Gender Constancy and the Effects of Sex-typed Televised Toy Commercials

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Numerous studies have shown that television programs and commercials are presented in a way that is overwhelmingly consistent with sex stereotypes (Stein & Friederich 1975, Stern glanz & Serbin 1974). Since children watch 3–4 hours of television a day (Lyle & Hoffman 1972), its potential impact on the development of children's gender-related attitudes and behaviors is enormous. It is well demonstrated that, under the appropriate conditions, people will imitate the behavior of others (Bandura 1969, Mischel 1966). Thus, it seems important to ask the question: Does watching television promote sex-stereotyped behavior and attitudes in boys and girls?

In order to address this question, a more basic theoretical problem needs to be examined. One of the most significant and controversial theoretical issues in the area of gender development concerns the role of same-sex modeling (Barkley, Ullman, Otto, & Brecht 1977, Masters, Ford, Arend, Grotevant, & Clark 1979, Perry & Bussey 1979). Both major theories of sex-role development—social learning theory (e.g., Mischel 1966, 1970) and cognitive-developmental theory (e.g., Kohlberg 1966, Kohlberg & Ullan 1974)—argue that same-sex modeling is a crucial process, however there is some debate concerning the timing of this process. According to social learning theory, information provided by readily available same-sex models in the home and in the media, together with reinforcement for sex-appropriate behavior serve as the major impetus for the acquisition of sex-typed behaviors occurring during the preschool years. In contrast, according to cognitive-developmental theory, a child's notion of gender develops in stages until, at about 5–6 years of age, he or she recognizes that gender is an invariant property of an individual—that is, that a person will always be male or female regardless of superficial transformations, such as hairstyle or clothing. This stage of gender constancy is thought to be critical, specifically it is assumed that children become interested in same-sex models and perceive sex-appropriate behaviors as reinforcing because of the newly acquired sense of the inevitability of their gender, rather than the re-

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verse Thus, although sex-typed behavior is clearly present prior to 5 years of age (Macoby & Jacklin 1974, Ruble & Ruble, in press), the attainment of gender constancy may be a special point in sex-role development. That is, it may represent a shift in the role of the child from being relatively passively influenced by sex-role reinforcement and information to actively seeking it out.

Consistent with Kohlberg's (1966) formulation, stages of gender constancy have been identified, which have been shown to have characteristics of developmental stages and to be related to Piagetian measures of the constancy of physical objects occurring at approximately 5–7 years of age in middle-class children (DeVries 1969, Emmerich, Goldman, Kirsh, & Sharabany 1977, Marcus & Overton 1978, Slaby & Frey 1975) Unfortunately, however, there is only tentative and indirect support for the idea that children at the age associated with gender constancy are more attentive to same-sex models (Bryan & Luna 1978, Grusec & Brinker 1972, Slaby & Frey 1975) Furthermore, totally absent from the literature is any evidence concerning behavioral effects of such processes. Only a few of the many modeling studies show that children differentially imitate same-sex models (e.g., Barkley et al 1977), but most of this research was with preschool children who are presumably pre-gender constant. Thus, a crucial question remains: Does the apparent heightened attention to same-sex models during later stages of gender constancy translate into heightened behavioral responsiveness at this time?

The purpose of the present study was to examine this key but, to date, missing link in the evaluation of theories of sex-role development by means of a developmental analysis of the effects of televised sex-stereotyped information on children's behavior. Because play behavior has served as a central focus in studies of early sex-role development and because television commercials are a major source of same-sex models of play, the stimulus selected for the study was a TV toy commercial.

Children saw a commercial of a toy, pretested to be "neutral" in terms of sex-role appropriateness (i.e., for boys and girls equally). Two commercials were filmed of the same neutral toy, so that one made the toy seem appropriate for girls and the other made it seem appropriate for boys. It was predicted that children who were "low" in gender constancy would not be affected by the sex-role information in the commercial. Males and females in this stage would play with the toy for similar amounts of time, when later given the chance, and would report similar perceptions of the appropriateness of the toy for girls versus boys. In contrast, it was predicted that the behavior and perceptions of children who were "high" in gender constancy would be differentially affected by the sex-role information in the different commercial conditions.

Method

Subjects. The children were 50 males and 50 females, ranging in age from 44 months to 77 months (X = 60). The subjects were obtained from various nursery schools and kindergartens in the central New Jersey area. The parents were informed of the purpose and procedures of the study, but were asked not to divulge the purpose to their children.

Stimulus materials. Two commercials were prepared about a toy, which pretesting had shown was perceived by children as being appropriate for both boys and girls. These commercials depicted this neutral toy—the Fisher-Price Movie Viewer—as being appropriate either for males or females, by showing either two boys or two girls playing with the toy. Identical narrations were dubbed in, with either a male or a female voice corresponding to the sex of the models. The commercial consisted of one model playing with the toy, then showing the second model how to play with the toy. The second model then played with the toy, while the first model looked on. Each commercial was 1 min long and was edited into the middle of a 5-min Bugs Bunny cartoon.

Procedures. One of two experimenters (a male and a female) escorted the subjects one at a time from their classrooms to the experimental room, located on the school premises. The room was divided by an apparatus which contained a one-way mirror. En route, the experimenter explained that the child was going to see a cartoon. Upon arrival, the child was asked to sit down and watch the cartoon while the experimenter went to make a phone call. The experimenter turned on the videotape player and left the room, entering the adjacent section. The time spent viewing the commercial was recorded. Forty children saw "same-sex" models, 40 saw opposite-sex models, and 20 saw no commercial (control).

When the cartoon ended, the experimenter entered the viewing room and explained that he or she had to leave again for a few minutes, but that the child was free to play with any...
of the toys in the room. One of the toys was the Fisher-Price Movie Viewer. Another was a stacking toy (pretested to be similar in interest value to the viewer and, like the viewer, to be appropriate for both sexes). A book and some poker chips were also provided. The experimenter then left the room and entered the adjacent observation section, where he or she scored the child's play behavior patterns for 5 min by marking which toy the child was playing with at 6-sec intervals. Interrater reliabilities were high, the average percentage of agreement for 10 observer reliability tests was 96.

Upon the experimenter's return, the children were asked to answer a few questions. First, the children were trained to use a measure of attractiveness consisting of three faces drawn with progressively broader smiles, and were asked to indicate how much they liked the viewer and the stacking toy by pointing to the appropriate face. Next, a question was posed to assess whether the children perceived the viewer as more appropriate for one sex or the other. The experimenter said, "I have a little brother and a little sister about your age, and their birthdays are coming up. Who do you think would like this toy more, my brother or my sister?" (The order of asking about the brother and sister was counterbalanced across subjects)

To assess recall, children were then asked (1) which toy was in the commercial, and (2) whether boys or girls or both were in the commercial. Responses were scored as correct or incorrect for both recall measures. The next set of questions assessed the extent to which the children were aware of sex-stereotypic labels applied to four toys. The children were asked, "Who would like this toy more—boys, girls, or both boys and girls?"—for a nurse kit, a dish set, an airplane, and a truck. At this time, the children were shown a brief (8 sec) clip of each of the two commercials and asked to identify which one they had seen. They were also asked to identify the models as boys, girls, or boys and girls.

Finally, the gender-constancy interview was administered, using the procedure described by Slaby and Frey (1975). Props for the interview included a set of four dolls (a man, a woman, a girl, a boy) and four black-and-white photos (two adult males and two adult females). The scale consists of a series of questions and counter-questions, grouped into three sets of gender-constancy questions. (1) nine identity questions (e.g., "Is this a woman or a man? Is this a [opposite sex of subject's first response]?"), (2) two stability questions (e.g., "When you grow up, will you be a mommy or a daddy?"), and (3) three consistency questions (e.g., "If you played [opposite sex of subject] games, would you be a boy or a girl?"). Following the procedure of Slaby and Frey (1975), questions were scored "plus" (correct) only if the subjects answered both the question and the counter-question correctly, otherwise, it was scored "minus" (incorrect).

The children were divided into high- and low-gender-constancy groups by means of a median split across commercial conditions, based on the number of questions answered correctly. This modification of the Slaby and Frey categorization system based on sets of questions was deemed necessary because it was expected that the differential effects of same-sex models on behavior would occur within the higher stages of gender constancy. Thus, assignment to gender-stage levels was based on a more finely differentiated analysis of the children's responses to the three gender-constancy questions than was used in the original study. The basis for assignment and the percentages and ages of boys and girls at each level are presented in table 1. The present breakdown is consistent with the Slaby and Frey study in that the four levels were sequentially ordered.

Results

Behavioral measure—The major hypothesis concerned the amount of time spent playing

1 The most significant deviation from the Slaby and Frey classification system was that children who missed two of the three gender-constancy questions were classified in the low group even though they answered gender-identity and gender-stability questions correctly. However, it is noteworthy that a very large percentage of the sample was able to answer only one of the gender-constancy questions correctly, and of these children, most (92%) were able to answer only the motivation question (i.e., "Could you be a [opposite sex of subject] if you wanted to be?"). Thus, there seemed to be an asymmetry in difficulty level across the three gender-constancy questions, thereby providing additional indications of the usefulness of a more highly differentiated scoring system at the higher gender-constancy stages.

2 Only one subject answered gender-constancy questions correctly after having incorrectly answered earlier questions. She was dropped from all further analyses.
TABLE 1
BOYS AND GIRLS AND AGES OF CHILDREN ANSWERING THE GENDER-CONSTANCY QUESTIONS OR QUESTION SETS "CORRECTLY" AS A FUNCTION OF GENDER-LEVEL CATEGORIES (%)

<table>
<thead>
<tr>
<th>GENDER LEVEL</th>
<th>GENDER CONSISTENCY</th>
<th>TOTAL CHILDREN (%)</th>
<th>AGE (mo)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gender Identity</td>
<td>Gender Stability</td>
<td>Motivation</td>
</tr>
<tr>
<td>Low</td>
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</tr>
<tr>
<td>1</td>
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<td>2</td>
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<td>[ ]</td>
</tr>
<tr>
<td>High</td>
<td>[ ]</td>
<td>[ ]</td>
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</tr>
<tr>
<td>3</td>
<td>[ ]</td>
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</tr>
</tbody>
</table>

The only other significant contrast showed that low-gender-stage children spent more time with the viewer when they saw an opposite-sex model than when they saw no commercial (p < 0.05). Although the mean difference for the two gender stages in the control condition was large, it was not significant, presumably because of the small N's in these cells.

The only other significant result was a main effect for sex, F(1,87) = 5.73, p < 0.05. Overall, boys spent more 6-sec intervals with the viewer (X = 20.1) than did girls (X = 14.5). It is noteworthy that the sex of the subject did not interact with the other variables, since Slaby and Frey found that only high-gender-constant boys selectively attended to same-sex models. However, in the present study the pattern of differences between same-sex and opposite-sex model conditions was very similar for boys and girls.

Verbal measures — A secondary hypothesis concerned verbally reported perceptions regarding the sex appropriateness of the viewer. Children were asked whether the experimenter's brother or sister would like the viewer more. A three-way ANOVA conducted on the proportion of same-sex responses revealed a main effect for commercial condition, F(2,87) = 5.74, p < 0.1. As expected, children who viewed the opposite-sex commercial were more likely than children in the other two groups to say that opposite-sex siblings would like the viewer more. However, this result must be interpreted in terms of a significant commercial-condition × gender-stage interaction, F(2,87) = 3.31, p < 0.05, as shown in figure 2. Consistent with predictions, post hoc comparisons

![Mean six-second intervals spent with the viewer](image-url)
revealed that the high-gender-stage/opposite-sex model condition differed from all other cells ($p < 0.05$). There were no other significant main effects or interactions.

An additional verbal measure consisted of children's verbal reports of how much they liked the viewer. A three-way ANOVA yielded no significant effects on this variable, in contrast to the behavioral effects reported above.

Finally, a sex $\times$ gender-stage ANOVA was conducted on children's sex-typing scores, which ranged from 0–4 for toys labeled according to traditional sex stereotypes. No main effects or interactions were significant. Mean "correct" sex labeling was 3.26 and 3.42 for the low- and high-gender-stage groups, respectively.

Covariance analyses with age. Since gender stage is a variable clearly related with age, it could be argued that the above interactions with gender stage were as much determined by some unmeasured age-related factor as by level of gender constancy. Thus, although the correlations between age and gender stage were low, $r = 0.20, p > 0.05$, additional ANOVAs using age as a covariate were performed on the major dependent variables. The results of these analyses of covariance showed effects identical to those reported above for the two major measures: toy play and perceived appropriateness of the viewer. In both cases, the $F$ ratio was less than 1 for the covariate. In contrast, the analysis of covariance on the sex-typing measure showed a highly significant effect of the covariate, $F(91,86) = 50.9$, $p < 0.001$, even though the effect of gender stage was not significant as described above. Thus, it appears that age and stage of gender constancy have differential effects on variables related to sex-role acquisition.

Attention and recall. Several checks on the children's attention to and memory of the key manipulations were included in the study. Analyses were conducted on these data to determine if there were any differences across conditions that might have influenced the effects reported above. First, a three-way ANOVA on time spent viewing the commercial revealed no significant effects. Second, $\chi^2$ analyses were conducted on children's correct versus incorrect responses to the recall and recognition questions about which toy was in the commercial, whether boys or girls were playing with the toy, and which commercial they had seen. There were no significant differences for any of these measures as a function of gender stage or commercial condition. Almost all of the children correctly recalled the toy and most (70%) spontaneously remembered correctly the sex of the children in the commercials. In addition, 87.5% of the children correctly identified which commercial they had seen, after being shown the short clips. Finally, all except three children were able to correctly identify the sex of the children in the commercial. Thus, it appears that neither attention nor memory factors can account for the interaction effects on behavior and perceived appropriateness described earlier.

Discussion. The findings of the present study provide a direct link between television viewing and sex-typed behavior, and equally important, they demonstrate an important connection between the child's cognitive-developmental level and the impact of gender-related information provided by television. A single viewing of a commercial portraying a gender-neutral toy in a context that made it seem appropriate for only one sex had a dramatic impact on children's subsequent behavior with that toy—but only for children who were aware of the constancy of their gender.

Additional analyses including sex of experimenter yielded only one uninterpretable significant effect on the dependent measures. A test involving sex of experimenter $\times$ commercial condition interaction on behavioral episodes with the viewer, $F(2,75) = 7.52, p < 0.01$, showed that children in the control condition spent more time playing with a male experimenter than with a female experimenter.
Specifically, for low-gender-stage children, viewing the commercials seemed to produce a simple modeling effect—relative to the control group they played more with the toy when they saw a commercial, even if opposite-sex children were playing with the toy. In contrast, for high-gender-stage children, viewing opposite-sex children playing with the toy led to an avoidance of that toy during the subsequent play period. The effects of the commercial conditions on children's verbal perceptions of the sex-appropriateness of the viewer paralleled the behavioral data. The one inexplicable element in the pattern of the results was the discrepancy in the play behavior of the control subjects such that low-gender-stage children tended to play less with the toy than high-gender-stage children. However, because this difference was not statistically significant and because it did not appear in the perceived appropriateness measure, it would not seem to pose a serious qualification to our major conclusions.

It is important to note that the effects in the present study are not due to simple maturational effects associated with age. Covariance analyses showed no effect of age on these variables, and there were no differences across gender stages in attention, recognition, or recall variables. Thus, the present results, together with the Slaby and Frey (1975) report of a relationship between constancy and attention to same-sex models, suggest that gender constancy may, indeed, represent a stage in development in which children actively seek information about what is appropriate for their sex and act in accordance with it.

The different results obtained for the sex-stereotyping measure provide additional insight into the underlying processes involved. Specifically, in direct contrast to the results for the behavioral and verbal measures concerning the viewer, age but not gender stage was significantly related to children's ability to correctly label sex-stereotypic toys. This pattern of results indicates the importance of recognizing that different processes are likely to be involved in different aspects of sex-role development. For example, it may be that age represents a variable primarily associated with increasing experience with sex-typed labels and reinforcement for using them correctly. On the other hand, the ability to regulate one's own behavior in terms of such labels may depend on changes associated with gender stage.

An anecdote may help clarify this point. One of the older male children correctly applied a "female" label to the dish set. However, the child then asked if he could play with the toy. The fact that the female label was not interfering with the boy's desire to play with the toy seems to indicate that the label was not highly meaningful to the child, as a cue to how he himself should be behaving. Because this child was at the low gender stage, he may not have seen the need to regulate his own behavior in terms of the sex-typed label of the dish set.

This distinction between the relatively passive learning process associated with age or experience and the relatively active learning process associated with stage of gender constancy may help explain some apparent inconsistencies in previous literature. For example, in contrast to the cognitive-developmental hypothesis, Marcus and Overton (1978) failed to find a relationship between gender constancy and preferences for sex-typed activities. Although they explain their findings by reinterpreting the cognitive-developmental predictions, it may also be that their measure was not sensitive to the active information-seeking associated with gender constancy. Indeed, as with the sex-stereotyping measure in the present finding, their preference measure was related to age but not gender stage.

Finally, the fact that sex-stereotyped toy commercials may have a powerful influence on children's play behavior at this stage has implications beyond its influence on immediate sex-role differentiation. The kinds of toys and activities that are "appropriate" for boys versus girls differ greatly in structural properties. For example, one survey found that, in contrast to "boys'" toys, girls' toys are not made to be constructed, taken apart, or repaired (Mitchell, 1973). Several recent studies have reported data suggesting that the type of toy or activity children spend time with may affect personality characteristics, such as compliance, cognitive development, and spatial and verbal skills (e.g., Serbin & Connor, 1979; Carpenter, Huston-Stem, & Baer, Note 1). Thus, the sex-related behaviors learned during this period of socialization may have broad and long-lasting implications. Clearly, sex-stereotypic information directed toward children during this period of development must be carefully considered.

Reference Note
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