

DO ACTIONS SPEAK LOUDER THAN WORDS? PRESCHOOL CHILDREN'S USE OF THE VERBAL- NONVERBAL CONSISTENCY PRINCIPLE DURING INCONSISTENT COMMUNICATIONS

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ABSTRACT: The present study investigated whether preschool children could use the conventional "actions speak louder than words" principle (or the verbal-nonverbal consistency principle) to process information in situations where verbal cues contradict nonverbal cues. Three-, 4-, and 5-year-olds were shown a video in which an actor drank a beverage and made a verbal statement (e.g., "I like it") that was inconsistent with her emotional expression (e.g., frowning), and were asked whether the actor liked or disliked the beverage. If children used the verbal-nonverbal consistency principle, they should respond according to the information conveyed by the actor's emotional expression. Results showed that when the message was more naturalistic, the majority of children tended to respond based on the actor's verbal message. However, when the inconsistency between the verbal and nonverbal messages was made salient, more children appeared to rely on the nonverbal cue. Younger children's reliance on verbal cues reported in previous research may be partly explained by the salience of the verbal message.

KEY WORDS: display rules; emotional expression; inconsistent communication; nonverbal communication; preschool children; verbal-nonverbal consistency principle.

Everyday social communication is a dynamic process in which various messages are communicated either concurrently or across time and space between a sender and a receiver. These messages are generally consistent

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with each other. Sometimes, however, the sender conveys inconsistent messages. In inconsistent communications, it is essential for the receiver to discern the discrepancy between the messages and use the different messages to interpret their meaning. One of the major inconsistent communicative situations involves the verbal message being different from, or contradictory to, the nonverbal message. In this type of situation, adults tend to use the so-called verbal-nonverbal consistency principle (Rotenberg, Simourd, & Moore, 1989). This principle assumes that one's verbal and nonverbal behaviors normally convey the same message. When there is a discrepancy, adults tend to treat the nonverbal rather than verbal message as the more reliable source of information (Rotenberg et al., 1989). It has been suggested that this principle is based on a commonsense assumption that "actions speak louder than words" and the nonverbal message, not the verbal message, reveals the true intentions of the sender (Demorest, Meyer, Phelps, Gardner, & Winner, 1984).

Understanding the verbal-nonverbal consistency principle is critical to successful social interaction because discrepant verbal and nonverbal messages are not atypical in everyday communication. Inconsistent verbal-nonverbal communication occurs frequently and serves various useful interpersonal functions, for example, to amuse (joke), to deceive (lie), or when one is experiencing conflicted feelings. With appropriate use of the verbal-nonverbal consistency principle, individuals can infer the truth of information contained in the sender's inconsistent messages and respond accordingly. Inappropriate use of the verbal-nonverbal principle, on the other hand, may lead to communication failure (e.g., a joke is taken seriously), or an undesirable consequence (e.g., being deceived by the sender's lie).

However, while it is well established that adults use the verbal-nonverbal consistency principle in inconsistent communications (for reviews, see Blanck & Rosenthal, 1982; Volkmar & Siegel, 1982), there is little evidence regarding when children learn to use this principle. Limited research to date has found that children until 9 to 10 years of age are unable to use the verbal-nonverbal consistency principle in communicative situations where nonverbally expressed emotions are inconsistent with verbally expressed emotions (Demorest et al., 1984; DePaulo & Jordan, 1982; DePaulo, Jordan, Irvine, & Laser, 1982; Friend, 2000, 2001, in press; Friend & Bryant, 2000; Rotenberg et al., 1989; Volkmar & Siegel, 1982). They tend to rely on verbal rather than nonverbal cues when encountering inconsistent communication. In other words, they have a "lexical bias" (Friend & Bryant, 2000), or follow an unconventional assumption that "words speak louder than actions" (Demorest et al., 1984). Although recent evidence shows that children around 7 years of age begin to appreciate the contribution of non-

verbal cues in determining the meaning of an inconsistent message (Friend, 2000), most studies as cited above suggest that the appropriate use of the verbal-nonverbal consistency principle begins after 9–10 years of age.

Children's difficulty with the verbal-nonverbal consistency principle may be due to their lack of some skills that are necessary for the appropriate use of this principle. To use the verbal-nonverbal consistency principle appropriately, individuals must be able to recognize both verbal and nonverbal cues (e.g., emotions). They must also detect the discrepancies between the two channels if such discrepancies indeed exist. In addition, they need to understand the distinctions between appearance and reality, in particular, the distinction between expressed emotions and felt emotions. Only with these prerequisite skills, can individuals begin to use the verbal-nonverbal consistency principle to make decisions about which channel to rely on during inconsistent communication.

Existing research has consistently shown that most of these prerequisite skills have been acquired by preschool years. For example, the ability to interpret others' nonverbal expressions of emotions emerges in infancy (Walker-Andrews & Dickson, 1997). Infants are not only able to recognize and differentiate between different emotions but also can use another's emotions to guide their own actions (Mumme, Fernald, & Herrera, 1996; Walden, 1991) and make predictions about others' desires and preferences (Repacholi & Gopnik, 1997). By the end of the preschool period, children are able not only to recognize emotions but also to label them appropriately (Camras & Allison, 1985; Denham & Couchard, 1990; Field & Walden, 1982). Preschoolers, furthermore, demonstrate an understanding of the causes of emotions (Denham & Zoller, 1991; Dunn & Hughes, 1998; Fabes, Eisenberg, Nyman, & Michealieu, 1991). By the end of preschool years, children also have acquired the necessary language skills to comprehend verbally expressed emotions (Banerjee, 1997a).

The ability to detect the discrepancy between verbal and nonverbal displays also emerges in infancy (for a review, see Walker-Andrews, 1997) and reaches an adequate level of sophistication by preschool years (Gnepp, 1983, 1989). With regard to the understanding of the appearance and reality distinction, 3-year-olds under some conditions are already able to appreciate what is real and what is apparent (Sapp, Lee, & Muir, 2000). Specifically, with regard to the distinction between expressed and felt emotions, Bannerjee (1997a, 1997b) found that even 3-year-olds could distinguish between how a person feels and the emotion that a person expresses in certain situations. By 6 years of age, children are able to infer correctly the true emotions felt by another individual in spite of the individual's overt expression and understand the individual's reasons for doing so.

Given these findings in the literature, it is surprising that the existing

studies on inconsistent communication find children to have difficulty in using the verbal-nonverbal consistency principle until 10 years of age. One possibility of such delay may be due to the methodology used in these studies. They may have underestimated young children's ability to use the verbal-nonverbal consistency principle due to several limitations. First, in some of the studies, the inconsistent nonverbal information conveyed to children might have been too subtle or artificial (e.g., Demorest et al., 1984; DePaulo et al., 1982; Volkmar & Siegel, 1982). For example, emotional expression has been presented in a storybook format. Because emotional expression is dynamic, the story-telling method could severely restrict the delivery of emotional information, hindering children's use of the verbal-nonverbal consistency principle (see Rotenberg & Eisenberg, 1997). Children have also been asked to identify whether or not a character is lying as a measure of their understanding of the verbal-nonverbal consistency rule (e.g., Rotenberg et al., 1989). However, as indicated earlier, inconsistent verbal and nonverbal communication does not automatically entail lying; jokes and sarcasm also involve verbal and nonverbal inconsistencies. Furthermore, while many preschoolers understand deception as the intent to instill false beliefs into another's mind (Chandler, Fritz, & Hala, 1989), research has consistently shown that they have a limited understanding of the concept of lying (Bussey, 1992; Peterson, 1995; Peterson, Peterson, & Seeto, 1983; Piaget, 1932/1965; Strichartz & Burton, 1990; Wimmer, Gruber, & Perner, 1984; for a review, see Lee, 2000). They often mistakenly label verbal transgressions (e.g., swearing) or factually false statements as lies, particularly when the speakers' intentional states are not highlighted for them (Siegal & Peterson, 1996, 1998). It is possible that children in the Rotenberg et al. (1989) study could use the verbal-nonverbal consistency principle but failed to demonstrate this ability because of their difficulty in labeling an incongruent communicative act as lying.

However, a third explanation is also possible. One could argue that emotional expressions displayed in previous research might not be as salient as the verbal statements. Therefore, if the nonverbal cues were made more salient, children may be more likely to use them to interpret the situation. Hence, the reason that the children relied on words instead of actions might not be because they followed the principle of "words speak louder than actions." Rather, they might simply rely on the more salient cue.

The purpose of the present study was to specifically address this possibility. We examined whether 3-, 4-, and 5-year-olds would rely on nonverbal rather than verbal cues to determine the true state of affairs when the

inconsistency between the cues was made obvious to them. Children were shown video vignettes in which an actor drank a beverage and made a verbal statement (e.g., "I like it" or "I don't like it") that was inconsistent with her emotional expression (e.g., frowning or smiling). One group of children saw videos in which the actor expressed emotional expressions naturalistically while making verbal statements about her liking or disliking of a drink (the Naturalistic Condition). Another group of children viewed videos in which the actor exaggerated their emotional expressions in order to make it salient to the participants (the Exaggerated Condition). Unlike Rotenberg et al. (1989), children were not required to label an inconsistent communicative act as lying. Rather, they were asked directly whether the actor liked or disliked the beverage.

We hypothesized that if young children can use the verbal-nonverbal consistency principle appropriately, they should respond according to whatever is conveyed by the actor's emotional expression. In contrast, if children have a lexical bias, they should respond according to the actor's verbal statement. Further, if children's response bias, if one exists, is due to their reliance on a more salient cue, children should be less likely to rely on the actor's verbal statements in the Exaggerated Condition than in the Naturalistic Condition. Alternatively, if children indeed have a lexical bias and are following the notion that "words speak louder than actions," they should rely on the actor's verbal statement, as did the children in previous research, regardless of the salience of the nonverbal cues in the present study.

Method

Participants

Children were recruited from local day-cares. Thirty-three 3-year-olds ($M = 3.5$ years, $SD = 0.3$; 9 boys and 19 girls), twenty-eight 4-year-olds ($M = 4.4$ years, $SD = 0.3$; 9 boys and 19 girls), and thirty 5-year-olds ($M = 5.5$ years, $SD = 0.4$; 17 boys and 13 girls) participated. Children were divided into two groups; those who saw the Naturalistic video and those who saw the Exaggerated video.

Materials and Procedure

Children were seen individually and shown a video on a 24-inch television of a vignette depicting a female actor tasting different colored drinks. The vignette had an introduction and three experimental phases. The actor

first introduced herself and told the viewers that they were going to play a game where they had to guess whether she liked or disliked a drink.

The *One-Channel Phase* always came first. In this phase, the actor had four different-colored drinks in front of her. They were lined up side by side and the actor tasted each of the drinks in turn. Drinks were made from KoolAid® powder mixes. Half of the drinks were sweetened according to the instruction on the package and half of them were not sweetened and therefore tasted very sour. For each drink, the actor either uttered a verbal statement with a neutral facial expression or exhibited a facial expression with no verbal statement. These verbal or facial reactions were either positive (when the drink was sweetened) or negative (when the drink was not sweetened). Thus, for the sweetened drinks, the actor reacted with either a positive verbal statement (i.e., "I like it") or a positive nonverbal facial expression (i.e., a smile); for the unsweetened drinks, the actor made either a negative verbal statement (i.e., "I don't like it") or a negative facial expression (i.e., a frown). For each trial, after the actor tasted a drink, she resumed a neutral expression. At this point, the video was paused, and the children were asked: "Do you think she liked the drink or not?" The videocassette was played on a videocassette recorder with a still pause feature so that the presentation could be paused to allow ample time for the child to answer. After the actor finished tasting the four drinks, a blank screen appeared for a few seconds, which was followed by the actor drinking another four new drinks. The above four One-Channel trials were repeated in a different, randomized order.

After the One-Channel Phase, two Two-Channel Phases followed in which children were shown videos in which the actor displayed both verbal and nonverbal behaviors. Children were assigned to either of two groups. In the *Naturalistic Group*, the experimental phase consisted of two within-subject conditions. In the Two-Channel Consistent condition, four new drinks were in front of the actor (two sweetened and two unsweetened). She reacted to two sweetened drinks with a smile and the statement "I like it" (the positive valence trials), and two unsweetened drinks with a frown and the statement "I don't like it" (the negative valence trials). In the Two-Channel Inconsistent condition, the actor drank another four new drinks (two sweetened and two unsweetened). She reacted to the two sweetened drinks with the statement "I don't like it" paired with a smile (the positive valence inconsistent trials), and the two unsweetened drinks with the statement "I like it" with a frown (the negative valence inconsistent trials). For all the trials, the actor was instructed not to mask her genuine reaction to the drinks and to display her reaction as naturally as possible (see Figure 1 for examples). The order of the four drinks for each



Figure 1. Examples of displays used for the Naturalistic Condition.

condition was randomized. Two versions of the video were used with each video containing the drink tasting vignettes in a different randomized order. Each child was randomly assigned to one of the two versions of the video as well as to one of two orders of two channel experimental conditions, either the Inconsistent condition first or the Inconsistent condition second.

For the *Exaggerated group*, the content of the video presentation was identical to that used for the Naturalistic group, except that the emotional behavior was exaggerated. The positive emotional display was modified such that the actor smiled, rubbed her stomach, licked her lips, and making a sound “mmmm.” The negative emotional display included the actor frowning, shuddering, wiping her mouth, and making a sound resembling “blech.” Once again, two versions of the video were used with each video containing the drink tasting vignettes in a different randomized order. Each child was randomly assigned to one of the two versions of the video as well as to one of two orders of two channel experimental conditions, either the Inconsistent condition first or the Inconsistent condition second. The entire session took approximately 10 minutes. Upon completion of the experiment, participants were given a small gift and thanked for their help.

To ensure that the difference between the Exaggerated and Naturalistic videos was due to the salience of the nonverbal channel, a control group of 24 adults ($M = 29.5$ years, $SD = 9.2$) was asked to rate the intensity of the verbal and nonverbal messages. Half of the participants watched a version of the Naturalistic video, while the other half watched a version of the Exaggerated video. Adults were asked to rate the intensity of positive or negative affect associated with the verbal and nonverbal messages of the actor for each of the test trials. They rated the intensity of emotion on a 7 point scale, with a rating of 1 for “strongly negative,” 7 for “strongly positive,” and 4 for “neutral.” For the verbal message, the television screen was

covered so participants heard the actor but could not see her nonverbal behavior. In rating the nonverbal behavior, the television screen was uncovered but the sound was muted so that participants could not hear what the actor was saying.

The intensity ratings were transformed so they were on the same scale of 0 for a neutral rating to 3 for very strong intensity. Analyses of Variance (ANOVAs) were then conducted to compare the intensity ratings by each group for the different valence trials for the verbal and nonverbal channels. There were no significant differences between the Naturalistic and Exaggerated groups in terms of their rating of the intensity of the verbal message regardless of whether the valence was positive or negative. However, there was a significant difference between the two groups for the nonverbal channel during both the positive and negative valence trials, $F(1, 18) = 9.67, p < .01$. Therefore, participants did find the nonverbal message to be more salient in the exaggerated condition.

Results

Preliminary analyses showed no effect for order of conditions and therefore the data were collapsed across this variable in subsequent analyses. For the One-Channel trials and the trials in the Two-Channel Consistent conditions where the actor's verbal and nonverbal cues conveyed a consistent message, most children in both groups performed perfectly (see Table 1). In cases where children did make mistakes, chi square analyses indicated that the children as a group still performed significantly above chance ($p < .05$). Therefore, children across all three age groups were able to use both the emotional and verbal cues separately or together to interpret whether the actor liked or disliked the drink.

To examine the performance of children in the Inconsistent conditions, children were divided based on which cues they chose to rely on across the two trials (see Figure 2). Children's responses were divided into those who relied on verbal cues for at least one trial, and those that relied entirely on nonverbal cues to solve the task. This division of response types in the present study allowed us to examine the pattern of cue types children at different ages relied on.

Two logistic regression analyses were conducted to compare the performance of children across age and condition (Naturalistic versus Exaggerated) for the positive and negative valence inconsistent trial types. The predicted variable was whether a child relied on verbal cues for at least one trial or relied entirely on nonverbal cues. In the regression model for the

TABLE 1
The Mean Scores and Standard Deviations for the One and Two Channel Positive and Negative Valence Conditions for Each Age and Group

Year	One channel				Two channels	
	Verbal-positive	Verbal-negative	Nonverbal-positive	Nonverbal-negative	Consistent-positive	Consistent-negative
3-year-olds						
Naturalistic	2.0 (0)	2.0 (0)	1.6 (.5)	1.3 (.7)	2.0 (0)	1.9 (.5)
Exaggerated	2.0 (0)	2.0 (0)	2.0 (0)	1.9 (.4)	2.0 (0)	2.0 (0)
4-year-olds						
Naturalistic	2.0 (0)	2.0 (0)	1.9 (.4)	2.0 (0)	2.0 (0)	2.0 (0)
Exaggerated	2.0 (0)	1.9 (.4)	2.0 (0)	1.9 (.3)	2.0 (0)	2.0 (0)
5-year-olds						
Naturalistic	2.0 (0)	2.0 (0)	2.0 (0)	2.0 (0)	2.0 (0)	2.0 (0)
Exaggerated	2.0 (0)	2.0 (0)	2.0 (0)	2.0 (0)	2.0 (0)	2.0 (0)

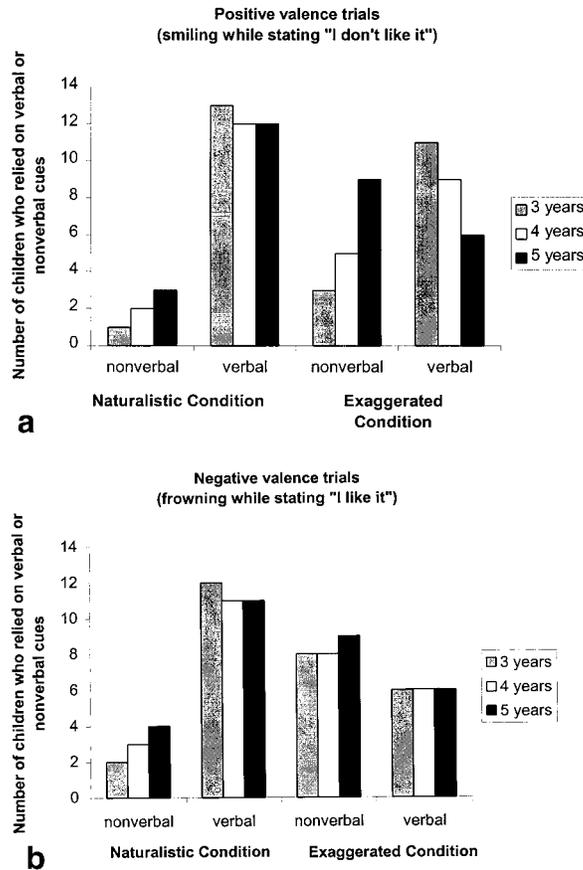
positive valence inconsistent trials, only the condition effect was significant, $\chi^2(N = 86, df = 3) = 13.25, p < .005$, Nagelkerke $R^2 = .19$. For the negative valence inconsistent trials, there was also a significant effect for condition, $\chi^2(N = 86, df = 3) = 12.94, p < .01$, Nagelkerke $R^2 = .20$, and a significant effect of age, $\chi^2(N = 86, df = 3) = 12.94, p < .01$, Nagelkerke $R^2 = .20$.

As shown in Figure 2, the majority of children in the Naturalistic condition, across age groups, relied predominately on verbal cues to solve the task regardless of the valence of the trial. Children in the Exaggerated condition, on the other hand were more likely to use nonverbal cues. Furthermore, a priori contrasts revealed that 5-year-olds were more likely to rely on nonverbal cues compared to 3-year-olds during the negative valence inconsistent trials.

The number of children in the Exaggerated condition relying on nonverbal cues appears to be greater in the negative valence inconsistent trials compared to the positive valence inconsistent trials. A sign test was therefore conducted to examine whether the valence of the trial had any effect on children's performance. Children were assigned one point for each trial they relied on nonverbal cues to determine whether or not the actor liked the beverage. Children's scores for the positive and negative valence inconsistent trials were then compared. No significant differences were found for valence type for any age for the Naturalistic condition. However, the distribution of scores for 3-year-olds was significantly different from chance ($p < .05$) for the Exaggerated condition. As shown in Figure 2, 3-year-olds were more likely to rely on the nonverbal cue in the negative valence inconsistent trials than in the positive valence inconsistent trials. However, no significant differences were found for 4- and 5-year-olds. Older children tended to continue using the nonverbal cue to respond regardless of the valence of the cue.

Discussion

The purpose of the present experiment was to determine if young children would use the verbal-nonverbal consistency principle to interpret an actor's mixed message. We used dynamic displays of nonverbal behavior and did not require children to recognize and label a lie in order to make the task easier for children. Despite these modifications, in the Naturalistic condition, where the nonverbal cues were more subtle, our findings appear to be consistent with the results from previous research that suggest younger children have a lexical bias (Demorest et al., 1984; DePaulo & Jordan,



Figures 2a and 2b. The number of 3-, 4-, and 5-year-olds in the Naturalistic and Exaggerated Conditions that relied on verbal or nonverbal cues on the positive and negative valence inconsistent trials.

1982; DePaulo et al., 1982; Friend, 2000, 2001, in press; Rotenberg et al., 1989). Children in the Naturalistic condition, regardless of age, relied strongly on the actor's verbal statement rather than her emotional expression to determine the true state of affairs. The children appeared to follow a rule opposite to the verbal-nonverbal consistency principle, that is, that "words speak louder than actions" (Demorest et al., 1984; Rotenberg et al., 1989). This lexical bias was clearly not due to young children's inability to decode the actor's emotional expressions. When the same emotional expressions were displayed alone in the one-channel condition, children in-

ferred correctly the actor's liking or disliking of a given drink based on her emotional expressions. The problem also cannot be attributed to children's problem with identifying a lie as children were only asked to decide whether the actor liked or disliked the drink.

However, the results from the Exaggerated condition revealed that the salience of an actor's nonverbal displays had a significant impact on young children's reliance on nonverbal cues for truth information. When the actor exaggerated her emotional expressions to make the nonverbal cues more salient in the Exaggerated condition, children of all ages started to rely more on the actor's nonverbal cues to determine whether the actor truly liked the drinks. In comparison with the children in the Naturalistic condition, those in the Exaggerated group were less reliant on the actor's verbal statements.

The use of nonverbal cues by preschoolers as young as 3 years of age to interpret inconsistent messages is much earlier than suggested by previous research that did not find this ability until 9 to 10 years of age (Demorest et al., 1984; DePaulo & Jordan, 1982; DePaulo et al., 1982; Rotenberg et al., 1989). This finding suggests that preschool children might not always have a lexical bias, although they still did not rely categorically on the "actions speak louder than words" principle. Except for some 3-year-olds' performance in the positive valence inconsistent trials, the salience of the nonverbal cues had a significant impact on most children's decisions about the actor's true state of liking or disliking. When the nonverbal cues are salient, they can use nonverbal cues for making such decision. Thus, one of the reasons for young children's reliance on the verbal cues during inconsistent communication reported in previous studies might be because verbal messages were more saliently conveyed than the nonverbal cues.

However, the finding that the valence type (i.e., positive versus negative expressions) affected how 3-year-olds responded in the task suggests that salience cannot explain the pattern of results entirely. In the Exaggerated group, 3-year-olds' reliance on the actor's emotional expressions over words was most pronounced in the negative valence inconsistent trials (where the actor stated that she liked the drink but displayed negative emotional responses). One possible explanation is that children's acquisition of display rules may have played a role. Display rules are social conventions about the appropriateness of emotional expressions for different situations (Saarni, 1979). They need to learn in which social context one needs to use a particular display rule and adopt apparent emotional expressions that differ from their truly felt emotions (e.g., faking pleasantry when receiving an unwanted gift). Banerjee (1997a) found that even 3-year-olds appreciated some basic reasons for inconsistencies in individuals' displayed emo-

tional expressions and their real emotions, though they did not perform as well as the 4- and 5-year-olds. Similar to our findings, several studies (Banerjee, 1997a; Friend & Bryant, 2000; Gnepp & Hess, 1986) have shown that children understand situations in which one must conceal negative emotions (i.e., negative valence situations) at an earlier age than the situation where one conceals positive emotions, likely due to the influence of socialization of cultural conventions.

The negative valence inconsistent trials in the present study might resemble the politeness situations that children often encounter in their daily interactions. The politeness situation requires individuals to make statements that are incongruent with their true feelings and beliefs to avoid harming interpersonal relations. More often than not, the felt emotion tends to be negative but the verbal statement is positive. Children may be exposed to this type of inconsistent communication as displayed by their parents. They are often encouraged and even taught to engage in this type of communication themselves (e.g., to fake pleasantries for receiving an undesirable Christmas gift from grandparents; Gnepp & Hess, 1986; Talwar & Lee, 2002). This suggestion is, however, rather speculative given a limitation of the present study. The present inconsistent condition (negative valence inconsistent trials) may not be perceived as a politeness situation because no necessary contextual information was given to suggest that the situation depicted in the video called for politeness. This is an issue that needs to be addressed in future studies. Also, gender differences have been found in the use of display rules (Cole, 1986; Saarni, 1984; Underwood, Hurley, Johanson, & Mosley, 1999; Zeaman & Garber, 1996). We could not examine gender differences due to the uneven number of males and females in each group, an issue that should also be addressed in the future.

It should be noted that 3- to 5-year-olds have yet to learn to use the verbal-nonverbal consistency principle appropriately. To do so, they must focus, and rely on nonverbal cues regardless of their salience during inconsistent communication. Our results suggest that children under 5 years of age do not yet have this ability, which may be acquired during the elementary school years. As the present study showed, many preschoolers still have a strong lexical bias under some conditions.

Exactly what factors contribute to children's lexical bias and their eventual loss of it is largely unknown and yet to be determined by future studies. Nevertheless, existing research on this issue, and related areas of development provides sufficient information for informed speculations. A number of factors may play an important role. For example, level of cognitive development may affect how young children handle inconsistent messages. Part of their difficulty could be in trying to cope with two different

representations at one time, a problem with metarepresentation (Perner, 1991). Young children may have difficulty holding the different information from the verbal and nonverbal channels simultaneously. They would, therefore, be forced to choose one representation to focus on. With increased cognitive capacity after preschool years (Case, 1992), children may become capable of metarepresentation, which in turn would allow them to assess and integrate inconsistent verbal and nonverbal messages and make appropriate decisions about which message to believe.

The ability for metarepresentation is necessary but not sufficient for children to overcome their over-reliance on the verbal channel. Children also need to understand that the true meaning of a message is not solely determined by what is said. Rather, one must take the sender's intentions into consideration when determining the meaning of another's communicative acts (Lee, 2000). In other words, children's knowledge about intentionality or theory of mind understanding needs to reach an adequate level. Research has found that preschoolers have just begun to recognize the importance of the speaker's intention in communication (e.g., Lee & Cameron, 2000). With increased theory of mind understanding beyond the preschool years, children may develop the ability to infer a speaker's communicative intention when the speaker communicates inconsistently. With this intentional information, children can then make decisions about whether to believe or disbelieve an individual's verbal statement.

Language development also plays an important role in determining which cues children use in interpreting inconsistent communication. Recent research (e.g., Friend, 2000, 2001, in press) has found that infants tend to rely on emotional expression to interpret the situation where verbal and nonverbal messages are inconsistent. However, by the end of infancy young children begin to gradually shift to relying more on verbal information. Friend (2001) found that this shift was due to young children's increasing knowledge about their first language. The more advanced young children are in language acquisition (e.g., vocabulary), the more likely they are to rely on the verbal cue for truth information during inconsistent communication. However, as children's language ability further develops, their over-reliance on the verbal channel weakens, which begins around 7 years of age (Friend, 2000).

The difference in performance between the different valence conditions in the present study suggests that cognitive and language factors are not the sole influences in the acquisition of the verbal-nonverbal consistency principle. Knowledge of cultural conventions may play an important role as well (Lee, 2000). In addition, children's understanding of display rules (Banarjee, 1997a, 1997b; Josephs, 1994), and their familiarity with in-

consistent communicative situations (e.g., Halberstadt, Denham, & Dunsmore, 2001) could also affect children's interpretation of inconsistent messages. As these studies have shown, such knowledge often develops gradually beyond preschool years. However, relying on salience rather than on lexical information exclusively by some of the children in the present study suggests that young children have already acquired the cognitive flexibility to overcome the lexical bias. This flexibility is needed in order for the factors identified above to exert their influence on children, which in turn will lead children to overcome the lexical bias and to develop the ability to use appropriately the verbal-nonverbal consistency principle.

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