

**Differences in Emotional Expression Knowledge, Emotional
Situation Knowledge, and Emotional Role-Taking
as a Function of Birth Order**

by

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Dedication

I would like to dedicate this effort to two people who have had an immeasurable impact on my life and this project.

First is my father, John Charles Huber Sr., who has been a tremendous role-model for me through the years. In an age where many young men don't know who or where their fathers are, I count myself truly blessed to have the benefit of his wisdom, experience, support, and love.

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ABSTRACT

**DIFFERENCES IN EMOTIONAL EXPRESSION KNOWLEDGE, EMOTION
SITUATION KNOWLEDGE, EMOTIONAL ROLE-TAKING
AS A FUNCTION OF BIRTH ORDER**

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This study examined the relation between birth order and the development of three types of emotional knowledge. Participants included preschool children with younger siblings, preschool children with older siblings, and only children. These three groups of children were compared with regard to scores on three tests of emotional knowledge: emotional expression knowledge, emotional situation knowledge, and emotional role-taking ability. It was hypothesized that preschoolers with siblings (younger or older) would perform better on measures of emotional expression knowledge and emotional situation knowledge than preschoolers who were only children. It was further hypothesized that preschoolers with an older sibling would perform better on measures of emotional role-taking than

children with a younger sibling and only children. The results showed that for knowledge of happy and sad situations, girls with older siblings performed better than girls with younger siblings or girls who were only children lending partial support to the hypotheses.

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**Differences in Emotional Expression Knowledge, Emotional
Situation Knowledge, and Emotional Role-Taking
as a Function Of Birth Order**

Development during the preschool years is influenced by children's relations with parents, peers, and siblings. Although, these three relationships serve different developmental functions and provide children with unique developmental experiences, the role that siblings play in influencing young children's development is receiving particular attention in the literature.

According to Brown and Dunn (1992), sibling relationships differ from parent-child relationships in a number of ways. Siblings spend a large amount of time together which makes them very familiar with each other and their sources of pleasure, joy, excitement, and fear are quite similar. In addition, sibling interactions do not have the same authority component that is present in parent-child interactions and this similar status may lead to more emotionally intense interactions. Sibling relationships also differ from peer relations in two important ways. First, children choose their friends but cannot choose their siblings. Second, children's interactions with siblings involve a greater range and intensity of emotions than those typically observed in the peer environment, ranging from

very affectionate to extremely aggressive (Dunn & McGuire, 1992).

Within the context of sibling relations, each sibling may develop differently depending on their order of birth. For example, older siblings tend to be dominant, independent, self-reliant, seek more attention from adults and are more achievement and leadership oriented than later borns (see Furman, 1995 for a review). In addition, first born children initiate interactions with parents more often and are more influenced by their parents than younger siblings (Baskett, 1984). There is also evidence that birth order influences the quality of parenting. Mothers spend more time handling, smiling at, talking to, and taking care of their first newborns than with their later newborns (Lewis & Kreitzberg, 1979). Research also shows that firstborns receive more verbal guidance, more detailed instructions and more verbal responses from their parents than later-borns (Lewis & Kreitzberg, 1979).

Other research has shown that adults have different expectations about only children and children with siblings. For example, parents expect older versus younger children to be more extraverted, stronger leaders, more secure, self-reliant, disciplined and responsible (Baskett, 1985). As a result, parents are more restrictive, directive, inconsistent, intrusive, and less tolerant with their first born children than with later born children (Furman, 1995).

Parents also expect older siblings to be less popular, less social, and more self-centered than children with siblings. At the same time, parents expect that firstborns will be more secure, obedient, and academically successful than their younger counterparts (Baskett, 1985). Despite these parental expectations, researchers have reported that only children are not liked less by their peers and do not display more negative behaviors than children with siblings (Falbo, 1984).

Distinct behavioral characteristics for younger and older sibling interactions have also been demonstrated. For example, older siblings are more likely to vocalize and offer toys to younger siblings than the reverse (Brody, Stoneman, MacKinnon, & MacKinnon, 1985; Lamb, 1978). In addition, younger children closely monitor and imitate their older siblings (Abramovitch, Corter, & Lando, 1979; Brody, Stoneman, MacKinnon, & MacKinnon, 1985), especially during play activities (Teti, Bond, & Gibbs, 1986). In fact, first born children are salient models of behavior for younger siblings (Abramovitch, Corter, & Lando, 1979; Teti, Bond, & Gibbs, 1986; Wishart, 1986).

Because of the high level of emotional intensity among siblings during social interactions, there is increasing recognition that the sibling relationship may provide an important context for learning about emotions (Dunn, Brown, Slomkowski, Tesla, & Youngblade, 1991; Howe, 1991).

Unfortunately, few researchers have examined the question or whether birth order is related to children's knowledge of emotions. In fact, although there is increasing interest in this important area of development, very little is known about preschoolers' general understanding of emotions (Dunn, Brown, & Beardsall, 1991). This is unfortunate because children's understanding of emotions and the situations that elicit them are believed to have a significant impact on children's ability to interact with others. For example, emotional knowledge is predictive of preschool children's peer and sibling competence (Cassidy & Asher, 1992; Denham, McKinley, Couchoud, & Holt, 1990; Garner, Jones, & Miner, 1994; Garner, Jones, & Palmer, 1994) and the quality of their pretend play (Youngblade & Dunn, 1995). Investigating children's knowledge of emotions may also help us to better understand why some children have difficulty controlling their social and emotional behavior during emotionally charged situations (see Garner & Power, in press). It has recently been suggested that a deficiency in emotional understanding may be at the root of many mental disorders such as clinical depression and attention deficit disorder (National Advisory Mental Health Counsel, 1995). A related issue is that investigating young children's knowledge of emotions may ultimately result in intervention programs that are specifically designed to teach children emotional skills.

Purpose of the Study

The purpose of the present study was to examine whether there is a relation between birth order and preschoolers' understanding of emotion. Three groups of children were of interest: children with younger siblings, children with older siblings, and only children. These children were compared on three types of emotional knowledge: emotional expression knowledge, emotional situation knowledge, and emotional role-taking ability. Emotional expression knowledge refers to the child's ability to recognize and label facial displays of emotions. Although the ability to recognize and label emotions is believed to be important for young children's social competence, few researchers have considered the impact of the specific skill on children's social functioning. However, a few studies have shown a relation between emotional expression knowledge and preschool children's peer acceptance (e.g., Walden & Field, 1990). Emotional situation knowledge indicates an understanding of the normative reactions to emotionally charged events. Researchers have found that preschoolers' likability ratings are positively associated with emotional situation knowledge (Denham et al., 1990). For low-income preschoolers, a positive relation between emotional situation knowledge and prosocial behavior among siblings has been found (Garner, Jones, & Miner, 1994). Others have failed to document a positive relation between emotional

situation knowledge and prosocial behavior (Eisenberg & Lennon, 1980). Emotional role-taking, sometimes referred to as affective perspective-taking, is the understanding that the feelings of others can be incongruent with the normative emotional reaction to a situation. Studies by Iannotti (1985) and Denham (1986) have found a relation between aggregate measures of prosocial behavior and composite measures of emotional situation knowledge and emotional role-taking. Speculation continues that emotional role-taking may be related to specific developmental tasks such as adapting to new situations, learning new material, responding adaptively in stressful or ambiguous situations, communicating effectively, and empathetic behavior (Barnett & Thompson, 1984), and social understanding (Dunn, Brown, Slomkowski, Tesla, & Youngblade, 1991). However, it is important to note that there is still little empirical evidence to support these claims. A detailed discussion of what is known about each of the three types of emotional knowledge is provided below.

Review of the Literature

Emotional Expression Knowledge

There is evidence that the ability to recognize emotions may begin developing at a very young age. For example, Young-Browne, Rosenfeld, and Horowitz (1977) examined the ability of infants to discriminate between happy, sad, and surprised facial expressions. Using a control habituation-recovery method, they found that 3-month-old infants were able to discriminate surprise from happy and sometimes from sad expressions. In his book Children and Emotion, Harris (1989) cites a study by Walker-Andrews (1986) as evidence that infants as young as 7 months old may be able to discriminate between happy and angry facial expressions. In that study, the infants were shown two films simultaneously, one of an angry face and the other of a happy face, while one of two vocal soundtracks accompanied the films. If the voice in the soundtrack was happy, the infants tended to look at the film of the happy face. The same was true of the angry soundtrack and the angry face. However, Harris (1989) notes that this study does not yield any insight into the meanings that the infants perceive because the infants are merely discriminating between the stimuli.

There is stronger evidence that children as young as 2

years of age show the ability to sort photographs of faces into categories of emotion (e.g., happy, sad, etc.; Bullock & Russell, 1984). Similarly, Smiley and Huttenlocher (1989) found that most children between 30 and 36 months of age are able to discriminate happy facial expressions from sad, mad, surprise and afraid facial expressions in a movie. Between 36-42 months of age, most children can differentiate happy, mad, and afraid from sad and surprise faces and somewhere between 42 and 48 months of age, most children can discriminate between all five facial expressions.

While children may be able to recognize and differentiate between emotions as early as 3 months old, the ability to label emotions seems to develop somewhat later. It is common for preschoolers to make more errors identifying emotions when they are asked to give a label for an emotion than when they are asked to recognize (i.e., point to) an emotion (Michalson & Lewis, 1985). Smiley and Huttenlocher (1989) have documented that few children can use the words happy, afraid, mad, and sad before 26 months of age. However, Dunn, Bretherton, and Munn (1987), in their home observations of 18-24-month-old preschoolers, found that 24 month old preschoolers are able to discuss a variety of feeling states with their siblings including sleep/fatigue, distress, pain, pleasure, temperature, and dislike.

There is evidence that preschoolers seem to be able to

recognize and label some emotions earlier and with greater accuracy than others. For instance, Field and Walden (1982) instructed 3- to 5-year-old children to make a variety of faces while being videotaped. When the children were asked to view the videotapes and label the faces they made, it was found that the children were better able to identify a happy face than an afraid or angry face. In a second study, Walden and Field (1982) found the happy face to be most easily identified even when facial drawings rather than videotapes are used. In a more recent study, Michalson and Lewis (1985) reported that happy and sad are typically the first emotion words learned by children.

In their review of the literature, Gross and Ballif (1991) concluded that there are four themes consistently found in studies of preschoolers' knowledge of emotions. They suggest that (a) the abilities of children to recognize, discriminate, and label emotional expressions improve with age; (b), children of all ages are better able to recognize, discriminate, and label certain emotions than others; (c) most preschoolers can accurately label an emotion as positive or negative (although they often confuse negative and neutral emotions) and; (d), gender does not seem to be a major factor in influencing children's ability to recognize, discriminate, and label emotions.

Emotional Situation Knowledge

Once children develop a simple understanding of basic

emotion concepts, they begin to apply these concepts to a variety of situations. That is, in addition to recognizing and labeling emotions, many preschoolers are able to discuss reasons for the emotions. For example, by 24 months of age, children appear to understand what behaviors will elicit negative emotions in their siblings (Dunn & Munn, 1985). Harris (1985) has also concluded that children begin to discuss the connections between situations and emotions between 2 and 3 years of age and that children are able to identify the positive-negative dimension of situations accurately between 3 and 4 years of age. Children as young as 4 years of age show a consensus when individually labeling situations that elicit happiness, sadness, anger, and fear (Barden, Zelko, Duncan, & Masters, 1980). When provided only expressive cues, only contextual cues, and expressive and contextual cues, childrens' responses are more accurate when contextual cues versus expressive cues are available. As with emotional expression knowledge, preschoolers seem to be more accurate at identifying happy situations than any other emotion eliciting event and emotional situation knowledge increases with age (Light, 1979; Denham & Couchoud, 1990; Gross & Ballif, 1991).

Emotional Role-Taking

Once children begin to understand the connections between situations and emotions, they can use this knowledge to understand the perspectives of other people in different

emotional situations. Borke (1971, 1973) was among the first to study the development of emotional role-taking ability in young children. She measured this skill by reading short stories to the children and asking them to complete a drawing of a face showing how the story character felt (happy, sad, afraid, and angry). Borke's findings indicate that even 3-year-olds have some ability to identify others' emotional states.

Chandler and Greenspan (1972) have criticized Borke's methodology asserting that it is not a valid measure of role-taking ability. They assert that the Borke methodology encourages children to project themselves into the story and to give a stereotyped response. In fact, further study of the Borke task suggest that it may actually be a measure of emotional situation knowledge.

Using three of Borke's (1971) picture story techniques and two original techniques, Urberg and Docherty (1976) found that emotional role-taking develops with age. Mossler, Marvin, and Greenberg (1976) were also able to demonstrate the developmental progression of emotional role-taking ability. They showed two audio/video vignettes to a group of 2- to 6-year-olds. The details of the stories were only described by the audio portion of the vignette. After the children and their mothers viewed the video portion only, the children were asked to answer questions concerning what their mothers knew about the vignettes. The results

indicated that none of the two year-olds and only 5% of the three year-olds were able to take the perspective of their mother. In contrast, 60% of the four year-olds, 85% of the five year-olds and 100% of the six year olds were able to give answers that took their mother's perspective into account.

With regard to the relation between birth order and emotional role-taking skill, there is indirect evidence linking family status and emotional role-taking. For example, Perner, Ruffman, & Leekam (1994) found that children from larger families are better at role-taking tasks than children from smaller families. Based on their results, Hollos and Cowan suggest a 'threshold model' of role-taking development. According to this model, children need a minimum level of social interaction in order to develop role-taking skills but greater levels of interaction beyond the threshold confer no unique advantage. In his 1979 study of 77 English families, Light reported several findings related to the development of emotional role-taking. Using Borke's facial drawing completion task, they found that children with moderate levels of interaction with other children showed better role-taking skills than children with either low levels of interaction (less than once a week) or high levels of interaction with many different children. In contrast with Flavell's (1968) hypothesis that children with younger siblings might have

more opportunities to develop emotional role-taking skills, Light (1979) reported that second born children show significantly better role-taking scores than their older siblings.

Stated Hypotheses

Because there is no prior research of a direct relation between birth order and emotional expression knowledge or emotional situation knowledge, it is difficult to predict how birth order should affect children's performance on these tasks. In a longitudinal study of preschool age children between the ages of 33 and 47 months, Brown and Dunn (1992) found significant increases in the frequency and amount of discussion about feelings by sibling pairs. Furthermore, greater interaction between children and siblings correlated with developmental changes in children's use of feeling words (Brown & Dunn, 1992). These findings lend some support to the notion that birth order may be related to knowledge of emotional expressions. Based on this collective body of literature and on Hollos and Cowan's (1973) threshold model, it is hypothesized that children with siblings (either older, younger or both) will perform better on these measures of emotion knowledge than only children.

It is further hypothesized that children with siblings will score differently on measures of emotional role-taking than children without siblings. However, since Light's

(1979) report higher emotional role-taking scores for younger siblings than for older siblings, it is further expected that children with older siblings will perform better on measures of emotional role-taking than children with younger siblings.

Method

Participants

One hundred ten preschool children (62 boys and 48 girls, mean age = 52.9 months, SD = 6.99 months) were recruited from local preschools serving a middle income population. The group included 3 African American participants, 3 Asian American participants and 104 Caucasian participants. All participants spoke fluent English and had either one younger sibling, one older sibling or were only children (see Tables 1 and 2 for more detailed information about the samples).

Procedure

Individual interviews with participants were conducted by one of two females, one Caucasian and one African American. The interviews took place in a developmental psychology laboratory in a private room and were conducted in English. Each of the three interviews took approximately 20 minutes. For each interview, the emotional expression knowledge task was administered first, followed by the emotional situation knowledge and emotional role-taking tasks. It should be noted that it was not possible to perform the emotional expression knowledge task with all participants.

Measures

Emotional expression knowledge Receptive comprehension and expressive labeling of emotions were measured with the use of six drawings, each displaying a drawing of a different facial expression (happy, sad, angry, afraid, surprise and neutral). The drawings, adapted from Iannotti (1985), were gender and race appropriate for the subjects and were shown in random order. The subjects were first asked to provide an emotional label to the drawings and second, asked to identify the facial drawing that corresponded to the affective label used by the experimenter. Using a scoring system developed by Denham (1986), subjects' correct responses (including expressive synonyms) received two points. Subjects were given one point for descriptions of behavior (happy face described as laughing) or choosing the correct positive/negative emotional dimension.

The scores for the individual facial expressions were combined to create an aggregate emotional expression knowledge score. Data for this measure were available for only 65 of the children.

Emotional situation knowledge Ten emotion vignettes (two each for happy, sad, angry, afraid and surprise) were read to the subjects. These vignettes were accompanied by a drawing in which the facial features of the story character were left blank. Next, the subjects were shown the six

facial expressions used in the emotional expression knowledge task and asked to identify the appropriate emotion depicted in the emotion-eliciting vignette. The same scoring system developed by Denham (1986) was used. Subjects' correct responses (including expressive synonyms) received two points. Subjects were given one point for descriptions of behavior (happy face described as laughing) or choosing the correct positive/negative emotional dimension.

The scores for each emotional vignette were combined to reflect a total emotional situation knowledge score.

Emotional role-taking Ten emotion vignettes similar to the ones used in the emotional situation knowledge task were used, but the facial expressions of the story character were incongruent with the situation (e.g., the story character displays a "happy" facial expression when dropping an ice cream cone). The procedure was otherwise identical to that used in the emotional situation knowledge task. Previous research has shown that subjects who focus on facial cues display higher levels of prosocial behavior than subjects who focus on situational cues (Iannotti, 1985). Therefore, correct responses were those that focused on the facial expressions rather than the situational cues. Correct responses were coded as a 1. The scores for each emotional vignette were combined to reflect a total emotional role-taking score.

These three measures have been used successfully by

other researchers to assess emotional knowledge (Garner, Jones, & Miner, 1994; Garner, Jones, & Palmer, 1994; Iannotti, 1985; Michalson & Lewis, 1985).

Table 1

Age Data for Participants (months)

Group	M	SD	n
Age of Participants			
Only Children	56.6	3.9	23
Younger*	50.6	7.8	61
Older**	54.9	4.4	26
Ages of Siblings			
Total	39.4	32.1	87
Younger*	19.1	6.4	61
Older**	87.0	9.7	26
Mean Age Differences Between Target Child and Sibling			
Total	12.7	30.5	87
Younger*	31.5	8.4	61
Older**	32.1	9.7	26

* Children with a younger sibling.

** Children with an older sibling.

Table 2

Gender of Participants

Group	Males	Females
None	11	12
Younger*	34	27
Older**	17	9

* Children with a younger sibling.

** Children with an older sibling.

Results

Descriptive Data

Descriptive statistics for the three emotional knowledge tasks are presented in Table 3. The scores are comparable to those reported by other researchers (Field & Walden, 1982; Garner, Jones, & Miner, 1994; Michalson & Lewis, 1985, Walden & Field, 1982). The means and standard deviations for the individual emotional situation knowledge are presented in Table 4. The pattern of results for emotional situation knowledge was similar to that reported by other researchers in that happy was the most recognized emotion followed by sad, angry, and afraid (see Table 4). In order to determine that there is sufficient variation to justify the use of inferential statistics, coefficients of variation were calculated. Coefficient of variation is calculated by dividing the standard deviation by the mean which should be greater than .15 to proceed with inferential analysis (Ostle & Mensing, 1975). Because analyses were also conducted on the individual emotional situation knowledge variables (e.g., happy, sad, angry, afraid, and surprise) coefficients of variation were also calculated for these variables. All of the emotional situation knowledge variables had a coefficient of variation greater than .26 suggesting that further analyses were appropriate.

Group Differences

To examine differences between the groups, separate ANCOVAs were performed for each variable. In each model, group (i.e., sibling status), gender, and the group by gender interaction term were included. In addition, age was included as a covariate to control for differences in age among the preschoolers. When there are three or more groups, ANCOVA does not yield information about the nature of the differences. Therefore, follow-up tests on these analyses were conducted using simple main effects tests. Separate ANCOVAs were conducted for boys and girls. In each model, group and age were included. As a follow-up to these analyses, Bonferroni t tests were conducted with the corrected alpha level set at $.05/3 = .012$.

For knowledge of happy situations, the main effect of group was significant, $F(2, 103) = 3.44, p < .04$. However, this finding was qualified by a group by gender interaction, $F(2, 103) = 7.06, p < .001$. The main effect of age was also significant, $F(1, 103) = 12.9, p < .001$. For knowledge of happy situations, analyses of significant main effects for boys were significant. Specifically, the main effect of group was significant, $F(2, 58) = 3.51, p < .04$. In addition, age was also a factor, $F(1, 58) = 10.9, p < .002$. The Bonferroni t tests revealed that boys without siblings were more knowledgeable about happy situations than boys with younger siblings ($p < .03$) and boys with older siblings

($p < .04$). However, these results did not meet the stringent alpha requirement and therefore should be interpreted with caution. The main effects of group for knowledge of happy situations for girls was also significant, $F(2, 44) = 4.8$, $p < .01$. Bonferroni t tests indicated that girls with older siblings were more knowledgeable about happy situations than girls without siblings, ($p < .004$). In addition, there was a tendency for girls with older siblings to be more knowledgeable about happy situations than girls with younger siblings.

For knowledge of sad situations, the main effect of group was significant $F(2, 103) = 3.81$, $p < .03$. In addition, age was also significantly related to children's knowledge of sad situations, $F(1, 103) = 14.8$, $p < .0002$. Analyses of simple main effects for boys indicated that age was the only significant factor, $F(1, 103) = 6.11$, $p < .02$. For girls, the main effect of group was marginally significant, $F(2, 44) = 3.07$, $p < .056$. Age was also significantly related, $F(1, 44) = 10.8$, $p < .002$.

Bonferroni t tests revealed that girls with older siblings tended to be more knowledgeable about sad situations than girls without siblings ($p < .06$). In addition, girls with older siblings tended to be more knowledgeable about sad situations than girls with younger siblings. There were no other significant findings.

Table 3

Means, Standard Deviations, and Coefficients of Variation
for the Study Variables

Variable	n	Sibling Status		
		None	Younger	Older
Emotional expression knowledge				
	65*			
M		8.3	8.1	8.1
SD		1.7	1.4	1.4
Coefficient of Variation		.20	.17	.17
Emotional situation knowledge				
	110			
M		13.8	11.7	13.6
SD		3.2	3.2	2.0
Coefficient of Variation		.23	.27	.15
Emotional role-taking				
	110			
M		4.4	4.4	5.0
SD		3.2	2.7	3.1
Coefficient of Variation		.73	.61	.62

* Data for the emotional expression knowledge measure was available for only 65 of the children.

Table 4

Means and Standard Deviations for the Individual Emotional
Situation Knowledge Variables by Group

Variable	Sibling Status		
	None	Younger	Older
Happy			
M	3.5	3.2	3.8
SD	.85	.98	.58
Sad			
M	3.1	2.8	3.5
SD	1.0	1.1	.71
Angry			
M	2.8	2.3	2.5
SD	.98	.94	.82
Fear			
M	2.4	2.0	2.0
SD	1.6	1.3	1.6
Surprise			
M	2.0	1.5	1.9
SD	1.3	1.2	1.2

Table 5

**Means, Standard Deviations, and Coefficients of Variation
for Individual Situation Knowledge Scores**

Variable	Descriptive Measures		
	M	SD	SD/M
Happy	3.4	0.9	.26
Sad	2.9	1.0	.34
Angry	2.4	0.9	.39
Fear	2.0	1.4	.68
Surprise	1.7	1.2	.73

Discussion

The results offer partial support for the hypotheses. For knowledge of happy and sad situations, girls with older siblings performed better than girls with younger or only children. There was a tendency for boys who were only children to perform better than both boys with younger and older siblings. One reason that differences were found only for happy and sad emotions may be that these two emotions are the first emotion words learned by children (Michalson & Lewis, 1985).

Several methodological limitations may have contributed to the results of this study. It seems reasonable to assume that children who have higher levels of interaction would have greater opportunities for learning about emotions. Future researchers interested in this topic should consider the amount of time siblings actually spend together. Gibbs, Teti, and Bond (1987) have also found that wide spaced siblings direct more social behavior at each other than close spaced siblings. It is possible that some combination of birth order and age ranges between siblings may influence the development of young children's emotional knowledge. Also at issue is that most of the children in this study came from homes with one or two children. An expanded model that compares large and small families and examines the

effects of being the oldest, youngest, middle or only child on emotional development might also be enlightening.

A third methodological question involves the scoring procedure. In this study, answers for the emotional role-taking task that focused on facial cues were scored as correct (e.g., the story character displays a "happy" facial expression when s/he dropped an ice cream cone). While answers based on facial cues are considered by many researchers to be correct, other investigators have found that children's reliance on facial cues decreases with age and reliance on situational cues increases with age (Gnepp, 1983; Hoffner & Badzinski, 1989; Iannotti, 1978; Kurdek and Rodgen, 1975; Reichenbach & Masters, 1983). A different emotional role-taking task that avoids the use of facial cues could avoid this problem. For example, Denham and her colleagues measure emotional knowledge using puppets to elicit children's responses (Denham, Bouril, & Belouad, 1994; Denham & Couchoud, 1990a; Denham & Couchoud, 1990b). The argument is that the line drawings of emotions are distracting and possibly overwhelming to preschoolers. They suggest that the puppets may hold the attention of the preschoolers better than drawings and that the use of puppets may allow for a dramatic dimension including body language that gives more realistic depiction of a situation than drawings. However, it is important to note that a recent study has shown that children perform equally well on

emotional knowledge measures using puppets versus drawings as stimuli (Garner & Saad, 1995).

Light (1979) has previously suggested that the amount of time a child spends with adults is a better predictor of role taking ability than the amount of time a child spends with other children. It is likely, however, that the amount of time a child spends with other adults is related to the amount of time a child spends with other children. A more complex model that includes this possibility could provide a fruitful avenue for further research.

It is possible that preschoolers are not able to differentiate accurately between all five emotions (happy, sad, angry, afraid, and surprise) especially in emotional role-taking tasks. A simpler task that only examines the positive/negative dimension of emotions or only the emotions happy or sad might be more appropriate for this age group (see Eisenberg & Lennon, 1980 for an example).

It still seems reasonable to assume that birth order affects the development of emotional knowledge. It could be that the preschool period is too early to see birth order effects because this is the time at which these skills are just emerging. Another study that focuses on school age children might prove to be more successful. The final and other real possibility is that birth order may simply not have any affect on the development of emotional skills. However, this conclusion must await further research.

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