

## **The Effect of Boys' or Girls' Toys on Sex-Typed Play in Preadolescents<sup>1</sup>**

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*The selection and use of sex-typed toys influences the masculine or feminine characteristics of children's play. When fourth- through sixth-grade children chose freely among a variety of sex-typed and neutral toys, only girls showed significant toy preferences. However, for both sexes, feminine play constructions and descriptive stories occurred with girls' toys, and masculine ones with boys' toys. In a second study, when boys and girls were limited to either boys' toys (vehicles) or girls' toys (dolls and doll furniture) and blocks, play constructions and stories reflected the gender association of the toys provided, rather than the child's sex.*

Erikson (1951, 1963) maintains that sex differences in boys' and girls' play stem from differences in the morphology of the sex organs. Boys and girls are predisposed to use play space differently. When preadolescent boys chose among materials such as blocks, vehicles, dolls and doll furniture, and animals in order to build an "exciting scene from a motion picture," their play emphasized height and its downfall, and motion and its channelization and arrest. In the same situation, girls produced static interiors that were open, simply enclosed, or blocked and intruded upon (Erikson, 1951). These findings have been replicated in preschool-aged children and preadolescents by Cramer and Hogan (1975). In both studies, spatial configurations and thematic content of boys' and girls' play constructions

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reflected consistent sex differences which were (according to the authors) strongly influenced by the sexual anatomy of the subjects (i.e., the boys' external, erectible, intrusive organs and the girls' internal ones).

In the Erikson (1951) and Cramer and Hogan (1975) studies, boys and girls differed not only in the types of configurations and themes produced, but in the type of toys initially selected. Girls tended to choose family dolls, domestic animals, and doll furniture; boys preferred blocks, vehicles, and (male) uniformed dolls (Cramer & Hogan, 1975; Honzik, 1951). The use of same-sex toys (and therefore different toys by boys and girls) may represent a confounding factor in studies allowing the children free choice of materials. Boys and girls build different sex-typed constructions—but boys use “masculine” toys and girls use “feminine” toys to do this. The Erikson (1951) and Cramer and Hogan (1975) studies do not eliminate the possibility that certain types of constructions and themes result from play with boys' toys, and different types of constructions and themes characterize play with girls' toys, regardless of the gender of the child using the toys.

Children who are provided with a limited choice of materials can be induced to build constructions and generate descriptive themes using opposite-sex materials, which they might not select for themselves. Children limited to same-sex materials should replicate the performance of Erikson's (1951) and Cramer and Hogan's (1975) subjects, so that the boys create masculine constructions and themes, and the girls feminine ones. If children limited to opposite-sex materials create constructions and stories which follow the gender association of the toys provided, then it would appear advisable to distinguish sex-typed toy choice from sex-typed play behavior when examining the latter.

## FREE TOY CHOICE SITUATION

### *Method*

*Subjects.* Subjects were 30 fourth, fifth, and sixth graders from a parochial school in Lewiston, Maine. The 15 boys and 15 girls from working- and middle-class homes ranged in age from 9 (years)-4(months) to 12-8, with an average age of 10-9.

*Materials.* Subjects constructed dramatic scenes using the following materials: a set of wooden blocks (141 blocks of 20 different shapes), 36 pieces of doll furniture; 12 vehicles (3 planes, 1 helicopter, 3 cars, 1 fire engine, 1 tractor, 3 trucks); 15 animals (4 wild, 7 farm, 4 domestic). There

were also 11 flexible dolls, approximately 6 inches tall; 4 were in uniform (policeman, cowboy, policewoman, nurse) and 7 were family dolls (mother, father, older sister, older brother, younger sister, younger brother, baby). These toys were selected to replicate those used by Erikson (1951) and Cramer and Hogan (1975).

A 3-ft. square (.91 m) table covered with 9 in.  $\times$  12 in. (22.86 cm  $\times$  30.48 cm) brown paper, with one edge against a square background of the same size and material, served as the set for the children's constructions. Children's stories describing their scenes were recorded on a Hitachi TRK-1246H cassette recorder. A Polaroid Swinger 20 camera was used to make black-and-white photographs of each construction.

*Procedure.* The child stood at a table, facing the toys and the female adult investigator. The toys were displayed together as groups of similar objects (small blocks, large blocks, vehicles, animals, family dolls, uniformed dolls, furniture). Each child was instructed to construct an imaginary exciting scene that he or she would like to see in a movie, and then describe what the scene was about. The instructions replicate those in Erikson's (1951) study. If nothing exciting was described about the scene, the child was asked what was the most exciting thing about the scene. Each construction was photographed after the subject left. From 1-3 photographs were taken, to ensure the visibility of all blocks and other materials, for later scoring. The investigator completed an inventory checklist, indicating the materials used, and later transcribed the child's story from the tape recording. Total time to run each subject, including constructing and describing the scene and completing the inventory checklist, averaged approximately 30 minutes (but no time limit was enforced with the subjects).

*Scoring.* The following four-category scoring system was designed by Cramer and Hogan (1975), based on Erikson's work (1951). Their data confirm Erikson's theoretically based divisions into masculine and feminine categories. The first category provides a quantitative description of the constructions by summing the inventory lists (i.e., tallying the number of blocks, furniture, vehicles, uniformed dolls, family dolls, furniture, and animals used). Qualitative descriptions of the data are provided by the remaining three nominal categories. The second category scores the block configurations for the presence or absence of each of 16 qualitative categories, including 8 masculine (towers, ruins, buildings, roads, crossings, sidewalks, lanes, tunnels), 6 feminine (freestanding walls, miscellaneous partitions, enclosures, gates, ornamented gates, arches), and 2 sexually neutral (windows and miscellaneous structures).<sup>3</sup> Using both the pictures

<sup>3</sup>Definitions of each category of configuration, function, and theme appear in Cramer and Hogan (1975) and are also available from the authors on request.

and stories, the third category scores masculine (channelizing, erecting and constructing, open exterior) or feminine (enclosing, open interiors) functions. In the fourth category, the themes occurring in the play constructions and stories were scored as masculine or feminine themes. Masculine themes include high-low, activity, exterior, caution indoors, danger and/or violence, arrested motion. Feminine themes include open-closed, intrusions, passivity, interior, goodness indoors, and internal commotion.

Two independent raters scored the three qualitative categories. Each rater was trained independently by scoring pictures of 10 play constructions made by adults using only blocks. The raters then conferred to resolve differences in scoring. The same procedure was followed for the children's data in the present study. Both raters were naive to the hypothesis of the study, and to the sex of each child who built a construction (shown in the photographs) and told a story (appearing as numbered transcripts). Phi coefficients computed on the two raters' agreements and disagreements, prior to the resolution of disagreements, showed fairly high reliability, given the complex scoring system. For block configurations,  $r_{\phi} = .77$ ; and across all three measures,  $r_{\phi} = .75$ .

## Results

Table I shows boys' and girls' preferences for playing with vehicles, dolls, doll furniture, animals, and blocks. An independent-groups  $t$  test indicated that girls preferred dolls [ $t(28) = 3.75, p < .001$ ] more than boys did. The use of dolls was significantly related to the use of doll furniture ( $r(28) = .583, p < .05$ ). Although  $t$  tests indicated that boys did not show a significant preference for traditionally masculine toys such as vehicles or uniformed dolls, the use of vehicles was significantly negatively correlated with the use of doll furniture ( $r(28) = -.374, p < .05$ ). Although boys used approximately twice as many blocks as girls did (222 vs. 124), approximately the same number of boys and girls used blocks in their con-

**Table I.** Free Toy Choice Situation: Mean Number of Toys Used, by Sex

	Blocks ( $N = 141$ )	Vehicles ( $N = 12$ )	Furniture ( $N = 36$ )	Animals ( $N = 15$ )	Dolls ( $N = 11$ )
Boys ( $N = 15$ )					
<i>M</i>	14.80	1.40	4.80	2.53	1.93
<i>SD</i>	16.97	1.50	7.74	3.11	2.99
Girls ( $N = 15$ )					
<i>M</i>	8.27	1.53	12.80	1.93	5.87
<i>SD</i>	9.99	2.45	10.01	2.74	2.75

structions (10 vs. 9) and *t* tests indicated no significant sex differences between the average number of blocks used by boys versus girls.

Each subject's block configurations, functions, and themes were characterized as predominantly masculine or feminine. A predominantly masculine classification was assigned if the proportion of masculine features exceeded the proportion of feminine ones; predominantly feminine classifications were similarly determined. For example, in the few instances where a child created one feminine and one masculine configuration, the subject was classified as predominantly feminine (1:6 > 1:8). Data for 30 subjects is not always represented in the analyses reported below, as shown in Table I. Since configurations scored only blocks, data do not appear for subjects who used no blocks. Moreover, 3 subjects showed no scorable feminine or masculine functions; and 2 subjects who had an equal proportion of masculine and feminine themes were not classified as predominantly masculine or feminine.

Table II shows the number of boys and girls who created predominantly masculine or feminine configurations, functions, and themes. Chi-square analyses showed no significant sex differences for block configurations ( $\chi^2(1) = .762$ , *ns*) or themes ( $\chi^2(1) = 2.157$ , *ns*), although functions were related to the subject's sex ( $\chi^2(1) = 6.677$ ,  $p < .05$ ). Only the latter finding replicates Erikson's (1951) and Cramer and Hogan's (1975) results, which found significant sex differences for all configurations, functions, and themes.

Point-biserial correlations were computed to determine the relationship between masculine and feminine configurations, functions, and themes, and the number of vehicles, dolls, pieces of furniture, animals, and blocks used in the play creations. In the following analyses, masculine characteristics were coded as "1" and feminine characteristics as "0." The probabilities for all significant correlations described below are less than .05. There were no significant correlations between block configurations and any of the toy categories. This is not surprising, since this category describes only the block structures, and not the toys that may be involved in them. Similarly, there were no significant correlations between the number of blocks or animals used and the predominance of masculine or feminine configurations, functions, or themes. Significant point-biserial correlations indicated a relationship between the number of vehicles used and the predominance of masculine or feminine functions ( $r(24) = .586$ ) and themes ( $r(26) = .614$ ). Although the number of pieces of doll furniture used was significantly related to masculine or feminine functions ( $r(24) = -.578$ ) and themes ( $r(26) = -.52$ ), the number of dolls used did not yield significant correlations with functions ( $r(24) = -.251$ ) or themes ( $r(26) = -.16$ ).

**Table II.** Free Toy Choice: Number of Subjects Creating Masculine or Feminine Configurations, Functions, and Themes<sup>a</sup>

	Configurations			Functions			Themes		
	Masculine	Feminine	Unscorable	Masculine	Feminine	Unscorable	Masculine	Feminine	Unscorable
Boys	3	6	6	11	2	2	7	6	2
Girls	1	6	8	5	9	1	4	11	0

<sup>a</sup>Note. Unscorable includes those who used no blocks for configurations; ties between the number of masculine and feminine themes; and unscorable functions. Subjects were classified as showing predominantly masculine or feminine features according to procedures described in the text.

The correlational data described above indicate that masculine functions and themes are more likely to occur when vehicles are used, but feminine functions and themes may be more likely to appear when a number of pieces of doll furniture are used in the child's play construction. However, sex-typed toy preferences in the free choice situation may obscure the importance of the toys in eliciting stereotyped play in either sex. Note that boys did not significantly prefer vehicles, but vehicles were associated with masculine functions and themes. Experimental manipulation is necessary to determine the relationship between the child's sex, the use of masculine or feminine toy materials, and the resulting masculine or feminine characteristics of the play creation. By providing boys and girls with a limited choice of materials, the following experiment examines the possibility that the sex-typed characteristics of children's play are determined by the type of toy used, and not by the child's gender. The selection of girls' toys (dolls and doll furniture) and boys' toys (vehicles) was made in accordance with the results reported above, and is supported by related research (Cramer & Hogan, 1975; Delucia, 1963; Erikson, 1951; Hartley & Hardesty, 1964; Honzik, 1951; Sutton-Smith, Rosenberg, & Morgan, 1963).

## LIMITED TOY CHOICE SITUATION

### Method

*Design.* A  $2 \times 2$  independent-groups design was employed. The two between-groups factors were the sex of the child (male or female) and the type of toy materials provided (boys' toys or girls' toys).

*Subjects.* Subjects were 47 fourth, fifth, and sixth graders, all the available remaining children from the original pool of 79 who returned parental permission slips. Since only 44 subjects were required to complete the design, data for 1 boy and 2 girls were subsequently eliminated by randomly selecting out 1 subject from each of three conditions.

*Materials.* Materials were selected from those available in the free toy choice situation. Dolls and doll furniture represented girls' toys and vehicles represented boys' toys. Blocks were also available in all conditions, to provide data on the dependent measure of block configurations. All other materials replicate those for the free toy choice study.

*Procedure.* Subjects were run individually and instructed by a female investigator according to the procedures described in the free toy choice study. However, the children were provided with either boys' toys (blocks and

vehicles) or girls' toys (blocks, dolls, and doll furniture).<sup>4</sup> Data were recorded, photographed, transcribed, and scored according to the procedures of the first study. The two raters were blind to the hypothesis of the experiment and to the sex and condition of each child who built a construction and told a story. Phi coefficients computed on the two raters' agreements and disagreements showed that for block configurations,  $r_\phi = .65$ ; for themes,  $r_\phi = .79$ ; and across all measures,  $r_\phi = .76$ .

## Results

Each subject's construction and story was scored for the presence or absence of each of 8 masculine and 6 feminine block configurations, 3 masculine and 2 feminine functions, and 6 masculine and 6 feminine themes. For each subject, six ratios were computed, comparing the number of instances of each masculine or feminine subcategory (e.g., towers, ruins, buildings) to the total number of subordinate categories included in the superordinate category (e.g., eight subcategories for masculine configurations). Table III shows the classification of the 44 subjects according to primarily masculine or feminine configurations, functions, and themes. Unscorable data include subjects who did not use blocks and therefore could not be scored for configurations, and subjects whose construction or story did not present enough content to be scored on either functions (5 girls, 3 boys) or themes (1 girl).

Six  $2 \times 2$  independent-groups analyses of variance were performed using the proportions of masculine and feminine features demonstrated in each child's configurations, functions, and themes. The independent variables in each case were the child's sex (male or female) and the type of toys provided (boys' toys or girls' toys).

The data consistently failed to demonstrate sex differences. In the six analyses of variance, none of the main effects for sex were significant, although the effect for masculine block configurations approached significance, so that on the average boys made more masculine configurations than girls did ( $F(1, 40) = 3.4399, p < .07$ ). Moreover, none of the interactions of child's sex by toys were significant. The findings are further supported in chi-square analyses, which found no significant relationship between child's sex and the use of boys' or girls' toys for any of the six dependent measures. Boys and girls built similar play constructions and told similar stories while using the same type of toy.

<sup>4</sup>The order for running subjects (randomized within blocks of four, i.e., one subject per condition within each block of four subjects) was not followed strictly due to classroom routine and schedule.

**Table III.** Limited Toy Choice: Number of Subjects Creating Masculine or Feminine Configurations, Functions, and Themes<sup>a</sup>

	Configurations				Functions				Themes			
	Masculine	Feminine	Unscorable		Masculine	Feminine	Unscorable		Masculine	Feminine	Unscorable	
<b>Boys</b>												
Boys' toys	4	5	2	10	0	1	11	0	0	0		
Girls' toys	2	3	6	2	7	2	2	9	0	0		
<b>Girls</b>												
Boys' toys	1	9	1	9	1	1	11	0	0	0		
Girls' toys	0	6	5	1	6	4	0	10	1	1		

<sup>a</sup>N = 11 subjects for each group, total N = 44 subjects.

Significant main effects for type of toys were obtained in five of the six analyses of variance, the only exception being feminine block configurations. In the chi-square analyses, pooling across subject's sex, significant relationships were found between boys' or girls' toys and masculine or feminine functions ( $\chi^2(1) = 21.75$ ) and masculine or feminine themes ( $\chi^2(1) = 35.66$ ). There was no significant relationship between the type of toys used and masculine or feminine configurations. More subjects built feminine than masculine configurations. Table III shows that in the block configurations, girls' performance was consistent with their gender, not with the gender association of the other toys available; in contrast, boys displayed masculine and feminine configurations in both toy conditions. However, masculine themes and functions tended to occur when the children played with boys' toys, and feminine themes and functions tended to occur when the children played with girls' toys.

## DISCUSSION

In the limited toy choice situation, children play with sex-typed toys in a manner appropriate to the gender association of the toys, rather than their own biological gender. Experimental evidence strongly suggests that boys and girls create masculine functions when limited to boys' toys, and show feminine functions with girls' toys. Masculine themes characterize boys' and girls' stories describing constructions made with boys' toys; feminine themes accompany boys' and girls' constructions with girls' toys. Sex differences appear only with blocks, a neutral toy for this sample of children. Girls build block configurations that are almost exclusively feminine, while boys build many feminine as well as some masculine block configurations. Although they do not clarify the motivation for sex-typed choices, the data suggest that sex differences in play may be related to the differential selection and use of masculine toys by boys and feminine toys by girls.

Results from the free choice situation replicate some earlier findings, but not others (see Cramer & Hogan, 1975; Erikson, 1951; Honzik, 1951). Although boys built masculine functions and girls feminine ones, neither configurations nor themes were significantly sex-typed. Moreover, although the girls' tendency to choose dolls and doll furniture replicates earlier work, the lack of sex-typed preference for vehicles does not. The somewhat less stereotyped toy preferences may account to some extent for differences between these data and those of Erikson (1951) and Cramer and Hogan (1975). The boys who did not differentially prefer traditionally masculine toys may have demonstrated a recent relaxation of the male role, a familiarity with feminine toys, or the greater flexibility or variability which some studies find for boys rather than girls (Jennings, 1977; Lansky &

McKay 1963; Pintler, Phillips, & Sears, 1946). Response to the female investigator also cannot be ruled out as an explanation, although some evidence suggests that the presence of a female adult increases the avoidance of cross-gender choices in boys' play, but not in girls' play (Hartup, Moore, & Sager, 1963).

The pattern of boys' and girls' play with neutral toys differed from play with sex-typed toys in the limited choice situation. This is clearly demonstrated for configurations, a category which scores only blocks. Girls built feminine configurations, but boys did not favor masculine ones—in fact, boys showed a slight tendency to build feminine configurations. If the vehicles are also viewed as sex neutral (despite the wealth of toy preference research suggesting that they are not), the limited choice data on functions and themes suggests a tendency for both sexes to play in a masculine way with neutral toys and in a feminine way with feminine sex-typed toys.

The limited choice situation may be viewed either as an artificial situation that imposes unnatural restrictions on boys' and girls' play behavior, or as a situation that controls for the confounding factor of toy choice present in free choice situations. According to the former view, this artificiality precludes generalizing the similarity of boys' and girls' behavior with similar toys to naturally occurring play situations. However, the latter view stresses the importance of distinguishing sex-typed toy choice from sex-typed play behavior with these toys. Sex-typed play may be determined by the gender characteristics of the toys used, rather than by children's masculine or feminine predispositions to play in certain ways. The gender of adults present during the child's play cannot be ruled out as another potential influence on play.

Boys and girls in this study demonstrated facility in several aspects of cross-gender play. This suggests behavioral flexibility and adaptability not usually apparent in situations where children either choose gender-appropriate toys for themselves, or are provided with them by adults. Children's tendency to avoid cross-gender play may be related to restrictions (e.g., provision of certain toys) that support gender-appropriate behavior, rather than to the child's lack of acquaintance with cross-gender play or unwillingness to perform it.

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