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Young Children's Concepts of Social Relations: Social Functions and Social Objects

CAROLYN POPE EDWARDS AND MICHAEL LEWIS

As a consequence of the growing interest in social development, there has been a recent increase in concern for considering the social network of young children, both from the perspective of what children and infants actually do as well as what they believe. Although most emphasis has been placed on the mother-child relationship, it has recently become clear that even during infancy, children enthusiastically interact with a variety of people in their environments. Moreover, children's initiations and responses to the different people—for example, to mothers, fathers, strange adults, or brothers or sisters, and younger, older and same-age peers—become patterned early in life (see, for example, Lewis, Young, Brooks, & Michalson, 1975). Clearly, almost all young children form lasting relationships with people besides their primary caretakers and make distinctions between people, which has the consequence of allowing them to vary their behavior toward a wide array of people, both those who are familiar as well as those who are strangers. Unfortunately, not much is known about the overall organization of these social relationships of young children. There are at least two different

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ways of understanding that organization. The first way is from a systems perspective, that is, analyzing the structure and operation of the networks in which the children are involved. The second way is from the children's perspective, that is, finding out about children's representational schemas of the social world; schemas that we hold guide the children's own action and enable them to predict the behavior of others. The first mode of analysis would fall in the subject matter of network theory and the second that of what has come to be called social cognition. For discussion of these two modes, see Lewis and Rosenblum (1975); Lewis and Weinraub (1976); Weinraub, Brooks, and Lewis (1977).

Whichever approach is used, it is necessary to create meaningful dimensions of analysis. Lewis and Feiring (1979b) have articulated the concept of a social matrix for the developing infant that contains two dimensions: social objects (people) and social functions (classes of behavior, what people do). In the world of the young child, these two dimensions may be highly related, at least for some social objects and functions, or may be unrelated. The dimension of social objects may be usefully ordered by means of a small set of mutually independent factors. There are three factors that Lewis and Feiring (1979b) believe will prove essential in understanding the young child's social behavior with the diversity of people that are typically encountered. These three are gender, age, and familiarity. They have in common a critical feature, namely, their connection with overt, readily apprehended, perceptual cues. Unlike such abstract classifications as socioeconomic class, occupation, religion, or value orientations, they can be used by the young child to sort people just through looking. This is an essential feature given young children's cognitive tendencies for the concrete. Moreover, not only are all three factors overt and concrete, but also, as argued by Lewis and Feiring (1979b), the three can be used to make useful social distinctions. In fact, they are the basis for the very social distinctions that are first made by children and that are of foremost importance to them, that is, between mother and father (gender), between parents and siblings and grandparents (age), between family members and strangers (familiarity), to name a few.

"AGE" AS AN ORGANIZING SCHEMA

Of the three factors, gender and familiarity have received most research attention as critical variables in early social interaction and concept development. The age factor is surely the least understood. We know relatively little about the operation of age relations in the child's real-life social system (a subject for network analysis), and we know

only slightly more about how young children use concepts of "age" to classify the social world, predict the behavior of others, and as a guiding schema for their own action (questions from the domain of social cognition). This chapter focuses on the issue of the relationship of age to social function and centers on social cognition. In reviewing what is known about the young child's age concepts the following questions may be addressed:

1. *Meaning of language concerning age.* What is the nature of the young child's understanding of words concerning age and age groups? What is the developmental course by which these complex concepts are acquired?
2. *Age-group classification.* How and when do children begin to use age-associated appearance cues to sort people into groups or classes? When can they rank order people along an age dimension and make reasonable guesses concerning a person's age in years?
3. *Concepts of age relations expressed in behavior.* When do children use age-cues to initiate differential behavior to the people around them? Does the differential behavior suggest expectations based on age-cues concerning others' behavior?
4. *Concept of age roles.* When do children begin to associate social functions with social relations defined by age-criteria? When are they able to verbally express concepts of age roles?

Because all of these questions concern the young child's concepts of self, others, and social relations, they can be said to fall into the domain of social cognition (Lewis & Brooks, 1975; Youniss, 1975).

Very little attention has been directed to the process by which children develop the ability to use words concerning age, in contrast to the great amounts of work that has been done on the acquisition of concepts of gender and gender-identity (for the latter, see Emmerich, Goldman, Kirsh, & Sharabany, 1977; Kohlberg, 1966; Thompson, 1975). However, the two processes undoubtedly have much in common. For example, children around two years in age begin to apply age-relevant labels to self and others ("grownup," "child," "baby," etc.), just as they begin to use gender-relevant categories ("boy," "girl," etc.). In fact, most of the labels that children learn to identify people by gender equally involve distinctions according to age group. At about the same time that children begin to acquire age-group labels, they also begin to answer, "I'm two," or "I'm three," to the frequently asked question, "How old are you?" That is, they learn to label themselves according to what they will much later understand to be the interval scale of chronological age. Not until the school years will they understand that scale fully and

realize the social groups—"baby," "child," "grownup"—are based on numerical ages. In order to understand the relationship between numerical ages and age groups, children must move beyond simple labeling toward a comprehension of what kind of characteristic "age" really is. Specifically, just as they must construct the knowledge for themselves that gender is a necessarily stable attribute of the individual that is determined by fixed physical characteristics present at birth, so they must learn that age is an attribute that necessarily changes with the individual and is related to predictable physical changes from birth to death. Both gender and age concepts have a cognitive basis in the child's development of concrete operational thought because they require abilities to understand what attributes of people are conserved or changed by the passage of time.

Around age two, then, children first apply age-group labels to self and others. This is the beginning of the development of a system for classifying the human world into age groups. Brooks and Lewis (in press) have found that children as young as sixteen months produce the label "baby" to photographs of infants and the word "daddy" or "mommy" to photos of strange adults as well as their own parents. The labels, "child" or "girl" or "boy," for photos of children, seem to appear later. Recent research shows that by age three-and-a-half, children have acquired the ability to sort and classify photos of people of all ages (including themselves). This sorting behavior is remarkably consistent from child to child in terms of category boundaries (Edwards & Lewis, 1978). In a study using photos of faces of people aged one to seventy, children 3.5 to 5 years of age demonstrated that they could readily distinguish "children" from "adults" or "grownups" (no category of "teenagers" seems to be prominent in the category systems of preschoolers). Within those two major categories they could distinguish "little children" from "big children" and "parents" (younger adults) from "grandparents" (old adults). The boundary between little and big children was placed around age 5, the boundary between children and grownups around age 13, and the boundary between parents and grandparents around age 40, for both male and female social objects. Although children under five are thus able to use age-cues based on appearance to classify people into social groups, they by and large cannot assign absolute ages or even rank order people in terms of older/younger. The ability to rank order people appears around age 5-6, and the ability to assign absolute ages with reasonable accuracy quite a bit later, around age 8-10 (Britton & Britton, 1969; Kogan, Stephens, & Shelton, 1961; Looft, 1971; Kratochwill & Goldman, 1973).

An alternative approach to studying children's developing concepts of age groups is through their differential behavior to strange and

familiar people who vary in age. This approach has not been much used, yet studies show that selective behavior to people of different ages appears early in life, perhaps earlier than differential behavior to males versus females. Even during infancy, children show more positive approach behavior to strange peers than to strange adults (Lenssen, 1975; Lewis & Brooks, 1975). With midgets, who have the facial features of adults but the physical size of children, their social behavior is different still; it is surprise, not wary nor friendly as shown to adults and children (Brooks & Lewis, 1976). By age 3-4, children's behavior to people of varying ages is thoroughly differentiated. Studies of East African children in homestead settings (Edwards & Whiting, 1976; Whiting & Edwards, 1977) indicate that much of the behavior initiated to people several years older than the self can be classified as "dependent" (including seeking help, attention, information, proximity, or concrete resources). The bulk of behavior to infants or people several years younger than the self can be classified as "nurturant," "prosocial," or "dominant" (including giving help, comfort or concrete resources, giving commands, and correcting social behavior). Finally, most of the behavior to children close in age to the self can be called "sociable," "playful," or "aggressive" (including chasing, rough and tumble play, talking with, teasing and insulting, etc.). These patterns of differentiated behavior probably begin to emerge during later infancy, as suggested by studies of English and American infants and toddlers observed interacting with their siblings and parents (Dunn & Kendrick, this volume; Lamb, 1978). The existence of differentiated behavior provides a natural way to study children's implicit age categories, by finding out exactly what variations in real age of social objects elicit selective behaviors.

By age 3-4, as noted above, children classify the human world into age groups and behave quite differently to adults and children older, younger, and the same age as themselves. Such behavior indicates that they have gone beyond classifying the world into age groups to developing expectations about what behavior makes most sense or is most appropriate with each group. Such expectations would constitute part of emerging concepts of age *roles*, that is, ideas about proper performance of given social functions, by persons of one age group toward another. Emmerich (1959), in a classic study of children's concepts of age roles, found that preschool-aged children could discriminate parent and child roles on a power dimension. The study showed that the children tended to assign high power functions (such as depriving, controlling, blaming) to male and female parent figures more than to boy and girl figures. The children also showed a tendency to assign low power functions (such as demanding, conforming, asking) to child rather than parent figures, but

not to such a clear extent. Emmerich suggested that the preschoolers were more aware of the presence of power in parent roles than its absence in child roles. However, the study did not answer what functions, if not power, preschoolers might perceive as especially present in child roles. Nor did it investigate how children might think about the social roles of children of different age groups.

Conceptual Relationships between Social Objects and Social Functions

Given that age groups (or what we adults know to be age groups) are readily discriminable by very young children, the question is whether those age groups provide a classification scheme or framework that children actually use to think about appropriate behavior toward others. If so, then we would learn something new about young children's social concepts, more specifically, about how children organize the world and relate the domain of social objects to the domain of social functions. Investigating this domain is a task we believe to be worthwhile in the study of social development.

The present study is intended to learn more about young children's concepts of age roles for a broad range of social groups. The study investigates roles by asking children to match particular social behaviors, or functions, with the appropriate social objects, or persons. The domain of social objects that the children considered is composed of males and females of the five age groups found to be salient to them in our earlier study (Edwards & Lewis, 1978): younger children, peers, older children, and young and old adults. The domain of social functions consists of selected types of positive behavior: dependency (seeking help and information), sociability (companionable play), and nurturance (sharing food). These functions are frequently initiated behaviors by preschool children to others; they are differentially found in interaction with persons older, same age, or younger (Whiting & Edwards, 1977). Thus, the study investigates how young children relate the domain of social objects to the domain of social functions using social objects and functions prominent during the preschool years.

In order to investigate the question, two studies were performed with preschool-aged children. The first used symbolic representations of different age groups (dolls) and the second used photographic representations. In both studies, the children chose which social object they would want to interact for a specified kind of social action. More precisely, given themselves as initiators, and given particular types of initiations, the children were asked to choose appropriate "targets," or social objects to receive those initiations, targets that varied in repre-

sented age but not in sex. The initiations had to do with the giving and receiving of nurturance and sociability, that is, with positive and nonaggressive interaction.

Study 1: Dolls

The first study was conducted at two day-care centers in the greater Princeton area, with 24 black and 24 white children aged 3.6 to 5.9 years. Half of the children were girls and half were boys (balanced with respect to ethnic background and age). The children came from working- and lower-middle-class backgrounds.

Each child was told a series of stories involving a set of doll-house figures. There were black and white dolls (as well as a black and a white tester) for the two ethnic groups of children. Each child was first told that one small-sized girl (or boy) doll represented the child herself and that the rest of the dolls represented "friends." The "friend" dolls included four pairs of male and female figures, to stand for adult, older child, peer, and infant age groups. The child was asked to demonstrate that she could identify the "man" and "woman" (adult dolls), the "big boy and girl" (older child dolls), the "boy and girl three (four/five) years old just like you" (peer dolls, exactly the size of the self doll), and the "baby boy and girl" (infant dolls). The dolls standing for each group were different in size and no child had trouble learning the categories.

The stories that were told to the children involved four social functions or behaviors. In turn the self doll was portrayed as (1) getting hurt and wanting someone to *help* her, (2) finding an unfamiliar toy and wanting someone to *show* her how to use it, (3) having extra food and wanting to *give* or share it with someone, and (4) growing tired of being alone and wanting someone with whom to *play*. The stories thus involved (1) the seeking of help and (2) information, (3) the giving of resources, and (4) companionable play. Each story was acted out for the child, and then the child was asked to complete the story by going to the person whom she wanted to ask to help, to show, etc. (the dolls were arranged in a row in random order). After selecting one choice, the child was asked to select a second choice, and so on, to obtain a complete rank ordering of preference. However, in order to reduce the number of choices with which a child had to deal at one time, the child first went through the set of stories (functions) using only the dolls representing her own sex group, and then went through them again using the opposite-sex dolls.

The mean rank orders of the children's choices for male and female social objects on each function are shown in Figure 1. The figure was

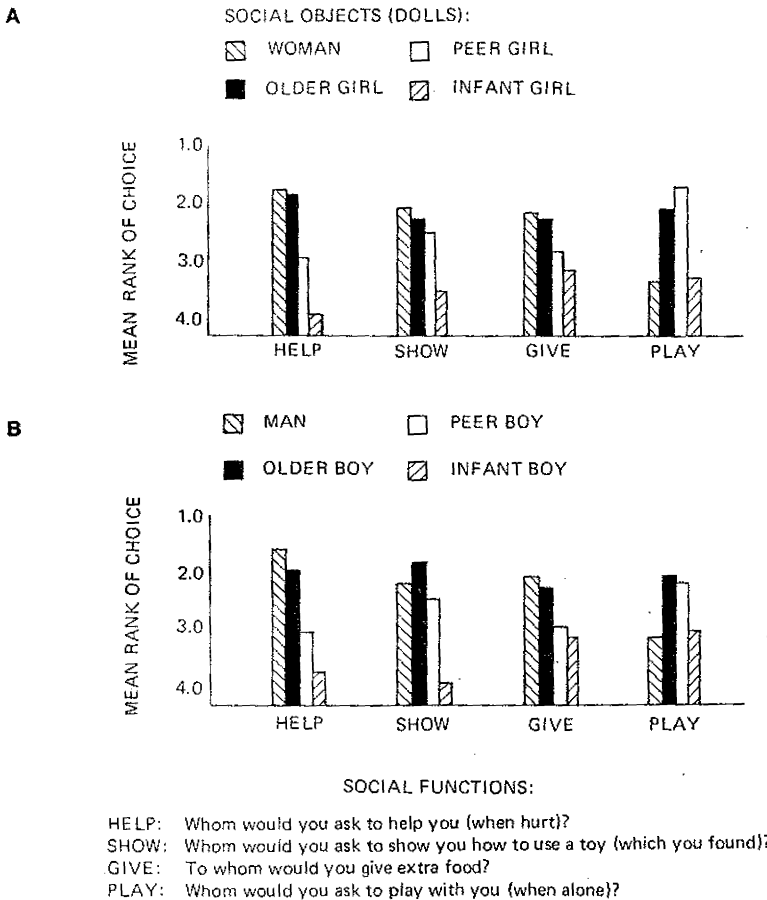


FIG. 1. Day-care-center findings. Preference (mean rank of choice) for dolls representing four age groups, for four social functions. (Data pooled on girl and boy subjects, $n = 48$.)

constructed by combining girls' and boys' responses, since there were few differences as a function of the respondents' sex. There are two striking results apparent in the figure. The first is the clear-cut nature of the pattern of relationships found. The second is the similarity of the pattern of the children's responses to male (Fig. 1B) and female (Fig. 1A) social objects.

One way to examine the patterns is to note which social objects scored higher and which lower on each function. This highlights the similarities and differences of the children's responses to different functions. For example (generalizing across Figure 1) the two stories that

elicited the most different responses were help and play. With respect to seeking help, the ordering principle for choosing was straightforward: the older the social object, the more highly preferred. However, when selecting someone with whom to play, the older social object was not necessarily better. Rather, the children tended to choose adults and infants last, after peers and older children, whom they preferred about equally. When seeking someone to show them how to use the unfamiliar toy, the children preferred three social objects to about the same degree—namely, the adults, older children, and peers—and chose definitely last the infant social objects. On the story involving the giving of food, the children showed the least differentiation of preference of social objects. In fact, during testing it was noticed that most children simply started with whatever doll was nearest and then went down the row giving to each doll in turn, something that they did not do on any other story. Overall, the older social objects did tend to be given food before the younger ones, but this was not as differentiated as on the help function.

As a statistical test of the differentiation of social objects within each social function, the repeated measures F-test was used. For each function separately, two-way F-tests were performed using age (four levels) and sex (two levels) of social objects as independent variables. That is, the statistical test measured whether children's choice patterns were significantly related to either represented age or sex of the social objects that they were choosing among. For three of the social functions (help, give, and play), sex of social object did not significantly affect the children's choices. The children's patterns of choosing were not significantly different, whether they were choosing among male or among female social objects. On the show function, sex of social object was a significant predictor of choice patterns [$F(1,47) = 8.52, p = .005$]. Figure 1 indicates that for male social objects, older boys were the most chosen and adult men were second; whereas for female social objects, adult women were most chosen, older girls second. As shall be described below, this difference did not replicate in the second study and may not be of importance. Age of social object was a very strong predictor of choice patterns for all four social functions. The magnitude of the effect was greatest for the help function [$F(3,47) = 77.24, p < .001$], second for the show function [$F(3,47) = 33.14, p < .001$], third for the play function [$F(3,47) = 27.05, p < .001$], and least by far but still highly significant for the give function [$F(3,47) = 9.27, p < .001$].

Another way in which to examine the patterns in Figure 1 is to note, for each social object, which social functions were selected relatively early or "high" in the rank order and which relatively late or "low." This method highlights the differences and similarities between social objects. Adult dolls generally received high rank orders on three

functions, help, show, and give, but the lowest mean rank order of all social objects on the play function. Infants received low rank orders generally, were not chosen much, across all functions. However, they were chosen relatively more on play and give functions than on help and show. Same-aged peer social objects were chosen relatively most on the play function, next most on show, give, and relatively least on the help function. Finally, the dolls representing older children provided interesting findings in that they received high rank orders across all social functions. They were on average selected first or second by the children on every one of the four functions. On the help and give functions, they were chosen almost as highly as were adult social objects. On the play function, they were chosen almost as highly as were peer objects. On the show function, they received the highest average rank of all age groups.

As a statistical test of differentiation of social functions within each social object, F-tests were again used. For each age of social object separately, two-way F-tests were again used. For each age of social object separately, two-way F-tests were performed using sex of social object (two levels) and function (four levels) as repeated measures independent variables. The tests measured whether the children's responses to a particular represented age level of social object (e.g., the infant) were significantly affected either by which social function was involved or the sex of social objects that they were choosing among. For the adult social objects, social function was a highly significant predictor of the children's choices [$F(3,141) = 37.86, p < .001$]. For the older child social objects, in contrast, social function approached but did not attain statistical significance [$F(3,141) = 2.54, p < .10$]. For the peer objects, social function was again highly significant [$F(3,141) = 22.13, p < .001$], as it was for infant objects [$F(3,141) = 14.64, p < .001$]. Thus, the findings indicate that response to the different social objects was extremely differentiated across functions for all but the older child social objects, who were rather indiscriminately highly chosen on all stories, as described above. Sex of social object was not a significant predictor as a main effect for any social object. However, for infants, there was a significant interaction between sex and function [$F(3,141) = 3.14, p < .05$]. The show and help functions changed relative positions for male and female infant objects; so also did give and play functions (see Figure 1). This interaction did not replicate in the second study.

Study 2: Photographs

The second study of object \times function relationships were conducted at a private nursery school near Princeton. The sample included 25 girls and 25 boys aged 3.7 to 5.1 years. All of the children came from white

middle- or upper-middle-class families. Photographic representations of the different age groups were used to see whether the earlier findings would hold using an alternative methodology.

The children were again asked to complete stories by selecting appropriate objects for particular types of social interaction. The stories were illustrated for children in picture books, one set for girls and one set for boys, identical except for gender of the main character. During the test session the main character was designated to be the child being tested, and this character was portrayed in the same four situations described above for help, show, give, and play functions. In addition, a fifth situation was portrayed in which the child became lost on her way to a store and wanted to ask someone directions to *find* the way. The child was asked to complete each story by selecting from among three randomly arranged photographs the one that she would ask to help, to show, etc. The photos were not labeled in any way for the child, but they represented a choice of different age groups. After making one selection, the child was asked to make another choice, to obtain a rank ordering of preferences. As in the previous study, the children performed the tasks first for same-sex social objects (photos), then for opposite-sex social objects.

The photographs used were color head and shoulder shots of people who varied in chronological age. The photos were taken face on from a fixed distance, and therefore the head size of the people in the pictures did vary somewhat as a function of actual size. Five sets of photos of males and females were constructed, each containing the following age groups: (1) *younger child* (actually aged 18–24 months); (2) *peer* (actually aged 4 years); (3) *older child* (7–8 years); (4) *parent-generation adult* (25–30 years); and (5) *grandparent-generation adult* (50–80 years). As mentioned earlier, these ages were selected on the basis of the results of the classification task briefly described earlier (Edwards & Lewis, 1978). In each set of photos, the faces were matched as closely as possible for emotional expression (degree of smiling), head position, hair color, and facial complexion. Each set of photos was used an equal number of times with each function; that is, order of presentation of photo sets was varied across children to control for possible peculiarities of particular photographs.

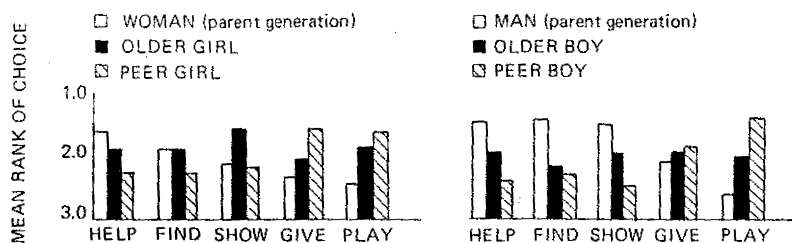
In order to reduce the complexity of the choosing task presented to the children, the following procedure was followed. Each child was presented with only three rather than five photos on a trial. One group of 20 children saw photos representing *younger child*, *peer*, and *older child* age groups only. A second group of 20 children saw the *peer*, *older child*, and *parent-generation adult* photos. A third group of 10 children saw *peer*, *older child*, and *grandparent-generation adult* photos.

The results of this study (Figure 2) generally confirm the day-care-

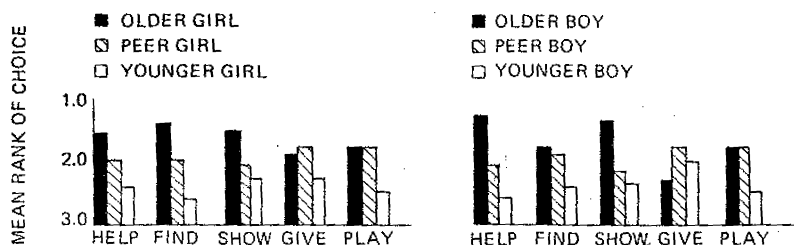
A

GROUP 1

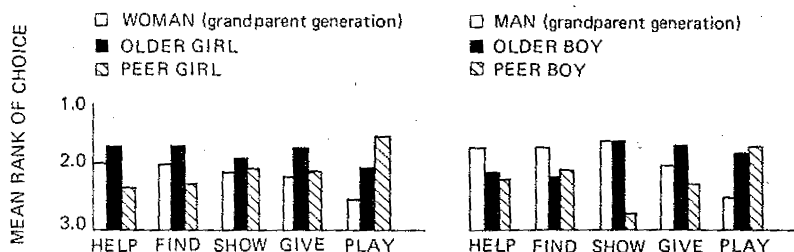
SOCIAL OBJECTS (PHOTOGRAPHS):

**B**

GROUP 2

**C**

GROUP 3



SOCIAL FUNCTIONS:

HELP: Whom would you ask to help you (when hurt)?

FIND: Whom would you ask directions (when lost)?

SHOW: Whom would you ask to show you how to use a toy (which you found)?

GIVE: To whom would you give extra food?

PLAY: Whom would you ask to play with you (when alone)?

FIG. 2. Nursery-school findings. Preference (mean rank of choice) for photographs of faces representing five age groups, for five social functions. (Data pooled on girl and boy subjects, n 's = 20 group 1, 20 group 2, 10 group 3.)

center findings: The figure was constructed by combining the responses of girls and boys. As before, patterns of responses to male and female social objects were highly similar.¹

On two of the dependency functions, namely, getting help when hurt and getting help in finding the way, the following age rule generally describes the pattern of results: the older the social object, the more highly chosen. However, on the third dependency function, asking to be shown how to use a toy, that rule describes the data for male social objects only. For female social objects, the older child social objects were preferred to both sets of adult objects (parent- and grandparent-generation). The relevant findings for the help and show functions thus agree in large measure with those for the day-care study (Figure 1). The findings for the play functions are also fairly similar. Again, the peers tended to receive the highest rank orders and the older children next highest, with the adults and younger child social objects ranking far behind. Finally, the giving of food was the function on which children showed the least systematic or interpretable differentiation of social objects. This resulted from the fact that, as in the earlier study, many children declined to "choose." Rather, they simply pointed to the nearest photo and then went down the row to give to each in turn.

Examining the functions selected for each age group of social object, additional conclusions emerge (still generalizing across male and female social objects). Parent- and grandparent-generation adults are treated very similarly by the children. They are highly chosen on the dependency functions (help, show, find) but less to give to or play with. Peers, as before, received their highest rank orders on the play function. They are also fairly preferred on the give function (a discrepancy with the earlier study), but they are low ranked on the dependency functions. Younger child social objects are selected almost as frequently as other social objects on the give function, but as with the infant social objects in the previous study, they are ranked last on play and dependency functions, distinctly behind older child and peer social objects. Finally, the older child social objects are again extremely highly preferred overall. In the fifteen histograms displayed in Figure 2, the older child figures are first or second chosen in all but two.

The patterns for male and female social objects were again quite similar. Most discrepancy occurred on the give function (see Figure 2B, C), but this discrepancy is probably not meaningful since in general no systematic patterns seemed to underlie the children's choosing on this

¹ F-tests were not performed to test the magnitude or choice differentiation within social objects and functions as they were with the day-care sample. The nursery children were divided into groups of 20, 20, and 10 subjects and it was felt that these *n*'s were too small for the tests to be performed validly.

function. On the help, find, and show functions, there were tendencies for the older girl social objects to outrank woman objects, but for man objects to outrank older boys (see Figure 2A, C). These findings are in some sense a reverse of the findings in the day-care study, where it was the older boy social objects who were exceptionally highly preferred on the show story. It is difficult to know what to make of these findings. Certainly it is interesting that for both samples the difference between male and female patterns occurred for older child social objects. The older child was an important object to the children, highly chosen on all stories. The gender of this social object may somehow be significant for the children in a complex way that interacts with the social function involved, and perhaps the social class of the children themselves (since the working-class day-care and middle-class nursery-school children showed opposite results). Further work will have to be done to clarify this problem.

The results across both studies indicate a strong social object-social function interaction with some functions more relevant for some objects. In particular, older people are preferred for dependency functions centering around help-giving. Interestingly, not all help-giving was so ordered. When help involved a teaching function, as in showing the child how something worked, older peers were chosen. In terms of play the combined sample results are most clear; peers, either older or same age, are preferred, certainly over adults (either parents or grandparents) and younger children. Giving showed the least consistency across samples but in general appeared to be equally distributed across all the social objects. In summary, then, adults are preferred for dependency needs, older peers for teaching, older peers and peers for playing, and all social objects equally for giving. Thus, by three years the matrix of social objects-social functions appears highly articulated.

The Effect of Family Structure, Sibling Order, Age, and Sex on the Formation of Age Roles

Thus far we have described the age roles emerging from the common structure of the children's responses. Yet, we might suppose that age-role concepts would be affected by individual children's personal experiences. The question of how age roles might differ according to family and demographic characteristics of children was examined using the large day-care sample. The mean ranks for all four social objects on all four social functions were compared for children who differed in sex, chronological age, and racial group. In addition, children of different sibling orders were compared (mean number of children in the sample families was 1.8, 52% of the children were only children).

Finally, children who lived with two adult caretakers were compared with children who lived with one adult (19 children lived with mother and father and two lived with grandmother and grandfather; 25 lived with mother only and two lived with grandmother only).

Chronologically older children in the sample differed from younger ones in choosing the adult female less on the food-sharing story [$t(46) = -2.60, p < .05$]. Further, on the story involving choosing a playmate, they selected the male adult doll less [$t(46) = -2.90, p < .05$] and the older boy more [$t(46) = 2.05, p < .05$] than did younger children.² Girls differed from boys in several instances. They chose the infant boy more to play with [$t(46) = -2.52, p < .05$] and to help them [$t(46) = -3.55, p < .001$]. They also chose the peer girl more, to show them how to use the unfamiliar toy [$t(46) = -2.67, p < .01$]. Boys ranked higher the older boy doll, on the stories involving giving food [$t(46) = 2.22, p < .05$] and companionable play [$t(46) = 2.05, p < .05$]. Black and white children differed significantly on the two dependency stories (show and help). Black children chose the infant girl more to help [$t(46) = 3.27, p < .01$] and show [$t(46) = 2.46, p < .05$] and the infant boy more to show [$t(46) = 2.21, p < .05$]. They also chose the adult female more, to give food to [$t(46) = 2.02, p < .05$]. White children chose the peer girl [$t(46) = -2.67, p < .01$] and the older boy more [$t(46) = -2.18, p < .05$] on the show function. Thus, the difference between older and younger children involved a shift in preference from adult to child social objects. Such a difference might represent part of the general shift in social orientation from adults to children that is believed to occur during the preschool years. The difference between girls and boys involved a greater tendency for the girls to select the baby and peer social objects and the boys to select the older boy figure. The sex difference thus involved choices of child social objects only, not choices surrounding adults. Girls had a tendency to more highly select the youngest social objects (babies and peers), on certain functions, while boys seemed to have a tendency to select the same-sex older child figure more. This sex difference fits with our earlier study (Edwards & Lewis, 1978), in which it was found that preschool boys were significantly more likely than girls to classify themselves as "big children." The two sets of findings suggest that during the preschool years, boys have a tendency to want to conceive of themselves as, and to associate themselves with, "big" children in the age group one up from their own, whereas girls are more likely to conceive of themselves, and want to be with, "little" children in the approximately under-five age group. Finally, the differences between the

² All tests of significance reported are based on two-tailed tests.

two ethnic (racial) groups occurred primarily on the two dependency functions, helping and showing. On these functions, black children more highly selected infant social objects while white children more highly selected others of the child figures. Like girls, black children may be especially oriented to infants, perhaps as a result of the high value that their cultural group has traditionally placed on the having of children. However, there may be another, more correct explanation for these ethnic differences. The problem with the explanation is that it does not indicate why the ethnic group differences occurred on the dependency stories rather than on the functions where it might more reasonably have been expected, namely, nurturance and sociable play—more appropriate social behaviors with infant social objects.

Very few significant findings emerged concerning sibling order, probably due to the fact that so many of the children were only children and therefore comparisons were difficult to make. Only children did not differ significantly from children with siblings. However, an interesting difference did appear between children from one and two adult homes. This difference had to do with the degree to which the adult social objects were chosen differentially across functions. The help and play functions were the most contrasting and therefore were used to measure degree of differentiation. The mean rank for the social object on the help function was subtracted from the mean rank on the play function; the greater this number, the more differentially the adult social object was treated from the one story to the other. For the girls in the day-care sample, living with one rather than two adult caretakers predicted greater differentiation, with respect to both adult female and male social objects [$t(22) = 3.40, p < .01$; $t(22) = 2.44, p < .05$]. For boys, the trends were in the same direction but to a considerably lesser magnitude [$t(22) = 1.74, p < .10$; $t(22) = .74, p$ nonsignificant].

It is reasonable to suppose that these differences between children from one and two adult homes may be based in realities of how caretakers actually do behave. Single caretakers, busy and under stress, may be more task-oriented and less playful with their children, causing the children to see them more as objects of dependency, less as potential objects of play. If this is indeed the correct explanation for the findings, it would follow that girls would show the effect more than boys. The single caretakers were female in all cases, and daughters would be expected to be more highly identified with them and therefore more sensitive to parental roles in their families. Also, it would follow that both girls and boys would show the effect more for adult female than for adult male social objects (see t -scores reported above), since the single caretakers were in fact female. Overall, the adult female social object did *not* receive greater differentiation scores than did the adult

male social object; the difference had only to do with the degree to which the differentiation was systematically related to the household variable of number of caretakers.

Social Cognition and Social Relationships

Young children think about age in a concrete, static, preoperational way. They link the concept of age with a concrete characteristic, "bigness," rather than the correct, abstract one, years of life. Nevertheless, they readily use physical cues about age (including size, face, and hair) to classify people into social groups, and their resultant categories have great significance for them in helping them to predict and initiate social interaction around specific functions. In fact, children learn during infancy to associate particular social functions with particular age groups. "Age roles" or functions first emerge on the behavioral level when the child behaves differentially to other infants, children, and adults. Then, during the preschool years, children begin to label and classify others in a systematic way and to discuss what kinds of behavior are appropriate for infants, little and big children, "parents" (young and middle-aged adults), and "grandparents" (old adults).

The studies that we have described show that there is a great deal of shared knowledge among preschool children about what kinds of social behaviors it makes sense to do with different age groups. Each social object (infant or younger child, same age peer, older child, parent-aged adult, grandparent-aged adult) showed a distinctive profile of high and low preference across the social functions studied. Moreover, these profiles were highly similar for male and female social objects of the same age group. The profiles for same-aged peers and parent-aged adults were perhaps not surprising, given what we know about children's relationships with two much studied sets of social partners, namely, schoolmates and parents. The preschoolers saw peers primarily as objects for companionable play and parent-aged adults primarily as objects of dependency (seeking help and information).

The findings for the other three age groups were perhaps more unexpected since we know little about children's concepts of, or behavioral interaction with, those kinds of social partners. The profiles of social functions for grandparent-aged adults turned out to be very similar to those for parent-aged adults. That is, grandparent-aged photographs were highly selected on the dependency stories but not on the companionable play story. The results suggest that preschool children associate the same kinds of functions with both age groups of adults, at least in the situation where they are choosing not between adults but between one of those two types of adults versus children. The infant

social objects (study one) and young, toddler-aged ones (study two) received low scores on all social functions. That is, they were not highly chosen on any function, though they did relatively best on the nurturance (food-sharing) story. The latter finding was expected, because observational studies of family life in a variety of communities worldwide have found infants to invite or "elicit" nurturance from all ages of persons who interact with them (Whiting & Whiting, 1975). A further finding was that the infant social objects were avoided significantly more in the first study by boy and white subjects than by girl and black subjects. These differences may have been the result of culture- and gender-related values and goals. In general, the extent of the avoidance or low preference related to the infant and toddler social objects seemed surprising. In African communities, behavioral observations have found children aged two and under to receive relatively high levels of nurturant and sociable initiations from the preschool aged children in their homesteads (Whiting & Edwards, 1977). However, in those African households, there were relatively few same age peers available as playmates for children. Therefore, our findings in the present study may, on the one hand, reflect cultural values (our low evaluation of persons younger than the self as "interesting" persons with whom to spend time). On the other hand, they may possibly reflect a more universal preference for peers and older children, as opposed to infants and younger children, when a choice is available to the preschool child.

✓ A seeming preference for older children was, in fact, one of the most clear-cut and outstanding findings of our study. Both samples of children, middle and working class, showed a pattern of ranking highly the older child social objects on all social functions. Adults in advanced societies such as our own do not usually think of 7-8 year old children as especially likely caretakers or companions for young children, but mothers in many technologically simple societies certainly do (Whiting & Whiting, 1975). Preadolescent children serve as child nurses for their younger siblings in many cultures in which adult women play a major role in the subsistence labor and therefore require daily help in running their households. The findings of our study indicate that even in a culture in which child nurses are not the custom, preschool aged children have a tendency to view older, preadolescent children as appropriate sources of help and information, as well as desirable objects of companionable play. Perhaps our society should make a greater effort to bring these two adjacent age groups together, in school or child-care settings (see Lewis & Rosenblum, 1975; Lewis *et al.*, 1975). Children of adjacent age groups might benefit from teaching and learning from one another in important ways, ways different from the benefits of exchange between children of the same group or children of very distant age groups (e.g., infants and adolescents).

Finding out more about the conceptual systems of preschool children may help us to better design their social environments and to facilitate their forming social networks to their own best advantage.

Besides these general findings concerning the relationships of social objects and functions in the conceptual systems of the preschoolers, there were also results showing individual differences in the children's concepts. Girls' concepts of age roles differed from boys' in their greater choosing of the male infant doll on help and play functions and the peer girl on the show function. Boys showed a greater choosing of the older boy doll on play and give functions. These sex differences may relate, as discussed earlier, to a strong wish on the part of preschool boys to be "big," whereas preschool girls more readily classify themselves as "little," part of the group of children under about age five. The boys' "wish" to be big probably derives from their rather concrete idea of what it means to be a boy rather than a girl. It is well-known that children first become aware during the preschool years of adult sex differences in the areas of size and strength. Because of their cognitive tendencies to fasten onto the concrete, they attach great importance to these size and strength differences and use them as first defining characteristics for male versus female (Kohlberg, 1966). Thus, gender as well as age differentiations are linked to physical size in the minds of young children. This presents young boys a special problem, because while they are "little" in terms of age group, they are "big" in terms of gender group. Perhaps boys attempt to resolve this confusion by classifying themselves as "big children" and seeking to associate themselves with the boys in the age group one up from their own. Girls, more able to be objective and classify themselves as "little" in terms of age, may also more readily associate with "little" children such as infants and toddlers. If this explanation is correct, it would suggest a partially cognitive origin for the greater behavioral orientation to, and nurturance with, infants by girls than by boys (e.g., see Berman, Monda, & Myerscough, 1977; Whiting & Edwards, 1973, 1977).

A further interesting difference that was found between children concerned their household structures. Children who lived with one female caretaker (mother or grandmother) associated social functions with the adult social objects in a way different from children who lived with both parents or with grandmother and grandfather. The former children made the adult social objects (especially the female one) to be relatively more of a helper and less of a playmate. That is, while all of the children tended to choose the adult dolls *before* child dolls on the help story and *after* them on the play story, the children from one-adult homes exaggerated this tendency relative to other children. The findings clearly indicate that our methodology is sensitive to the life histories of individual children. Although we were not able to discern differences

related to sibling order, this may have been because so many of the children were only children and it was difficult to get leverage on the sibling set of variables. Future work will investigate in greater depth the relationship between life history and children's conceptual systems concerning social objects and functions.

A final note concerns developmental differences, that is, differences related to the age of the children. The older children in the sample (the older fours and fives) chose the male adult relatively less and the older boy relatively more on the play function than did younger children. They were also less likely to offer food to the adult female social object. These differences fit the picture of a general shift in social orientation from adults to children during the preschool years. However, the small number of age differences found suggests that the age role concepts uncovered by our methodology are well-established in children by age three-and-a-half years. The social functions investigated were clear-cut ones that are prominent in the behavior of preschool children, and the social objects studied represented age groups that had been found to be salient to the children. Perhaps not surprisingly, therefore, the children agreed to a substantial extent about which social functions were appropriate for each social object. The children clearly demonstrated that age-group differentiations have important social meanings for them. Their concepts of age groups provide them with a general and useful framework to structure social functions and to guide their everyday social interaction.

Social Functions—Social Objects

The view that the young child and mother (perhaps fathers as well) constitute the only as well as the most important social relationship has become increasingly disfavored and in its place a more complex social network has been suggested (Weinraub, Brooks, & Lewis, 1977). One of the most important features of this social network has been the belief that there are multiple social objects that occupy meaningful space in the young organism's life and that there are multiple functions that the organism needs to attend to. Moreover, Lewis and Feiring (in this volume) have stressed the importance of the matrix that may be described between objects and functions. This matrix is not constant but remains throughout the lifetime in a state of change with the addition and loss of both objects and functions. Moreover, this matrix should be affected by a host of factors, including, among others, the values of the culture as well as the structure of the family.

The data from the present two studies complement each other and clearly supply support for the notion of a highly articulated matrix in the young child. This matrix reveals object-function relationships that

support the notion of differential cells within the matrix. In this particular case adults are best for caring for dependency needs, older peers for learning and teaching, and peers (as well as older peers) for play. These findings, concerning the dependency and play functions, find support in the work of others looking at one- to three-year-old children (Lewis *et al.*, 1975; Mueller, this volume; Mueller & Lucas, 1975).

The findings that there are both a large set of functions (or needs) and a large set of objects that can satisfy these needs allows us to go beyond the simple notion of a limited social experience in early childhood and direct our attention to how best to match social functions with social objects.

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