

Television Forms and Children's Social Behavior

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For the past several years, John Wright and I, along with our many colleagues at CRITC, have been investigating the formal features of children's television programs. Today, I want to describe our work on one aspect of this topic -- the influence of television form on children's social behavior. Three interlocking themes guide the discussion: 1) the relations between form and content in television, 2) the interplay between basic theoretical and applied research questions, and 3) the issues arising from theoretical models based on social learning theory (specifically observational learning) in relation to those based on arousal theories.

I'll begin by defining form and content. Forms of television are those characteristics of programs that result largely from production and editing decisions and which can, in principle, be used with a wide range of content. Formal features include pacing, levels of physical activity, and variability of characters, settings, and speakers. They also include specific production techniques such as rapid cuts, close and long shots, loud music, and sound effects. Content refers to the thematic material that is specific to the particular drama, documentary, or educational message in the production. Most analyses of television are focused on content categories such as violence, prosocial behavior, letters and numbers, and the like.

While it is true that form and content can be defined independently, it is also the case that there are familiar conventions for using certain forms with particular categories of content. In commercial programming made for children, for example, our analyses have demonstrated that the formal feature, animation, is highly associated with violent content, often combined with humor. Other features used to accompany violence include high rates of physical action, loud music, sound effects, and visual special effects (Huston, Wright, Wartella, Rice, Watkins, Campbell, & Potts, 1981).

The confound of form with content in the real world of television raises questions about the interpretation of earlier studies of television content. Because many programs with violent content also contain "perceptually salient" formal features such as rapid action, quick pace, loud music, and the like, it seems possible that some of the aggressive behavioral reactions to such programs could be a function of form as well as content. At the other extreme, because I have spent several years of my career studying Mr. Rogers' Neighborhood, I am especially aware that the prosocial affects of that program might be at least partially due to its slow pace, quiet tone, and general style.

The issue raised here -- what are the relative contributions of form and content to children's attention and social behavior -- has both practical and theoretical importance. On the practical side, many commercial television producers believe they need to use "action" to draw and hold child audiences. By "action," they usually mean a combination of violence and salient forms. If the formal features, rather than the violent content per se, are the major attraction for children, then commercial producers might be able to reduce the amount of violence in children's programs without losing any competitive advantage in audience ratings. Such a change would benefit society if the violent content to be eliminated, rather than the formal features, is primarily responsible for aggressive behavioral reactions to such television programming.

The theoretical questions raised by examining the separate and combined influence of form and content revolve around observational learning and arousal as explanatory processes. Observational learning theory, articulated most extensively by Bandura (1977), has formed the basis for much of the research dealing with television effects on children. It is the theory with which we began our work. One major premise of that theory is that children learn particular behaviors or categories of behavior from watching television; when they find themselves in a situation with appropriate cues, they are likely to imitate that behavior. Of course, there are many mediating and moderating conditions that influence the likelihood of imitation, but the important point here is that the child's behavior is similar to that observed. From this point of view, we reasoned that violent content should influence aggressive behavior, while formal features might lead to behavioral analogues of form. For example, high levels of physical action might lead to increased activity levels, or high pace might increase the rate of shifting from one activity to another. Clearly, the effects of formal features should be different from those of content.

Although the basic principles of observational learning theory have extensive empirical support, many investigators have questioned whether that theory provides a comprehensive explanation for the behavioral effects of television. Anyone who has done research in this area and has observed children's behavior after they watch violent television knows that they rarely show exact imitation of what they have seen. The topography and the character of the aggression that they manifest is often very different from anything shown on the television programs they have seen.

General arousal theory constitutes the other major model used by investigators of television and social behavior. According to that model, both exciting content and salient formal features can contribute to the same internal state of generalized arousal. The arousal by itself is a fairly non-specific activator of behavior. That is, it increases the likelihood and intensity of some behavior, but does not provide selective direction for what behavior. Instead, the specific content of the behavior is determined jointly by the individual's predispositions, habits, set, and expectations on the one hand and by immediate environmental cues on the other.

The principal difference between arousal theory and observational learning theory is that the former leads to the prediction that both form and content of television can stimulate behavior that is quite different from what has occurred in either the form or the content of the program. There is considerable empirical support for the arousal position, primarily in studies of adults (See Tannenbaum

& Zillmann, 1975; Zillmann, 1978). For example, erotic content leads to as much or more post-viewing aggression as does violent content when the viewers (virtually always male college students) are insulted by an experimental confederate and given the opportunity to retaliate by ostensibly delivering electric shocks to the confederate. Also, a few studies have found that violent content (Tannenbaum, 1972) and erotic content (Mueller & Donnerstein, 1975; Stern, 1978) enhanced viewers' altruistic behavior when they were placed in a setting that contained cues for prosocial responding.

The arousing effects of television form have been investigated over several years by Watt, Krull, and their associates (Krull, Watt, & Welty, 1977; Watt & Krull, 1974). They proposed that formal features embodying high rates of change, variability, and uncertainty would be cognitively arousing because they would require more intense cognitive processing. Empirical support for their hypothesis can be found in the work of Berlyne (1960), Mandler (1975) and Frankenhauser (1975) who offer theoretical proposition and empirical evidence that autonomic arousal can result from interruption of ongoing organized cognitive activity by an unfamiliar or novel event. In Krull and Watt's terms, unexpected change in the structure of a television program is an interruption of the viewer's organized processing of the program material producing generalized, autonomic arousal which then may be given an emotional valence by the surrounding context. The emotionality of such a situation is determined by the viewers' context, not by the interruption itself. That is, it is not just frustration due to goal blocking.

In studies of children, they demonstrated that such formal features led to physiological arousal. Among adolescents, formal complexity and violent content of frequently viewed programs each independently correlated with levels of aggressive behavior. On the basis of these findings, one might expect that salient formal features as well as violent content could contribute to increased aggression if personal predispositions or situational cues suggested such behavior. At the same time, if the person or the situation suggested prosocial behavior, arousal theory leads to the prediction that violent content as well as salient form might increase the likelihood of prosocial behavior.

Empirical studies

We have conducted a series of three experiments investigating the influence of form and content on children's attention and social behavior. They are similar in some respects, so I will briefly describe their general methods before proceeding. All three studies have involved preschool children, ages 3-5. All have been carried out in laboratory facilities in which pairs of children (always of the same sex) went from their classroom to a television viewing and play room. In each, the children were shown a selection of television programming. The programs differed in formal feature salience -- a dimension defined by the amount of physical activity of the characters, the rate of scene and character change, the frequency of visual special effects, and the duration of loud music and sound effects. In two of the studies, programs also differed in violence, defined as the frequency of physical aggression, verbal aggression, object aggression, and fortuitous destruction. As the children watched, their visual attention to the television screen was continuously recorded. Then they were left with a set of toys for 10-15 minutes during which their behavior was videotaped. All play sessions were later coded for aggression, imaginative or fantasy play, activity level, and positive or prosocial interaction. Inter-observer agreement was at least 80% on all categories coded.

The major variables and findings in the three studies are summarized in Table 1. In the first study (Huston-Stein, Fox, Greer, Watkins, & Whitaker, 1981), animated children's programs containing different levels of salient formal features and violence constituted the treatment conditions. There were three programs: high salience/high violence, high salience/low violence, and low salience/low violence. A control group saw no television. We were unable at that time to find a comparable program with low salience and high violence -- a problem later remedied. The results of the attention analysis were fairly clear -- children attended more to high feature salience than to low salience, regardless of violent content.

The play situation in this study as well as the second study was composed of toys deliberately selected to facilitate a variety of behaviors. There were toys to promote quiet, non-aggressive behavior such as blocks; active non-aggressive behavior (e.g. stick horses); quiet, aggressive behavior (e.g. jungle animal figures); active, aggressive behavior (e.g. a bo-bo doll); and imaginative play (e.g. small wooden people). In this situation, children who had seen high salience programs, regardless of violence, tended to behave more aggressively than those who had seen low salience or no television at all, but the difference was not significant.

In the second study (Greer, Potts, Wright, & Huston, 1982), we used very different content--commercials. Two sets of food commercials were assembled--one with high rates of salient formal features and one with low rates. There was virtually no aggression or violence in any of these ads, and they were shown with an episode of a children's program (Captain Kangaroo) which was both nonaggressive and relatively low in pace and action.

Once again, children were more attentive to commercials with high levels or salient formal features than to those with low salience features. In the play sessions following viewing, children who had seen the high salience commercials were significantly more aggressive to one another than those who had seen the low salience commercials. This finding, along with a similar trend in the first study, is more consistent with arousal theory than with observational learning theory, particularly in view of the fact that feature salience had no effect on activity level, the behavior that should have been affected had children been imitating the high action.

As you may have guessed, we had by this time been drawn reluctantly away from our initial bias in favor of observational learning theory to a more serious consideration of the implications of the arousal hypothesis. Therefore, we designed a third study to test the predictions of the two theories more thoroughly and directly than had been done in the first two. This study was a Masters thesis by Richard Potts (1981). We selected segments from 8 different television programs so that there were two in each of the possible combinations created by crossing high and low salience of formal features with high and low violence. In each cell, one program was animated and one was live. Thus we managed to represent all combinations of the form and content variables in which we were interested, and we used more programs so that the results would be less likely to be influenced by irrelevant or idiosyncratic characteristics of particular programs.

Table 1. RESULTS OF 3 STUDIES OF TELEVISION
AND CHILDREN'S SOCIAL BEHAVIOR

Summary of Designs

	Study 1	Study 2	Study 3
Type of TV	Animated entertainment	Commercials	Animated & live entertainment
Independent variables	Formal feature salience Violent content	Formal feature salience	Formal feature salience Violent content Aggressive or prosocial toys Animation

Results

Dependent variable

Formal feature salience (Hi vs. Lo)

Attention	Hi > Lo*	Hi > Lo*	Hi > Lo*
Aggression	Hi > Lo*	Hi > Lo*	no dif.
Prosocial	no dif.	no dif.	no dif.
Activity level	no dif.	no dif.	no dif.

TV Violence (Hi vs. Lo)

Attention	no dif.	no dif.
Aggression	no dif.	Hi > Lo* (with aggressive toys)
Prosocial	no dif.	Hi > Lo* (with aggressive toys)
Dyadic interaction	no dif.	Hi > Lo* (with aggressive toys)
Activity level		Hi > Lo* (with prosocial toys)

Toy cues (aggressive or prosocial)

Aggression	Agg > Pro*
Prosocial	Pro > Agg*
Activity level	no dif.

Animation (vs. live)

Attention	An > Live*
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*p < .05

#p < .10

The major innovation in this study was an attempt to vary the cues in the play situation systematically to promote either aggressive or prosocial behavior. Each pair of children participated in two sessions. In one session, they saw a television program, then they were given the aggressive toys during the post-viewing play session. In their other session, they saw the other program representing the same level of form and content as the first one they had seen; they then played with the prosocial toys. The order of toys and programs was counter-balanced.

Two major findings emerged. First, feature salience and animation strongly influenced visual attention; violent content did not. There were significant effects of both feature salience and animation on visual attention, and there was an interaction indicating that attention was high for both high and low salience animated programs, but was considerably lower during live programs with low levels of salience than during live programs with high rates of salient features. (Of course, animation by definition contains higher frequencies of salient features than live production, so the two variables may be indexing different levels of the same underlying dimensions.)

Second, the types of toys available in the play sessions strongly influenced children's behavior. Aggression occurred more often during play with aggressive-cue toys; cooperation, helping, and other prosocial behaviors occurred more often when the toys suggested those behaviors.

Where television program effects occurred in this study, they were more often associated with violent content than with formal feature variations. Specifically, when playing with aggressive cue toys, children who had seen programs with high levels of violence behaved more aggressively to one another than children who had seen low violence programs. This result is consistent with both observational learning and arousal. However, those who saw high violence also showed higher levels of cooperation, social interaction with each other, and negotiating about rules than did children who saw low violence programs. That is, social behavior of all kinds--aggressive, prosocial, and neutral--was higher after seeing programs containing violence than after seeing low violence.

When children played with the prosocial-cue toys, there were fewer effects of television. Those who had seen high violence were somewhat more active than those who had seen low violence.

Television action accounted for a single effect in the prosocial cueing condition. High levels of TV action led to less activity by the children than low TV action. This does not support either observational learning or arousal theory.

Discussion

Now let us return to the questions with which I began, to attempt some conclusions based on these studies. One question concerned the relative effects of form and content on children's attention to television. The findings of these studies are consistent in demonstrating that formal features have considerably more influence on children's attention than does violent content. This conclusion applies to entertainment programming, animated and live, as well as to commercials. Preschool children look at television material that contains rapid action, frequent changes, variability, visual tricks (including the whole package associated with animation), and sound effects. This finding is consistent with a rather large body of data accumulated in our studies and in the research of others (see Bryant & Anderson, in press).

What is new or different about our findings is that violent content does not contribute to the attention-getting quality of a program for young children. The kinds of violence included in the programs used in our studies varied from slapstick cartoon violence to more realistic use of weapons in programs like Robin Hood. In no case, however, were children significantly more attentive to a program with violence than they were to nonviolent programs with comparable formal features. These findings suggest that producers could eliminate much of the violent content from children's programs without reducing the audience appeal of their programs.

The findings concerning children's social behavior are more complex than those for attention. In all three studies, the findings are consistent with the predictions of arousal theory in that attributes of the television programs stimulated behaviors that were in many instances quite dissimilar to those observed in the programs. In the first two studies, formal feature salience appeared to instigate increased aggressive behavior during subsequent free play. In each case, the most reasonable interpretation seems to be that formal features served as a nonspecific energizer of a broad range of behaviors. The particular behaviors manifested were determined by situational cues or individual predispositions.

The results of the third study suggest, however, that the processes involved may be more complex than either theory predicts. In that study, situational cues suggesting aggression or prosocial behavior were varied in order to test the prediction that nonspecific arousal resulting from viewing television could be directed into different kinds of behavior depending on environmental cues. The findings clearly support the importance of environmental cues. Regardless of television exposure, children were much more aggressive when the toys suggested aggression, and they were more cooperative when the toys facilitated cooperative interactions.

Exposure to the television conditions, however, did not simply multiply the behavior produced by these cues. When children played with aggressively-cued toys, those who had seen violent television displayed higher rates of all kinds of social interaction--aggression, cooperation, negotiating, and simple interchanges--than those who had seen nonviolent television. This finding is not entirely consistent with either observational learning or arousal theories. Observational learning cannot readily account for the fact that violent television facilitated a wide range of social behaviors, not just interpersonal aggression, in a play situation with clear cues for aggression. The fact that television violence did not increase prosocial behavior during play with prosocial toys is inconsistent with the prediction from arousal theory that general arousal should enhance whatever behavior is stimulated by situational cues. It does appear that some general process of arousal occurred. However, the aggressive toy cues seem to have added to the arousal rather than directing it into a particular channel. It is possible that the aggressive toys were more fun, more stimulating, and therefore more arousing than the prosocial toys. They were probably also more familiar, so children had responses to them more readily accessible in their repertoires of play behavior. A related interpretation can be based on the fact that in naturally occurring social behavior, aggression and prosocial behavior tend to be positively correlated (Stein & Friedrich, 1975). One might argue that the television programs and/or toys stimulated one type of behavior such as aggression and that other types increased because of their association with it. However, in the present study, aggression was not significantly correlated with prosocial behavior within treatments.

The finding that violent television led to both aggressive and prosocial behavior could easily be misinterpreted if applied to social policy questions. The kind of prosocial behavior involved was taking turns or negotiating about rules, not being helpful, sharing goals, or being kind. Furthermore, the frequencies of these behaviors were generally very low with aggressively-cued toys, so the absolute rate after children saw TV violence was still about 1/3 the rate that children displayed in the prosocial cue condition, regardless of television.

The theoretical questions about the relation between arousal and observational learning processes are thorny ones that cannot be unambiguously solved by our findings. The two processes are not mutually exclusive. Television content and form could provide both general energizing and particular cues for imitative behaviors. What is suggested by these findings is that more attention needs to be given to the interactions of television attributes--both form and content--with environmental cues. Such interactions may be more complex than those initially predicted from either theoretical position.

The applied question concerns ways of reducing some of the aggression instigating effects of children's programming while retaining their audiences. On the one hand, our findings suggest that, under some conditions, salient formal features can instigate aggression, even in the absence of violent content. If violence were reduced in children's programs, their behavioral effects would probably be reduced, but not eliminated as long as they continue to use attention-getting salient formal features. On the other hand, the very powerful effects of environmental cues on children's aggressive and prosocial behavior suggests means by which parents and teachers can modify the effects of television by providing toy and play activities that promote cooperation and positive interaction rather than aggression.

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