and reinforces aggression by providing aggressive role models for imitation and by facilitating the acceptance of violence as an appropriate way of solving social and personal problems (Bandura, Ross, & Ross, 1961; Lovaas, 1961). According to this view, the mass media are seen as contributing to social unrest, crime, warfare and other forms of aggressive expression.

An opposing argument has been that exposure to the presentation of violence in the media does not necessarily lead to an increase in aggressive behavior. Instead, according to this view, exposure to violent content, and in particular to aggressive fantasy content in television, may serve to reduce and control the expression of aggression in children (Bercovici, 1970; Feshback, 1968). From this perspective, it has been proposed that exposure to the depiction of violence in the media, permits children to discharge vicariously, in fantasy, aggressive impulses which might otherwise appear as overt behavioral responses.

The results of this study appear to support the latter view. It is of particular interest to note the direction of the differences between the experimental film conditions which were found for the 6 1/2 and 7 1/2 old less differentiated boys. The preponderance of findings in 8 out of 11 comparisons, indicates that the cognitively immature children who viewed the aggressive TV film were significantly less aggressive than those who saw either the nonaggressive TV film or no film at all. These results suggest that among children who have relatively undifferentiated, immature cognitive styles, exposure to aggressive television content leads to a reduction in aggressive activity. These findings and the interpretation are in agreement with the cognitive support hypothesis proposed by Feshback (1970). The cognitive support hypothesis proposes that exposure to aggressive television may serve to modulate or control the expression of aggressive impulses in boys who are lacking



in certain cognitive resources. Included among such cognitive resources are the abilities to ideate, to imagine and fantasize, to rehearse and elaborate responses and to control, by discharging vicariously in fantasy, impulses and energy which might otherwise be acted out in overt behavior. Feshback suggests that the cognitive activity of fantasy, whether in the form of thoughts, dreams, stories or daydreams may enable individuals to deal with and control the immediate expression of impulse. According to this theory, exposure to aggressive fantasy content in the media provides the cognitively immature child with the ideation and stimulation to fantasy activity which he does not have readily available within himself. The child with a highly differentiated cognitive style may have other ideational resources besides the immediate stimulation provided by the television. Therefore, he will probably not be as affected by the immediate influence of the aggressive media content to which he is exposed. The child with the less differentiated cognitive style, on the other hand, may be engaging in ideational fantasy activity only when viewing television (Bercovici, 1970). This interpretation would account for the greater effect of the media on children with such cognitive styles.

An alternative hypothesis to explain the major findings of the present study, is that the vicarious expression of aggression which observing the aggressive film provides led to an arousal of guilt over aggression. The arousal of guilt might then increase the inhibition of normal aggressive responses there by accounting for the reduced aggressiveness of the subjects in the aggressive film condition (Berkowitz, 1962). This interpretation could also account for the observed age differences in the level of aggression, in that the older children would have been more socialized than the younger children to respond with guilt and shame over the performance of aggressive acts. Thus, the younger children would have been more likely to display instances of aggressive behavior in the post film situation.

Another related explanation might be in terms of the inhibition of aggressive behavior resulting from the arousal of anxiety over punishment for aggression. According to this interpretation, anxiety over the possibility of being punished for behaving aggressively was aroused in those children who observed the villains being punished for their aggressive acts. The generalization of this anxiety into the post film situation would account for a reduction in aggressive behavior among the children in the aggressive film condition (Lovaas, 1971).

Both of these interpretations rely upon generalization of the guilt and anxiety responses from the aggressive film condition to the guessing game situation. It does not seem that the two situations were similar enough for the likelihood of such a transfer to be very high. Additionally, anecdotal observations of the children made by the experimenter during exposure to the TV films and the guessing game did not indicate either particular guilt or anxiety over the consequences of the aggressive acts. Instead, most of the children displayed eagerness and pleasure in regard to both the film and the game. However, if such generalization

does occur, further research would be needed in order to determine the extent to which either guilt or anxiety are elicited and how they affect the guessing game responses.

It is important to note that there were no significant differences between the experimental TV film conditions for either the youngest or the oldest children (5 1/2 and 8 1/2 year olds), although the trends were in the same direction as the significant findings for the 6 1/2 and 7 1/2 year olds. One explanation for the lack of reliable differences among the 5 1/2 year olds is that the younger children, regardless of cognitive style, were significantly more aggressive under all conditions. The finding that younger children are more likely to respond aggressively regardless of the nature of the stimulation has been well documented (Feshbach & Feshbach, 1971). Therefore, it is suggested that the predominant tendency of the young children to respond aggressively regardless of the nature of the stimulation, could have reduced or negated differences between the film conditions.

The lack of differences among the oldest children (age 8 1/2) might also be attributable to developmental differences in the tendency to respond aggressively. As the child grows older and is increasingly exposed to the socializing influences of his parents, his teachers, and the larger society, his likelihood of responding to any kind of stimulation in terms of physical aggression is decreased. Therefore, one would expect that the generally low level of aggressive responding characteristic of the oldest, most socialized boys might also have negated differences between the film conditions.

As was stated earlier, the data for the younger children did not support the expectation of Hypothesis 2 that the younger more cognitively differentiated boys would be more affected by the variations in the TV film condition than would the less differentiated boys. The rationale behind this prediction was that among young children differences in the effects of stimulus presentations can frequently be attributed to differences in the attentional habits and processes of the children (Kagan & Kogan, 1970). It was assumed that since well developed attentional habits are associated with higher levels of cognitive organization, children who had more differentiated cognitive styles would be more likely to attend carefully to the stimulus presentations of the TV films. It was predicted that since they were more likely to attend to the TV films, they would also be more likely to be significantly affected by the films. The results of the study did not support this prediction. It is possible that whatever effects might have been obtained as a consequence of differential attention were not evidenced in this study because of the saliency of the particular TV films which were used. At all age levels the children were exceedingly interested in and attentive to the activities portrayed in the films. It is also possible that differences in general attentiveness to stimulation such as those predicted would only be evidenced among much younger children as for example 3 to 4 year olds. Further research is needed to clarify this issued.

There is another finding of particular interest in regard to the

effects of the film conditions. As was noted earlier, the major experimental effects of the study were found among the 6 1/2 and 7 1/2 year olds with the less differentiated cognitive styles. The similarity between these children in terms of their responses to the variations in the film conditions, is consistent with the similarity which is found between them in regard to the measures of cognitive style. These findings indicate that the 6 1/2 and 7 1/2 year olds may be manifesting similar behavioral responses because they are at the same developmental level in terms of cognitive organization. This finding dramatically reflects the artificiality of the traditional method of grouping children by ages. Although the children were divided into four groups on the basis of their chronological ages and grades in school, they could have been more appropriately divided into three groups based upon their levels of cognitive differentiation.

#### The Age Differences in Cognitive Style

Significant differences between the 5 1/2 and 8 1/2 year old children were obtained on three of the four cognitive style measures. With an increase in age, the children showed trends from Field-Dependence to Field-Independence, from Impulsivity to Reflectivity and from Motoric-Impulsivity to Motoric Inhibition. These findings substantiate the results of previous studies (Kagan & Kogan, 1970; Witkin, Goodenough, and Karp, 1967).

It is of particular developmental interest to note again, that all of the cognitive style dimensions appear to yield three levels of cognitive organization, among the four age groups studied. On each dimension the 5 1/2 year olds are at a significantly lower level of cognitive organization than the 8 1/2 year olds. The similarity between the 6 1/2 and 7 1/2 year olds on each of the dimensions, suggests an intermediate or third level of cognitive organization. The fact that these differences in the levels of cognitive organization parallel the group differences in aggression found in response to the film conditions, indicates, consistent with other findings, that cognitive style variables are closely related to social as well as perceptual behavior (Kagan & Kogan, 1970; Sigel, Jarmen, & Hanesian, 1967; and Witkin, et al., 1954).

In agreement with the results reported by a number of previous investigators (Eskä & Black, 1971; Kagan, 1964, 1965; Ward, 1968) the results of this study indicate that the MFF errors and latency scores are significantly negatively correlated within three of the four age groups. There is also a consistent, though nonsignificant negative correlation reflected in the fourth age group. The correlational analyses also reflect other significant relationships of interest.

These are the findings of positive correlations within two age groups between Field-Dependence and Impulsivity (in terms of frequent errors on the MFF) and the positive correlation in one age group of Field-Dependence and the other aspect of Impulsivity (short latencies on the MFF). These results are consistent with those reported by Hirsch (1969) in an unpublished study of the relationship between the two cognitive style dimensions of Field-Independence-Dependence and Reflectivity-Impulsivity, and

support Witkin's formulations regarding the development and structure of Field-Independence (analytic style) and Field-Dependence.

### Implications

The results of this study indicate that in order to understand the effects of the media upon a child's aggressive behavior, one must have information about the nature of his individual cognitive style as well as knowledge about the content of the presentation. Furthermore, it appears that there are differences in the nature of responses to the media which are related to differences in levels of cognitive organization rather than to chronological age. Finally, this study indicates that aggressive responding decreases and cognitive differentiation increases as a function of maturity. These findings have important implications for educational and psychological theory and practice.

The theoretical and empirical evidence concerning the aggression stimulating and aggression reducing effects of observation of TV violence is conflicting, the effects being dependent upon a number of stimulus, situational, and population parameters. The findings of this study indicate that exposure to aggressive TV content does not necessarily lead to an increase in aggressive responding. Rather, the results for the less cognitively differentiated children at two age levels consistently reflect a lower level of aggressive responding among those children who were exposed to the aggressive TV film. The importance of this finding is that it may serve to reconcile some of the conflicting evidence available in the literature.

It is suggested here that the viewing of aggressive television content provides a form of cognitive support to children who are low in internal cognitive resources which include cognitive styles as well as the ability to daydream, imagine, and otherwise act out vicariously in fantasy their aggressive feelings and impulses. For children who have relatively undifferentiated cognitive styles, the effect of exposure to violent TV content is to reduce or control the overt expression of their aggressive impulses. A quotation from J. S. Singer's (1966) monograph on daydreaming while pertaining to an older age group, is relevant here. "The adolescent who cannot provide himself pleasure through internal fantasy, contemplation or manipulation of daydream images is compelled more directly to an overt motor imitation of the adult pattern." In this context, television content is seen as providing the necessary stimulation of fantasies for those who do not have the internal cognitive resources for self-generated fantasies (Feshbach, 1970).

The absence of a significant influence of aggressive television content upon the more cognitively differentiated boys and the dependence of the aggression reducing effect upon a particular level of cognitive structure indicates to some extent why there are conflicting findings in the literature. Most studies in this area have not taken cognitive style and related individual difference variables into account.

The study of cognitive styles and their interaction with film media

content has particular relevance to education in regard to the issues of programmed learning and multimedia instruction. In order to select, organize, sequence, and display instructional materials for optimal learning, the materials and the medium of presentation should be congruent with the individual cognitive, intellectual and personality characteristics of the learners. The implementation of a variety of cognitive style measures, such as those employed in this study, would provide educational researchers and teachers with the basic data necessary to describe the learners. The information gained in terms of how the children perceive, organize, and process information and how their cognitive functions interact with the educational and social environment, would be useful in developing multimedia curricular materials in conjunction with the indices of age, IQ, and achievement which are now commonly used to characterize children. An evaluation of the effects of media in regard to the individual cognitive styles of children should result in the determination of the most effective ways of teaching children with particular cognitive patterns. The more we understand and can identify the ways in which differences in cognitive patterns influence children's perceptions of film media content, the more we will be able to devise teaching methods and materials appropriate to them. To the extent that children are different, teaching methods and strategies must also be different in order that television and other instructional modes can provide efficient, and even enjoyable ways for children to learn.

In terms of the implications of this study, it is not the intent of this research to suggest that cognitively undifferentiated children should be exposed to considerable amounts of aggressive television in the simple hope of reducing their overt aggression. Rather, this investigation is an initial step in attempting to delineate the role of cognitive style in mediating the influences of aggressive television content on children. The findings should be of interest to parents, teachers, and others concerned with child development and community mental health in general, however. It should be of particular interest to such individuals to consider how children's characteristic modes of perceiving, organizing, and categorizing information interact with TV content to produce qualitatively different overt behaviors. Such considerations should lead to an interest on the part of parents and professionals in providing a wide variety of quality television programs which will serve children in a number of ways; as for example, providing fantasy stimulation, strengthening their motives and ideals, and communicating information to them about the world in which they live. Further systematic research is needed, to relate the findings of individual differences in cognitive functioning to the effects of the media in contexts other than aggression before such efficient programming can be provided.

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