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Age Trends in the Development of Aggression, Sex Typing, and Related Television Habits

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A 3-year longitudinal study was conducted with two large samples of elementary school youngsters overlapping in one grade. It was thus possible to trace developmental trends from Grades 1 through 5 on the following variables: aggression; frequency of television viewing; extent of violence viewed on television; judged realism of television programs; and preference for masculine, feminine, or neutral activities. These data support the theory that there is a sensitive period during which the effect of television can be especially influential on children's behavior. Further, since the correlation between violence viewing and aggression tends to increase until age 10–11 years, a cumulative effect beyond the sensitive period is suggested.

In the report of a longitudinal study by Eron, Huesmann, Lefkowitz, and Walder (1972), it was noted that the contemporaneous correlations between television violence viewing and aggression were not as large as the correlations over a 10-year lag. To explain this seemingly anomalous result, the authors posited that a critical, or more properly, a sensitive period exists in a child's development, during which he or she is susceptible to violent television and, further, that the effect is cumulative over that period. It was assumed that the sensitive period began sometime before 8 years of age and was probably over by age 12. A direct test of the sensitive period hypothesis would have required data on children younger than age 8, who were not available at that time. Recently, however, we have been able to collect such data by examining a sample of children 6 to 8 years old as they developed over a 3-year period.

Another finding in the 10-year longitudinal study was that although television violence viewed at age 8 seemed to be causally related to boys' aggression in the later period, there was no relation for girls. Differential socialization of boys and girls was invoked as a possible reason for the difference in results. However, as reported by Eron (1980), the difference in the TV violence–aggression relation between males and females seems no longer to be true. The current report provides further data on that changing relation.

The overlapping longitudinal design of this study eventually will provide the basis for determining causal relations between variables, but this article will not deal with causal relations. The complex multivariate analyses prepared to test the causal models require extensive presentation and are being developed in the framework of a cross-national study (Huesmann, 1982).

Method

To pursue the implications of the 10-year study mentioned above, another longitudinal study was conducted over 3 years with two cohorts of school children overlapping in one grade. Cohort A was seen in the first, second, and third grades, and Cohort B, in the third, fourth, and fifth grades.

Subjects

The original group of subjects comprised 672 children in the public schools of Oak Park, Illinois, an economically and socially heterogeneous suburb of Chicago, and 86 children from an inner city school of the Chicago archdiocese. Half of these children were in the first grade at the start of the study in 1977, and half were in the third grade; they were approximately equally divided by

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sex. In 1978, 607 children remained in the sample, and in 1977 there were 505. Almost all of the subject attrition was due to the children's leaving the school system; the attrition rate did not differ by grade or sex.

Measures

All children were tested in their classrooms in three hourly sessions, a week apart, in 1977, 1978, and 1979. The measures taken at these three points in time included peer-nominated aggression, aggression anxiety, and popularity; self-ratings of aggression, sex-typed behavior preference, and fantasy behavior; and various measures of television viewing habits, including frequency of viewing, violence of favorite programs, and judged realism of programs. This report refers only to peer-nominated aggression, frequency of viewing, violence of favorite programs, judged realism of programs, and sex-typed behavior preference. Results with the other measures are reported elsewhere (Eron, 1980; Huesmann, 1982).

Peer-nominated aggression. Aggression of children was measured by a version of the Peer Rating Index of Aggression (Walder, Abelson, Eron, Banta, & Laulicht, 1961) in which every child in the classroom rates every other child in the classroom on a series of 10 aggression items embedded in a list of 15 items that also deal with popularity and aggression anxiety. The reliability of this instrument and its concurrent, predictive, and construct validity have been amply demonstrated (Eron, Walder, & Lefkowitz, 1971; Lefkowitz, Eron, Walder, & Huesmann, 1977). In the current study, coefficient alpha was .95, and test–retest reliability over 1 month was .91.[1]

Frequency of viewing. This measure was obtained from the subjects themselves, who rated the frequency with which they watched specifically named programs. These were the 80 television shows chosen from the Nielsen data as the most popular for children of ages 6–11 years. The shows were divided into eight lists of 10 programs each. The lists were equivalent in terms of the violence and popularity of the shows, the sex of the central character, and the time and day of the week in which the programs were shown in the Chicago area. The children were given booklets with each of the eight lists on a different colored sheet of paper and were asked to draw a line through the one program they watched the most on that list. They were then asked to indicate, by checking an appropriate box, whether they "watched every single time the program was on," "watched a lot, but not every single time," or "watched just once in a while." These alternatives were assigned scores of 3, 2, and 1, respectively. A TV frequency score was then obtained by summing the scores for all 8 shows selected. Test–retest reliability over 1 month was .76.

Violence of favorite television programs. Two psychology graduate students who had small children but were not associated with this research project rated all 80 programs for the amount of visually portrayed physical aggression in the shows on a 5-point scale from "not violent" to "very violent." Interrater reliability was .75. A child's TV violence score was the sum of the violence ratings of the 8 shows the child had indicated he or she watched, weighted by the frequency with which the child reported watching the program. Test–retest reliability over 1 month was also .75.

Realism of television programs. The children were asked to rate how realistic they judged television to be. They were given a list of 10 violent shows, including cartoons as well as police and bionic shows. They were then asked, "How true do you think these programs are in telling what life is really like—just like it is in real life, a little like it is in real life, or not at all like it is in real life?" The youngester's score on each item could range from 3 to 1, respectively. The subject's total realism score was the sum of the ratings on all 8 items. One-month test–retest reliability was .74. Coefficient alpha was .72.

Sex-typed behavior. A measure of preference for sex-typed toys and games was used to determine appropriate sex role behavior. This measure of preference for sex-typed activities consisted of a booklet of four pages, each of which contained six pictures of children's activities. Two pictures of each set had been previously rated as masculine, two as feminine, and two as neutral by 67 college students who had been asked to note the extent to which various activities are considered appropriate for boys and girls in our society. The task for the children was to select the two activities they liked best on each page, and they received a score for the number of masculine, feminine, and neutral pictures they chose. The reason for including a neutral category was that even though less masculine boys may not like traditionally feminine activities, they might prefer neutral to traditionally masculine ones. Similarly, for girls we anticipated that those who did not prefer traditionally feminine activities might also eschew traditionally masculine activities but would subscribe to neutral ones. Coefficient alpha is not an appropriate measure of reliability for these scales; however, 1-month test–retest reliability was between .55 and .60.

Results and Discussion

Developmental trends were investigated by plotting mean scores for each grade according to sex as well as by correlations among the variables broken down by grade and sex.

Figure 1 shows identical age curves for boys and girls on the aggression score. Girls indeed have lower scores than boys at each grade, but the differential is similar for all grades. The shape of the curve between Grades 1 and 3 merits comment. There is a

[1] Three-year stability for the peer-rated aggression score in this sample was .61. In our previous 10-year study (Eron et al., 1972; Lefkowitz et al., 1977), the stability of aggression score was .42 for 476 subjects. As for the other measures in this study, the 3-year stability for television violence was .25; frequency of viewing, .35; judged realism of television, .25; preference for masculine play activities, 39; preference for feminine activities, .39; and preference for neutral activities, .29. All correlations are beyond a p level of .001. Stability over 10 years was .07 for television violence and .14 for frequency of viewing (both measured differently than in the current study).

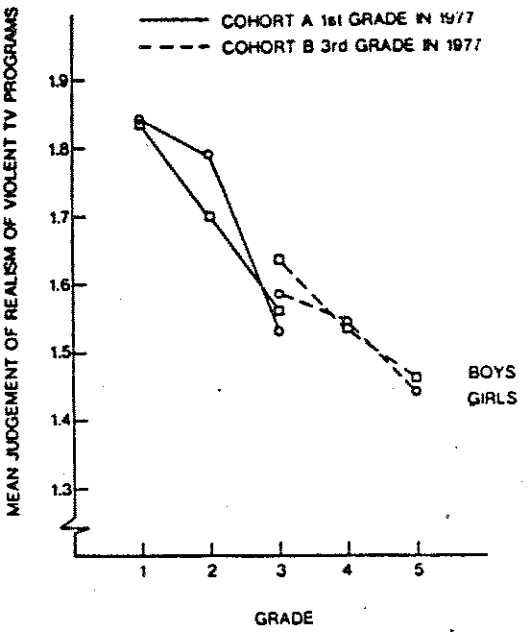

Figure 3. Change in mean realism score from Grades 1 to 5.

masculine or feminine sex-typed behaviors. These preferences for boys seem to be set early on in development and are not really subject to change.

In our previous study, in which we used a different measure of sex role preference, we were unable to establish any age trends, since measures were taken only at ages 8 and 19 years, and the measure devised for subjects at age 8 was not appropriate for 19-year-olds. However, there are some age-trend indications in a recent report by Bullock and Merrill (1980), who in a 1-year longitudinal investigation with 9- and 10-year-old children used measures of activity preference and aggression almost identical to those used in our 10-year study. Mean scores for boys from Time 1 to Time 2 increased on both measures; for girls the mean score increased only for preference for masculine activities.

Further, the measure of sex role orientation taken at age 8 years in our own previous study did relate to other variables measured at age 19. For example, girls who had high scores on preference for masculine games at age 8 tended to get high scores on the Masculinity scale of the Minnesota Multiphasic Personality Inventory at age 19; they also tended to watch more violent television, to think that television was realistic, and to get higher peer-rated aggression scores (Lefkowitz et al., 1977). These results were taken to mean that girls who are affected by television in the same way as boys (i.e., violence viewing

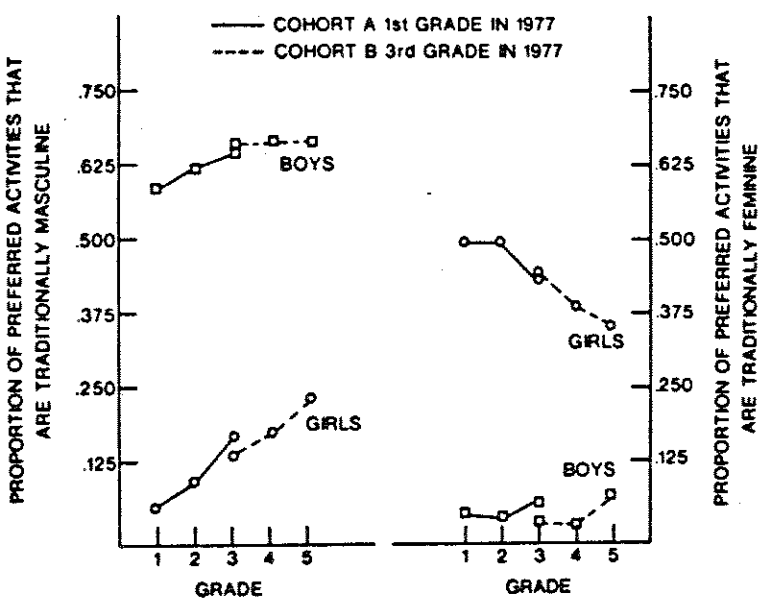

Figure 4. Change in preference for sex-typed activities from Grades 1 to 5.

Table 1
Correlations Between Television Violence Viewing and Peer-Nominated Aggression

Grade	All subjects	Males	Females
First	.212****	.160*	.210***
Second	.234****	.204**	.245****
Third	.232****	.191**	.205**
Fourth	.224****	.184*	.260****
Fifth	.261****	.199*	.294****

Note. $N = 758$.
* $p < .05$. ** $p < .025$. *** $p < .01$. **** $p < .005$.

influences their aggressive behavior) are like boys in many other ways as well, probably as a result of having been socialized like boys. Thus, although girls as a whole from 1960 to 1970 were not affected by the violence on television in the same way as boys as a whole, a subset of girls did respond like boys. Although our new data indicate some changes from previous findings (i.e., in 1960 and 1970), they are not inconsistent with the previous result that more aggressive girls respond like boys in a variety of ways.

Table 1 presents the correlations between television violence and aggression for all subjects, broken down by grade and sex. All of the correlations are positive and significant. However, in each case the correlations are higher for girls than boys, the correlation for girls in the fifth grade is significantly higher than in the first grade, and with one exception the correlation increases in size from the first to the fifth grade. This corresponds to the increase among girls over the same period in preference for masculine activities and is consistent with the cumulative effect posited earlier. Moreover, it is interesting that the correlations in the third grade are of the same order as the correlation found in the third grade in 1960 only for boys.

Elsewhere (Eron, 1980; Huesmann, 1982) we have discussed possible reasons for this shift in direction of relation for girls. Briefly, these have to do with the fact that currently there is a greater emphasis on the need and desirability for females to be assertive and physically active, and consequently the socialization of boys and girls has become more similar. Over the course of this 3-year study, the relation between aggression and either a male or female orientation, as measured by preference for sex-typed activities, varied greatly with sex and grade. However, as noted in Table 2, the relation between neutral sex role orientation and aggression was consistently negative. Children who scored high on neutral sex role were those who were flexible in their choice of games and activities and not bound by social stereotypes. Perhaps such children are also more flexible in their choice of behaviors when a variety of problem-solving skills are called for, as in frustrating situations. Thus, they are less likely to choose aggressive solutions when they are in such situations.

Why should the correlations between television violence viewing and aggressive behavior now be even higher for girls than they are for boys? The reason may be that girls have available both male and female aggressive models to copy, whereas boys are more likely only to copy males, as we have seen in the developmental trends for sex-typed behaviors. Therefore, the effect of television violence on aggressive behavior may be stronger now for girls than it has been for boys, since there are both aggressive males and females whose behavior can be modeled. As a result there are fewer inhibitions in girls preventing them from modeling aggressive behaviors they observe on television. A substantial body of evidence exists indicating that the heroic male aggressors displayed on television are most likely to be imitated by viewers regardless of sex.

The correlations between judged television realism and peer-nominated aggression are presented in Table 3. Again, all of the correlations are positive, indicating that the more realistic boys and girls believe television

Table 2
Correlations Between Preference for Neutral Sex-Typed Activities and Peer-Nominated Aggression

Grade	All subjects	Males	Females
First	−.217****	−.175*	−.197**
Second	−.210****	−.086	−.294***
Third	−.180***	−.151	−.135
Fourth	−.170***	−.200**	−.049
Fifth	−.193***	−.117	−.140

Note. $N = 758$.
* $p < .05$. ** $p < .025$. *** $p < .01$. **** $p < .005$.

dip in aggression scores from Grade 1 to 2 and then an increase to Grade 3; this holds for both boys and girls to an equal extent. The only explanation we have for this consistent dip is methodological. The routine procedure in all grades was to give the nominators a randomly ordered list of names of all the children in the class who were to be rated and then have the nominator cross out all the names on the list fitting the description in the item. There was a separate list of names for each item. Because first-grade children ordinarily cannot read well enough to recognize the names of other children, we showed them pictures of all the children in the class, and they pointed to the pictures rather than crossing out names to make nominations. This procedure seemed to have encouraged nominators to make more choices. Beginning with the second grade and thereafter, the crossing-out procedure was used.

At any rate, the shape of the curve is the same for boys and girls, and in the third grade, Cohorts A and B have approximately equivalent scores. If the higher scores in the first grade can be considered an artifact of the method, there seems to be a steady increase in aggression scores for both boys and girls, at least from the second through the fifth grade.

Feshbach (1970) remarked on the paucity of studies documenting age changes in the aggressive activity of children. Whatever developmental changes had been noted by then were restricted primarily to observations of preschool children between the ages of 2 and 5 years. Since that time, Hartup (1974), in an observational study of preschool children and first and second graders, reported that the older children were less aggressive than the younger children. However, when the aggression was broken down into instrumental and hostile units, it was noted that the older children initiated a greater number of hostile acts than did the younger ones. The Peer Rating Index of Aggression does not differentiate hostile from instrumental aggression, nor does it differentiate types of aggression, although the 10 items include instances of physical, verbal, acquisitive, and indirect aggression. However, factor analytic studies have repeatedly shown the factor structure of the index to include just one

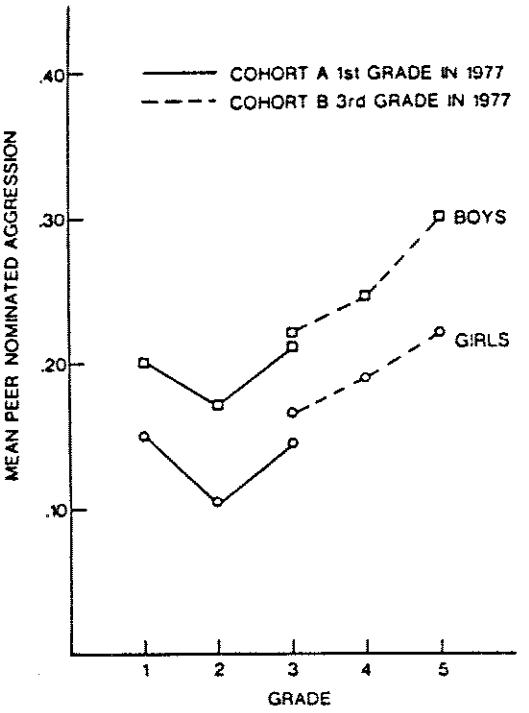

Figure 1. Change in mean aggression score from Grades 1 to 5.

global factor of aggression (Eron et al., 1971). Factor analyses performed on the current data yield essentially the same results. One factor explained over 75% of the variance, and there was no differential weighting of the items in the factors. This was true for all grades. However, this single factor, judging from the item content, is undoubtedly tapping hostile aggression. These results corroborate, then, what little evidence there is of an increase in hostile aggression in middle childhood (Hartup, 1974).

Frequency of television viewing also seems to vary with age and, again, as shown in Figure 2, the results are similar for boys and girls. There is an increase from Grade 1 to Grade 3 in Cohort A, the two cohorts are similar in Grade 3, and there is then a decrease in frequency of television viewing from Grade 3 to Grade 5 in Cohort B. The slopes for boys and girls are essentially equivalent, although on the whole, girls tend to watch television less than boys.

For amount of violence viewed, the developmental trend does not differ from total fre-

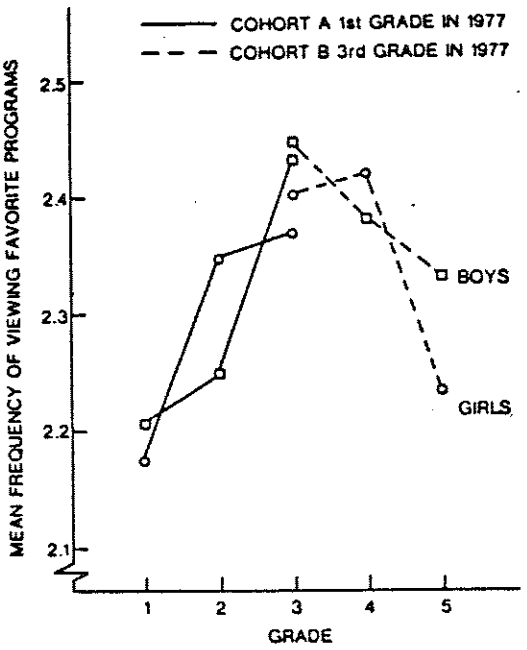

Figure 2. Change in frequency of television viewing from Grades 1 to 5.

quency of TV viewing, an increase from Grade 1 to 3 and a decrease from Grade 3 to 5, with the amount of violence viewed in the two cohorts at Grade 3 approximately equal. This correspondence in trends between amount of violence and total frequency of watching is not surprising, since TV frequency and TV violence are positively correlated ($r = .65$). Again, as with other variables we have thus far mentioned, the amount of violence viewed in Grade 3 is approximately the same in both cohorts. Furthermore, as with frequency, the third grade seems to be the peak year for violence viewing. This finding of a peak for television viewing at age 8 to 9 years is somewhat at variance with earlier studies, which have shown that total extent of television viewing continues to increase until early adolescence (Lyle & Hoffman, 1972).

The reason for the difference in findings is probably a function of the way in which we measured frequency of television viewing. As noted above, this was not the total amount of time spent in front of the television screen but a 3-point scale on which the subjects rated the frequency with which they watched eight specific favored programs. As the children get older, other activities taking place at specific set times increasingly intrude on usual times set aside for television viewing. Although children and young people may not decrease their total amount of viewing time, because of other activities, they cannot always watch the programs they prefer if they are shown at times that conflict with these other activities.

In addition, a greater variety of programs may appeal to the older child or become available for viewing because of lessening parental control and increased viewing during evening hours. Thus, the older child may watch television for just as many hours or more than the the younger child but will not be watching specific programs as intensely. However, from the point of view of modeling theory, it seems likely that intense viewing of certain types of programs has a greater effect on the child than less intense viewing of many programs. For this reason we have emphasized the intensity component of frequency of viewing and thus measured how frequently the subjects watched their favored programs.

Results for boys and girls are very similar with respect to TV realism, a measure of the degree to which the youngster believes one gets a realistic picture of life from various TV programs. Figure 3 indicates that as the child gets older, the belief that TV is realistic tends to diminish. This is equally true for boys and girls. Previous studies have shown that at 19 years of age, females do not believe that TV is as realistic as males do (Lefkowitz et al., 1977). These data would indicate that by age 10 this difference between males and females has not yet become manifest.

The age trends for preferred sex role behavior are not similar, nor are they as explicit for both sexes (see Figure 4). It seems that girls' preference for masculine activities increases from first to fifth grade, and their preference for feminine activities decreases. The correlation between preference for male activities and age in this sample of girls is .284 ($p < .001$). On the other hand, boys are consistently high in their preference for masculine activities and consistently low in their preference for feminine activities throughout all grades, showing no marked trend toward increased or decreased preference for either

Table 3
Correlations Between Judged Realism Of Television and Peer-Nominated Aggression

Grade	All subjects	Males	Females
First	.116*	.110	.130
Second	.191**	.249**	.193*
Third	.204**	.178*	.225**
Fourth	.055	.185*	.113
Fifth	.166*	.208**	.109

Note. $N = 758$.
* $p < .05$. ** $p < .025$.

is, the more aggressive they are as indicated by peer ratings. The correlations are highest in the second and third grades.

Summary

Thus, in general, the data indicate the presence of age trends in the development of the five behaviors whose measurement has been described here: aggression, frequency of television viewing, amount of violence viewed on TV, judged realism of television programs, and preference for sex-typed behavior. The strength of the relations among these variables also exhibits developmental trends. The fact that third graders from both cohorts obtained equivalent scores increases the validity of these observed developmental trends. Further, these data support the theory that there is a sensitive period at around age 8–9 years, during which the effect of television can be especially influential in affecting a child's behavior. Before age 9, children believe much of what they see on TV to be realistic and do not distinguish fantasy from reality very well. Since this has been shown to be an important intervening variable in the relation between TV violence viewing and aggression (Huesmann, 1982; Singer & Singer, 1981), and since amount of violence viewed and exposure to television in general peak around third grade, it is likely that the effect of violence viewing on behavior is strongest during this period. Thus, it is not surprising that the correlation between violence viewing and aggression tends to increase at least until age 10–11 years, suggesting a cumulative effect beyond this sensitive period. Children tend to increase in aggressive behavior from third to fifth grade but decrease in the extent to which they believe television is realistic. Girls tend to increase in their preference for masculine activities and decrease in their preference for feminine activities. Frequency of viewing television in general and violence in particular increases through the third grade and then decreases. Any intervention program to mitigate the effect of television violence on aggressive behavior should be synchronized with these age trends.

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