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Role-taking ability and the development of nonverbal communication skills.

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ROLE-TAKING ABILITY AND THE DEVELOPMENT OF
NONVERBAL COMMUNICATION SKILLS

A Thesis Presented

By

JOHN B. WHITE

Submitted to the Graduate School of the
University of Massachusetts in partial fulfillment
of the requirements for the degree of

MASTER OF ARTS

September 1981

Psychology

ROLE-TAKING ABILITY AND THE DEVELOPMENT OF
NONVERBAL COMMUNICATION SKILLS

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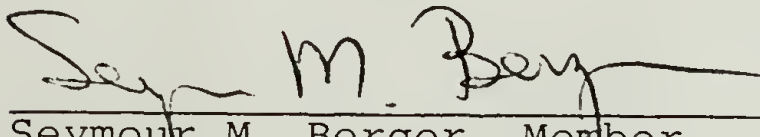
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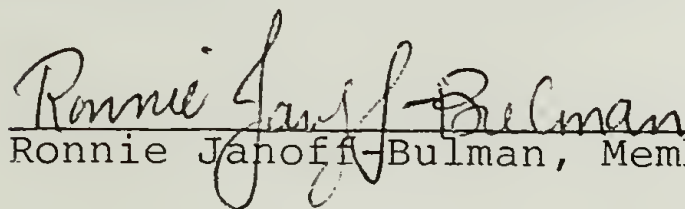
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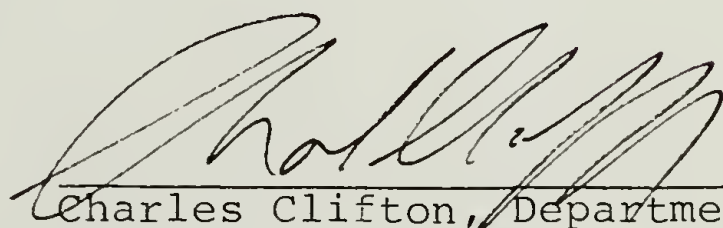
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ABSTRACT

ROLE-TAKING ABILITY AND THE DEVELOPMENT OF NONVERBAL COMMUNICATION SKILLS

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The present study investigates the questions of how children, aged 5 to 12, develop nonverbal communication skills. It was expected that cognitive role-taking ability would be positively related to both nonverbal encoding and decoding skills, after statistically removing the effects of age. The results of the study supported the hypothesized relationships for females only. There were no significant relationships between role-taking ability and nonverbal communication skills for the male sample of subjects.

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C H A P T E R I

INTRODUCTION

A considerable amount of research has demonstrated the importance of nonverbal behavior as a means of communication, and consequently, as a factor involved in determining behavior during social interaction. Despite the extensive body of literature concerning the nonverbal communication of adults, very little research has studied the development of nonverbal communication skills in children. The present study examines the ability of grade school children to both manage the nonverbal cues that they emit (encoding ability) and to successfully interpret the nonverbal behavior of others (decoding ability).

Nonverbal Encoding Ability

Two basic methodological approaches have been utilized in studying nonverbal encoding ability. One line of research has examined people's skill in conveying a particular emotion via nonverbal expressions. In essence, a person is asked to role-play an emotional state such as happiness or anger, and subsequently, naive judges attempt to interpret the emotion by looking at photographs or silent videotapes of the person. Successful role-playing is taken as a sign of encoding ability.

An alternative approach to the study of ability

in encoding has been to lead individuals to be verbally deceptive about the way they feel, and then to examine the degree to which their actual feelings are revealed nonverbally. Using this method, which will be referred to as the spontaneous approach, encoding skill is related to the degree to which the person's true underlying feelings are masked from observers.

The two methods address the problem of explaining the control and use of nonverbal communication from disparate perspectives. The role-playing approach is concerned with the range of emotions a person is capable of communicating to observers, while the spontaneous approach is concerned more with an individual's inability to control the expression of emotions he or she wishes to conceal. It is clear that the two lines of research complement one another and that both approaches are necessary for a complete understanding of nonverbal behavior. However, the spontaneous approach offers the advantage of greater ecological validity. Subjects who are attempting to deceive an interactant are involved in an ongoing social interaction demanding more complex nonverbal skills than those required to role-play an emotion. The individual must decide what nonverbal cues are appropriate throughout the course of the interaction in order to successfully conceal his or her true feelings. The spontaneous approach was

utilized in the present study, because it more closely resembles the type of nonverbal communication skills involved in social interaction.

Nonverbal encoding ability in the present research relates to the question of how children develop the ability to be verbally deceptive effectively. The basic hypothesis of the research is that the ability to use and control nonverbal behavior is a developmental skill. This hypothesis is based on various types of evidence. As children develop, they grow both in cognitive ability (Piaget & Inhelder, 1969) and fine muscular control (Charlesworth & Kreutzer, 1973). Furthermore, as children gain more awareness of the social ecology and become less egocentric, they develop the skill to put themselves in the position of an observer and see the situation from an observer's point of view. Flavell and his associates have referred to this ability, in reference to verbal communication skills, as "taking the role of the other" (Flavell, Botkin, Fry, Wright, & Jarvis, 1968).

Role-taking skills would seem to be particularly critical in developing control over nonverbal behavior during social interaction. Role-taking theory assumes that the skill to be an effective interactant in social situations rests partially upon the ability to take the "other" (the interactant) into account. The individual

must not only possess a set of attributes or performance skills in a given situation, but he must also be aware of the nature of the impact that various alternative behaviors will have upon the other. Thus, an individual must have a sensitivity towards the presence of an interactant.

Research by Flavell and others (e.g., Feffer, 1959; Selman & Byrne, 1974; Urberg & Docherty, 1976) has shown a clear developmental sequence in role-taking ability. Pre-school children appear to have relatively little knowledge that there can be variation in perspective from that of their own view. Sensitivity grows throughout middle childhood, however, and by the time the individual reaches adolescence, he or she is much more successful in taking the role of the other into account. It should be noted, however, that even adults vary in their role-taking ability.

The development of role-taking skills would appear to be related to the ability to manage nonverbal behavior while being deceptive. In order to be deceptive successfully an individual must possess not only the skill to control his or her behavior, but must also be aware that such nonverbal behavior may have an effect upon others. Relating this to the role-taking literature, one would expect role-taking ability to influence one's ability to control nonverbal behavior while be deceptive, and thus

skill in controlling nonverbal behavior would show a developmental progression. More specifically, it seems reasonable to expect an increase, concomitant with the growth of role-taking skills, in the ability to encode and control nonverbal behavior. Indeed, role-taking ability should be a better predictor of nonverbal encoding skill than age per se.

Although theoretically compelling, the notion that there are changes in the use and control of nonverbal behavior during childhood has received little direct, or even indirect, empirical support. Most of the research relating to the development of nonverbal behavior in children has attempted to show how a particular emotional state is displayed differentially at various age levels. Spawned primarily by Darwin's (1872) view that there is a phylogenetic continuity of facial expressions for specific emotion-evoking situations, the nature of this research is exemplified by the observations of Spitz (1963), who has outlined a progression of nonverbal encoding during the first year of life and how it related to infants' emotions. Overall, there is now a reasonably large body of research on the development of nonverbal behavior as it relates to the expression of emotions.

In contrast, very little research has looked at the developmental process with respect to the management of

nonverbal behavior. There is some indirect evidence that increasing age leads to more proficiency in the control and use of nonverbal behavior that comes from a study of a role-playing nature by Odom and Lemond (1972). They asked children in kindergarten and fifth grade to encode poses representing eight emotions. There was a clear developmental trend: the older subjects were more successful in producing the appropriate expressions (as determined by adult raters), suggesting that the older children had greater proficiency in the encoding of their nonverbal behavior. However, few studies have directly investigated the nature of the changes that occur in the ability to spontaneously manage nonverbal behavior.

Nonverbal Decoding Ability

Another issue under consideration in the present study is the development of children's ability to successfully interpret others' nonverbal cues. It is clear that social interaction is often guided by the interpretation of nonverbal cues that are not consciously transmitted. Effective interpersonal relationships demand the interpretation of subtle nonverbal cues that are transmitted without the intention of the sender (and even may be responded to without the awareness of the receiver). It is often insufficient to respond to others simply on the basis of what is intentionally being conveyed. Successful social

interaction also depends on the ability to go beyond what is being communicated verbally, by making inferences about the underlying feelings and motivations of others on the basis of nonverbal cues. Numerous studies have supported the notion that the interpretation of nonverbal behavior is important in successful social interaction by demonstrating that individuals who are proficient at decoding nonverbal cues also tend to be more effective in their interpersonal relationships (Hall, Rosenthal, Archer, DiMatteo, & Rogers, 1978; Rosenthal, Hall, Archer, DiMatteo, & Rogers, 1979; Rosenthal, Hall, DiMatteo, Rogers, & Archer, 1979).

As with research pertaining to nonverbal encoding, there are two methodological approaches to the study of decoding. Subjects are either asked to describe an emotion that an actor is attempting to convey (role-playing approach), or they are asked to detect instances in which others are dissembling (spontaneous approach). Attempting to detect instances of deception necessitates the use of skills similar to those used in the interpretation of nonverbal behavior in everyday life. A person must make inferences concerning another person's underlying feelings by observing the individual's behavior while that individual is attempting to convey some message. In contrast to the spontaneous approach, the successful interpretation of a

stimulus person's deliberate attempt to look happy, angry, or frightened is a more artificial situation in which one must simply interpret a specific emotion that was intentionally posed. Because there is a tendency for people to use exaggerated and stereotypic facial expressions when asked to pose a specific emotion, the nonverbal expression of emotion may be more easily interpreted under role-playing conditions than in situations where nonverbal cues are spontaneously emitted. Furthermore, it is possible that posed facial expressions may bear little resemblance to the use of nonverbal communication in everyday life, and thus ecological validity may be questionable.

There have been only a handful of experiments conducted examining children's skill at decoding nonverbal cues, and only one of these has looked at decoding of dissembled affect. Most existing studies have either been directed at the emergence of nonverbal decoding skills in infancy (for a review, see Charlesworth & Kreutzer, 1973), or at decoding ability of preschool children (Dashiehl, 1927; Gates, 1923; Honkavaara, 1961; Izard, 1981; Zuckerman & Przewuzman, 1979). The most relevant study was carried out by DePaulo, Irvine, Jordan and Laser (Note 1) who compared the ability of sixth, eighth, tenth, twelfth graders, and college students in detecting deception and found increases in

ability with age. However, the stimulus persons being decoded were adults; to date, no studies have examined decoding of verbal deception of other children by children during middle childhood.

The preceding theory and research suggests that, as with encoding, one crucial variable related to the development of the ability to accurately interpret the nonverbal behavior of others is role-taking skill. A child's ability to take the perspective of others would appear to be important in developing the ability to make inferences on the basis of others' nonverbal communication. By understanding the way others perceive a situation in which they are involved, an observer should be relatively accurate in interpreting the nonverbal behavior that is a reaction to that situation. On the other hand, an inability to imagine the way others will react in various situations will tend to make nonverbal cues difficult to comprehend accurately. Thus, the situation of an observer who is deficient in the ability to take the perspective of an other may be seen as analogous to the case in which an observer is asked to make a judgment about an other's nonverbal behavior, but who is not given information regarding the context in which the nonverbal cues are emitted. The interpretation of nonverbal behavior under such circumstances will tend to be idiosyncratic and probably

will depend on the individual's guess about the type of situation that evoked the nonverbal cues. The observer's understanding of the stimulus situation is important because identical nonverbal cues that are believed to have been elicited in different contexts will have different implications concerning the underlying feelings and motivations of the person being judged. Theoretically, the individual who is adept at taking the perspective of others will have a better understanding of the context in which nonverbal cues are emitted, and consequently, have greater insight when interpreting the nonverbal behavior of others.

Encoding-Decoding Relationship

The relationship between encoding ability and decoding ability is also examined in the present research. Zuckerman and his colleagues (Zuckerman, Hall, DeFrank, & Rosenthal, 1976; Zuckerman, Lipets, Koivumaki, & Rosenthal, 1975; Zuckerman, Hall, DeFrank, & Rosenthal, Note 2) have examined the relationship between encoding and decoding skills using paradigms in which adult subjects are asked to participate as both encoders and decoders of several affects. All three studies showed positive correlations between total encoding and total decoding ability (collapsing across various situations and affects); however, correlations between encoding and decoding of the same affect were significantly

lower than total encoding-decoding correlations (and were often negative), while encoding-decoding correlations of different affects tended to be positive and significant. Zuckerman et al. do not offer a very convincing theoretical explanation for the phenomenon, although they suggest that certain environments (such as the family) may tend to prohibit the expression of specific emotions, and thus individuals may learn to decode the prohibited emotions without necessarily acquiring the ability to encode those emotions.

Overview of Present Research

Subjects participated as both encoders and decoders in the experiment. Children's ability to effectively manage their nonverbal behavior was assessed by leading them to be deceptive verbally. Then, adult observers viewed silent videotapes of the children, and indicated whether they thought the children were lying or telling the truth. The children's ability to accurately interpret the nonverbal cues of others was measured by putting the children in the role of observers attempting to assess the truthfulness of other children on the basis of the same silent videotapes. In addition, the children's role-taking ability was determined using an objective personality measure.

The principal hypotheses under consideration in the

present study are that:

1) role taking ability, independent of age, is positively correlated with children's skill at controlling their nonverbal cues.

2) role-taking ability, independent of age, is positively related to the ability to detect deception in other children.

3) encoding and decoding skills are positively correlated.

C H A P T E R I I

METHOD

Subjects. The children who acted as stimulus persons ranged in age from 5 years, 2 months to 12 years, 2 months, with approximately equal numbers at each year. There were 32 males and 29 females, and each child was individually observed. The children who served as stimulus persons (encoders) were recontacted approximately six months after the encoding portion of the experiment was conducted and were asked to participate as decoders in the second part of the study. Twenty-two males and 17 females who were in the previous part of the experiment agreed to serve as decoders. The children's age range at this time was 5 years, 8 months, to 12 years, 8 months.

Role-taking task. When the children arrived at the experiment, they were administered a variant of Feffer's Role-Taking Task, a measure of role-taking skill (Feffer, 1959). The task consisted of showing subjects a picture containing three individuals and having them tell a story about the picture as a whole. Subjects were then asked to pretend that they were one of the people in the picture and to describe how they would feel and what was happening to them in the story. This same procedure was then carried out for each of the other figures in the story. Each subject

was asked to do this for two different pictures.

The subjects' responses were tape recorded and transcribed. Two scorers coded the data according to criteria described by Feffer (1959). Basically, scoring consisted of assessing subjects' ability to take the perspective of others as indicated by changes in description of characters from the initial story. The scoring also took into account the level of sophistication of the description of the actors. Reliability for the scores was high and statistically significant ($r = .69$). Scores ranged from 10.5 to 37.75, were approximately normally distributed, and had a mean of 23.42 and a standard error of .79.

Encoding task. All of the children in the study were led to be both verbally truthful and verbally deceptive in order to assess their skill at nonverbal encoding. In addition, the type of deception was manipulated by instructing half of the children to pretend to enjoy a negative experience, while the other children were asked to pretend to dislike a positive experience.

Procedure. The children were told that the purpose of the experiment was to sample two drinks and attempt to convince an interviewer that both drinks either tasted good (positive

verbalization condition), or the both drinks tasted bad (negative verbalization condition), regardless of how the drinks actually tasted. The children were told that they should pretend to like (or dislike) both drinks in order to "fool" the interviewer in a game-like situation. It was explained that they would taste each drink and then respond to a set of questions concerning how much they enjoyed the drinks. A practice trial, in which each child sampled each drink and answered a question similar to those that were to be asked by the interviewer, insured that all children thoroughly understood the procedure before being interviewed. The children were reminded to be as convincing as possible when answering the questions in order to "fool" the interviewer.

Each child participated in both the truth and deception conditions. All children were given a sweetened grape drink mixed according to directions and an identical drink mixed without sugar. The children who were told to answer the questions as if they enjoyed both drinks (positive verbalization condition) were therefore lying after tasting the unsweetened drink and telling the truth after tasting the sweetened drink. Conversely, those who were asked to pretend that both drinks tasted bad (negative verbalization condition) were being truthful when talking about the unsweetened drink and deceptive while discussing the sweetened drink. The children tasted each beverage

immediately before being asked questions about the drink. The order in which the drinks were sampled was random, as was the assignment to either verbalization condition.

After both interviews were completed, the children were asked about their true opinions of the two drinks, using a seven-point Likert-type scale. The younger children were given instructions on the use of the scale. All children rated the sweetened drink more positively than the unsweetened drink. Therefore, the children were aware that they were being truthful or deceptive in the respective conditions. After the experiment, the children were assured that they had completed the experimental task successfully.

During each of the two interviews, a camera recorded the face and neck of the child. The children were aware of being videotaped. Fifteen-second silent segments of each child's responses while being truthful and deceptive were then transcribed from the original tapes onto a new tape, in a random order. Seventy-two children participated in the nonverbal encoding task, therefore the new tape consisted of 144 videotape segments. Each segment showed a child responding to the same questions from the interviewer.

Judging procedure. Twelve untrained male and female observers were recruited from undergraduate psychology classes to view the silent videotape clips. Each observer saw all the clips at a 1.5 hour session. Observers judged

each segment on a forced choice scale labeled "truthful" or "pretending." The procedure involved in making the videotapes was briefly described, so that judges were aware that the children were either being truthful or deceptive while answering questions about a drink that may have actually tasted either good or bad. Observers received a choice of extra class credit or \$5 for participation in the study. To increase motivation, they were promised that the most accurate observer would receive an additional \$20.

Decoding task. The 39 children who agreed to participate in the second phase of the study served as a sample of decoders. Due to the tedious nature of the judging process, each subject was shown only half of the samples, with the restriction that subjects did not view themselves on the tape. The subjects viewed the samples in two settings, separated by at least a day, in order to minimize fatigue. The conditions under which the videotapes were made were reiterated to the subjects and they were asked to choose whether the stimulus person in each segment was being "truthful" or "pretending" on a forced-choice scale.

Method of analysis. Nonverbal encoding and decoding scores were derived for each subject in the experiment. The encoding measure was a deception ability score, which

consisted of the percentage of all observers who identified as being truthful a stimulus child who was actually being deceptive. Thus, the percentage correct across all observers of a particular child was determined. Higher scores indicate more incorrect responses, and more success at being deceptive on the part of the child.

Decoding ability was measured by a deception detecting score which was determined by the percentage of deceptive film segments that a child was able to correctly identify as "pretending." Higher scores indicate greater ability to identify other children who are dissembling.

Encoding and decoding scores were also determined by calculating the percentage of truthful segments that were correctly judged to be truthful. Interpretation of this data is conceptually difficult, however. Children who are correctly identified as telling the truth are not necessarily more or less skillful in nonverbal encoding than those who are incorrectly judged to be lying. The children are simply conveying their sincere feelings in the truthful segments, and thus, having others correctly or incorrectly judge truthful segments is not an appropriate measure of ability to control nonverbal cues. The degree of accuracy in decoding truthful segments presents similar interpretation problems. Nevertheless, preliminary analyses were conducted on the truthful videotape ratings. Neither encoding nor decoding scores of truthful videotape

segments were significantly correlated with any variables of interest, and they will not be discussed further.

The basic hypothesis of the study suggested that role-taking ability would be positively related to both skill in managing one's nonverbal cues and accuracy in detecting deception in others. Because the subjects' role-taking ability was correlated with age, $r(36) = .39$, $p < .01$, partial correlations, removing the effects of age, were carried out (see Table 1). There were no significant differences between types of lie (positive verbalization or negative verbalization) and therefore all analyses were carried out collapsing across the variable. The data were initially analyzed as a single sample of subjects, collapsing across sex. Analyses were then carried out separately for males and females, because of frequent findings of sex differences in the nonverbal communication literature (Hall, 1978).

TABLE 1

Pearson correlations of age with role-taking
(all correlations significant at $p < .05$, one-tailed)

	<u>Age</u>
male's role-taking	.356
female's role-taking	.431
total sample's role-taking	.392

C H A P T E R I I I

RESULTS

Analysis of Encoding Data

The partial correlation coefficients between role-taking ability and nonverbal encoding scores are reported in Table 2. The analysis of the entire group of subjects, collapsed across sex, confirmed the hypothesis that role-taking ability is positively related to skill in controlling one's nonverbal behavior. The partial correlation coefficient between role-taking ability and nonverbal encoding score indicates a moderate positive relationship, $r(36) = .28$, $p < .05$, one-tailed. Therefore, children who are better able to take the perspective of others were also better able to avoid detection while being verbally deceptive.

A similar pattern of results was obtained for the sample of female subjects, although the correlation coefficient was of greater magnitude. As predicted, the partial correlation between role-taking ability and deception score was positive, $r(15) = .43$, $p < .05$, one-tailed. Thus, higher role-taking abilities were associated with more success in controlling one's nonverbal behavior.

In contrast to the results of the total sample and those based on the female subjects, the hypothesized relationship between role-taking and nonverbal encoding

TABLE 2

Partial correlations between role-taking ability
and nonverbal communication skills, removing effect of age

	<u>Encoding</u>	<u>Decoding</u>
male's role-taking	.204	.166
female's role-taking	.425*	.579**
total sample's role-taking	.273*	.343*

* $\underline{p} < .05$, one-tailed

** $\underline{p} < .01$, one-tailed

ability was not confirmed for the sample of male subjects. Role-taking ability was only weakly associated with nonverbal encoding ability, $r(20) = .20, p = n.s.$ However, the apparent difference between the male and female partial correlations failed to reach statistical significance. Further analyses showed no significant difference between the mean deception scores of males and females (male $\bar{X} = 52\%$, female $\bar{X} = 51\%$).

Correlations were also carried out between age and encoding ability. Surprisingly, age was not significantly related to encoding ability for males, females, or the entire sample.

Analysis of Decoding Data

The partial correlation coefficients between role-taking ability and nonverbal decoding scores are also presented in Table 2. The partial correlation, based on the entire sample, between role-taking ability and nonverbal decoding was also positive and statistically significant, $r(36) = .34, p < .05$, one-tailed. Thus, subjects with higher role-taking scores were more adept at interpreting the nonverbal cues emitted by others. Results based on the female sample of subjects also indicate that success at detecting instances of deception in others is positively related to role-taking ability, $r(15) = .58, p < .01$, one-tailed. As in the case of the

encoding data, the male sample of subjects did not exhibit a statistically significant relationship between role-taking ability and the interpretation of nonverbal behavior, $r(20) = .17, p = n.s.$ However, the difference between the partial correlations based on the male and female samples failed to reach statistical significance. Additional analyses showed that the difference between the mean decoding scores of males and females was not statistically significant (male $\bar{X} = 57\%$, female $\bar{X} = 60\%$). There was also no significant relationship between age and decoding ability for males, females, or the total sample.

Encoding-Decoding Relationship

The pearson correlation coefficients between encoding and decoding scores are presented in Table 3. Data based on the entire sample of subjects did not yield a statistically significant relationship between encoding and decoding scores, $r(36) = .18, p = n.s.$ However, analysis of the data based on the female sample of subjects indicates a positive correlation between encoding and decoding abilities, $r(15) = .42, p < .05$, one-tailed. The male sample of subjects demonstrated a zero-order correlation between encoding and decoding scores, $r(20) = .08, p = n.s.$

TABLE 3

Pearson correlations between encoding and decoding scores

	<u>Decoding</u>
male's encoding	.083
female's encoding	.422*
total sample's encoding	.177

*p<.05, one-tailed

C H A P T E R I V

DISCUSSION

The results of the present study suggest the importance of cognitive role-taking ability in both the interpretation of others' nonverbal behavior, and in avoiding detection while being verbally deceptive. The results of the sample of female subjects indicate a clear relationship between role-taking ability and successful detection of deception by other children. In addition, the awareness that one's nonverbal behavior during social interaction has an impact on the perception of others appears to be an important factor influencing the ability to control nonverbal cues. Girls who were better able to take the perspective of others in the role-taking task were also more effective at controlling their nonverbal behavior.

Given the relationship between role-taking and both encoding and decoding ability, it is not surprising that encoding and decoding ability is positively related to nonverbal decoding ability. Furthermore, the relationship between nonverbal communication skills and role-taking ability are considerably stronger than the correlations between nonverbal abilities and age. This latter result implies that taking the perspective of others may be of more importance in the development of nonverbal

communication skills than other cognitive abilities that are closely related to age (for example, intellectual ability).

The hypothesized relationships failed to reach statistical significance for the male sample of subjects. This result suggests that other factors may play a strong role in the development of boys' nonverbal communication skills. A large body of research has demonstrated that women tend to be more proficient in nonverbal communication skills than men (see Hall, 1978, for a review of the literature). Women's superiority in nonverbal communication is generally attributed to the role that women in our culture traditionally played, which tends to emphasize abilities relevant to successful interpersonal relationships. The results of the present study suggest the possibility that cultural values may tend to inhibit the development of nonverbal communication skills in some males, despite the fact that they possess the requisite cognitive abilities. In contrast, cultural expectations may encourage females to develop nonverbal communication skills to their full potential.

The hypothesized relationship between role-taking ability and nonverbal communication assumes that skill in taking the perspective of others is causally related to the effective interpretation and control of nonverbal

cues. As in any correlational study, however, it is impossible to unequivocally demonstrate a direct cause and effect relationship. Role-taking ability is obviously related to numerous aspects of cognitive processing in a highly complex manner. It is conceivable that some other type of cognitive ability, which is highly correlated with role-taking skill, is responsible for the observed relationship. However, the results of the present study show a nonsignificant correlation between age and both nonverbal encoding and decoding scores despite the fact that age and role-taking scores were highly correlated. This result suggests that role-taking is an important factor in determining the ability to interpret and control nonverbal cues. Cognitive skills of all types presumably increase with age, and thus statistical procedures that control for the effects of age would be expected to control for the effects of other cognitive factors.

Nevertheless, the possibility that other factors are responsible for the observed relationship cannot be ruled out. For instance, one specific alternative explanation for the present findings is that some general ability, such as social competence, may influence both role-taking scores and the ability to avoid detection. Children who are more skillful socially may be able to

construct a story from various perspectives more easily, as well as being more successful in their nonverbal communication tasks.

A similar argument may be put forth concerning children's ability to make discriminations. It is possible that children who possess a high general ability to differentiate stimuli are better at discriminating between perspectives in the role-taking task, and are also more proficient in distinguishing nonverbal cues that are associated with deception from those associated with truthfulness. Thus skill in discrimination may be an underlying determinant of both role-taking scores and nonverbal decoding scores.

The experimental paradigm that was employed in the present study provides a particularly stringent test of the hypothesized relationship between role-taking ability and successful detection of others' verbal deception. Because all subjects who participated as decoders had previously acted as stimulus persons, they were obviously familiar with the conditions under which the deceptive verbal behavior was elicited. Although a number of months passed between participation in the two phases of the experiment, there still was likely some recollection of the initial stimulus situation. Such memories probably were reinforced by the experimenter in the decoding phase, who

reminded subjects of the nature of their earlier participation. This suggests that the advantage that the most proficient role-takers held over less proficient role-takers in placing themselves in the role of the stimulus persons may not have been as great as it would have been in a situation in which all the decoders had not participated first as stimulus persons. Thus, it is possible that the correlation between role-taking and accuracy in decoding could have been attenuated somewhat by the nature of the procedure that was employed.

Given that role-taking ability seems to be related to the ability to be deceptive, the results of the study may provide a clue as to why some adults may be better than others in managing their nonverbal behavior. The present results suggest that adults who tend to be more aware of the impact of their behavior on others may be more adept in the use of nonverbal communication. Both Snyder's (1974) self-monitoring measure and the Fenigstein, Scheier, and Buss (1975) public self-consciousness scale purport to measure an individual's tendency to consider the impact of one's behavior on others. Although DePaulo and Rosenthal (1979) report only small relationships between deceptive ability and scores on the self-monitoring scale, the present results suggest that there should be a positive relationship between one's scores on these measures and ability to control nonverbal

cues.

Obviously, there remains a great deal of work to be done in the study of children's nonverbal communication skills. The present study provides a first step in the understanding of the relationship between the development of social cognition and nonverbal communication skills.

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