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Causal Attribution of Emotion and Its Relationship to Role Taking and Helping Behavior in Children

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CAUSAL ATTRIBUTION OF EMOTION AND ITS RELATIONSHIP
TO ROLE TAKING AND HELPING BEHAVIOR
IN CHILDREN

by

Susan K. Green

A Dissertation Submitted to the Faculty of the Graduate School
of Loyola University of Chicago in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Philosophy

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VITA

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PROBLEM AND REVIEW OF RELATED LITERATURE

The development of role taking or empathy in children has been explored in terms of intellectual components rooted in Piaget's cognitive decentering concept, but little work has been done involving affective role-taking skills. Often only a singular aspect of a social situation, such as facial expressions or tape recordings of voices, has been employed in role-taking research, making tasks overly difficult for young children to comprehend. The present study was concerned with the interrelationships among young children's knowledge of emotions and their causes, factors contributing to such knowledge (e.g., preschool experience with people, IQ), and action in an interpersonal helping setting.

Decentration as the Basis for Role-taking Skills

Egocentrism, defined by Piaget (1959) as a lack of differentiation in subject-object orientation, characterizes a young child's awareness of the world around him. According to Piaget (1967), the child between 18 months and 7 years of age is primarily egocentric, and it is not until later childhood that he is able to extricate himself from his own point of view. The ability to overcome the egocentric reference system of early childhood is called decentration, and Piaget emphasized that a large part of a child's energy is invested in this process. Social interaction is presumed to be a crucial factor in the achievement of de-

centration. Flavell (1963) stated that as the child increases his contacts with other people he is forced to reexamine his own ideas, and he gradually rids himself of cognitive egocentrism.

Piaget (1950) investigated the implications of the decentering process through children's perceptions of the physical world. The water level problem, which tests a child's understanding of the invariant qualities of a substance, forces a child to consider simultaneously the height and width of containers. If the child has begun to decenter, he can relate the changes in one of these dimensions to compensatory changes in the other.

The ability to take the visual perspective of another has also been explored by Piaget (1950) in the papier-mache mountain task. In this task the child views a model of a mountain and is asked to show how it looks from the perspective of another person in a different position. Younger, egocentric children are unable to demonstrate understanding that another person might see the mountain differently. Flavell, Botkin, and Fry (1968) also incorporated visual perspective taking in their series of experiments on role-taking and communication skills. In a task for preschool children, subjects were asked to orient cards or cubes with pictures on them so that both subject and experimenter could view the same thing. Three-year-olds could orient the cards with little trouble, but they experienced difficulty with cubes because of the wider variety of potential responses. Selman (1971a) also incorporated a visual perspective-taking task in his work with children.

As research and description of decentration have been expanded from the intellectual to the social sphere, the term role taking has been applied to the process of taking another's perspective. Flavell

et al. (1968) defined role taking as the ability to understand the interaction between the self and another as seen through the other's eyes. This definition implies an ability to make specific inferences about another person's attributes, expectations, feelings, and reactions. This ability requires a cognitive level similar to perceptual role taking, but it is more interactional in that it requires accurate perception of how another will behave in a situation and how one's own actions affect his behavior.

Role Taking as a Cognitive Skill with a Social Focus

Much role-taking research with children has dealt with social situations as subject matter, but it has focused on cognitive or perspective-taking activities rather than on affective role-taking abilities. Feffer and his colleagues (Feffer, 1959; Feffer & Gourevitch, 1960; Feffer & Suchotliff, 1966) asked subjects to narrate a picture story from different characters' points of view. The ability to maintain a coherent story in which the subject considers all actors' behaviors and feelings simultaneously seems to be a cognitive skill that only partially encompasses the social or interactional aspects of the Flavell et al. definition above. Similar mental juggling was required in a study by Miller, Kessel, and Flavell (1970) in which the recursive nature of thought was explored.

Studies allowing subjects to demonstrate ability to predict another's behavior, such as Devries' (1970) or Flavell et al.'s (1968) social guessing games, are based on the subject's consideration of another's needs or motives in demonstrating role-taking skills. Somewhat broader in scope are communication tasks in which the subject must convey information to another, taking into consideration some of the other's

characteristics. Flavell et al. (1968) found that second-grade children made few distinctions in their explanations of a game to a blindfolded person and to a sighted one. As children matured, they incorporated changes and elaborations that would enable a blindfolded listener to better understand them. Using a simpler task, however, Maratsos (1973) found that 3-year-olds could alter their communications to fit the requirements of a blindfolded listener. He suggested that preschoolers could perform better than Flavell et al.'s second graders because his task was enjoyable and more appropriate for younger subjects.

In another communication task (Flavell et al., 1968) subjects constructed a message based on the fable of the fox and the grapes. Third graders did poorly in altering their stories for younger children. Seventh graders demonstrated an ability to take the other's role. Glucksberg and Krauss (1967) had one subject select an object described by a second subject. Kindergarteners repeated their first description or remained silent after their first failure to communicate correctly. Older children were better able to adapt to the other's perspective and added new, clearer descriptions. Peterson, Danner, and Flavell (1972), in a parallel study, found that as the listener's needs were made more explicit to the subject, even 4-year-olds were able to respond by reformulating their messages. Thus, evidence of role taking in communication tasks is first seen in preschool years, and it increases in complexity and scope with age.

Rubin (1973) tested children in kindergarten and grades two, four, and six using measures of role-taking egocentrism (from Miller et al., 1970), communicative egocentrism (from Glucksberg & Krauss, 1967), and spatial or visual egocentrism (from Flavell et al., 1968).

His interpretation of a factor analysis of the data resulted in a single decentration factor, suggesting a high interrelationship among these measures, with mental and chronological age also loading significantly on this factor. Rubin suggested that measures of role-taking skill are related to other more cognitive and less affective types of decentration skills.

Affect-related Skills and Their Relation to Role Taking

The major emphasis in most studies of role taking has been the cognitive rather than the affective components of social situations. Flavell and his colleagues did not deal with role-taking skills related to judgments of affect, but they did include them in their comprehensive definition. Studies that deal with the ability to recognize and label emotions have appeared (Amen, 1941; Gates, 1923; Gitter, Mostofsky, & Quincy, 1971; Odom & Lemond, 1972), but usually not in the context of role-taking abilities. A typical study by Izard (1971), with French and American children, demonstrated parallel development in recognition studies (where the emotion term is supplied and the child chooses a picture of a face to match it) and labeling studies (where the child supplies his own label to fit a photograph). He found that emotion recognition is strongly correlated with age (.56 with American children, .72 with French children) and that emotion labeling is also, but not as strongly, related to age.

Studies have also appeared exploring children's insight into emotions as explanatory concepts. Hamsher (1971) had subjects between ages 6 and 13 tell a story after viewing a cartoon sequence. The stories were constructed so that the protagonist initially experienced an emotion. His later behavior was only explicable if that emotion

were taken into account. Hamsher found that the ability to use emotions as causal explanations of behavior increased with age, and correlations of that ability with Peabody intelligence quotients (.33) indicated that the skill involved was dependent on more than intelligence and problem-solving skills.

Flapan (1968) also conducted a study to investigate children's ability to describe and make inferences about feelings, thoughts, and intentions occurring in interpersonal relationships. Children were asked to describe sound film clips they had seen and to answer specific questions on how characters felt and why they acted as they did. Nine- and 12-year-old children made more interpretations of feelings and intentions not obviously expressed in the films than did 6-year-olds. The younger children tended merely to describe a situation, paying close attention to physical details.

Few studies have appeared linking skills tied to emotion recognition and labeling or skills tied to emotions as explanatory concepts with role-taking skills. Borke (1971) did attempt to relate affective skills to role taking. She presented her 3- to 8-year-old subjects with a series of short stories. She then asked them to point to a drawing of a face (happy, sad, afraid, or angry) to complete a picture accompanying each story. The results indicated that very young children are not totally egocentric. They could demonstrate awareness of different feelings in other people--an obvious early step in the development of role-taking skills.

A few other studies have dealt with affective understanding and its relation to social role-taking ability. Rothenberg (1970) exposed third and fifth graders to a series of tape-recorded interactions be-

tween two people. She then asked subjects to describe how one of the actors felt and why he felt that way. Teachers were asked to rate the children on interpersonal effectiveness, and peer nominations were made on the same dimension. Fifth-grade subjects had a higher mean score on the social sensitivity scale dealing with the recordings than did third graders. Since both teacher ratings and peer nominations correlated with the social sensitivity scale at about .25, the hypothesis that socially sensitive children (or children with better developed role-taking skills) have somewhat higher interpersonal competence as rated by others was supported in this study. Similarly, Gilbert (1969) found that children who demonstrated high "affective awareness" were also rated as being "aware of feelings of others" by their teachers.

Empathy and Role Taking

Some studies dealing with emotion recognition have been conducted within the context of investigations of "empathic ability." Dymond, Hughes, and Raabe (1952) defined empathy as actively transposing oneself into the thinking and feeling of another to the extent of permitting correct prediction of his behavior. Their study used as a measure of empathy a child's answers to a question about the thoughts and feelings of characters in a story he had just heard. They found that such responses became more accurate with age. Walton (1936) noted that this kind of empathic response in children begins early. She suggested that a youngster first tends to think solely along an unpleasant-pleasant dimension in making judgments of what others are feeling. As he grows older, other dimensions are added. Burns and Cavey (1957) asked subjects to describe feelings of children depicted in familiar situations. Egocentric children (ages 3 and 4) imputed their own feelings

to the other child. Older children (ages 5 and 6) used the other child's facial cues in making judgments.

More recent studies of empathy have focused on vicarious responding of a child to another person's emotional state. Feshbach and her associates (Fay, 1971; Feshbach & Roe, 1968; Klein, 1971) have measured empathic behavior by recording children's reactions to 35mm slide sequences presenting people in situations of happiness, sadness, fear, and anger. The extent to which the subjects reported experiencing the affect depicted by the stimulus served as an index of empathy.

Stotland (1969) has also explored empathy as a vicarious affective response to a stimulus person. His assertion that empathy goes beyond perception of another's emotions into the area of vicarious feelings is shared by most other recent researchers in the area (e.g., Aronfreed, 1968; Feshbach & Roe, 1968; Hoffman, 1973).

Empathy as a Link between Role Taking and Altruism

Borke (1971) and Hoffman (1973) have stated that empathy underlies successful human interaction and communication, and Hogan (1973a, 1973b) implied that empathy is one of the most important dimensions of social development. Both Hoffman and Hogan suggest that empathy may be a prosocial mechanism acquired through evolution, but Hoffman stresses that even though empathy is an emotional response to cues about the affective state of others, it must also depend on the actor's cognitive development. He linked the development of empathy to three broad stages in the development of a cognitive sense of the other, as used by various researchers in the role-taking area (e.g., Devries, 1970; Flavell et al., 1968; Selman, 1973a, 1973b). He suggested that at a first level, empathic distress can occur long before the develop-

ment of a sense of the other. In the first year of life a child may be confused about who feels the distress and seeks comfort as if it were his own. As the child acquires a sense of the other in a physical sense (usually before 2 years of age), he comes to know that it is the other who is in distress. But he cannot distinguish between his own and the other's inner states. Thus, he might offer the other an object or gesture that he himself finds comforting.

At a second level, the child begins to realize that others have feelings and thoughts of their own. Borke (1971) and Hoffman (1973) and others have observed that as motivation, familiarity, and feedback are successfully utilized in minimally complex tasks, this type of role taking may be demonstrated before a child enters kindergarten. Piaget and other cognitive researchers have indicated that these skills are not apparent in children until age 7 or 8. At this second level, the child is certain that others have perspectives independent of his, even though he may not know what they are. The realization that his and others' perspectives, though independent, share similarities may add to his motivation to alleviate distress in others.

At the third level of role-taking skill, empathy is no longer confined to an immediate situation. The child between 6 and 9 years has developed a sense of the other as having his own continuous identity. The other's feelings now occur in the context of a total life, and the child interprets responses in an immediate situation using this additional information.

Having tied empathy to the major developmental steps in role taking, Hoffman suggested that arousal of empathy through seeing another in distress typically leads to sympathetic attempts to help, at

least in children. Observations by Murphy (1937) of 3- and 4-year-olds in a nursery school setting support his contention. She found that a wide range of sympathetic behaviors were elicited by distress stimuli from other children. Some of her subjects helped their schoolmates who were physically distressed. Such behaviors seem to indicate a definite empathic ability in young children.

Staub (1972) and Bryan and London (1970) provided evidence to support the hypothesis that the tendency to engage in altruistic behavior increases with age, at least until 9 or 10 years. These writers postulate that a norm that dictates helping others is learned during the elementary school years. Rubin and Schneider (1973), however, suggested that the increase in helping behavior can be accounted for by increasing decentration and concurrent development of role-taking skills. They found a high correlation (.64) between behavior on an altruistic task and measures of decentration among 7-year-olds. It appears that their work supports Hoffman's (1973) assertion that role taking and empathy (as evidenced through altruistic behavior) are closely tied.

Flavell et al. (1968) also lend support to this assertion in their discussion of the five major constituents of successful role taking.

These constituents include:

1. Existence--that there is such a thing as perspective.
2. Need--that an analysis of the other's perspective is called for in this particular situation.
3. Prediction--how actually to carry out this analysis.
4. Maintenance--how to maintain in awareness the cognitions yielded by this analysis when they may conflict with one's own point of view.

5. Application--how to apply these cognitions to the end at hand.

It appears that these five constituents are also important in successful altruistic behavior. In fact, it might be argued that role-taking skill development is a major prerequisite for successful altruistic behavior. Hoffman's (1973) analysis of empathy specifically includes references to the first and fourth of Flavell et al.'s (1968) requirements for role taking, and implicit in his discussion is an assumption of the need for the second and third requirements. Flavell et al.'s fifth constituent, the application of role-taking skills for successful coping in all kinds of social situations, is somewhat narrower in Hoffman's analysis. For Hoffman, the application of these skills would be focused primarily on behaviors such as helping or sharing.

In Flavell et al.'s analysis, an important distinction has been made between understanding another's perspective (Constituents 1 through 4) and acting on the basis of that information (Constituent 5). The original definition of social intelligence by Thorndike (1920) included these same two components--the ability to understand others and the ability to act wisely in relating to others. In much of the research following Thorndike, the importance of treating these two components separately was neglected, and researchers focusing on one simply assumed they had also treated the other. The distinction has again become prominent in social skills research (Walker & Foley, 1973), and Flavell et al.'s (1968) conceptualization reflects this emphasis.

It is important to distinguish between the two components of such social skills because it is likely that demonstration of one does not always indicate presence of the other. It is possible to have a cognitive appreciation of others without utilizing it in one's social inter-

actions. One of Murphy's (1937) subjects indicated understanding of others' perspectives in certain situations, but when unselfish role taking was called for, she seldom demonstrated what she knew. But for some children, demonstration of a skill through action may be much easier than indicating knowledge of it, perhaps because their verbal skills are not highly developed. In exploring social skills such as role taking and altruism, it is important to assess both the knowledge and action components.

In Flavell et al.'s (1968) discussion of the five constituents of successful role-taking behavior, gaps in the developmental-descriptive picture of this skill were also indicated. The weakest area appears to be in our understanding of the prediction constituent. Flavell et al. suggested that this constituent involves a process of making guesses about pertinent role attributes of the people involved in a given encounter, but the authors also include the process of extracting specific information from the immediate situation under the prediction component. The ability to detect the situational reasons for emotions in others or to attribute causes of emotions correctly is one kind of prediction skill utilizing cues available in an immediate situation. Various researchers have touched upon the importance of causal attribution of emotion, but few have elaborated on its significance as a component of role-taking skills.

Causal Attribution of Emotion as a "Prediction" Component of Role-taking Skills and Altruism

Piaget (1959) first noted that young children rarely speak in terms of causal relationships, and he concluded that the child places more stress on events themselves than on relations of time or cause that unite

them. Flapan (1968) pointed out that with an increase in age more children use causal explanations to describe interpersonal events. Flapan found a major difference in this ability between 6-year-olds and 9-year-olds. She suggested that development progresses gradually from description of an interaction to the child's attempting to account for what has taken place in that interaction by using inferences about emotions and intentions. Hamsher (1971), too, pointed to the importance of development of insight into the origin of emotions as a basis for explaining behavior.

Selman (1971b) noted that very young subjects (under age 6) were unable to specify causes of emotions in people they saw. They projected their own, often inaccurate, reasons for emotions experienced by others (Burns & Cavey, 1957; Chandler & Greenspan, 1972). Selman (1973) has described this behavior in his discussion of the earliest stage in his conceptualization of role-taking development. At this level, which describes children between the ages of 4 and 6, the child is able to predict or describe others' emotions in the situations in which he would know his own response. But the subject cannot correctly explain why the emotions occurred because he lacks the social-cognitive ability to see cause-effect relationships. Borke's (1971) 3-year-old subjects could successfully identify the emotions of persons in the stories, but were they asked, they probably could not identify the causes of those emotions. Selman suggested that the structural aspect of this stage, a lack of distinction between a subjective view of a social situation and possible alternative views, helps explain this deficiency.

Hoffman (1973) also suggests that after a child learns object and person permanence but before he learns that others have different per-

spectives, he assumes that another's emotional states are identical to his own. When he gets distress cues from another, he does not understand what causes them nor does he know what the other's needs are in the situation unless they coincide with his own. But he does know that the other person is the victim of the distress. Most traditional researchers agree that children remain at this stage until age 7 or 8, but recent evidence using simpler tasks suggests that children can demonstrate knowledge of others' perspectives much earlier.

Attribution theory, a newly developing area of social psychology, also has as yet contributed little to the study of causal attribution of emotion. It focuses primarily on attribution of intention and responsibility. However, some of the principles of attribution might be applied to causal attribution of emotion. The covariation principle (Kelley, 1973) states that an effect (e.g., an emotion) is attributed to the one of its possible causes with which over time it covaries. Thus, one needs a long series of observations and experiences before he can begin to associate causes and effects with any certainty.

It may be likely that small children have not had enough variation in kinds of situations and numbers of people to begin to confidently make causal attributions of emotions. Flavell et al.'s suggestion that greater amounts of interaction with other children offer more opportunity for improving role-taking skills is particularly applicable to this aspect of study. The more situations a child is exposed to in which emotions are generated and displayed, the more likely he is to have begun making assumptions about emotional cause and effect relationships. And the greater number of people a child is exposed to, the more likely it is that he will see more and different kinds of emotional situations.

Support for this assertion might be drawn from the study by Rothenberg (1970). She found that subjects rated by peers as friendly (a trait that might lead to extensive exposure to others) also scored high on measures of social sensitivity.

Causal attribution of emotion may be an especially important prerequisite of altruistic behavior. Being able to come to the aid of another person effectively, depends partly on being able to detect what is causing the other person's distress. If a person really understands causal attribution of emotion, he should be able to demonstrate his knowledge through his actual social behavior. However, in order to determine whether the understanding is a necessary factor, the knowledge component of causal attribution of emotion must be assessed in situations that do not require the action component to demonstrate the ability.

Methodological Concerns

The importance of true-to-life task situations has also been somewhat neglected in research in role-taking development, partially because researchers focused on only one component of the skill at a time. Verbal descriptions of situations (Miller et al., 1970; Rothenberg, 1970) force a child to work abstractly with ideas and words and may hinder him from expressing all he knows. Situations in which a child must make up a story from still photographs (Feffer, 1959) are even more divorced from true social interactions, and verbal ability rather than role-taking ability could be what is being assessed. Some studies have focused on single aspects of expressive behavior such as facial expression (Gates, 1923; Izard, 1971). Although these are, to a degree, realistic, in actual social interaction the child responds to a total situation rather than to artificially isolated events. Studies should provide as

much of the complexity of interaction as possible for a complete assessment of both cognitive and affective role-taking development. The use of movie episodes (Dydyk, 1973; Flapan, 1968), seems ideal for work in this area because films can provide realistic social stimuli in their entirety. Another important advantage is in their reproducibility. Films cannot vary over subjects as experimental confederates or actors might, and films can provide continuity across experiments that other types of tasks cannot.

Using tasks or variables that simplify the research situation for young children is also an important consideration if role-taking abilities are to be assessed accurately. Borke (1971) was able to show that very young children could be aware of feelings in other people when given the opportunity to express themselves nonverbally. Most similar experiments had used verbal measures that apparently discriminate against younger subjects.

Similarly, Maratsos (1973), using toys rather than a game in a simplified version of one of Flavell et al.'s (1968) tasks, found that subjects were able to communicate their choices to a blindfolded listener at a much younger age than had been cited previously. Peterson et al. (1972) also were able to demonstrate that preschoolers could reformulate descriptions on a Glucksberg and Krauss (1967) task when given explicit indications that the listener needed more information. In the realm of moral development, Costanzo, Coie, Grumet, and Farnill (1973) have also found that simpler tasks enable younger subjects to demonstrate abilities previously thought to have been acquired much later. Simple, nonverbal, true-to-life situations are important for optimum performance by children.

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Research and observation by Hoffman (1973) and Murphy (1937) also point to the importance of familiarity of the setting and the people in it as a variable increasing the likelihood of a child's successful performance of role-taking and altruistic behaviors. Hoffman reported that he has seen a child of 17 months successfully manipulate a situation to control her sister's behavior in the home setting. Murphy observed countless incidents of helping behavior among children who interacted daily at a nursery school. Repeated contact increases knowledge about familiar persons and reduces self-consciousness. These conditions cannot be duplicated in the typical research setting. A researcher who attempts to explore carefully the development of a skill related to social interactions must take into account the importance of the methodological variables discussed here if he seeks an accurate reflection of each child's ability in his natural, day-to-day behavior.

Hypotheses

The foregoing discussion points to the importance of developing a study to explore causal attribution of emotion as a component of role-taking skills and altruistic behavior. Specifically, this research was designed to investigate the following hypotheses:

1. Verbal intelligence is positively but moderately related (a) to causal attribution of emotion and emotion recognition skills and (b) hence to helping behavior.
2. (a) Children with more preschool exposure to people, as measured by number of siblings, perform better on tasks assessing causal attribution of emotion than children with limited preschool contact, and hence (b) they also exhibit more helping behavior.
3. Performance on a test of causal attribution of emotion is positively

related to role-taking skills as measured by teacher ratings.

4. Emotion recognition and causal attribution of emotion skills are positively related to helping behavior.

METHOD

Subjects

The subjects of this study were 40 middle-and lower-class children (20 girls and 20 boys) in two public school kindergarten classes in a small town in Michigan. This age group was chosen because it was most likely to be in a transition period in terms of role-taking skills. Because children in this range are beginning to develop a cognitive sense of others' perspectives, they should possess varying degrees of ability to make causal attributions of emotion.

Measures

Teacher ratings. The rating scales for teachers used by Rothenberg (1970) were used to assess the social sensitivity of the children. These scales measured six dimensions of interpersonal effectiveness including mood (cheerful-serious), leadership, cruelty, friendliness-social apprehensiveness, sensitivity to others, and sense of humor. A seventh dimension, disposition to help others, was added by this researcher. Each child was rated on a 5-point scale for each dimension by his or her teacher. Teachers were also asked to provide information for each child on (a) preschool experience, (b) number of siblings, and (c) education level of father and mother (see Appendix A).

Peabody Picture Vocabulary Test. The PPVT was used to estimate verbal intelligence. It was administered and scored by the researcher

according to the manual provided with the test booklet. Intelligence quotients were derived from raw scores.

Movies. Movie clips were used to assess the knowledge components of affective role taking--emotion recognition and causal attribution of emotion. Two short clips, one with a young girl protagonist and one with a young boy protagonist, were selected to represent each of four emotions--happiness, sadness, fear, and anger. (See Appendix B for a description of the movie clips.) Flapan (1968) emphasized that short films should be employed to hold young children's attention.

Each child was introduced to the movie task and the eight films were then shown one at a time. After each film the subject was asked to label the emotion portrayed by the main character. Scores on this portion of the movie task could range between 4 points (correct label, no probing) and 1 point (incorrect label, in wrong direction) for each movie, with a possible total of 32 points. The complete scoring system appears in Appendix B.

The method used to assess each child's knowledge of the causes of the emotions proceeded in two steps. After identifying the main character's emotion in each film, the subject was shown photographs of four potential causal agents taken from each movie. These photographs were mounted to resemble images on a television screen. The subject was asked to turn the knob on the "television" that had the picture of the person or object that caused the emotion in the main character of each film clip. Having made a choice, the subject then was asked to describe how the emotion had been produced by that person or object. A combined score for identifying the causal agent and the causal reasoning was computed for each movie clip. Scores ranged from 5 points (correct

agent, correct reasoning) to 1 point (incorrect agent, incorrect reasoning). Total score on this portion of the movie task could reach 40 points. The complete scoring system appears in Appendix B. Interrater reliability for all scores on the movie task, as measured by a Pearson correlation, was .92 ($p < .001$) for two judges.

In assessing understanding of causal attribution of emotion, it was important to make the task as simple and true-to-life as possible. Film clips of children experiencing emotions were considered an appropriate means for conveying information necessary to subjects for such a task. Films can supply information and cues similar to those encountered in real situations. Because of the age of the subjects it was also important to structure the causal attribution task so that it depended upon children's verbal abilities as little as possible. For this reason, photographs of possible causal agents were provided. Also, by breaking the attribution task into two parts with the simpler, nonverbal part first (identifying the causal agent), it was hoped that it would be easier for a child with low verbal skills to describe how the agent caused the emotion in the movie character.

Helping tasks. The first helping task given to the subjects tapped help given to an adult, the experimenter. When the subject was seated at a table in the experimental room, the experimenter accidentally knocked some papers off the table as she went to get the confederate for the next task. The subject had a chance to pick up the papers, if he or she was so inclined, before the experimenter returned. Each subject received 2 points for picking up the experimenter's papers while she was out of the room, or 1 point if he or she failed to pick up the papers.

The second helping task was based on one used by Rubin and Schneider

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(1973). In the experimental room, where interesting toys were displayed, the experimenter introduced the subject to another child, the 11-year-old female confederate. Both children were told that they could play with the displayed toys after completing a simple task. They were then seated at a table across from each other, and the experimenter placed a box and two piles of tickets on the table. The children were instructed to separate the tickets into groups of five and put rubber bands around each group. The children were told that they could play with the toys when they each finished their piles. The subject was given half the total number of tickets that the confederate was given. When the subject completed his pile, the confederate began emitting facial cues of dismay and sadness accompanied by a slight groan or sigh. If the facial cues of emotion did not elicit a helping response from the subject, the confederate proceeded to a second level of demand after 30 seconds. This level consisted of a verbalized comment by the confederate, "Boy, do I ever have a lot of tickets left to do!" A third level of demand, consisting of an open request for assistance from the subject, was used by the confederate if the subject failed to help within 30 seconds of being exposed to the second set of cues.

The original scoring key developed for this task allowed for a range between 5 points (helped after confederate's sigh) and 1 point (did not attend to confederate's request or help her). Since no subject helped without a direct request from the confederate, only a 3-point range was actually used, and for some analyses dichotomous scoring was used.

Because situational characteristics operate differently in different helping tasks, two measures of helping were used in this study.

The potential receiver of the help was varied (adult versus child) because the potential receiver's degree of similarity to the subject could affect helping levels.

The helping tasks had to meet a number of other requirements. So diffusion of responsibility would not occur, the subject was the only potential helper in both tasks. The type of help necessary in the experimental situation also had to be within the range of ability of kindergarten children. The final and most important consideration was that the cause of the distress in the experimenter and in the confederate be obvious.

Procedure

Each child was seen individually by the experimenter. In the first session the child was taken from his classroom to the experimental room. He was asked his name, age, the number of members of his family, and whether he had had any preschool experience. This information was later verified by information provided by his teacher. The experimenter then administered the Peabody Picture Vocabulary Test.

The situation was then explained to him as follows:

_____(name of child), we are interested in finding out what children see when they watch movies. I have some movies of children doing different things. I would like you to watch these movies, and, when I ask you, I'd like you to tell me how the people feel that you see in the movie. Then we can talk about what made them feel that way. There are no right or wrong answers--I just want to find out what you think.

After the child answered the questions about each movie clip, he was rewarded with candy and returned to his classroom.

A few days later, the child was taken to the same testing room by the experimenter. After he entered the room, the experimenter said:

"Why don't you sit down here. I have to go get another person

who will be with us today. I'll be right back."

As the experimenter left the room, she "accidentally" knocked a pile of papers off the table near the subject. She soon returned to the room with Nancy, the confederate. Depending on whether the subject had picked up the papers the experimenter said:

"Oh, no, my papers fell. Excuse me while I pick them up."

or

"Thank you for picking up my papers."

Then all the subjects were told:

_____(name of subject), I would like you to meet Nancy. Now both of you should look at the toys in this room. I'd like you both to be able to play with them today after we finish some work. Do you see these tickets? We are going to sell them to people for a show we are putting on. We must put the tickets into small piles. Five tickets go in each pile. Here are some tickets for you (subject) and some for you (Nancy). Before you play with the toys, take your tickets and put them in piles of five. Then put a rubber band around each pile and put it into this box. When you are finished with all of your tickets, you may play with the toys. Do you understand what you are supposed to do? Let's each do a practice pile. OK, you can get started.

After the child completed the task, he was allowed to play with the toys in the room for 5 minutes. He was then rewarded with candy and was asked not to speak about his experience with any other children. The experimenter thanked him for his help and escorted him back to his classroom.

RESULTS

Before examining results pertinent to the hypotheses, each of the variables was analyzed separately. This background information is presented in this section.

Subject Variables

To get an overall picture of characteristics of the subjects, means and standard deviations were computed for the subject variables of IQ, age, father's education, mother's education, and total siblings. These descriptive statistics for these variables are presented in Table 1 for all subjects ($N=40$), for female subjects ($N=20$) and male subjects ($N=20$), and for subjects in the morning class ($N=20$, 11 female, 9 male) and in the afternoon class ($N=20$, 9 female, 11 male). IQ scores ranged from 85 to 145 with the mean at 105.8 for all subjects. The differences in IQ means between girls and boys and between morning and afternoon subjects were not significant.

Age ranged from 66 to 78 months, with the mean age at 71.65 months, or just under 6 years, for all subjects. Female subjects were slightly older than male subjects, but neither this difference nor the difference in age between the morning and afternoon subjects was statistically significant.

There was a significant difference between father's education mean for the morning and afternoon subjects ($t(38) = 3.39, p < .01$);

Table 1

Means and Standard Deviations for IQ, Age, Father's Education,
Mother's Education, and Total Siblings

		Subjects ^a				
		All	Female	Male	AM	PM
IQ	<u>M</u>	105.80	101.20	110.40	102.10	109.50
	<u>SD</u>	16.15	14.56	16.69	16.10	15.72
Age (months)	<u>M</u>	71.65	72.55	70.75	71.95	71.35
	<u>SD</u>	3.51	3.58	3.27	3.55	3.53
Father's Education (years)	<u>M</u>	11.73	11.30	12.15	10.05	13.40
	<u>SD</u>	3.52	3.81	3.25	3.86	2.16
Mother's Education (years)	<u>M</u>	11.85	11.60	12.10	11.40	12.30
	<u>SD</u>	1.76	2.11	1.33	1.67	1.78
Siblings	<u>M</u>	2.67	3.30	2.05	2.65	2.70
	<u>SD</u>	1.91	2.30	1.19	2.06	1.81

^a n=20 for each subgroup, 40 for all

however, there were no other significant differences between males and females or between morning and afternoon subjects in parents' education level.

The mean number of siblings for all subjects was 2.67. The difference between mean number of siblings for males (2.05) and for females (3.30) was significant ($t(38) = 2.16, p < .05$). This difference occurred because three female subjects had seven or more siblings, but no male subject had more than five siblings.

Because the subjects were taken from two different classes with different teachers, further analyses were conducted to determine whether there were other significant differences between these two groups. Two-tailed t tests were performed on group means of all other variables explored in this study. Significant differences were found on 7 of 54 variables. Subjects in the morning class had a higher mean teacher rating of mood than subjects in the afternoon class ($t(38) = 2.30, p < .03$). The other differences (father's education, two emotion identification items, helping the confederate, emotion identification total, total movie score) on which the afternoon class scored higher were probably related to the fact that the morning class had more lower-class children. The morning class contained five girls and three boys in the Title I program who participated as subjects in this study. The afternoon class had no Title I children. These differences were not considered crucial. Comparisons of the morning and the afternoon groups were not considered in any of the following analyses.

Most of these analyses were based on comparisons of subjects grouped by sex, and two-tailed t tests were performed on the means of all variables in the study to determine any major sex differences.

Comparisons of these 54 variables (as indicated in subsequent tables) yielded only two significant differences--the previously mentioned total number of siblings and teacher ratings of leadership ($t(38) = 3.16, p < .003$), with males receiving higher ratings than females.

Movie Task--Internal Analyses

Prior to testing the hypotheses, it was important to examine each task separately. To determine the difficulty of each component of the movie task, means and standard deviations of scores identifying the correct emotion (Emotion ID) and a combined score for identifying the causal agent and the causal reasoning (Cause ID) for each movie clip were computed (see Table 2). Scores on Emotion ID could range between 1 and 4 for each item, and scores on Cause ID could range between 1 and 5 for each item, with higher scores reflecting better performance.

Every subject identified the emotion in Movie 8 correctly. The lowest Emotion ID mean occurred for Movie 6, involving recognition of fear. The highest Cause ID mean for all subjects occurred for Movie 2 (sad girl), and the lowest occurred for Movie 3 (angry boy). There were no significant sex differences between means on Emotion ID or Cause ID scores on any of the eight movie clips.

Total scores for Emotion ID and Cause ID scores also appear in Table 2. Though scores on Emotion ID total (the sum of the Emotion ID scores for all eight movie clips) could range between 8 and 32, the range of scores was actually between 20 and 32, with seven subjects scoring 32. The mean of 27.30 reflects relatively high scores for all subjects. There was no significant difference between the female mean and the male

Table 2

Means and Standard Deviations of Emotion Identification
and Cause Identification Scores on Each Movie for
All Children, Girls and Boys

		All		Girls		Boys	
Movie		Emotion	Cause	Emotion	Cause	Emotion	Cause
1	<u>M</u>	3.57	3.52	3.65	3.65	3.50	3.40
Happy	<u>SD</u>	1.01	1.57	.93	1.53	1.10	1.64
2	<u>M</u>	3.62	4.15	3.55	4.15	3.70	4.15
Sad	<u>SD</u>	.95	1.05	1.00	1.09	.92	1.04
3	<u>M</u>	3.30	3.10	3.25	2.75	3.35	3.45
Angry	<u>SD</u>	.99	1.78	1.07	1.83	.93	1.70
4	<u>M</u>	2.97	3.63	2.80	3.50	3.15	3.75
Afraid	<u>SD</u>	1.17	1.08	1.20	1.05	1.14	1.12
5	<u>M</u>	3.85	3.80	3.90	3.70	3.80	3.90
Sad	<u>SD</u>	.53	1.54	.45	1.56	.62	1.55
6	<u>M</u>	2.55	3.77	2.60	3.85	2.50	3.70
Afraid	<u>SD</u>	.90	1.37	.94	1.31	.89	1.45
7	<u>M</u>	3.43	3.75	3.45	3.90	3.40	3.60
Angry	<u>SD</u>	.90	1.48	.89	1.48	.94	1.50
8	<u>M</u>	4.00	4.05	4.00	4.25	4.00	3.85
Happy	<u>SD</u>	.00	1.18	.00	1.02	.00	1.31
Total	<u>M</u>	27.30	29.77	27.20	29.75	27.40	29.80
	<u>SD</u>	3.23	4.99	3.47	4.81	3.05	5.29
Combined Movie							
Score	<u>M</u>	57.08		56.95		57.20	
	<u>SD</u>	6.93		6.55		7.45	

mean on Emotion ID total.

Cause ID total scores (the sum of the Cause ID scores for all eight movie clips) ranged between 19 and 39, with a possible range between 8 and 40. The mean of these scores for all subjects was 29.80. There was no significant difference between the female mean and the male mean on this variable.

The combined movie score consisted of the sum of the scores on the eight Cause ID items and the eight Emotion ID items. For all subjects the mean on this variable was 57.08 out of a possible 72. There were no sex differences on the total movie score.

To probe for relationships among components of the movie task, Pearson correlations were computed between the scores for each of the movies. These intercorrelations for all subjects are presented in Appendix D. From these data it is apparent that Emotion ID scores in movies dealing with the same emotion are significantly correlated (except the emotion happy, where a correlation coefficient could not be computed because of lack of variance on one item). Emotion ID scores for Movies 2 and 5 (sad) correlated .39 ($p < .01$), for Movies 4 and 6 (afraid) they correlated .45 ($p < .05$), and for Movies 3 and 7 (angry) they correlated .31 ($p < .05$). Cause ID scores, however, were not significantly correlated within emotion groupings, and the correlation between Emotion ID and Cause ID for the same movie only reached significance for Movie 2 (sad, $r = .71$, $p < .001$).

All Emotion ID scores were significantly correlated with the Emotion ID total at the $p < .05$ level. All Cause ID items except Cause ID 7 were significantly correlated with the Cause ID total at the $p < .05$ level. Total Cause ID scores and total Emotion ID scores correlated

positively ($r = .39$, $p < .01$).

To determine whether the eight Emotion ID items and the eight Cause ID items comprised two unidimensional scales, the psychometric quality of the movie task was investigated using a Guttman scalogram analysis. The major criterion for evaluating scales in this tradition is the extent of reproducibility of the pattern of responses to items, given the total score. It is assumed that any subject who passes a particular item should have passed all items of lesser difficulty and should have failed all items of greater difficulty. A scalogram analysis orders items according to difficulty and then analyzes subjects' scores in relation to this pattern. The Guttman analysis is essentially a test of unidimensionality of scale items.

Listed in Table 3 are the Emotion ID and Cause ID items ordered according to difficulty for all subjects and for girls and boys separately. These data indicated that, between sexes, there was more agreement on the ranking for difficulty of Emotion ID items than of Cause ID items. The analysis indicates that both Emotion ID items dealing with fear were the most difficult, followed by the two items on anger. The Cause ID items that were most difficult were not from movies dealing with the same emotion. Cause ID Item 1 (happy) and Cause ID Items 3 and 7 (angry) were ranked most difficult. Results of this analysis also indicated that subjects' scores did not improve with practice, even though the movies were always presented in the same order (Movie 1 to Movie 8).

The coefficient of reproducibility reflects the degree to which respondents' scale scores predict their response patterns. Any value over .90 indicates a valid scale. Emotion ID scale items reached a co-

Table 3

Guttman Scalogram Analysis of Difficulty of Emotion Identification
 Items and Cause Identification Items for All Children, Girls, and Boys

		Difficult						Easy		Coefficient of Reproducibility
All Children										
Emotion ID	Movie	6	4	3	7	1	2	5	8	.85
Cause ID	Movie	3	1	7	8	5	6	4	2	.68
Girls										
Emotion ID	Movie	6	4	3	7	2	1	5	8	.86
Cause ID	Movie	3	1	5	7	8	6	4	2	.71
Boys										
Emotion ID	Movie	6	4	3	7	1	2	5	8	.84
Cause ID	Movie	1	7	8	3	6	5	4	2	.71

efficient of reproducibility in the mid-.80s for males, females, and both groups combined. Cause ID items produced a coefficient of reproducibility near .70 for the three groups (see Table 3). None of these values was sufficiently high to indicate that the Emotion ID items or the Cause ID items constituted clearly unidimensional scales.

Subject Variables and Movie Totals

To explore the relationships between subject variables, such as IQ and age, and scores on the movie task, Pearson correlations were computed. The correlations between age and movie score totals are presented in Table 4. For girls, age correlated significantly with Cause ID total but not with Emotion ID total. For boys, however, the findings were reversed with age and Emotion ID total significantly correlated but with a nonsignificant correlation between age and Cause ID total. Both of these correlations were significant when the scores for boys and girls were combined.

The correlations between age and scores grouped by emotion also followed different patterns for the two sexes. For girls, age did not correlate significantly with any of these Emotion ID subtotals. For boys, age correlated significantly with the angry and afraid Emotion ID subtotals.

For both groups of subjects, IQ was significantly correlated with Emotion ID total (see Table 5). Verbal intelligence was also correlated positively but not significantly with Cause ID totals for each sex. Taken together, these findings supported Hypothesis 1a, that verbal intelligence is positively but moderately related to causal attribution of emotion and emotion recognition skills.

Other subject variables were not highly related to scores on the

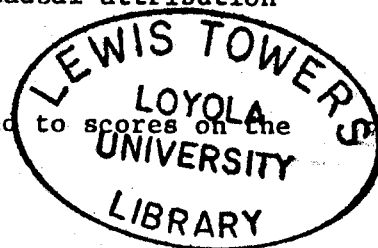


Table 4

* Pearson Correlations Between Age and Movie Totals
for All Children, Girls and Boys

	All Children	Girls	Boys
Emotion ID Total	.29*	.19	.45*
Cause ID Total	.34*	.58*	.13
Total Movie Score	.38*	.53*	.28
Happy ID Total	.07	.17	-.07
Sad ID Total	.14	.25	.04
Angry ID Total	.09	-.23	.50*
Afraid ID Total	.31*	.31	.37*

* $p < .05$

Table 5

Pearson Correlations Between IQ and Movie Totals
for All Children, Girls and Boys

	All Children	Girls	Boys
Emotion ID Total	.45*	.51*	.42*
Cause ID Total	.21	.30	.15
Total Movie Score	.36*	.49*	.28
Happy Emotion ID Total	.31*	.42*	.29
Sad Emotion ID Total	.26	.19	.33
Angry Emotion ID Total	.11	.31	-.07
Afraid Emotion ID Total	.36*	.34	.37

* $p < .05$

movie task. Mother's education and father's education did not correlate positively with any movie totals, nor did number of siblings. This latter finding did not support Hypothesis 2a, that children with more preschool exposure to people, as measured by number of siblings, perform better on tasks assessing causal attribution of emotion. Preschool experience also did not correlate significantly with any movie totals. This variable was deleted from further analyses because only five subjects had had preschool experience (four had attended Headstart programs, one had attended nursery school).

To ascertain possible patterns of incorrect responses to the Emotion ID items, a matrix of confusions in identifying emotions was constructed to display discrepancies between the emotions portrayed in the films and the emotions perceived by subjects. The matrix is presented in Table 6, with subjects' responses divided at the median age (72 months). It is clear from the diagram that happy and sad emotions were most often perceived correctly (supporting the previously mentioned Guttman scalogram analysis), and that sad was the incorrect response most often chosen. Afraid was the emotion most difficult to perceive correctly, with incorrect responses falling into all three of the other categories. But most incorrect responses fell within the other negative categories. Examination of Table 6 indicates that older subjects did better than younger subjects on the Emotion ID task.

To statistically test whether older subjects did better, and to test whether the order of difficulty of Emotion IDs shown in Table 7 was significant, an analysis of variance was performed on the Emotion ID scores for the eight movies with repeated measures, varying the sex of the character experiencing the emotion and the emotion portrayed. Subjects

Table 6

Emotion ID Confusions with Subjects' Responses Split
at the 72-Month Age Median for All Children

True	Perceived							
	Happy		Sad		Afraid		Angry	
	Older	Younger	Older	Younger	Older	Younger	Older	Younger
Happy	41	34	3	2	0	0	0	0
Sad	1	3	41	31	0	0	2	2
Afraid	2	3	10	12	24	10	8	11
Angry	1	0	11	11	1	0	31	25

Table 7
 Analysis of Variance of Emotion ID Scores with
 Repeated Measures on Sex of Character
 and Emotion Portrayed. Subjects
 Nested within Age within Sex

Source	<u>df</u>	<u>MS</u>	<u>F</u>
1. Sex of subject	1	.05	.04
2. Age of subject	1	8.45	7.20*
3. Sex of character	1	2.81	6.29*
4. Emotion portrayed	3	17.90	20.11*
5. Sex of subject x Age	1	.05	.04
6. Sex of subject x Sex of character	1	.61	1.37
7. Age of subject x Sex of character	1	.11	.25
8. Sex of subject x Emotion portrayed	3	.13	.15
9. Age of subject x Emotion portrayed	3	2.03	2.28
10. Sex of character x Emotion	3	1.91	3.60*
11. Subjects (sex, age)	36	1.17	
12. Sex of subject x Age x Sex of character	1	2.11	4.72*
13. Sex of subject x Age x Emotion	3	1.47	1.65
14. Sex of subject x Sex of character x Emotion	3	.31	.58
15. Age x Sex of character x Emotion	3	.58	1.09
16. Subjects x Character (sex, age)	36	.45	
17. Subjects x Emotion (sex, age)	108	.89	
18. Sex of subject x Age x Sex of character x Emotion portrayed	3	1.51	2.85
19. Subjects x Sex of character x Emotion (sex, age)	108	.53	

* $p < .05$

were nested within age (older or younger using a median split) within sex. The summary table for this analysis appears in Table 7. There was a main effect for age ($F(1,36) = 7.20, p < .05$), with older subjects performing better. A main effect for sex of movie character also appeared ($F(1,36) = 6.29, p < .05$). All subjects scored higher on movies in which females experienced the emotion. There was also a main effect for type of emotion portrayed in the movie.

($F(3,108) = 20.12, p < .01$). It was found that the two happy emotions were identified correctly most often, followed by sad, angry, and afraid.

A significant Sex of Character x Emotion Portrayed interaction was found ($F(3,108) = 3.61, p < .05$). Subjects performed better on movies in which females portrayed happy, angry, or afraid emotions, but they performed better on male-portrayed sadness. The Sex of Subject x Age x Sex of Character interaction was also significant ($F(1,36) = 4.72, p < .05$). Since there was no way to hold difficulty constant across movies, the sex of character effects may be a function of factors specific to the difficulty of the movie clips used.

Because the causal interpretation scores were not systematically related to emotion portrayed, no parallel analysis was performed on the Cause ID subscores.

Helping Tasks

Two measures of helping behavior were used in this study. The first measure tapped help given an adult, the experimenter, and the second measure tapped helping behavior offered another child, the experimenter's confederate. Table 8 shows results of these measures by subjects of each sex on both measures. It should be noted that no subjects helped the confederate without a direct request from her. Sub-

Table 8

Helping Behavior by Sex on Two Tasks

Task 1 Helping the Experimenter

	Girls	Boys
Help	11	15
No Help	9	5
Total	20	20

Task 2 Helping the Confederate

	Girls	Boys
Help with Sigh	0	0
Help with Hint	0	0
Help with Request	16	14
No Help	4	6
Total	20	20

ject responses to both helping tasks were scored dichotomously, using 1 for help and 0 for no help. There were no significant sex differences in amount of help given to either the experimenter or the confederate. The correlation between the two measures of altruism was .05 for girls and .27 for boys, and neither was significant.

To explore the relationships between subject variables and helping behavior, with particular attention to hypothesized relationships, biserial correlations between the two helping measures and subject variables were computed (see Table 9). For girls, IQ was significantly positively related to helping on both tasks. This relationship did not hold for boys, however. Thus, Hypothesis 1b, that IQ is positively but moderately related to helping was supported for girls' results only.

Total siblings was significantly positively related to helping the confederate for girls, and positively but not significantly related to helping the experimenter. Hypothesis 2b, that children with more siblings help more, was thus partially supported for girls. No relationship between total siblings and helping was found for boys.

Other subject variables significantly related to helping the confederate for girls included negative correlations with age and mother's education. Age was positively correlated with helping the experimenter for girls. For boys, mother's education was significantly negatively correlated with helping the experimenter, and father's education was significantly positively related to helping the confederate.

Teacher Ratings

Internal analyses, including means, standard deviations, and Pearson intercorrelations, were computed for the teacher ratings to investigate relationships occurring among them. Means and standard devia-

Table 9

Biserial Correlations between the two Helping Measures
and Subject Variables for Girls and Boys

	Girls	Boys
Helping Experimenter		
IQ	.58*	-.18
Age	.72*	-.01
Father's Education	-.08	-.36
Mother's Education	.15	-.54*
Total Siblings	.38	.17
Helping Confederate		
IQ	.52*	.10
Age	-.50*	-.07
Father's Education	.35	.63*
Mother's Education	-.48*	.39
Total Siblings	.65*	.16

* $p < .05$

tions for teacher ratings for each sex are presented in Table 10. Each rating was based on a 5-point scale. Actual ranges were between 2 and 5 for ratings of mood, leadership, sensitivity to others, sense of humor, and between 2 and 4 for ratings of cruelty, friendliness, and disposition to help others. As previously stated, the means for girls and boys were significantly different only on the teacher ratings of leadership.

Intercorrelations among teacher ratings for both sexes are presented in Table 11. For both sexes, leadership ratings were highly correlated with sense of humor and disposition to help others. Sensitivity to others was also significantly related to friendliness, sense of humor, and disposition to help others. Disposition to help others and friendliness were also significantly correlated for both sexes.

To explore patterns not explicitly hypothesized, Pearson correlations between teacher ratings and subject variables for both sexes were computed (see Table 12). IQ and age were not significantly correlated with any teacher ratings for boys, but both were significantly related to a number of the ratings for girls.

Father's education was significantly positively correlated with five of the teacher ratings for boys and significantly negatively correlated with three of the ratings for girls. Mother's education was significantly positively related to three teacher ratings for boys and none for girls. Total number of siblings was not related to teacher ratings of either sex. In summary, there were no patterns consistent across sexes.

Relationships between Teacher Ratings and Role-taking Scores

To test Hypothesis 3, that performance on a test of causal attri-

Table 10

Means and Standard Deviations for Teacher

Ratings for Girls and Boys

	Girls		Boys	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Mood	3.40	.75	3.50	.69
Leadership	2.85*	.87	3.60*	.60
Cruelty	3.00	.46	3.10	.55
Friendliness	3.50	.61	3.50	.61
Sensitivity to Others	3.50	.69	3.50	.69
Sense of Humor	3.15	.81	3.30	.57
Disposition to Help Others	3.40	.60	3.35	.59

* t test between means yielded a significant difference
 ($t_{(38)} = 3.16, p < .01$)

Table 11

Intercorrelations among Teacher Ratings for Girls and Boys

	Mood		Leadership		Cruelty		Friendliness		Sensitivity		Humor	
	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys
Mood												
Leadership	.41*	-.13										
Cruelty	.15	.28	.00	-.03								
Friendliness	.46*	.00	.35	.58*	.38*	-.31						
Sensitivity	.20	-.11	.57*	.25	.00	-.69*	.38*	.63*				
Humor	.41*	.00	.77*	.52*	.14	-.10	.16	.61*	.61*	.40*		
Disposition to Help	.33	-.19	.72*	.57*	.00	-.44*	.43*	.66*	.89*	.72*	.74*	.30

* $p < .05$

Table 12

Correlations between Teacher Ratings and Subject Variables for Both Sexes

	IQ		Age		Mother's Education		Father's Education		Siblings	
	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys
Mood	-.33	.15	.09	.13	.04	-.11	-.41*	-.36	.02	-.16
Leadership	.05	.33	.52*	.21	-.01	.38*	-.38*	.44*	.21	-.41*
Cruelty	-.54*	.22	-.10	-.01	-.27	.06	-.39*	-.30	.15	.33
Friendliness	-.42*	-.03	.25	.36	-.04	.58*	-.30	.63*	.07	-.04
Sensitivity	.21	-.30	.50*	.13	.36	.29	.14	.53*	-.07	.35
Humor	.10	.21	.37	-.01	.07	.44*	-.30	.54*	.20	.05
Disposition to Help	.24	-.20	.41*	.18	.34	.36	.08	.58*	.02	-.10

* $p < .05$

bution of emotion is positively related to teacher ratings of role-taking skills, Pearson correlations between total scores on the movie task and teacher ratings were computed (see Table 13). A consistent pattern emerged for girls, with sensitivity to others related positively to Emotion ID total, Cause ID total, and total movie score. Disposition to help others was also correlated with Emotion ID total, Cause ID total, and total movie score for girls. No other teacher rating was significantly correlated with movie score totals for girls or for boys. These findings supported Hypothesis 3 for girls only.

Predicting Role-taking Scores

Two multiple regression analyses were performed to summarize the combined effect of significant variables in predicting scores on the movie task for each sex. Emotion ID total and Cause ID total were used as separate dependent variables in these analyses. The independent variables entered into the two equations for each sex included IQ, age, number of siblings, and the sum of the teacher ratings of sensitivity to others and disposition to help others. These two ratings correlated significantly with the movie totals for girls (see Table 13).

For girls, the multiple correlation between the independent variables and Emotion ID total was .69. The Beta weights were .52 for the teacher ratings, .38 for IQ, .09 for total siblings, and -.10 for age. The combined teacher rating score and IQ were the independent variables making a significant contribution to the multiple correlation.

For boys, the multiple correlation between the independent variables and Emotion ID total was .56. The Beta weights were .40 for age, .30 for IQ, -.08 for teacher ratings, and -.05 for total siblings. Age was the only independent variable making a significant contribution to

Table 13

Correlations between Movie Task Totals and Teacher Ratings for Girls and Boys

	Emotion ID Total		Cause ID Total		Combined Role-taking Score	
	Girls	Boys	Girls	Boys	Girls	Boys
Mood	.03	-.10	-.03	-.04	-.01	-.07
Leadership	.20	.35	.33	.31	.35	.36
Cruelty	-.13	-.06	.07	-.28	-.02	-.22
Friendliness	.02	.17	.21	.26	.17	.26
Sensitivity	.59*	-.20	.53*	.22	.71*	.07
Humor	.36	.08	.25	.25	.38	.21
Disposition to Help	.49*	.03	.49*	.18	.62*	.14

* $p < .05$

the multiple correlation.

For girls, the multiple correlation between the independent variables and Cause ID total was .68. The Beta weights were .43 for age, .28 for teacher ratings, .20 for IQ, and $-.09$ for total siblings. Age was the only independent variable making a significant contribution to the multiple correlation.

For boys, the multiple correlation between the independent variables and Cause ID total was .48. The Beta weights were .38 for total siblings, .29 for IQ, and .23 for teacher ratings. None of the independent variables made a significant contribution to the multiple correlation.

These multiple regression analyses indicated a pattern of results similar to that indicated by previously computed Pearson correlations. For example, Hypothesis 1a, that verbal intelligence is related to Emotion ID scores, was supported by significant results in both analyses for girls only. Hypothesis 2a, that children with more siblings perform better on tasks of causal attribution of emotion, was not supported in either analysis. Hypothesis 3, that performance on a test of causal attribution of emotion is positively related to role-taking skills as measured by teacher ratings, was supported by the significant Pearson correlations between these two variables for girls only. In the multiple regression analysis, however, the teacher ratings variable was not a significant predictor of Cause ID total because it also correlated highly with age, the only significant predictor of Cause ID total for girls. This finding illustrates the advantage of using multiple regression analyses. Such analyses allow the researcher to take into account correlations among the independent variables that cannot be con-

sidered when using only zero-order correlations between the dependent and independent variables.

Role Taking and Helping

Hypothesis 4, that emotion recognition and causal attribution of emotion skills are positively related to helping behavior, was tested using biserial correlations between movie totals and scores on the two helping tasks. The biserial correlations between helping the experimenter and totals on the movie task for both sexes are identified in Table 14. A consistent pattern was established for girls, with every correlation reaching significance. The highest correlation for girls among these variables was between total movie score and helping. There were no significant correlations between totals on the role-taking task and helping the experimenter for boys. There were also no significant relationships between helping the confederate and role-taking totals for either sex. Thus, Hypothesis 4 was partially supported for girls only.

Teacher Ratings and Helping

To explore the relationships between teacher ratings and actual helping behavior, biserial correlations between teacher ratings and helping on the two tasks were computed. The biserial correlations between teacher ratings and helping the experimenter are presented in Table 15. The correlation between disposition to help others and helping was the highest of the correlations for girls, but the same relationship was not significant for boys. Other highly significant positive correlations occurred for girls between helping and teacher rating of leadership, sensitivity to others, and sense of humor. In contrast, all of the correlations for boys between teacher ratings and helping

Table 14

Biserial Correlations between Helping the Experimenter and
Totals on the Movie Task for Girls and Boys

	Helping the Experimenter	
	Girls	Boys
Emotion ID Total	.70*	.00
Cause ID Total	.58*	.03
Combined Role-taking Score	.80*	.02

* $p < .05$

Table 15

Biserial Correlations between Teacher Ratings and
Helping the Experimenter for Girls and Boys

	Helping the Experimenter	
	Girls	Boys
Mood	.27	-.11
Leadership	.83*	-.27
Cruelty	.28	-.43
Friendliness	.32	-.39
Sensitivity	.84*	-.11
Humor	.85*	-.42
Disposition to Help Others	.99*	-.07

* $p < .05$

the experimenter were negative and none was significant.

The biserial correlations between helping the confederate and teacher ratings yielded only one significant relationship for girls ($r = -.60$, $p < .05$ for friendliness and helping the confederate) and one for boys ($r = .53$, $p < .05$ for disposition to help others and helping the confederate).

Predicting Helping Behavior

A multiple regression analysis was performed to summarize the combined effect of significant variables in predicting helping the experimenter for each sex. Independent variables entered into the equation included Emotion ID total, Cause ID total, the combined teacher ratings of sensitivity to others and disposition to help others, age, total siblings, and IQ.

For girls, the multiple correlation between the independent variables and helping the experimenter was .89. The Beta weights were .59 for teacher ratings, .26 for total siblings, .26 for IQ, .31 for age, -.10 for Cause ID total, and .02 for Emotion ID total. Teacher ratings, total siblings, IQ and age were the independent variables making a significant contribution to the multiple correlation.

For boys, the multiple correlation between the independent variables and helping the experimenter was .22. The Beta weights were -.18 for IQ, -.13 for teacher ratings, .12 for total siblings, and .07 for Emotion ID total. None of the independent variables made a significant contribution to the multiple correlation.

A multiple regression analysis was also performed to summarize the combined effect of significant variables in predicting helping the confederate for each sex. Independent variables entered into the equa-

tions were the same as those used in the equations predicting helping the experimenter.

For girls, the multiple correlation between the independent variables and helping the confederate was .75. The Beta weights were .43 for total siblings, -.56 for age, .43 for Cause ID total, .19 for IQ, -.26 for teacher ratings, and .22 for Emotion ID total. Total siblings, age, and Cause ID total were the independent variables making significant contributions to the multiple correlation.

For boys, the multiple correlation between the independent variables and helping the confederate was .50. The Beta weights were .44 for teacher ratings, .28 for IQ, .05 for Cause ID total, -.23 for age, .20 for Emotion ID total, and .09 for total siblings. None of the independent variables made a significant contribution to the multiple correlation.

The results of the regression analyses can be summarized in terms of the major hypotheses. For girls, Hypothesis 2b was strongly supported in that total siblings was a significant predictor of helping both the experimenter and the confederate. Hypothesis 1b was partially supported for girls because IQ was a significant predictor of helping the experimenter. Hypothesis 4 was also partially supported for girls in that Cause ID total was a significant predictor of helping the confederate.

For boys, the multiple regression analyses did not produce any significant predictors of helping either the experimenter or the confederate. Thus, these analyses did not yield results supporting any hypotheses.

To determine whether knowledge of role-taking skills (as assessed by the movie task) is a necessary prerequisite of helping, a Chi-square analysis was conducted. Scores on the movie task (high or low, using a

median split) were crossed with helping or not helping the experimenter and helping or not helping the confederate. These analyses were conducted separately for each sex.

The Chi-square was not significant for boys or girls using the helping the confederate task, probably because the task did not discriminate well (16 girls and 14 boys helped the confederate and only 4 girls and 6 boys did not). The helping the experimenter task also did not discriminate well among boys (15 helped, 5 did not) and did not yield a significant Chi-square.

For girls, using the helping the experimenter task, the Chi-square (Fisher's exact test for small samples) reached the .08 level of significance. This finding suggests a trend indicating that higher scores on the movie task were associated with helping. The contingency table illustrating this relationship appears in Table 16.

Table 16

Contingency Table Illustrating the Relationship between
Scores on the Movie Task and Helping
the Experimenter for Girls^a

	Did Not Help Experimenter	Helped Experimenter
Low Movie Total (57 and below)	7	4
High Movie Total (over 57)	2	7
Total	9	11

^a Fisher's Exact Test = .0799

DISCUSSION

Role Taking--Emotion ID

Overall, relatively high scores on the Emotion ID section of the movie task by subjects reflected awareness of the emotions displayed in the films. The mean score of 27.30 out of a possible 32 points for all subjects on all eight movie clips suggested that labeling emotions is a task most kindergarteners have mastered. Subjects' verbal labeling response to questioning about the emotions was so rapid and spontaneous that the pictures of faces (from Borke, 1971) initially planned for use in eliciting nonverbal indications of the correct emotion were not needed.

The order of difficulty of the emotion labeling items was consistent with Borke's (1971) findings, in that happy emotions were easiest to identify and fear emotions were most difficult. Borke found, however, that sad and angry emotions were often confused and suggested that these results may have occurred because the stories in her study dealing with anger and sadness were ambiguous and could have suggested either response. In the present research, sad emotions were identified correctly nearly as often as happy ones. The additional cues supplied in the movies could have eliminated the ambiguity Borke mentioned.

These results are also consistent with findings of Walton (1936), who suggested that children first tend to think solely along an unpleasant-pleasant dimension that expands and differentiates with age. The fact that sad responses were the most common incorrect responses for other negative emotions might also suggest such a pattern of development.

Role Taking--Cause ID

Scores on the Cause ID section of the movie task were also relatively high, with a mean Cause ID total for all subjects at 29.80 out of a possible 40 points. These high scores indicated that kindergarten children can understand and communicate the causes of emotions in other people, a finding that does not support some previous theory and research (e.g., Flapan, 1968; Piaget, 1959; Rothenberg, 1970; Selman, 1971b). The task used in the present research was simpler and more realistic than those in much previous research, so perhaps subjects were better able to communicate their understanding of emotions. These results also support the contention of Hoffman (1973), Murphy (1937), Borke (1971), and others who have suggested that observation of children as young as preschool age indicates that they are aware of others' feelings and actively trying to understand them, even though role-taking research with children has not demonstrated the existence of such abilities until the age of 7 or 8.

Relationships between the Role-taking Task and Other Variables

There were no significant sex differences on Emotion ID scores, Cause ID scores, or total movie score. This finding is consistent with those of Borke (1971), Gilbert (1968), Dydyk (1973), Hamsher (1971), and Rothenberg (1970), who also found no sex differences on different types

of role-taking measures. Dydyk (1973) suggested that recent trends in childrearing practices deemphasizing sex-role stereotypes (e.g., empathy and social sensitivity being important only for girls) may have contributed to a lack of sex differences in her findings. Results of the present research suggests the presence of sex differences underlying similar scores on the tasks, however. It seems possible that since the movie task constituted a knowledge component of role-taking skills rather than an action component, boys as well as girls had an incentive to do well. It is perhaps only in the action component of empathy expression that boys are not encouraged to use their social sensitivity skills as much as girls. That is, boys' behavior in social settings may be less likely to reflect their understanding of the situation from the other's point of view. Such a finding would be analogous to results of a study by Bandura (1965). He found that when girls were explicitly rewarded for aggressive behavior they displayed it as readily as boys. It was thus indicated that girls had knowledge of aggressive responses but were often inhibited from displaying them because of sex-role sanctions.

There were sex differences in the correlations between age and movie task totals. For girls, age was significantly and positively correlated with Cause ID total and total movie score. For boys, there was a significant positive correlation between age and Emotion ID total. Because the age range was small in the present study, it is difficult to draw conclusions from these findings. Within this age range, it may be that increasing age for boys leads to greater accuracy with emotion labeling as a function of learning verbal skills that girls develop somewhat earlier. Other researchers have found that different types of

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role-taking skills are consistently related to age for both sexes (e.g., Borke, 1971; Dydyk, 1973; Gilbert, 1972; Hamsher, 1971; Rothenberg, 1971).

IQ was significantly related to Emotion ID total for both girls and boys, but it was not significantly related to Cause ID total for either sex. These results partially supported Hypothesis 1a, which stated that cognitive intelligence should be moderately related to both Emotion ID scores and Cause ID scores. These results also indicate, in accordance with Hamsher (1971) and Dydyk (1973), that role-taking skills are dependent on more than general intelligence.

The failure to find any significant correlation between number of siblings and role-taking scores indicated no support for Hypothesis 2a, that children with more preschool exposure to people should perform better on tasks related to causal attribution of emotion.

Hypothesis 3 was only partially supported, in that teacher ratings of sensitivity to others and disposition to help others were positively related to role-taking task totals only for girls. In contrast, Rothenberg (1970) found significant correlations between her measures of social sensitivity (responses to tape-recorded stories) and teacher ratings of leadership, cruelty, sensitivity to others, and friendliness for boys, but no significant correlations among these measures for girls. Dydyk (1973) found significant correlations between social intelligence measures and teacher ratings of leadership, sensitivity to others, and sense of humor for all subjects. She found no sex differences. The discrepancies among these findings might be accounted for by the different types of measures used in the assessment of social sensitivity.

The regression equations using Emotion ID and Cause ID as depen-

dent variables for each sex also indicated that different independent variables were related to these totals for each sex. For girls, the two best predictors of Emotion ID total were the teacher rating sum and IQ. For boys, the one best predictor of Emotion ID total was age. Age was the best predictor of Cause ID total for girls, but no independent variable contributed significantly to the multiple correlation with Cause ID for boys. Taken together, these disparate findings for the two sexes suggest that even though boys' and girls' movie task means were not significantly different, ability to do well on this role-taking task was related to different subject variables for each sex.

Helping Tasks

The two measures of helping behavior in the present study--helping the experimenter and helping the confederate--were not significantly correlated with one another. Gergen, Gergen, and Meter (1972) suggested that, relative to altruism, different situations yield different kinds of rewards that attract different kinds of people. In the present study it is possible that characteristics of the situation that stimulated a subject to help the experimenter were not present in the other helping situation and vice versa. For example, the experimenter was an authority figure, the confederate a near peer; the subject was delayed from a pleasurable activity in helping the confederate but had nothing to do while the experimenter was out of the room. These and other characteristics of the two situations may have encouraged the differentiated responses that produced the low correlation between helping tasks.

Perhaps the most important factor that may have influenced the low correlation was the failure of the confederate helping task to differentiate substantially among subjects. The task was a modified version of the one used by Rubin and Schneider (1973) in which a 4-year-old child was the confederate. In the present research the confederate was 11 years old. Subjects may have assumed that someone older than they would never need help on the task and so were not attentive to the confederate's sighs and hints. It is also possible that attending to distress cues more subtle than a direct request was simply beyond the role-taking skills of these children. For example, Peterson et al. (1972) found that 7-year-olds responded to implicit requests for information, but 4-year-olds did not pick up on such cues. This conclusion appears unwarranted, however, because most subjects helped the experimenter without being directly asked to do so. Staub (1971) suggested that implicit rules of behavior may interfere with helping. Perhaps in the present study subjects followed the implicit rule that one should not interfere with another child's work when each child had a designated separate pile of tickets to complete.

There were no sex differences in altruism on the two tasks, a finding supportive of a conclusion drawn by Krebs (1970) in a survey of the altruism literature dealing with children.

Sex Differences Associated with Helping Behavior

There were many more relationships between the two measures of helping behavior and other variables in this study for girls than for boys. Total role-taking score and both component scores correlated significantly with helping the experimenter for girls, and Cause ID total was a significant predictor of helping the confederate. These

findings supported Hypothesis 4, that role-taking skills should be positively related to helping. Total number of siblings was also positively related to helping on both tasks for girls. This relationship supported Hypothesis 2b, that children with more preschool exposure to people should exhibit more helping behavior.

Variations already mentioned in the type of helping situations presented may account for differences in other variables related to the two tasks. For example, five teacher ratings were positively related to helping the experimenter, and only one was related to helping the confederate, and that in the negative direction. These results may have occurred because teachers may have been more sensitive to and therefore more accurate in their ratings of characteristics of children that influence helping adults than in their ratings of those influencing helping other children. Also, helping the experimenter was correlated with IQ for girls, although helping the confederate was not. Some of the differences in variables related to helping on both tasks are difficult to interpret because of the lack of variability in subject responses to the helping the confederate task.

Age was another variable differentially related to the two helping tasks for girls. It was a significant positive predictor of helping the experimenter and a significant negative predictor of helping the confederate. Krebs (1970) found that evidence for an increase in altruism with age was stronger in studies with children over age 8, though it was also apparent in some studies done with younger children. The present results may thus reflect the variability found in studies dealing with younger children. The difference may also result from different characteristics in the two tasks. The inconsistent negative correla-

tion between age and helping the confederate could have been caused by the age-related development of what Staub (1971) called implicit rules of behavior. The implicit rule in this case was that each child should not tamper with a pile of tickets specifically designated as the other child's by the authority figure. The older girls may have been more sensitive to the implicit rule.

The relationship between helping behavior and the other variables in the study is considerably more complex for boys than for girls. There were no significant relationships between scores on the movie role-taking task and either measure of helping. The correlation between the teacher rating of disposition to help others and helping the confederate was significant, but this relationship was not significant for helping the experimenter. There were no other significant relationships between teacher ratings and helping behavior, and, in contrast to the girls, the relationships were consistently negative.

The discrepancy in the relationship between teacher ratings and helping for the two sexes may have occurred because female teachers rated subjects of both sexes. Perhaps they were better able to identify with members of their own sex and therefore rated certain qualities more accurately in female subjects. Boys were not judged to be less helpful or less sensitive to others than girls, however. The only significantly different mean teacher rating between boys and girls was leadership. There is also a possibility that boys' behavior on the helping tasks was not governed by empathy or role-taking considerations. Thus, even if teachers were accurate in their ratings of boys' social sensitivity, these ratings would not necessarily relate to actual helping behavior. This idea will be elaborated more fully in the fol-

lowing section.

The confusing lack of relationships for boys between altruism and the other variables may have been influenced by the fact that both the confederate and the experimenter were female. If projection is an important component of role taking at this age (Selman, 1971b), girls may have had an advantage over boys in that it could have been easier for them to identify with the experimenter and the confederate. Having put themselves in the others' shoes, it may have been easy to see the need for assistance, and help may have been granted on this basis. Since identification may have been more difficult for boys, their help may have been offered on the basis of other considerations. This explanation is unlikely, however, since boys did not do more poorly on cross-sex movie clips in the role-taking task. Further research should be conducted exploring the different relationships that occur using helpers and helpees of both sexes.

Conclusions

Even though there were no significant differences between boys and girls in scores on the movie task or in amount of helping behavior, there were clear differences in relationships between these variables and others in the study for the two sexes. The data from the girls' responses followed patterns hypothesized for all subjects in this study. Scores on the movie task were significantly related to teacher ratings, and both role-taking measures were significantly related to at least one of the helping tasks. This pattern supported the assertion that role taking and helping behavior are related. It also indicates that causal attribution of emotion may be an important component of role-taking skill development.

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For boys, similar strong, consistent relationships were not found. Scores on the movie task were related to only one teacher rating, and there was no relationship between movie scores and helping, though there was a significant positive relationship between helping the confederate and one teacher rating of role-taking ability.

Some of the psychological literature on sex differences contains studies pertaining to differences underlying seemingly similar behaviors in the two sexes. For example, Bardwick (1971), in reviewing previous studies on aggression, suggested that intellectual competitiveness, a trait found in both sexes, probably evolves from quite different personalities in men and women. She stated that persons who vary from the typical standard for their sex may elect to use intellectual mastery for resolving the resulting conflict. She cited evidence that boys who were fearful of or not interested in boyhood physical competitions derived status from intellectual pursuits instead. She also noted that one study indicated that girls who were competitive, achievement-oriented, and interested in masculine pursuits turned to intellectual mastery to express themselves in a way that would not alienate others. Thus, similar abilities in the two sexes could have arisen from different developmental patterns.

Lynn (1962) suggested similar differences between the sexes and asserted that these differences arise because sex-role identification processes are different for the two sexes and lead to different learning processes by males and females. In Lynn's (1962) formulation, males tend to identify with a cultural stereotype of the masculine role because they usually have no specific model. Girls, on the other hand, identify with aspects of their own mother's role specifically. In the

process of adopting the appropriate sex role, boys must learn problem-solving skills such as defining the goal, restructuring the field, and abstracting principles. Girls need only learn the lesson as it is straight forwardly presented by the mother model. They need not abstract principles to define the feminine role. Lynn suggested that these different methods of learning for each sex are generalized to other situations and result in different overall orientations for men and women. Consequences of acquiring the lesson method of learning for girls include developing a greater need for affiliation, becoming dependent on context, and being receptive to the standards of others. Consequences of acquiring the problem-solving method of learning for boys include development of superior problem-solving skills, concern with internalized moral standards, and a lesser need for affiliation.

In the present research, boys and girls may have performed in the same ways for quite different reasons resulting from different concerns they are developing through sex-role identification and other socialization processes. Bardwick (1971) suggested that in preschool years boys develop a need to achieve independent of external sources of reinforcement. They become task-oriented and mastery is important. Though there is little research supporting this thesis (Stein & Bailey, 1973), conventional wisdom suggests that at this same age, girls' achievement needs are still related to a need for approval or affiliation. Perhaps male subjects in the present study helped the experimenter and the confederate because they perceived the situations as tasks to be mastered rather than because of interpersonal concerns. This might account for the lack of relationship between boys' helping and role-taking skills.

Girls, on the other hand, according to many theorists, develop

early interpersonal concerns and affiliation needs. In the present research, helping behavior for females was related to role-taking measures, indicating that understanding people's emotions may be an important part of getting along with others and helping them when they need it. These findings suggest that females are responding in a way that indicates that understanding emotions of others offers evidence as to what to do in interpersonal situations. The fact that there was a trend indicating that the knowledge component may be a necessary preliminary for action in girls strengthens this assertion.

SUMMARY

This study focused on the importance of causal attribution of emotion, or understanding the causes of emotions, as a component of affective role-taking skills and a determinant of helping. Emotion recognition and causal attribution of emotion were assessed using a series of movie clips in which boys and girls experienced happiness, sadness, fear, and anger. Two helping tasks tapped help given an adult, the experimenter, and help given another child, the experimenter's confederate. Teacher ratings of social sensitivity (Rothenberg, 1970) and a measure of verbal intelligence (Peabody Picture Vocabulary Test) were also employed.

It was predicted that the movie task role-taking measures would be related to teacher ratings of social sensitivity. It was also predicted that the role-taking measures would relate to the two helping measures. Cognitive intelligence was also predicted to relate positively but moderately to helping and to scores on the movie task.

The subjects were 40 middle- and lower-class children (20 boys and 20 girls) in two public school kindergarten classes in a small town in Michigan.

There were no significant sex differences in emotion recognition and causal attribution of emotion scores on the movie task or in amount of helping behavior. These findings were consistent with previous research. There were sex differences, however, in the relationships between these two variables and others in the study.

For girls, emotion recognition measures were significantly related to teacher ratings and to IQ. For boys, emotion recognition scores were related to age. For girls, causal attribution of emotion was positively related to age. No significant relationships between causal attribution of emotion and other variables in the study were found for boys.

For girls, helping behavior toward the experimenter was positively related to scores on both components of the movie task, as predicted. It was also related positively to total number of siblings, to the teacher rating sum, to IQ, and to age. Helping the confederate was related positively to the causal attribution of emotion task and to total siblings. It was related negatively to age.

For boys, there were no consistencies in variables related to helping on either helping task.

The sex differences in the relationships among variables in the study were discussed in terms of Lynn's (1962) model of sex-role identification. He suggested that boys may be more task-oriented and girls may be more affiliation-oriented as a result of different processes of sex-role identification. In the present research, boys and girls may have performed equally well on the tasks for quite different reasons resulting from different concerns they are developing through sex-role identification. Boys may have related to the research situations as tasks to be mastered. Girls may have approached them using related role-taking principles, as had been originally hypothesized for all subjects.

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APPENDIX A

APPENDIX A

TEACHER INFORMATION

Description of Rating Scales

Mood (cheerful-depressed)

This trait is characterized at the cheerful end by the child's being merry, good-natured, laughing, pleased, and at the depressed end by his being morose, gloomy, discontent, unhappy, sad. Consider the degree to which the child probably enjoys himself.

Leadership

The leader influences others; his directions or suggestions are accepted by his peers.

Cruelty

This trait implies a tendency for the individual to hurt, harm, torment, disturb others for the purposes of his own satisfaction. The child's behavior in this respect can be expressed in physical contact, verbalization, or in social fashion such as ignoring or excluding.

Friendliness-Social Apprehensiveness

Friendly child tends to seek out and react positively to other children or adults. Child's success in such contact is some criterion of friendship. Friendliness implies an adaptive response on the part of the child to advances of others. Social apprehensiveness or shyness is characterized by hesitancy, by fearful behavior in response to social situations.

Sensitivity to Others

Overall rating on child's tender behaviors and sensitiveness to other children's feelings, problems, and needs. Three aspects of the child's apparent thoughtfulness with his peers are relevant: 1) awareness of other children's feelings, needs, problems, etc.; 2) extent of his concern about them; and 3) the behavior manifestation of his awareness and concern.

Sense of Humor

Child is sensitive to the unusual, bizarre, or baroque; he laughs and smiles often. May kid others and can be kidded, sees self in ridiculous light sometimes.

Disposition to Help Others

This trait implies a tendency for the child to actively help other children in distress. The child picks up another after a fall and comforts him or tries to resolve a fight between two other children. The child with a high score on this dimension actively comes to the aid of others often.

Information Sheet

Child's name _____

Preschool Experience: Headstart _____ Nursery School _____ No. of Years _____

Number of Siblings: Sex _____ Age _____
Sex _____ Age _____
Sex _____ Age _____

Educational Status of Parents: Father _____ Mother _____

Both working _____ Father working _____ Mother working _____

RATING SCALES

1 2 3 4 5
low below ave. average above ave. high

MOOD (cheerful-
depressed)

LEADERSHIP

CRUELTY

FRIENDLINESS

SENSITIVITY TO
OTHERS

SENSE OF HUMOR

DISPOSITION TO
HELP OTHERS

APPENDIX B

APPENDIX B

MOVIE TASK

Descriptions of the Eight Movie Clips

Clip 1. Happy Boy. Louie and his older brother are standing on a corner. Louie's brother tells Louie that when he becomes wealthy from developing a business in radio he will buy Louie five horses. Louie breaks into a big smile.

from My Brother Talks to Horses

Clip 2. Sad Girl. A little girl comes up to Louie in the school yard and asks whether he's going to the stables. She offers to carry his books. Louie gives very half-hearted responses and wanders off. She cries after him, "Aren't you ever going to play with me?"

from My Brother Talks to Horses

Clip 3. Angry Boy. A man has come to the classroom to test a group of boys' ability at putting together a block puzzle. As one boy finishes first, another boy makes a face and shoves his blocks off the table.

from Children of the Damned

Clip 4. Afraid Girl. Wilma jumps up on the back of the truck where her cousin Chris is sitting. Chris appears nervous and asks Wilma to go get his dog some water. As she suggests that they bring the dog into the house, Chris's pet mountain lion jumps out from where Chris had hidden him in the truck. He growls and Wilma gives a small shriek of fear.

from Zebra in the Kitchen

Clip 5. Sad Boy. Chris runs to the car to greet his cousin and his uncle. His uncle mentions that the two families will soon be seeing more of each other. Chris turns suspiciously to his parents for an explanation. They tell him they are giving up the farm and moving to the city. He is visibly shaken.

from Zebra in the Kitchen

Clip 6. Afraid Boy. Chris is trapped by a huge fence in a vast room. He cries to be let out and grabs a big key to cut open the fence. Suddenly he wakes up in his own room shouting, "Let me out!" His parents

rush to his bedside. They ask if he's had a nightmare. He nods yes.
from Zebra in the Kitchen

Clip 7. Angry Girl. Clara talks with Heidi about living together. Heidi insists that she's going back to the grandfather's. The governess agrees with Heidi. This provokes Clara to shout at the governess insisting that she must wait until Clara's father returns for a decision.
from Heidi

Clip 8. Happy Girl. Heidi stands moodily at her window. The door opens and Clara is wheeled in by the butler. Clara gives the butler Heidi's battered bonnet and he gives it to Heidi telling her to cheer up. Heidi smiles as she takes it from him.
from Heidi

Emotion ID Questions and Scoring

After each movie segment the subject was asked, (1) "Can you tell me how that girl (or boy) feels?"

(If no answer) (2) Question repeated.

(If no answer) (3) "Do you have any idea?"

(If no answer) (4) "Go ahead and guess. Just try to tell me what you think."

(If no answer) (5) "Was he happy, sad, afraid, or angry?"

(If no answer) (6) "Can you point to the picture (Borke drawings) that shows how he/she feels?"

4 points. A score of four points was given a response that correctly answered any of the first four questions.

3 points. A score of three points was given a response that was correct after the experimenter had suggested the emotions happy, sad, angry, or afraid to choose from (5) or (6).

2 points. A score of two points was given a response that was incorrect but in the proper direction (for example, a response of bad or sad for a displayed emotion of angry or afraid).

1 point. One point was given any response that was incorrect and in the wrong direction (for example, a response of happy for a displayed emotion of afraid).

Cause ID Questions and Scoring

After the Emotion ID question for each movie, subjects were shown photographs of four possible causal agents from the movie. The experimenter said, "Here are pictures of some people and some things. Let's pretend each picture is on a little TV. Can you turn the knob on the TV that shows who/what made the child feel (emotion)?"

(If no answer) "Just point to the picture of what made him/her feel this way."

(If an answer) "How did (person or thing) make the child feel (emotion)?"

5 points. Five points were given to responses that contained the correct causal agent and the correct causal reasoning. For example, in Movie 8 such a response was, "The hat made her happy because the man brought it to her for a present." In Movie 7 such a response was, "The governess made her mad because she said she couldn't keep Heidi."

4 points. Responses that had the correct causal agent and the correct but incomplete causal reasoning were given four points. For example, in Movie 2 such a response was, "Louie made her sad because he wouldn't let her carry his books." In Movie 4 such a response was, "The lion scared her by jumping out." (Her attention was drawn to the animal by his growl.)

3 points. Three points were given responses that contained the incorrect agent and the correct reasoning. For example, in Movie 6 such a response was, "His parents frightened him because he had a bad dream." In Movie 4, "The dog frightened her. He jumped out and growled," was such a response.

2 points. A score of two points was given a "projection" response in which the causal agent was correct but the causal reasoning was not. For example, in Movie 5, such a response was, "The parents made him sad, they wouldn't let him go on a picnic," or in Movie 1 such a response was, "His brother made him happy. He touched him."

1 point. A score of one point was given an answer containing the incorrect causal agent and the incorrect causal reasoning. For example, in Movie 3 such a response was, "His teacher made him mad. She shouted at him," or in Movie 5 such a response was, "His cousin made him mad because she got in the car first."

APPENDIX C

APPENDIX C

HELPING TASKS

Instructions

After the subject was brought to the experimental room for the two helping tasks, the experimenter said, "Why don't you sit down here? I have to go get another person who will be with us today. I'll be right back." Then the experimenter left the room to get the confederate, knocking papers off the table near the subject.

After the experimenter returns: "Oh no! My papers fell" (if they are still on the floor), or, "Oh, thank you for picking up my papers!" (if subject has picked them up).

"(Name of subject), I would like you to meet Nancy. Now both of you should look at the toys in this room. I'd like you both to be able to play with them today after we finish some work."

Everyone sits at the table: "Do you see these tickets? We are going to sell them to people for a show we are putting on. We must put the tickets into small piles. Five tickets go in each pile. Here are some tickets for you, (subject), and some for you, Nancy. Before you play with the toys, take your tickets and put them in piles of five." Then put a rubber band around each pile and put it into this box. When you are finished with all of your tickets you may play with the toys. Do you understand what you are supposed to do?"

Nancy: "Now where do we put the piles when they're done?"

Experimenter: "In this box. Now let's do a practice pile."

After practice pile: "OK, why don't you each get started?"

After subject finished his pile of tickets, the experimenter said, "Oh, you've finished. Thank you. Now you may play with the toys."

Nancy: (sigh) scowls or frowns.

Nancy: (30 seconds later) "Boy, do I ever have a lot of tickets left to do..."

Nancy: (30 seconds later) "Do you think you could help me with these?"

Scoring

For the experimenter helping task, subjects were either assigned a 2 (picked up papers), or a 1 (did not pick up papers). All subjects who picked up any papers picked up all of them, so it was not necessary to use number of papers picked up as a variable.

For the confederate helping task there were originally five categories of responses. Because the overall helping rate was small, the actual responses were in the last three categories.

- 5 points. Helped after confederate's sigh.
- 4 points. Helped after confederate's hint.
- 3 points. Helped after confederate's request.
- 2 points. Attended to request but did not help.
- 1 point. Did not attend to request and did not help.

APPENDIX D

APPENDIX D

INTERCORRELATIONS AMONG ALL MOVIE TASK ITEMS AND TOTALS

	EM01	CAUS1	EM02	CAUS2	EM03	CAUS3	EM04	CAUS4
EM01	1.0000 (.40) S=0.001	0.0797 (.40) S=0.312	0.0700 (.40) S=0.334	-0.0350 (.40) S=0.415	-0.2533 (.40) S=0.057	-0.1469 (.40) S=0.183	0.1215 (.40) S=0.228	0.0383 (.40) S=0.407
CAUS1	0.0797 (.40) S=0.312	1.0000 (.40) S=0.001	0.4269 (.40) S=0.003	0.3708 (.40) S=0.009	-0.0544 (.40) S=0.370	0.0266 (.40) S=0.435	0.1897 (.40) S=0.121	-0.1534 (.40) S=0.172
EM02	0.0700 (.40) S=0.334	0.4269 (.40) S=0.003	1.0000 (.40) S=0.001	0.6479 (.40) S=0.001	-0.2849 (.40) S=0.037	0.2647 (.40) S=0.049	0.4071 (.40) S=0.005	0.1591 (.40) S=0.163
CAUS2	-0.0350 (.40) S=0.415	0.3708 (.40) S=0.009	0.6479 (.40) S=0.001	1.0000 (.40) S=0.001	-0.0934 (.40) S=0.283	0.4713 (.40) S=0.001	0.1706 (.40) S=0.146	0.0509 (.40) S=0.378
EM03	-0.2533 (.40) S=0.057	-0.0544 (.40) S=0.370	-0.2849 (.40) S=0.037	-0.0934 (.40) S=0.283	1.0000 (.40) S=0.001	0.0116 (.40) S=0.472	0.1175 (.40) S=0.235	-0.1557 (.40) S=0.169
CAUS3	-0.1469 (.40) S=0.183	0.0266 (.40) S=0.435	0.2647 (.40) S=0.049	0.4713 (.40) S=0.001	0.0116 (.40) S=0.472	1.0000 (.40) S=0.001	0.2237 (.40) S=0.083	0.1135 (.40) S=0.243
EM04	0.1215 (.40) S=0.228	0.1897 (.40) S=0.121	0.4071 (.40) S=0.005	0.1706 (.40) S=0.146	0.1175 (.40) S=0.235	0.2237 (.40) S=0.083	1.0000 (.40) S=0.001	0.1555 (.40) S=0.169
CAUS4	0.0383 (.40) S=0.407	-0.1534 (.40) S=0.172	0.1591 (.40) S=0.163	0.0509 (.40) S=0.378	-0.1557 (.40) S=0.169	0.1135 (.40) S=0.243	0.1555 (.40) S=0.169	1.0000 (.40) S=0.001
EM05	0.1642 (.40) S=0.150	0.1578 (.40) S=0.165	0.3411 (.40) S=0.006	0.1326 (.40) S=0.207	-0.2034 (.40) S=0.104	-0.0918 (.40) S=0.287	0.4062 (.40) S=0.005	0.0780 (.40) S=0.316
CAUS5	0.2734 (.40) S=0.064	0.4587 (.40) S=0.001	0.1349 (.40) S=0.195	0.0032 (.40) S=0.492	-0.0269 (.40) S=0.435	0.0262 (.40) S=0.436	0.3688 (.40) S=0.010	0.1081 (.40) S=0.253
EM06	0.2625 (.40) S=0.051	0.1166 (.40) S=0.237	0.1651 (.40) S=0.125	0.1807 (.40) S=0.132	0.2686 (.40) S=0.047	0.1879 (.40) S=0.123	0.4512 (.40) S=0.002	0.1117 (.40) S=0.246
CAUS6	0.0072 (.40) S=0.492	0.1640 (.40) S=0.156	0.0713 (.40) S=0.331	0.0776 (.40) S=0.317	0.1832 (.40) S=0.124	-0.0116 (.40) S=0.472	-0.1162 (.40) S=0.238	0.1375 (.40) S=0.208
EM07	-0.0499 (.40) S=0.380	0.0014 (.40) S=0.497	-0.2573 (.40) S=0.055	-0.1500 (.40) S=0.178	0.3120 (.40) S=0.025	0.0686 (.40) S=0.337	-0.0384 (.40) S=0.407	0.1416 (.40) S=0.192
CAUS7	-0.2444 (.40) S=0.044	0.0138 (.40) S=0.486	-0.2664 (.40) S=0.037	0.0577 (.40) S=0.352	0.2443 (.40) S=0.064	0.1362 (.40) S=0.201	-0.1374 (.40) S=0.199	-0.0602 (.40) S=0.356
EM08	0.0000 (.40) S=0.000	0.0000 (.40) S=0.000	0.0000 (.40) S=0.000	0.0000 (.40) S=0.000	0.0000 (.40) S=0.000	0.0000 (.40) S=0.000	0.0000 (.40) S=0.000	0.0000 (.40) S=0.000
CAUS8	-0.0032 (.40) S=0.492	0.1522 (.40) S=0.174	0.0859 (.40) S=0.299	0.0145 (.40) S=0.465	0.1187 (.40) S=0.233	0.0221 (.40) S=0.446	-0.0552 (.40) S=0.368	-0.0253 (.40) S=0.438
HAPPY	0.4751 (.40) S=0.001	0.7678 (.40) S=0.001	0.7534 (.40) S=0.013	0.2346 (.40) S=0.071	-0.0846 (.40) S=0.302	-0.0339 (.40) S=0.418	0.1642 (.40) S=0.179	-0.0473 (.40) S=0.275
SAD	0.1994 (.40) S=0.110	0.5841 (.40) S=0.001	0.7768 (.40) S=0.001	0.6595 (.40) S=0.001	-0.1912 (.40) S=0.119	0.2720 (.40) S=0.045	0.4975 (.40) S=0.001	0.1521 (.40) S=0.174
ANGRY	-0.2902 (.40) S=0.075	0.0048 (.40) S=0.484	-0.1476 (.40) S=0.182	0.2197 (.40) S=0.087	0.5226 (.40) S=0.001	0.6485 (.40) S=0.001	0.0873 (.40) S=0.296	0.0272 (.40) S=0.434
AFRAID	0.1624 (.40) S=0.150	0.1473 (.40) S=0.182	0.7487 (.40) S=0.014	0.2000 (.40) S=0.108	0.1769 (.40) S=0.137	0.2054 (.40) S=0.102	0.6050 (.40) S=0.001	0.5897 (.40) S=0.001
EM0TOTAL	0.1067 (.40) S=0.007	0.2618 (.40) S=0.001	0.4712 (.40) S=0.003	0.2504 (.40) S=0.004	0.1154 (.40) S=0.024	0.1711 (.40) S=0.143	0.7301 (.40) S=0.001	0.1510 (.40) S=0.176
CAUSTOTAL	-0.0144 (.40) S=0.465	0.5551 (.40) S=0.001	0.4100 (.40) S=0.004	0.5492 (.40) S=0.001	0.0761 (.40) S=0.370	0.5395 (.40) S=0.001	0.2371 (.40) S=0.070	0.2650 (.40) S=0.049
TOTAL	0.1496 (.40) S=0.148	0.5509 (.40) S=0.001	0.4201 (.40) S=0.001	0.5161 (.40) S=0.001	0.2010 (.40) S=0.106	0.4694 (.40) S=0.001	0.5148 (.40) S=0.001	0.2613 (.40) S=0.052

	EM05	CAUS5	EM06	CAUS6	EM07	CAUS7	EM08
EM01	0.1642 (.40) S=0.156	0.2738 (.40) S=0.044	0.2625 (.40) C=0.051	0.0032 (.40) S=0.472	-0.0499 (.40) S=0.380	-0.2444 (.40) S=0.064	99.0000 (.40) S=*****
CAUS1	0.1578 (.40) S=0.165	0.4587 (.40) S=0.001	0.1144 (.40) C=0.237	0.1640 (.40) S=0.156	0.0014 (.40) S=0.497	0.0138 (.40) S=0.460	99.0000 (.40) S=*****
EM02	0.3911 (.40) S=0.006	0.1399 (.40) S=0.195	0.1861 (.40) C=0.125	0.0713 (.40) S=0.331	-0.2573 (.40) S=0.055	-0.2664 (.40) S=0.037	99.0000 (.40) S=*****
CAUS2	0.1326 (.40) S=0.207	0.0032 (.40) S=0.492	0.1807 (.40) C=0.172	0.0776 (.40) S=0.317	-0.1500 (.40) S=0.178	0.0577 (.40) S=0.362	99.0000 (.40) S=*****
EM03	-0.2034 (.40) S=0.104	-0.0269 (.40) S=0.435	0.2486 (.40) C=0.047	0.1832 (.40) S=0.129	0.3120 (.40) S=0.025	0.2443 (.40) S=0.064	99.0000 (.40) S=*****
CAUS3	-0.0918 (.40) S=0.287	0.0262 (.40) S=0.436	0.1879 (.40) C=0.123	-0.0114 (.40) S=0.472	0.0686 (.40) S=0.337	0.1362 (.40) S=0.201	99.0000 (.40) S=*****
EM04	0.4062 (.40) S=0.005	0.3688 (.40) S=0.010	0.4512 (.40) C=0.002	-0.1162 (.40) S=0.238	-0.0384 (.40) S=0.407	-0.1374 (.40) S=0.199	99.0000 (.40) S=*****
CAUS4	0.0780 (.40) S=0.316	0.1081 (.40) S=0.253	0.1117 (.40) C=0.247	0.1325 (.40) S=0.208	0.1416 (.40) S=0.192	-0.0602 (.40) S=0.356	99.0000 (.40) S=*****
EM05	1.0000 (.0) S=0.001	0.2123 (.40) S=0.094	0.1754 (.40) C=0.140	-0.2562 (.40) S=0.054	-0.1834 (.40) S=0.128	-0.0487 (.40) S=0.383	99.0000 (.40) S=*****
CAUS5	0.2123 (.40) S=0.094	1.0000 (.0) S=0.001	0.2652 (.40) C=0.049	0.0949 (.40) S=0.279	0.1181 (.40) S=0.234	-0.1238 (.40) S=0.223	99.0000 (.40) S=*****
EM06	0.1754 (.40) S=0.140	0.2652 (.40) S=0.049	1.0000 (.0) C=0.001	0.0197 (.40) S=0.452	0.3973 (.40) S=0.006	0.1819 (.40) S=0.131	99.0000 (.40) S=*****
CAUS6	-0.2582 (.40) S=0.054	0.0999 (.40) S=0.270	0.0197 (.40) C=0.452	1.0000 (.0) S=0.001	0.2248 (.40) S=0.082	-0.2184 (.40) S=0.086	99.0000 (.40) S=*****
EM07	-0.1837 (.40) S=0.128	0.1181 (.40) S=0.234	0.3973 (.40) C=0.006	0.2248 (.40) S=0.082	1.0000 (.0) S=0.001	0.2350 (.40) S=0.072	99.0000 (.40) S=*****
CAUS7	-0.0487 (.40) S=0.383	-0.1238 (.40) S=0.223	0.1819 (.40) C=0.131	-0.2184 (.40) S=0.084	0.2350 (.40) S=0.072	1.0000 (.0) S=0.001	99.0000 (.40) S=*****
EM08	99.0000 (.40) S=*****	99.0000 (.40) S=*****	99.0000 (.40) C=*****	99.0000 (.40) S=*****	99.0000 (.40) S=*****	99.0000 (.40) S=*****	1.0000 (.0) S=0.001
CAUS8	-0.0695 (.40) S=0.335	0.2749 (.40) S=0.043	0.1182 (.40) C=0.234	0.2145 (.40) S=0.092	0.2453 (.40) S=0.064	-0.0074 (.40) S=0.482	99.0000 (.40) S=*****
HAPPY	0.1393 (.40) S=0.196	0.5541 (.40) S=0.001	0.2465 (.40) C=0.063	0.2153 (.40) S=0.041	0.1008 (.40) S=0.268	-0.0982 (.40) S=0.273	99.0000 (.40) S=*****
SAD	0.5051 (.40) S=0.001	0.6586 (.40) S=0.001	0.3194 (.40) C=0.072	0.0604 (.40) S=0.354	-0.1174 (.40) S=0.235	-0.1578 (.40) S=0.165	99.0000 (.40) S=*****
ANGRY	-0.1903 (.40) S=0.120	-0.0179 (.40) S=0.456	0.3878 (.40) C=0.007	0.0129 (.40) S=0.469	0.5308 (.40) S=0.001	0.6871 (.40) S=0.001	99.0000 (.40) S=*****
AFRAID	0.1387 (.40) S=0.197	0.3529 (.40) S=0.013	0.6032 (.40) C=0.001	0.5327 (.40) S=0.001	0.2962 (.40) S=0.032	-0.1374 (.40) S=0.199	99.0000 (.40) S=*****
EM0T0TL	0.4139 (.40) S=0.004	0.3943 (.40) S=0.006	0.8027 (.40) C=0.001	0.0622 (.40) S=0.352	0.3511 (.40) S=0.013	-0.0268 (.40) S=0.435	99.0000 (.40) S=*****
CAUST0TI	0.0245 (.40) S=0.438	0.5415 (.40) S=0.001	0.3350 (.40) C=0.017	0.3631 (.40) S=0.007	0.2495 (.40) S=0.060	0.2490 (.40) S=0.061	99.0000 (.40) S=*****
TOTAL	0.2113 (.40) S=0.095	0.5739 (.40) S=0.001	0.4155 (.40) C=0.001	0.3049 (.40) S=0.028	0.3434 (.40) S=0.015	0.1649 (.40) S=0.152	99.0000 (.40) S=*****

	CAUSM	HAPPY	SAD	ANGRY	AFRAID	EMOITL	CAUSTOTL	TOTAL
EM01	-0.0032 (.40) S=0.492	0.4751 (.40) S=0.001	0.1984 (.40) S=0.110	-0.2902 (.40) S=0.035	0.1624 (.40) S=0.158	0.3842 (.40) S=0.007	-0.0144 (.40) S=0.465	0.1696 (.40) S=0.148
CAUS1	0.1527 (.40) S=0.174	0.7678 (.40) S=0.001	0.5841 (.40) S=0.001	0.0048 (.40) S=0.488	0.1473 (.40) S=0.182	0.2618 (.40) S=0.051	0.5453 (.40) S=0.001	0.5409 (.40) S=0.001
EM02	0.0859 (.40) S=0.299	0.3534 (.40) S=0.013	0.7768 (.40) S=0.001	-0.1476 (.40) S=0.182	0.3487 (.40) S=0.014	0.4212 (.40) S=0.003	0.4080 (.40) S=0.004	0.4903 (.40) S=0.001
CAUS2	0.0145 (.40) S=0.465	0.2366 (.40) S=0.071	0.6595 (.40) S=0.001	0.2197 (.40) S=0.087	0.2000 (.40) S=0.108	0.2584 (.40) S=0.044	0.5442 (.40) S=0.001	0.5161 (.40) S=0.001
EM03	0.1187 (.40) S=0.233	-0.0846 (.40) S=0.302	-0.1912 (.40) S=0.119	0.5226 (.40) S=0.001	0.1769 (.40) S=0.137	0.3154 (.40) S=0.024	0.0761 (.40) S=0.320	0.2018 (.40) S=0.106
CAUS3	0.0221 (.40) S=0.446	-0.0339 (.40) S=0.418	0.2720 (.40) S=0.045	0.6485 (.40) S=0.001	0.2054 (.40) S=0.102	0.1731 (.40) S=0.143	0.5395 (.40) S=0.001	0.4694 (.40) S=0.001
EM04	-0.0552 (.40) S=0.368	0.1492 (.40) S=0.179	0.4975 (.40) S=0.001	0.0873 (.40) S=0.296	0.6050 (.40) S=0.001	0.7381 (.40) S=0.001	0.2371 (.40) S=0.070	0.5148 (.40) S=0.001
CAUS4	-0.0253 (.40) S=0.438	-0.0973 (.40) S=0.275	0.1521 (.40) S=0.174	0.0272 (.40) S=0.434	0.5897 (.40) S=0.001	0.1510 (.40) S=0.176	0.2450 (.40) S=0.049	0.2613 (.40) S=0.052
EM05	-0.0695 (.40) S=0.335	0.1393 (.40) S=0.196	0.5051 (.40) S=0.001	-0.1903 (.40) S=0.120	0.1387 (.40) S=0.197	0.4139 (.40) S=0.004	0.0255 (.40) S=0.438	0.2113 (.40) S=0.045
CAUS5	0.2749 (.40) S=0.043	0.5541 (.40) S=0.001	0.6586 (.40) S=0.001	-0.0179 (.40) S=0.456	0.3529 (.40) S=0.013	0.3443 (.40) S=0.006	0.5415 (.40) S=0.001	0.5739 (.40) S=0.001
EM06	0.1182 (.40) S=0.234	0.2465 (.40) S=0.063	0.3199 (.40) S=0.022	0.3878 (.40) S=0.007	0.6032 (.40) S=0.001	0.4027 (.40) S=0.001	0.3350 (.40) S=0.017	0.6144 (.40) S=0.001
CAUS6	0.2145 (.40) S=0.092	0.2151 (.40) S=0.091	0.0609 (.40) S=0.354	0.0129 (.40) S=0.469	0.5327 (.40) S=0.001	0.0422 (.40) S=0.142	0.3831 (.40) S=0.007	0.7049 (.40) S=0.028
EM07	0.2453 (.40) S=0.064	0.1008 (.40) S=0.268	-0.1174 (.40) S=0.235	0.5308 (.40) S=0.001	0.2962 (.40) S=0.032	0.3511 (.40) S=0.013	0.2495 (.40) S=0.060	0.7314 (.40) S=0.015
CAUS7	-0.0074 (.40) S=0.482	-0.0982 (.40) S=0.273	-0.1578 (.40) S=0.165	0.6871 (.40) S=0.001	-0.1374 (.40) S=0.199	-0.0268 (.40) S=0.435	0.2490 (.40) S=0.061	0.1669 (.40) S=0.152
EM08	99.0000 (.40) S=0.000	99.0000 (.40) S=0.000	99.0000 (.40) S=0.000	99.0000 (.40) S=0.000	99.0000 (.40) S=0.000	99.0000 (.40) S=0.000	99.0000 (.40) S=0.000	99.0000 (.40) S=0.000
CAUS8	1.0000 (.40) S=0.001	0.5427 (.40) S=0.001	0.1778 (.40) S=0.136	0.1160 (.40) S=0.238	0.1180 (.40) S=0.234	0.1311 (.40) S=0.210	0.4304 (.40) S=0.003	0.3711 (.40) S=0.009
HAPPY	0.5427 (.40) S=0.001	1.0000 (.40) S=0.001	0.5568 (.40) S=0.001	-0.0627 (.40) S=0.350	0.2242 (.40) S=0.082	0.4010 (.40) S=0.005	0.5486 (.40) S=0.001	0.6181 (.40) S=0.001
SAD	0.1778 (.40) S=0.136	0.5568 (.40) S=0.001	1.0000 (.40) S=0.001	-0.0142 (.40) S=0.465	0.4269 (.40) S=0.003	0.5424 (.40) S=0.001	0.6675 (.40) S=0.001	0.7383 (.40) S=0.001
ANGRY	0.1160 (.40) S=0.238	-0.0627 (.40) S=0.350	-0.0142 (.40) S=0.465	1.0000 (.40) S=0.001	0.1909 (.40) S=0.119	0.2834 (.40) S=0.036	0.5143 (.40) S=0.001	0.5026 (.40) S=0.001
AFRAID	0.1180 (.40) S=0.234	0.2242 (.40) S=0.082	0.4269 (.40) S=0.003	0.1909 (.40) S=0.119	1.0000 (.40) S=0.001	0.7013 (.40) S=0.001	0.5311 (.40) S=0.001	0.7095 (.40) S=0.001
EMOITL	0.1311 (.40) S=0.210	0.4010 (.40) S=0.005	0.5424 (.40) S=0.001	0.2834 (.40) S=0.036	0.7013 (.40) S=0.001	1.0000 (.40) S=0.001	0.3427 (.40) S=0.006	0.7490 (.40) S=0.001
CAUSTOTL	0.4304 (.40) S=0.001	0.5486 (.40) S=0.001	0.6675 (.40) S=0.001	0.5143 (.40) S=0.001	0.5311 (.40) S=0.001	0.3927 (.40) S=0.006	1.0000 (.40) S=0.001	0.9035 (.40) S=0.001
TOTAL	0.3711 (.40) S=0.009	0.6181 (.40) S=0.001	0.7383 (.40) S=0.001	0.5026 (.40) S=0.001	0.7095 (.40) S=0.001	0.7490 (.40) S=0.001	0.9035 (.40) S=0.001	1.0000 (.40) S=0.001

APPROVAL SHEET

The dissertation submitted by Susan K. Green has been read and approved by the following committee:

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The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval by the Committee with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

May 18, 1975
Date

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