DOCUMENT RESUME

ED 280 621 PS 016 500

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TITLE Gender Schema, Gender Constancy, and Sex-Stereotype Knowledge: The Roles of Cognitive Factors in Sex-Stereotype Attributions.
PUB DATE Apr 87
NOTE 27p.; M.A. Thesis, Syracuse University. Paper presented at the Biennial Meeting of the Society for Research in Child Development (Baltimore, MD, April 23-26, 1987).
PUB TYPE Dissertations/Theses - Master Theses (042) -- Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Beliefs; *Cognitive Development; Day Care; *Developmental Stages; Early Childhood Education; Hypothesis Testing; Nursery Schools; Sex Role; *Sex Stereotypes; *Young Children
IDENTIFIERS *Gender Constancy; Gender Schema Theory; *Knowledge

ABSTRACT

The present study investigated relationships between cognitive components of children's sex-role development and the bases of their attributions of sex-stereotypes to a particular gender. Specifically, it was predicted that the number of sex-stereotypes children correctly attributed would be significantly related to gender differences between the figures used in the task and not to the size of the stimulus figure, children's level of gender constancy, or their sex. Further, it was predicted that highly gender schematic children would be more accurate in attributing sex-typed activities to males and females than would less gender schematic children. A total of 83 children 27 to 63 months of age completed interviews assessing (1) knowledge of sex-role stereotypes, beliefs in stereotype flexibility, and understanding of gender constancy, and (2) toy preferences and their degree of gender schematization, and use of physical size as a basis for attributing sex-stereotypes. Results indicated that degree of gender schematization was predictive of accuracy in children's attributions of sex-stereotypes to both males and females. In contrast, stage of gender constancy was not predictive of any of the major dependent variables. It is concluded that the findings offer further evidence of the importance of gender schemata in early sex-role development. (Author/RH)

Gender Schema, Gender Constancy, and Sex-Stereotype Knowledge: The Roles of Cognitive Factors in Sex-Stereotype Attributions [1]

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[1]This study was completed in partial fulfillment of the requirements for the degree of Master of Arts at Syracuse University by the first author under the direction of the second author. Paper presented at the biennial meetings of the Society for Research in Child Development: April, 1987: Baltimore, Maryland. Requests for reprints should be sent to: D. Bruce Carter, Department of Psychology, Syracuse University, Syracuse, NY 13244-2340.

RUNNING HEAD: GENDER SCHEMATA AND SEX-STEREOTYPING

GENDER SCHEMATA AND SEX-STEREOTYPING

Abstract

The present study investigated relationships between cognitive components of children's sex-role development and the bases of their attributions of sex-stereotypes to a particular gender. A total of 83 engaged in sex-typed activities. A total of 83 children (44 boys and 39 girls) completed a two-part interview that assessed their degree of gender schematization, their knowledge of and beliefs in the flexibility of sex-role stereotypes, and their stage of gender constancy. Children also completed tasks assessing their attributions of sex-stereotypes to male and female figures that differed in absolute size. Results indicated that degree of gender schematization was predictive of accuracy in children's attributions of sex-stereotypes to both males and females. In contrast, stage of gender constancy was not predictive of any of the major dependent variables. The patterns of results offer further evidence of the importance of gender schemata in early sex-role development.

Gender Schema, Gender Constancy, and Sex-Stereotype Knowledge: The Roles of Cognitive Factors in Sex-Stereotype Attributions

The major theories of sex-role development uniformly stress the importance of children's comprehension of and attention to gender in the sex-role socialization process (cf. Constantinople, 1979; Roopnarine & Mounts, in press). In particular, cognitive developmental theory (Kohlberg, 1966) emphasizes children's understanding of the permanence of gender as a crucial component of sex-role socialization. Acquisition of gender constancy, thought to develop in parallel with other conservation skills at around the age of six or seven years, is important because, according to this theory, it forms the foundation for later sex-role attitudes (Kohlberg, 1966; Kohlberg & Ullian, 1978; Kohlberg & Ziglar, 1967).

Kohlberg (1966) maintains that the development of masculine and feminine roles and attributes is linked to children's association of gender related body size differences with non-physical social sex differences. He proposes that children's stereotypes of masculine dominance and social power develop largely out of stereotyping based on body size, age, and competence. Kohlberg (1966; Kohlberg & Ullian, 1978) claims that young children do not distinguish between adults' physical and psychological attributes and that the fusion of these dimensions forms the basis for children's conceptions of sex-role stereotypes. While he offered no data supporting this assertion in his original paper, Kohlberg stated that "basic universal sex-role stereotypes develop early in young children. These stereotypes arise from the child's conceptions of body differences" (Kohlberg, 1966, p.

165).

More recently, Kohlberg (Kohlberg & Ullian, 1978) reiterated his contention that children's failure to distinguish between physical size and social power lies at the heart of the stereotyping process. He specifically stated that "for the young child sex-linked roles and attributes are linked to body attributes. The young child does not distinguish between physical and psychological attributes. The tendency to derive psychological attributes and values from physical attributes is compounded by the child's categorical view of sex-role assignments" (Kohlberg & Ullian, 1978, p. 212). Therefore, in agreement with his earlier writings (e.g., Kohlberg, 1966; Kohlberg & Zigler, 1967), Kohlberg continues to maintain that children initially base sex-typing judgments on physical sex differences and that young children fuse and confuse psychological physical characteristics in attempting to understand sex and sex-role differences (Kohlberg & Ullian, 1978, p. 222).

A number of researchers (e.g., Emmerich, Goldman, Kirsh, & Sharabany, 1977; Gouze & Nadelman, 1980; Marcus & Overton, 1978; Serbin & Sprafkin, 1986) have observed that the appearance of gender constancy in young children is related to children's general level of cognitive development. However, only minimal evidence exists linking acquisition of gender constancy to any gender-related phenomena (cf. Huston, 1983). A number of studies have offered data indicating that pre-gender constant children have demonstrated an ability to identify and discriminate the gender of dolls and people at ages preceding the attainment of any type of conservation skills (e.g., McConaghy, 1979;

Serbin & Sprafkin, 1986; Thompson, 1975; Thompson & Bentler, 1973). Moreover, contrary to predictions from cognitive developmental theories of sex role acquisition, a number of researchers have observed that sex-stereotype knowledge is quite high among pre-gender constant children (e.g., Carter & Levy, 1983; Carter, Levy, & Cappabianca, 1985; Carter & Taylor, in press; Marcus & Overton, 1977; Kuhn, Nash, & Brucken, 1978; Martin & Halverson, 1983; Serbin & Sprafkin, 1986). Thus, although it is clear that the acquisition of gender constancy is related to the acquisition of other cognitive skills and that pre-gender constant children have substantial knowledge of sex-stereotypes, factors influencing the early acquisition of sex-role stereotypes remain unclearly delineated.

Recently, alternative theoretical perspectives on the roles of cognitive factors in early sex-role development have been proposed that children employ a more information processing based approach to this phenomenon than was the case with the Kohlberg's cognitive developmental theory (e.g., Bem, 1981, 1984; Martin & Halverson, 1981). These approaches collectively have been referred to as gender schema theories. For example, Martin and Halverson (1981) have claimed that sex-typing is a normal cognitive process that is best understood in terms of a structured information processing model. According to their perspective children's attention and behavior are directed toward objects and activities deemed sex-typical by societal stereotypes and expectations that define the gender schema. Similarly, Bem (1981, 1984) claims gender schemata provide an inherent motivation to conform to prescribed standards of behaviors (e.g., sex-roles) that have been internalized and schematized by the individual.

Gender schemata have been described as cognitive predispositions to process and classify stimuli along dimensions of masculinity and femininity. Both Bem's (1983) and Martin and Halverson's (1981) models agree that sex-typing derives largely from a generalized readiness on the part of individuals to encode and organize information along the lines of what is male and female typical. Moreover, from both of these theoretical perspectives it is children's abilities to meaningfully employ gender labels, and not their acquisition of gender constancy, per se, that is crucial to the early development of sex-stereotype knowledge.

The major discrepancies that exist between the cognitive developmental and the gender schematic approaches to sex-stereotype development revolve around the importance of gender constancy and its role in the sex-stereotyping process. First, cognitive developmentalists stress the necessity of a firmly established sense of gender constancy as a pre-requisite for sex-stereotype knowledge development. In contrast, gender schematic processing models suggest gender constancy is largely irrelevant to the process, emphasizing instead children's knowledge of their own gender and their gradual acquisition of societal standards for sex-typed behavior. Second, Kohlberg (e.g., 1966) asserts that that children base sex-stereotypes on differences in the physical size of men and women. Schematic processing models, on the other hand, would argue that children use experience, knowledge, and gender schemata in elaborating sex-stereotypes. Unlike the cognitive developmentalists, gender schematic processing models would predict children's sex-stereotype attributions are related to their degree of gender schematization and knowledge of their own gender, not to sex

related size differences between males and females.

The present study investigated the discrepant predictions of the cognitive developmental and gender schematic processing approaches to sex-stereotype development. It was hypothesized that, contrary to Kohlberg's (1966; Kohlberg & Ullian, 1978) assertions, young children would use gender to a greater extent than physical body size dimensions in attributing sex-stereotypes. Specifically, it was predicted that the number of sex-stereotypes children correctly attributed would be significantly related to gender differences between the figures used in the task and not to the size of the stimulus figure, children's level of gender constancy, or their sex. Moreover, degree of gender schematization was expected to be related to children's accurate attributions of stereotypes to sex. Specifically, it was predicted that highly gender schematic children would be more accurate in attributing sex-typed activities to males and females than would less gender schematic children. Therefore, the major foci of the present investigation are to compare children's use of size dimensions versus gender characteristics in the attributing of sex-stereotypes and to identify the relative contributions of gender constancy vs. degree of schematization to children's attributions of sex-stereotypes.

Method

Subjects and Interviewers

Eighty-three 27 to 63 month-old white, middle-class boys (N=44) and girls (N=39), attending suburban day-care and nursery schools, participated as subjects in the present study. Children completed two separate interviews. Interviewers for the present study were two adult

males and two adult females. Each interviewer tested approximately equal numbers of boys and girls overall, as well as on each section of the interview.

Interview and Materials

Gender Constancy Interview. The gender constancy interview was identical to the one employed by Carter and Taylor (in press), a hybrid of gender constancy measures utilized in the past (e.g., Emmerich & Goldman, 1972; Emmerich et al., 1977; Slaby & Frey, 1975). The measure is described elsewhere (e.g., Carter & Taylor, in press) and thus is not detailed here. The interview consists of a total of thirteen questions and counter-questions. Children are asked to identify their own sex and the sex of a pictured figure (Stage II: Gender Identification), to indicate their knowledge that gender does not change as a result of changes in play activities, desires, or appearance (Stage III: Personal Gender Permanence), and that the sex of a pictured person does not change due to perceptual changes in activities, desire, or appearance (Stage IV: Perceptual Gender Permanence). Children who fail to answer any questions correctly are considered to be in Stage I (Pre-Gender Identity). In order to be classified as achieving a particular stage, children had to answer correctly all questions and counter-questions at a particular level as well as all questions at the preceding levels. Six questions are verbal inquiries while the remaining seven of questions pertain to a pictorial transformation performed on the stimulus figure by the interviewer directly in front of the child. This scale has been used in previous research (e.g.,Carter & Taylor, in press) to classify children into four reliable levels or stages of gender constancy. In the present study, all

children could be classified into one of the four discrete stages described above.

Sex Role Learning Index. The Sex Role Learning Index (SERLI; Edelbrock & Sugawara, 1978) consists of 20, 10 x 10 cm line drawings of common objects. Items employed to measure children's conceptions of stereotype knowledge and flexibility consist of 20 line drawings of common objects, 10 of which are stereotypically feminine and 10 of which are stereotypically masculine. Two additional items, classified as gender neutral (i.e., a bed and ice cream) based on prior research (e.g., Carter & McCloskey, 1984; Fagot, 1985), were also included in the SERLI to encourage children's use of the neutral category. Thus a total of 22 illustrations were employed. Children were asked to sort the drawings of common objects into one of three categories: for boys only, for girls only, or for both boys and girls. After initially sorting the drawings into the three categories, the "both" box is removed and children are asked to resort the items in that category into one of the two remaining sex-typing categories.

Size Stereotype Measure. The sex-stereotype measure employed in the present study resembles the index used by Kuhn and her colleagues (1978), with one alteration: in the present study the sizes of the stimuli children saw were manipulated. The stimuli consisted of two pairs of line drawings of male and female figures. One set of line drawings was 10 x 15 cm while the other set was 5 x 10 cm in size. The two pairs of drawings differed only in their absolute size, not in their details or proportionality. Drawings were mounted individually on posterboard and presented in pairs with a large figure of one sex

and a smaller figure of the other sex appearing in each pair. Twelve 30 x 30 cm background line drawings depicting sex-typed activity settings, half for children and half for adults, were also employed. These background drawings illustrated four masculine activities (carpentry work, playing with a toy truck, playing football, and building with blocks), four feminine activities (sewing, playing with a doll house, caring for a baby, and using make-up), and four sex-neutral activities (sleeping, eating, walking, and watching television). Children saw a male and a female figure differing in size and were asked to indicate which figure would most likely engage in the illustrated activity.

Schematic Processing Measure. Thirty-six line drawings of children's toys comprised the schematic processing measure. Each black and white drawing was 10 x 10 cm and pictured a feminine-typed (a kitchen set, a doll, a sewing machine), masculine-typed (a gun, a baseball bat and ball, a truck), or neutral-typed (a drum, a telephone, a beach ball) toys. These items were chosen since children in earlier research (e.g., Carter & McCloskey, 1984) had indicated these items were sex-typed in the manner described above. These illustrations were mounted in pairs on 21 x 28 cm sheets of cardboard and covered in plastic. Twelve of these pairs were masculine-feminine pairs, twelve pairs were of sex-typed toys and neutral toys (half masculine and half feminine toys) and twelve pairs were of two same-sex-typed toys (half masculine and half feminine). Masculine and feminine toys appeared equally on the right and on the left sides of these pairings. Children were asked to indicate as quickly as possible which of the toys in each pair was their favorite. Response latencies (in hun-

dredths of seconds) were timed by the interviewer using a digital stopwatch and formed the major variable of interest on this measure.

This schematic processing measure assesses children's use of gender as a cognitive category with which to organize and classify information. In line with this purpose, two separate scores are derived from this measure: the Schema Facilitative score and the Schema Inhibitory score. The Schema Facilitative score is the average response latency for all choices in which the presence of a gender schema would be thought to facilitate children's responses (i.e., latencies to Masculine vs. Feminine pairings of toys) divided by the overall average of a child's response latencies. The Schema Inhibitory score is the average response latency for all choices in which the presence of a gender schema would be thought to inhibit children's abilities to respond quickly (i.e., Masculine vs. Masculine and Feminine vs. Feminine pairings) divided by the overall average of a child's response latencies. Children's response latencies to pairings that included sex-neutral items (i.e., Feminine vs. Neutral) were used in the computation of the overall response latency average but did not appear otherwise in the schematic processing scores.

Procedure

All children participated in two separate, individual interviews held within one week of each other. For each child, one session was conducted by a female interviewer while the other was administered by a male interviewer. Each session lasted approximately 15 to 25 minutes.

In the first session, children's knowledge of sex-role stereotypes, beliefs in stereotype flexibility, and understanding of gender constancy were assessed. Children's knowledge of sex-stereotypes for common objects and their beliefs in the flexibility of these stereotypes were assessed through the use of the first portion of the Sex Role Learning Index (SERLI; Edelbrock & Sugawara, 1978). The procedures for administering and scoring this measure are described in extensively elsewhere (Edelbrock & Sugawara, 1978) and thus are not discussed in detail here. Children's understanding of gender constancy was assessed through the gender constancy interview described above.

The second interview session consisted of two separate sections. The first section of the second interview session assessed children's toy preferences and their degree of gender schematization using the procedures outlined above. The final section of the second interview session assessed children's use of physical size as a basis for attributing sex-stereotypes. The interviewer showed the child a pair of dolls differing in sex and size and placed a line drawing just above the two dolls. Each line drawing pictured a background setting or objects typical to the item, but no human figures (e.g., a sketch portraying dolls and a dollhouse in a playroom. The interviewer then asked the child to indicate which doll would play in the setting and recorded the child's responses.

Each of the twelve background activities were presented twice to each child. The size of the dolls during each presentation depended on the sex typed nature of the background activity. For each sex-

typed background, the cross-sex-typed doll was the larger of the two during the initial presentation. For example, when the carpentry (a masculine sex-typed background) was initially presented to the child, the two dolls presented were a large female doll and a small male doll. When the same background was again presented later in the session the size of the dolls were reversed, with the male doll now being larger and the female doll being smaller. For sex-neutral items, the sizes of the dolls to be presented initially were assigned randomly and the same order subsequently employed for each child.

Results

Independent and Dependent Variables

Nine scores were derived from the present interview: children's knowledge of sex-stereotypes for their own and the other sex, their beliefs in stereotype flexibility, two gender schematic processing scores (Schema Facilitative and Schema Inhibitory scores), their stage of gender constancy, the number of correct sex-stereotype attributions made to female and male figures, and the number of stereotype attributions made to female figures for sex-neutral activities. In addition, children's age in months and sex were determined from school records.

Preliminary Analyses.

The first analysis consisted of a 2 (sex of child) x 2 (sex of interviewer) multivariate analysis of variance (MANOVA) conducted on children's performance on the gender constancy interview, stereotype knowledge scores, stereotype flexibility scores, sex-stereotype attribution scores and gender schematization scores. There were no significant main effects for sex of the interviewer on any of the major

dependent variables, nor were there any interactions between sex of interviewer and sex of child (all F's <1). Thus, sex of interviewer was eliminated as an independent variable from all subsequent analyses.

Results of a 2 (sex of child) x 4 (Age in Years) x 4 (stage of gender constancy) multivariate analysis of variance on children's scores on the two schematic processing scores (Schema Inhibitory and Schema Facilitative scores) indicated no multivariate or univariate effects of age, sex, stage of gender constancy, or any significant interactions (all F's < 2.0).

Age related changes in gender constancy.

A 2 (sex of child) x 4 (level of gender constancy) analysis of variance was conducted on children's age in months. Results of this analysis, indicated the presence of significant differences between children at different stages of gender constancy, F (3, 75) = 3.31, p < .05. Examination of the mean ages of the children at each stage and results of a Tukey's Studentized Range test indicated that children classified as being at Stage 3 of gender constancy attainment, (n = 26; M age = 49.2 months) were significantly (p < .05) older than children at Stage 1 of gender constancy (n = 7; M age = 37.9 months). No other significant differences emerged between the groups. Children classified as being at Stage 2 of gender constancy attainment (n = 46; M age = 44.3 months) and children identified as being at Stage 4 of gender constancy attainment (N = 4; M age = 49.8 months) were not found to differ significantly in age from the other groups.

Patterns of children's sex-stereotype attributions.

A 4 (level of gender constancy) x 2 (sex of child) x 2 (size of the stimulus character) x 2 (sex of the stimulus character) repeated measures analysis of variance was conducted upon the number of correct sex-stereotype attributions made by children on the size stereotype measure. Results of this analysis indicated only the presence of a significant sex of child by sex of stimulus figure interaction, F (1, 321) = 11.84, $p < .0007$. None of the remaining main effects nor interactions reached acceptable levels of statistical significance (all F's < 2.50, ns). Simple effects analyses were performed to explain this interaction. Results of these analyses indicated that sex of the stimulus figure was significantly related to accurate sex-stereotype attributions for both boys, F (1, 174) = 8.08, $p < .005$, and girls, F (1, 174) = 4.26, $p < .05$. Further simple effects analyses on the sex of stimulus figure dimension indicated that when the stimulus character was a male, children's sex was significantly related to their performance on the sex-stereotype measure, F (1, 164) = 10.47, $p < .005$, with boys (M = 2.693) correctly attributing more gender-based sex-stereotypes to a male figure than did girls (M = 2.103). In contrast, when the sex of the stimulus character was female, sex of the child was not significantly related to performance on the sex-stereotype measure, F (1, 164) = 3.02, $p < .10$.

A series of non-hierarchical multiple regressions were computed in order to explore relationships between children's sex-stereotype attributions and their age, levels of stereotype knowledge and flexibility, stage of gender constancy, and degree of gender schematization. For each analysis, children's stereotype knowledge and flexibility scores (SERLI), their stage of gender constancy, sex, age in

months, Schema Facilitative and Schema Inhibitory scores were regressed against the dependent variable.

Results indicated that the multiple regression predicting children's correct attributions of stereotypes to female figures was significant, $R^2 = .293$, F (7, 75) = 4.44, $p < .0005$. Examination of the individual factors indicated that only children's Schema Inhibitory scores, F (1, 75) = 5.09, $p < .05$, and their stereotype knowledge scores, F (1, 75) = 7.03, $p < .01$, contributed significantly to the obtained equation. Neither children's age in months nor their sex (both F's < 3.00, ns), nor their Schema Facilitative scores, stage of gender constancy, or degree of stereotype flexibility (all F's < 1) contributed significantly to the equation. Overall, both degree of gender schematization (Schema Inhibitory scores: High scores=greater schematization; $r = -.287$, $p < .01$) and sex-stereotype knowledge scores ($r = .397$, $p < .0005$) were associated with accuracy in attributions of stereotypes to female figures.

The non-hierarchical multiple regression on children's correct attributions of stereotypes to male figures was also significant, $R^2 = .359$, F (1, 75) = 5.30, $p < .0001$. Examination of the factors contributing to the obtained equation indicated that only children's sex, F (1, 75) = 7.57, $p < .01$, their degree of stereotype flexibility, F (1, 75) = 12.07, $p < .001$, and degree of gender schematization as measured by their Schema Facilitative scores, F (1, 75) = 5.48, $p < .05$, contributed significantly to the regression (all other F's < 1.50). Inspection of the patterns of means and correlations indicated that boys ($M = 5.39$) were more likely to accurately attribute stereo-

types to male figures than were girls (M = 4.21), that degree of gender schematization (Schema Facilitative scores: Low scores = greater schematization; r = -.257, $p < .05$) was associated with correct attributions of stereotypes to male figures, and that stereotype flexibility (r = -.368, $p < .001$) was associated with inaccuracy in stereotype attributions to male figures.

Since the repeated measures analysis of variance on children's correct attributions of stereotypes to male figures had indicated different patterns of responses for boys and girls, an additional multiple regression was computed separately for each sex. Although the obtained regression for girls was not significant, R^2 = .145, F (6, 32) < 1, ns, the multiple regression for boys was significant, R^2 = .359, F (6, 37) = 3.46, $p < .01$. Examination of the factors contributing to the equation obtained for boys indicated that only boys' stereotype flexibility scores, F (1, 37) = 11.39, $p < .005$, contributed significantly. Boys' Schema Facilitative scores contributed to the equation although this contribution failed to reach acceptable levels of statistical significance, F (1, 37) = 3.06, $p < .10$. None of the other variables contributed significantly to the obtained equation (all F's < 1). Examination of the patterns of correlations indicated that stereotype flexibility was negatively associated (r = -.521, $p < .0005$) and degree of schematization was positively associated (Schema Facilitative scores: r = -.287, $p < .06$) with accuracy in stereotype attributions to male figures.

Finally, a non-hierarchical multiple regression predicting children's attributions of sex-neutral activities to female figures was

also computed. The obtained regression equation was significant, R^2 = .333, F (7, 75) = 5.36, $p < .0001$. Examination of the factors contributing significantly to the equation indicated that only children's sex, F (1, 75) = 25.46, $p < .0001$, and stereotype flexibility scores, F (1, 75) = 8.09, $p < .01$, contributed to the equation (all other F's < 1). Inspection of the means and patterns of correlations indicated that girls (M = 4.8) were more likely to attribute sex-neutral stereotypes to females than were boys (M = 2.8), and that stereotype flexibility was positively associated with attributions of sex-neutral stereotypes to female figures (r = .266, $p < .05$).

In summary the results supported the three specific hypotheses of the current study. Children employed the gender category to a greater extent than physically-defined body dimensions in the attribution of sex-stereotypes. Stage of gender constancy was unrelated to their attributions sex-stereotypes. Finally, degree of gender schematization significantly influenced children's attributions of sex-stereotypes.

Discussion

The finding of greatest theoretical interest was the observation that all children, but especially boys, correctly identified and attributed more sex-stereotypes based on gender rather than relying on the relative physical sizes of the stimulus figures. Moreover, degree of gender schematization appeared to be a powerful predictor of children's correct attributions of masculine and feminine sex stereotypes to male and female figures. These findings are in direct agreement with gender schematic processing models' descriptions of sex-stereo-

type development (e.g., Bem, 1981; Martin & Bullock, 1986; Martin & Halverson, 1981) that propose that children employ their past experiences, gender-related knowledge and gender related schemata in attributing stereotypes to a particular sex. The finding that the physical size dimensions of the stimulus did not contribute significantly to attributions of sex-stereotypes by young children is in direct contradiction to Kohlberg's description of sex-stereotype development in young children (e.g., Kohlberg, 1966, Kohlberg & Ullian, 1978; Kohlberg & Zigler, 1967). The size stereotype measure employed in the present study is admittedly a crude index of children's attributional styles, however we felt that it offered the opportunity to empirically assess a major theoretical assumption underlying the cognitive developmental approach to sex-role development. Such procedures have been suggested as essential for theoretical evolution and development, particularly in the sex-role literature (e.g., Constantinople, 1979; Roopnarine & Mounts, in press).

Sex of the stimulus figure was a significant predictor of all children's sex-stereotype attributions. This finding is consistent with prior sex-typing research (e.g., Kail & Levine, 1976; Koblinsky, Cruse, & Sugawara, 1978). Of particular interest was the observation that when the sex of the stimulus figure was male, boys correctly attributed more gender-based sex-stereotypes than did girls. This finding was compatible with previous research that consistently has observed that masculine sex-stereotypes are more specifically defined in a negativistic (e.g., not feminine) avoidant manner and that sex-stereotype inconsistent acts displayed by males are viewed as socially less acceptable and tolerable than are similar violations of sex-role

norms by females (e.g., Carter & McCloskey, 1984). Perhaps as a result of these patterns of responses, boys are more sensitive and aware of sex-stereotype constraints and sanctions than are girls and may attend more closely to the behaviors of same-sex others in attempting to define their own position vis-a-vis sex-stereotypes.

Contrary to predictions from a purely cognitive developmental approach, (e.g., Kohlberg, 1966) the influence of gender constancy on children's sex-stereotyping appeared at most weak and indirect. More specifically, it was children's degree of gender schematization and their age, rather than their understanding of gender constancy, that consistently predicted performance on gender-relevant tasks. While previous research has demonstrated a significant, highly replicable and reliable relationship between children's stage of gender constancy and their age (Carter & Levy, 1983; Carter, et al., 1985; Emmerich, 1982; Emmerich et al., 1977; Marcus & Overton, 1978; Serbin & Sprafkin, 1986), only minimal evidence exists indicating that gender constancy is related to any gender-relevant phenomena (cf. Slaby & Frey, 1975). Our data are consistent with the former, rather than the latter, pattern of empirical findings.

The absence of significant relationships between children's attainment of gender constancy and sex-stereotype attributions was neither unexpected nor, from our perspective, theoretically disturbing. Over the last several years only a few investigations have been able to identify any significant relationships between the attainment of an understanding of gender constancy in children and any other gender or sex-stereotype relevant variables, (e.g., Emmerich & Shepard, 1984;

Slaby & Frey, 1975). Concurrently, there has been an increase in the support for the position that children's abilities to correctly identify, label and categorize gender-relevant information (i.e., to employ gender schemata) are the critical factors in sex-stereotyping and information processing activities (e.g., Carter & Levy, 1983; Carter, et al., 1985; Constantinople, 1979; Fagot, 1985; Kuhn, et al., 1978; Serbin & Sprafkin, 1986; Weinraub, et al., 1984). In our opinion, use of gender schematic models for the study of early sex-role development will afford researchers a better understanding of these phenomena than is likely to emerge from further exploration of traditional cognitive developmental models of sex-typing.

The results of the present study indicate that children's level of gender constancy, per se, does not appear to act as a significant nor necessary basis for the development and attribution of sex-stereotypes by young children. Thus, although it has been noted that it may be premature to totally abandon the concept of gender constancy and its potential significant relationships to other sex-typing factors (Emmerich, 1982), our data and those of a number of other investigators offer no support for the belief that gender constancy understanding alone, is an especially important aspect of early sex-role development (Carter & Levy, 1983; Carter, et al., 1985; Martin & Halverson, 1983; Serbin & Sprafkin, 1985).

In conclusion, it becomes increasingly apparent that the contributions of gender schematic processing, gender-labeling abilities, and selective attention toward gender-relevant information stand paramount as major influences on children's early sex-role development. More-

over, it would appear that the development of sex-stereotype knowledge and attribution of sex-stereotypes by young children are influenced by cognitive and social variables and that no single variable appears to be solely responsible for the emergence, development and attribution of sex-stereotypes by children. Thus, the use of a multi-dimensional approach to the investigation of early sex-stereotype development in children appears warranted, (e.g., Carter & Levy, 1983; Emmerich, 1982; Serbin & Sprafkin, 1986). Finally it would appear that the concerns and direction of future research could be profitably directed towards the extension of schematic processing models to other domains of social stereotypes as well as exploring the active, dynamic and powerful implications of schematic processing on children's social cognitive development.

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