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## Students as Judges of Teachers' Verbal and Nonverbal Behavior

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*Students differing in ages and teachers differing in experience were exposed to extremely brief samples of teacher behavior when talking about, and talking to, students for which they held high or low expectations. Judgments of teacher characteristics as well as those of the unseen student with whom the teacher was involved were collected. An expectancy detection effect was found such that when teachers were involved with their high-expectancy student, raters judged the unseen student more positively than when teachers were involved with their low-expectancy student. This detection was facilitated differentially by the teachers' verbal and nonverbal behavior. Ratings of teacher characteristics showed similar expectancy effects but only for older raters. Findings demonstrate the detectability of teachers' expectancy-related behavior. We discuss the implications of young students' detecting teacher expectancies from brief samples of behavior and the educational significance of the observed discrepancies between verbal and nonverbal communications.*

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This research investigates sensitivity to teachers' verbal and nonverbal communication, in extremely brief samples of context-minimal behavior, among five groups of judges—ranging developmentally from fourth grade students to experienced teachers. The judges rated very brief (videotaped) samples of teacher behavior in separate channels (audio only, video only, and audio-video) when talking about and talking to high- and low-expectancy students (i.e., students for whom they held high or low academic expectations). A previous study (Babad, Bernieri, & Rosenthal, 1989b) showed that adult judges (advanced education students) clearly diagnosed expectancy effects (i.e., differential behavior toward high- and low-expectancy students) from such brief clips, with the most substantial effects found for affective and nonverbal teacher behaviors.

Three aspects characterize the approach to the investigation of expectancy-related teacher behavior that we have employed in our recent studies (Babad, Bernieri, & Rosenthal, 1987, 1989a, 1989b): (1) the analysis of extremely brief samples of context-minimal behavior; (2) the isolation of specific verbal and nonverbal channels; and (3) the examination of teacher behavior when speaking *about* students and speaking *to* students. The innovation in the present study consists of the employment of very young students as observers and judges of teacher behavior. Students have been shown to be keen judges of teachers' differential behavior (Weinstein, 1985, 1989; see also Babad, 1990), but in those studies they made attributions about the behavior of their own teachers on the basis of a long history of interaction, whereas in this study students rated 10-second behavior samples of unfamiliar teachers. A methodological innovation in this study is the direct measurement of expectancy effects through *detection*: using the teacher's behavior toward an unseen student as a basis for guessing the student's level of excellence and the teacher's love<sup>1</sup> for that student. The conventional design in mediation of expectancy research involves *inferences* about expectancies from differences in characteristics of teacher behavior (e.g., rating teacher's warmth or hostility in behavioral instances, then comparing mean ratings for high- and low-expectancy students).

Three areas in educational and social psychology provided the conceptual and methodological foundations for this investigation: (1) the study of teacher expectancies (Dusek, 1985), and particularly the investigation of the behavioral mediation of expectancies (see Brophy, 1983; Harris & Rosenthal, 1985); (2) research on students' sensitivity to teachers' differential behavior (Weinstein, 1985, 1989; see also Babad, 1990); and (3) the study of nonverbal communication, particularly as related to deception and detection (DePaulo & Rosenthal, 1979; Ekman & Friesen, 1974; Rosenthal, 1979; Rosenthal, Blanck, & Vannicelli, 1984; Zuckerman, De Paulo, & Rosenthal, 1986).

A variety of models have been proposed to conceptualize the processes mediating between teachers' expectations and students' performance (e.g.

Brophy, 1983; Brophy & Good, 1970, 1974; Cooper, 1979, 1985; Cooper & Good, 1983; Darley & Fazio, 1980; Peterson & Barger, 1985). All of these models emphasize the importance of two links in the mediation process: (1) that teacher expectations (whether self-fulfilling prophecies or self-sustaining expectancies—see Cooper, 1979; Darley & Fazio, 1980; Salomon, 1981) are expressed in differential teacher behavior, and (2) that students perceive teachers' differential behavior and interpret its intent. The first link has been investigated extensively since the publication of *Pygmalion in the Classroom* by Rosenthal and Jacobson in 1968, but the second link has been relatively ignored (except for studies by Weinstein and her associates, to be discussed later).

Brophy (1983, 1985) summarized from various studies 17 categories of differential behavior found to mediate teacher expectancies. Harris and Rosenthal (1985) conducted meta-analyses on 31 behaviors derived from 135 mediation studies, clustering them into a four-factor model of mediation (climate, feedback, input, and output—see Rosenthal, 1973). The findings repeatedly indicated the subtle and elusive nature of influential teacher behaviors transmitted to students differentially. Very fine nuances in teacher behavior—many of which are nonverbal, uncontrollable, unconscious, and often undetected in natural observation—seem to have substantial, accumulating effects on students. The situation is further complicated by teachers' intentional attempts to control their differential behavior and act equitably, or to compensate low achievers by teaching them more and investing more effort in them. Praise and criticism—intuitively considered to reflect expectancies most saliently—are easily controllable and therefore showed the smallest effect magnitudes in meta-analyses (Harris & Rosenthal, 1985), whereas negative affect toward low-expectancy students leaks through less controllable channels (Babad et al., 1989a, 1989b; see later discussion).

Educational researchers have traditionally used natural observations conducted by trained judges in the classroom. Investigators of nonverbal communication often employ a different strategy (Rosenthal, 1979; Rosenthal, Hall, DiMatteo, Rogers, & Archer, 1979) isolating channels of communication (e.g., face, body, etc.), eliminating most of the verbal content, and analyzing very brief samples of context-free behavior, so that judgments can be ascribed to particular channels and combinations of channels.

We developed a context-minimal approach for analyzing teachers' differential behavior (Babad et al., 1987, 1989a, 1989b). Brief segments of teachers' behavior were recorded while teachers talked to and talked about students for whom they had high or low expectations. The context was minimized through (a) the use of very brief video segments—10 seconds; (b) the showing of only the teacher and not the student; and (c) the isolation of communication channels. These recorded samples of teacher behavior represented four basic, separate channels: face, body, audio (i.e.,

hearing teacher's speech in a given segment), and transcript (i.e., reading the words spoken by the teacher in a given segment). By combining channels, nine experimental conditions were created (e.g., face and body—seeing the teacher without hearing anything; body and audio—seeing the teacher's body while hearing her speech; etc.). Statistical composites of experimental conditions made it possible to examine combinations such as “face present” (all segments where teacher's face was seen, in all body and audio combinations), “video present” (all segments where the teacher's picture was seen), or “audio present” (all segments where teacher's voice was heard).

In the next stage, each segment was viewed by a group of judges (advanced education students) who rated it on a series of 10 characteristics (e.g., warmth, hostility, clarity of communication, etc.). Thus, for example, in one instance judges rated teacher's friendliness from viewing her face (without hearing anything) for 10 seconds when the teacher was (unbeknownst to the judges) talking about a student for whom she held low expectations. “Expectancy effects” consisted of the differences between mean ratings of teacher behavior concerning high- versus low-expectancy students.

Using this method, we demonstrated that groups of teachers (preschool, elementary, and remedial teachers) can be distinguished from each other on the basis of patterns of verbal and nonverbal behavior (Babad et al., 1987), and that negative affect which teachers try to conceal “leaks” and can be detected by observers (Babad et al., 1989a). Leakage is characterized by discrepancies in communicated affect between channels that are more controllable and less controllable (for a discussion of a leakage hierarchy of communication channels, see Depaulo & Rosenthal, 1979; Rosenthal & DePaulo, 1979; and Zuckerman, DePaulo, & Rosenthal, 1981). In a third investigation utilizing this method (Babad et al., 1989b), we diagnosed substantial expectancy effects in context-minimal measurement, particularly in affective and nonverbal behaviors. When talking *about* low-expectancy compared to high-expectancy students, teachers showed more negative affect (that is, being more hostile, condescending, and tense) in the nonverbal channels, and more dogmatism (that is, being less democratic, warm, and flexible) in the nonverbal and transcript channels. When talking to students and teaching them briefly, facially communicated expectancy differences were found in ratings of negative affect and active teaching behavior. The results (1989a, 1989b) also supported hypothesized differences between biased and unbiased teachers (bias being defined as susceptibility to stereotypically biasing information in scoring drawing test samples; see Babad, 1979).

Two aspects of the previous studies must be emphasized since they were modified in the present investigation. First, like other investigators, we used in the above studies only adult judges—advanced university

students majoring in education. Second, the dependent variables were ratings of characteristics of teacher behavior, and expectancy effects were inferred from differences between mean ratings of clips relating to high- and low-expectancy students.

Despite the consensus about the importance of *students'* perceptions as a central link in the mediation process, relatively little research has focused on students' perceptions. Most of the relevant work was conducted by Weinstein and her associates (Brattesani, Weinstein, & Marshall, 1984; Marshall & Weinstein, 1986; Weinstein, 1983, 1985, 1989; Weinstein, Marshall, Sharp, & Botkin, 1987; Weinstein & Middlestadt, 1979). In an impressive series of studies, they established the fact that children are indeed highly sensitive to their teachers' differential behavior, describing it in a consistent manner. Even very young children in the early elementary grades were sensitive to teachers' differential behavior independent of their gender or ability level. Similar findings were reported by Babad (1990), who compared students' perceptions of their teachers' differential behavior to the teachers' own perceptions (finding teacher/student similarities in the learning-related domain, and dissimilarities of perceptions concerning the affective domain).

When researchers employ adults as judges in mediation of expectancy research, they probably assume that young students actually experience what the adult observers perceive. We have not come across a study employing children as "objective" observers or judges of teachers other than their own. In Weinstein's (1985, 1989) and Babad's (1990) investigations, no specific instances of teacher behavior can be isolated for systematic analysis since the students were asked to make attributions rather than judge actual, specific behaviors. Students must be asked to judge specific behaviors enacted by teachers they are not familiar with, so that their judgments can be compared to those of more experienced, adult judges. Five groups of judges were employed in this study: fourth graders (averaging about 10 years of age), seventh graders, tenth graders, teachers-in-training, and experienced teachers.

The present research was divided into two studies through the usage of two alternative sets of dependent variables—one set of ratings characterizing teacher behavior and a second set focusing directly on the detection of teacher expectancy. Teacher characteristics (warm, flexible, hostile/condescending, tense/nervous, active, and dominant) were selected from our previous studies, and they reflect behaviors in the "climate" and "input" factors which were found influential in meta-analyses of expectancy mediation studies (Harris & Rosenthal, 1985). The detection approach is novel in this kind of educational research: instead of asking the judges to rate the extent to which the teacher appeared flexible, condescending, etc., in a given clip, the judges were asked to make guesses about the unseen and unheard student under consideration in each clip, rating the student's scholastic excellence and the teacher's love for that student. It makes sense

to ask directly for the respondent's own intuitive conclusion about the teacher's expectancy instead of inferring it from judgments of behavioral characteristics. We believe that children do not think about teachers analytically, and behavioral characteristics such as "flexible" or "dominant" are probably foreign to their cognitive process, whereas defining a student as excellent or weak or wondering how much the teacher loves a particular student is more familiar. Adults, especially teachers, are socialized in "educational" language, and therefore they can more readily provide quantitative assessments for behavioral variables.

## Method

### Judges

A total of 151 individuals served as judges in this research, 80 judges in the detection study, and 71 in the teacher characteristics study. The judges represented five age groups: (1) fourth grade students from a Jerusalem elementary school ( $N = 39$ , 24 detection and 15 teacher characteristics judges), average age about 10 years; (2) seventh grade students from a Jerusalem junior high school ( $N = 37$ , 21 and 16 judges, respectively), average age about 13 years; (3) tenth grade students from a Jerusalem high school ( $N = 33$ , 14 and 19 judges, respectively), average age about 16 years; (4) teachers-in-training in an Israeli Teacher Training Institution (first year of training) ( $N = 23$ , 12 and 11 judges, respectively), average age about 19–20 years; and (5) experienced elementary school teachers, in in-service training for a "Senior Teacher" certificate ( $N = 19$ , 9 and 10 judges, respectively), representing a wide age range.

Each group of judges consisted of an entire, intact classroom (in school or in in-service training), and both the detection ratings and the teacher characteristics ratings were collected concurrently in one session. The number of judges in each age group varied as a function of the size of the intact classroom involved. Within each classroom, the two types of questionnaires were randomly distributed. Two experimenters were present in each classroom, and each distributed one of the rating forms. Within-class differences in the number of judges for each rating occurred when one experimenter was faster than the other in distributing the forms.

### Preparation of Clips

All clips used in this study were selected from our previous research (Babad et al., 1987, 1989b). For that research, teachers were videotaped while they talked for several minutes about two students from their classroom, a good student of high potential and a weak student of poor potential. Very brief (10-second) clips of the teacher's face, body, face and body, and speech were recorded while the teacher talked about each student. The two students described by each teacher were subsequently summoned in-

dividually to the classroom and were taught by the teacher for 2–5 minutes. Brief clips were recorded while the teacher was interacting with the high- or low-expectancy student. Care was taken that only the teacher would be videotaped, and the child would not be seen and/or heard on any of the clips.

Our previous research included 19 teachers in the “talking about” condition, and 11 of them were also recorded in the “talking to” condition. We prepared for each teacher 36 clips—representing 9 channels (e.g., face, face and audio, transcript, tone of voice, etc.)  $\times$  2 conditions (about/to)  $\times$  2 students (high/low expectancy). The stimuli in this study were clips of four teachers, selected from among the 11 teachers in our 1989b study, for whom complete “about and to” data were available. To ensure representativeness, we created on the basis of the 1989b data four ad hoc empirical “cells” reflecting above- and below-median expectancy effects in verbal and nonverbal channels. One teacher was selected at random from each cell for the present study. However, the results presented in this article pertain to mean ratings for all four teachers.

Three channels were used in this study: audio (hearing teacher’s speech for 10 seconds, without seeing anything); video (seeing teacher’s face and body for 10 seconds, without hearing anything); and audio-video (hearing and seeing teacher’s face and body and audio for 10 seconds). The audio and video channels we chose for this study were combination, rather than pure channels: audio combined verbal content and tone of voice, and video combined face and body. Other choices could have been made (such as using the face alone, instead of face and body, to represent video, and using written transcript to represent verbal content, instead of audio) but it made more sense to use total hearing and seeing to represent audio and video.

In total, 12 clips were shown for each teacher: 3 channels (audio/audio-video/video)  $\times$  2 conditions (about/to)  $\times$  2 students (high/low expectancy). The judges rated a total of 48 clips (plus two initial practice clips of another teacher). The 12 clips for each teacher were set in a fixed randomized order, and the judges viewed all clips of one teacher before they moved on to the next teacher (this was designed to focus on within-teacher variance, as explained in detail in our statistical rationale, Babad et al., 1989b).

### **Judges’ Ratings**

For each clip, half of the judges in each age group completed two detection ratings, focusing on the student who was the target of the teacher’s communication, and the other half completed six ratings characterizing the teacher’s behavior. The judges were not given any information about the purpose of the research, its design, or the specific conditions under which the clips were recorded. They were only told that the research investigated teacher-student interaction. It was made clear that although only the teacher

would be seen and/or heard on each clip, a particular student was always under consideration (and each clip could involve a different student).

All judgments were made on 9-point bipolar rating scales. In the detection study, each clip was rated on two scales: *Excellent (9)—Weak (1) student* and *Loved (9)—Not loved (1) by teacher*. Although the student was neither seen nor heard, respondents did not have any difficulty making inferences about the student. For the teacher characteristics study, we chose six scales from our previous studies (Babad et al., 1987, 1989a, 1989b), two each representing the three factors by which the previous data were analyzed. The first two ratings were *Warm (9)—Cold (1)* and *Flexible (9)—Rigid (1)*, representing the “nondogmatic” factor of the previous studies. A composite “warm and flexible” mean score was used in data analysis. (As mentioned, composite scores were based on factor analyses reported in the 1989b study, following the same statistical procedures for reducing the amount of data to be presented.) The next two ratings were *Hostile & Condescending (9)—Friendly (1)* and *Tense & Nervous (9)—Relaxed (1)*, representing the “negative affect” factor of the previous studies. A composite “negative affect” score was used in data analysis. The last two ratings represented the “activity” factor: *Active & Enthusiastic (9)—Indifferent (1)* and *Dominant (9)—Non-dominant (1)*. A composite “level of activity” score was used in data analysis.

## Results

### Initial Statistical Considerations

The results were analyzed in a series of  $2 \times 3$  ANOVAs (high/low expectancy  $\times$  3 channels) separately for the talking about and talking to conditions, and separately for each group of judges. A second set of analyses consisted of one-way ANOVAs testing expectancy effects (high- versus low-expectancy) within each channel and within each group of judges. These ANOVAs are conceptually equivalent to matched-pair *t*-tests since  $t\text{-squared} = F$  (Rosenthal & Rosnow, 1985). The report of *t*-tests is more useful than *F*-tests because of the inherent directionality of *t*-tests and because they permit one- and two-tailed testing of specific research hypotheses. Therefore, *ts* are reported in Tables 3 to 7, along with their associated one-tailed *p* values (Rosenthal, 1984). Effect magnitudes are presented in these tables in terms of *r*.

Tables 1 and 2 present the mean ratings of the various groups of judges for each condition in the detection study (Table 1) and the teacher characteristics study (Table 2).

### Detection Study

Expectancy main effects across channels and within channels are presented in Table 3 (detection of student's excellence) and Table 4 (detection of teacher's love).

Table 1  
**Detection Study: Means of Judges' Ratings for Excellent Student & Loved Student for All Channels**

Judges	N	Talking about student						Talking to student											
		Audio			A-V			Video			Audio			A-V			Video		
		High	Low		High	Low		High	Low		High	Low		High	Low		High	Low	
		exp.	exp.	exp.	exp.	exp.	exp.	exp.	exp.	exp.	exp.	exp.	exp.	exp.	exp.	exp.	exp.	exp.	exp.
<b>I. Student's excellence</b>																			
Fourth grade	24	6.5	4.6		5.1	4.6		5.1	5.4		4.7	4.3		5.2	4.0		4.5	4.1	
Seventh grade	21	6.8	5.1		5.3	5.6		5.0	5.0		5.5	4.3		5.8	4.4		5.1	4.2	
Tenth grade	14	5.9	4.8		6.3	3.9		4.5	4.9		5.1	4.2		5.8	5.2		5.6	4.5	
Teachers-in-training	12	6.7	3.3		6.1	3.0		3.8	4.6		6.6	5.2		5.6	4.7		5.3	4.6	
Experienced teachers	9	6.2	4.3		5.3	3.2		3.9	4.7		5.4	4.7		4.8	4.0		4.9	3.8	
<b>II. Loved by teacher</b>																			
Fourth grade		6.3	4.7		5.7	4.9		5.4	5.9		5.1	5.3		6.1	6.0		6.3	5.9	
Seventh grade		6.9	5.3		5.4	5.7		5.3	5.6		5.3	4.9		6.2	5.8		5.9	4.9	
Tenth grade		6.0	4.8		6.4	4.3		4.6	4.7		5.5	5.2		6.5	5.8		6.3	5.1	
Teachers-in-training		7.4	4.8		6.3	5.2		4.8	5.2		6.5	6.3		6.4	5.5		6.1	5.2	
Experienced teachers		6.8	5.1		6.2	4.3		4.8	5.7		5.8	5.5		6.6	5.5		6.2	5.2	

Note. "High-expectancy" was a good student of high potential; "low-expectancy" was a weak student of low potential—both selected by the teacher.

Table 2  
**Teacher Characteristics Study: Means of Judges' Ratings for Warmth & Flexibility, Negative Affect, & Level of Activity for All Channels**

Judges	N	Talking about student						Talking to student					
		Audio			Video			Audio			Video		
		High exp.	Low exp.	A-V	High exp.	Low exp.	A-V	High exp.	Low exp.	A-V	High exp.	Low exp.	A-V
<b>I. Warmth &amp; flexibility</b>													
Fourth grade	15	5.7	5.3	5.6	5.1	5.4	5.7	5.3	5.6	5.7	5.0	5.7	5.3
Seventh grade	16	5.5	5.1	5.1	5.3	5.0	4.7	5.0	5.5	6.4	6.4	5.5	5.4
Tenth grade	19	4.8	4.7	4.8	4.6	4.8	4.7	5.3	5.5	6.0	5.7	6.0	5.3
Teachers-in-training	11	4.7	4.1	4.3	4.5	4.1	4.4	5.0	5.2	5.1	4.5	5.8	4.3
Experienced teachers	10	5.2	5.0	4.3	4.6	4.8	4.4	5.9	5.4	5.2	4.9	5.3	5.0
<b>II. Negative affect</b>													
Fourth grade		5.3	5.4	5.4	4.9	4.9	5.0	5.6	5.4	4.8	5.0	4.9	5.3
Seventh grade		4.5	5.1	4.8	4.5	4.6	4.8	5.4	4.9	4.4	4.1	4.6	4.8
Tenth grade		5.0	4.9	4.8	4.9	4.8	5.0	4.5	4.3	3.8	4.1	3.5	4.6
Teachers-in-training		4.2	4.6	4.8	4.4	4.2	4.3	4.3	4.8	4.5	4.6	3.8	5.1
Experienced teachers		4.4	5.0	4.5	4.8	4.5	4.8	3.8	4.1	4.5	5.2	4.5	4.4
<b>III. Level of activity</b>													
Fourth grade		5.1	5.4	5.4	5.1	5.2	5.7	5.6	5.8	6.2	6.1	6.0	5.7
Seventh grade		5.4	5.8	5.6	4.7	4.8	5.5	5.2	5.9	6.2	6.6	6.4	5.7
Tenth grade		4.6	4.5	4.7	4.5	4.9	5.0	4.6	5.1	6.2	6.0	6.6	5.6
Teachers-in-training		4.3	4.0	4.3	4.8	4.0	4.7	4.8	4.8	5.9	5.4	6.3	5.2
Experienced teachers		5.7	5.0	4.6	4.9	5.2	5.1	5.3	5.5	6.5	6.4	6.4	6.3

Note. "High-expectancy" was a good student of high potential; "low-expectancy" was a weak student of low potential—both selected by the teacher.

Table 3  
**Detection Study: Expectancy Main Effects (Across Channels) & Channel-by-Channel Expectancy Contrasts of Judges' Ratings of Student's Excellence**

Judges	Expectancy main effect <sup>a</sup>		Expectancy contrasts by channel					
	<i>F</i> (1, <i>df</i> )	<i>Eta</i>	Audio		A-V		Video	
			<i>t</i>	<i>r</i>	<i>t</i>	<i>r</i>	<i>t</i>	<i>r</i>
<b>I. Talking about student</b>								
Fourth grade	8.00**	.53	5.17***	.73	1.35*	.27	-0.78	-.16
Seventh grade	25.99***	.79	5.90***	.80	-1.26	-.27	0.05	.05
Tenth grade	17.29***	.78	4.73***	.80	6.89***	.89	-1.57*	-.40
Teachers-in-training	55.94***	.94	8.34***	.93	7.30***	.91	-2.91***	-.66
Experienced teachers	11.80**	.79	3.49***	.78	3.82***	.80	-3.28***	-.76
<b>II. Talking to student</b>								
Fourth grade	10.30***	.57	1.19	.24	4.57***	.69	1.09	.22
Seventh grade	25.78***	.79	4.48***	.68	4.14***	.65	2.19**	.42
Tenth grade	25.21***	.86	3.88***	.73	2.49***	.57	3.23***	.67
Teachers-in-training	111.05*** <sup>b</sup>	.98	4.88***	.83	3.17***	.69	2.75***	.64
Experienced teachers	7.30**	.77	3.14***	.74	2.33**	.64	2.66**	.69

Note. Positive values of *t* and *r* indicate that the high-expectancy student was rated as more excellent. The *df*'s associated with each significance test vary slightly from condition to condition due to the random occurrences of incomplete ratings (this applies to the data in Tables 3-7).  
<sup>a</sup>Collapsed over three channels. <sup>b</sup>Due to missing data, this *F* is based on only 5 *df*.  
 \**p* < .10; \*\**p* < .05; \*\*\**p* < .01; all *t*'s are one-tailed.

Table 4  
**Detection Study: Expectancy Main Effects (Across Channels) & Channel-by-Channel Expectancy Contrasts of Judges' Ratings of the Extent Student is Loved by Teacher**

Judges	Expectancy main effect <sup>a</sup>		Expectancy contrasts by channel							
	<i>F</i> ( <i>1,df</i> )	<i>Eta</i> <sup>2</sup>	Audio		A-V		Video			
			<i>t</i>	<i>r</i>	<i>t</i>	<i>r</i>	<i>t</i>	<i>r</i>		
I. Talking about student										
Fourth grade	12.44***	.61	6.23***	.79	2.62***	.48	-1.80**	-.35		
Seventh grade	1.83	.32	4.81***	.73	-0.75	-.17	-0.98	-.21		
Tenth grade	31.09***	.86	4.47***	.78	6.18***	.86	-0.57	-.16		
Teachers-in-training	44.89***	.92	13.53***	.97	2.19**	.55	-0.95	-.28		
Experienced teachers	27.98***	.89	3.81***	.80	4.51***	.85	-2.76**	-.70		
II. Talking to student										
Fourth grade	< 1	.13	-1.10	-.22	0.46	.10	1.74**	.34		
Seventh grade	5.07**	.49	1.00	.22	1.02	.22	2.72***	.52		
Tenth grade	6.67**	.65	1.24	.33	2.02**	.49	2.64**	.59		
Teachers-in-training	13.89***	.86	0.93	.27	2.94***	.66	2.10**	.54		
Experienced teachers	14.72***	.86	2.31**	.63	3.57***	.78	2.16**	.61		

Note. Positive values of *t* and *r* indicate that the high-expectancy student was rated as better loved by the teacher.  
<sup>a</sup>Collapsed over three channels.  
 \**p* < .10; \*\**p* < .05; \*\*\**p* < .01; all *t*'s are one-tailed.

The expectancy main effects in Tables 3 and 4 showed that all groups of judges (including the young students) did not have any difficulty detecting student's excellence and teacher's love. All  $F$  values in Table 3, and 8 of the 10  $F$ s in Table 4 were significant and effect magnitudes were substantial. Thus, although the student was neither seen nor heard on the clips, the teacher's conduct gave sufficient information to rate the high-expectancy student as more excellent and better loved than the low-expectancy student.

Examination of the channel by channel expectancy effects in Tables 3 and 4 illuminates how the detection was made. Different patterns were found for the talking about and talking to conditions and for the audio and video channels, indicating that the judges derived different types of information from different clips. In the talking about condition, the pattern was uniform for student's excellence and teacher's love, showing that the detection was made through the teacher's speech. Large expectancy differences were found for the audio channel, and the combined audio-video channel yielded results that were similar to the audio findings. Thus, the judges detected whether the student was excellent and loved from both what the teacher said in those 10 seconds and how she said it. In this brief time period, the teacher might have had time enough to say only a word or two conveying her feelings about the student. In talking about students when they are not present, teachers may not be cautious in choosing their words, allowing themselves to verbalize their impressions (i.e., expectations) quite freely.

The video channel in the talking about condition showed a reversed, although nonsignificant, trend in most contrasts: the low-expectancy student tended to be judged from the teacher's facial and bodily expressions as somewhat more excellent and loved. (Since the expectancy hypothesis is one-tailed, reversed  $t$ s should not be significant technically.) Thus, the videotaped teachers might have transmitted contradictory messages in their speech and face and body. However, as mentioned above, the overwhelming magnitudes of the overall detection effects indicated that detection was influenced most strongly by the teacher's speech (content and tone of voice) about the students in these clips.

The situation was quite different in the talking to condition, where it seems that the teachers exercised more control over their speech, carefully monitoring how they spoke to the high- and low-expectancy student. In this condition, the video channel made a greater contribution to detection, although the patterns for excellence and love differed from each other. Student's excellence was detected from *both* the audio and video channels, whereas teacher's love was detected from the video channel (sometimes supported by the audio-video channel) but not from the audio channel. The high-expectancy student taught by the teacher, was perceived to be more excellent from the way the teacher looked and sounded, and judged to be more loved from the teacher's facial and bodily expressions.

“Teacher’s love” represents a more affective dimension than “student’s excellence.” Therefore, it is not surprising that the visual stimuli—expressions of the teacher’s face and body—played a more central role in detection of her love or lack thereof. Our previous research (Babad et al., 1987, 1989a, 1989b) systematically showed that affective aspects are more detectable from the visual, face, and body channels.

To summarize the results of the detection study, the 10-second clips depicting only the teacher’s behavior in audio and/or video channels, provided *all* groups of judges—including the very young students—with sufficient information to detect whether the student involved was excellent or poor, and how much the teacher loved the student. Averaging the data over the three channels, only minor differences were found among the age groups with all judges showing quite overwhelming detection. On the other hand, different patterns were found for the audio and video channels in the talking about and talking to conditions.

### Teacher Characteristics Study

Expectancy effects across channels and within channels for the ratings of teachers’ characteristics are presented in Table 5 (warmth and flexibility), Table 6 (negative affect) and Table 7 (level of activity).

The results of the teacher characteristics study were generally less clear and less consistent than those of the detection study. No significant expectancy main effects were found for the talking about condition, and in the talking to condition, significant effects were found only for the adult judges. Thus, while the young judges could readily detect student’s excellence and teacher’s love from these clips, they had difficulty identifying expectancy differences in terms of specific characteristics of teachers’ behavior. As will be shown, the young judges were “mised” several times by the teachers’ speech (audio)—compared to their own visual perceptions and the ratings of the adult judges.

The results for the warmth and flexibility composite are presented in Table 5. No main effect was found for the talking about condition, but the specific contrasts (and the means in Table 2) showed a trend of expressing somewhat more warmth and flexibility when talking about the high-expectancy student. In the talking to condition, several effects were observed, especially for the older judges. The trend was again one of expressing more warmth and flexibility toward the high-expectancy student, and the judges derived that impression mostly from the video channel (sometimes together with the audio-video channel). These findings were in line with our 1989b results.

The audio channel in the talking to condition (Table 5) tended to mislead the younger judges (but not the experienced teachers) to perceive more warmth and flexibility directed at the low-expectancy student (negative *rs* for four groups in the audio contrasts). The younger judges

Table 5  
**Teacher Characteristics Study: Expectancy Main Effects (Across Channels) & Channel-by-Channel Expectancy Contrasts of Judges' Ratings of Teacher's Warmth & Flexibility**

Judges	Expectancy main effect <sup>a</sup>		Expectancy contrasts by channel						
	<i>F</i> (1, <i>df</i> )	<i>Eta</i> <sup>2</sup>	Audio		A-V		Video		
			<i>t</i>	<i>r</i>	<i>t</i>	<i>r</i>	<i>t</i>	<i>r</i>	
I. Talking about student									
Fourth grade	1.44	.26	1.88**	.39	0.99	.22	-1.17	-.25	
Seventh grade	2.87	.40	0.81	.21	-0.79	-.20	1.57*	.38	
Tenth grade	< 1		0.22	.07	0.73	.23	0.70	.22	
Teachers-in-training	1.91	.46	1.82*	.57	-0.65	-.24	-0.95	-.34	
Experienced teachers	< 1		0.51	.20	-0.94	-.36	3.11**	.79	
II. Talking to student									
Fourth grade	3.10*	.37	-1.56*	-.32	3.20***	.58	1.25	.27	
Seventh grade	1.07	.26	-1.59*	-.31	0		0.10	0.03	
Tenth grade	1.81	.39	-0.81	-.25	1.51*	.43	2.65**	.64	
Teachers-in-training	3.83*	.59	-0.67	-.25	2.00**	.60	4.26***	.85	
Experienced teachers	7.07**	.74	1.71*	.57	1.38	.49	1.21	.44	

Note. Positive values of *t* and *r* indicate that more warmth and flexibility was rated for the high-expectancy student.

<sup>a</sup>Collapsed over three channels.

\**p* < .10; \*\**p* < .05; \*\*\**p* < .01; all *t*'s are one-tailed.

**Table 6**  
**Teacher Characteristics Study: Expectancy Main Effects (Across Channels) & Channel-by-Channel Expectancy Contrasts of Judges' Ratings of Teacher's Negative Affect**

Judges	Expectancy main effect <sup>a</sup>		Expectancy contrasts by channel					
	$F(1,df)$	$\eta^2$	Audio		A-V		Video	
			$t$	$r$	$t$	$r$	$t$	$r$
<b>I. Talking about student</b>								
Fourth grade	< 1		-0.10	-.02	1.08	.24	-0.35	-.08
Seventh grade	2.16	.35	-1.25	-.31	0.85	.21	-0.45	-.11
Tenth grade	< 1		0.42	.13	-0.69	-.21	-0.62	-.19
Teachers-in-training	< 1		-1.70*	-.54	1.59*	.52	-0.17	-.07
Experienced teachers	1.09	.39	-1.56*	-.54	-0.89	-.34	-1.52*	-.53
<b>II. Talking to student</b>								
Fourth grade	< 1		0.93	.20	-0.89	-.20	-0.97	-.21
Seventh grade	1.36	.29	1.88**	.44	1.40*	.34	-0.60	-.15
Tenth grade	< 1		0.95	.29	-1.33	-.39	-5.46***	-.87
Teachers-in-training	2.22	.49	-0.44	-.16	-0.57	-.21	-2.74**	-.72
Experienced teachers	9.29**	.78	-1.14	-.42	-2.97**	-.77	0.41	.17

Note. Positive values of  $t$  and  $r$  indicate that more negative affect was rated for the high-expectancy student. Negative values indicate that more negative affect was rated for the low-expectancy student. This table differs from the other tables in that the expectancy hypothesis predicts negative  $r$ 's for this composite score.

<sup>a</sup>Collapsed over three channels.

\* $p < .10$ ; \*\* $p < .05$ ; \*\*\* $p < .01$ ; all  $t$ 's are one-tailed.

Table 7  
**Teacher Characteristics Study: Expectancy Main Effects (Across Channels) & Channel-by-Channel Expectancy Contrasts of Judges' Ratings of Teacher's Level of Activity**

Judges	Expectancy main effect <sup>a</sup>		Expectancy contrasts by channel						
	<i>F</i> (1, <i>df</i> )	<i>Eta</i> <sup>2</sup>	Audio		A-V		Video		
			<i>t</i>	<i>r</i>	<i>t</i>	<i>r</i>	<i>t</i>	<i>r</i>	
I. Talking about student									
Fourth grade	1.79	.29	-0.98	-.21	1.26	.27	-1.92**	-.39	
Seventh grade	< 1		-1.30	-.32	2.47**	.54	-2.52**	-.55	
Tenth grade	< 1		0.26	.08	1.41*	.41	-0.78	-.24	
Teachers-in-training	< 1		0.64	.24	-1.42*	-.47	-2.74**	-.72	
Experienced teachers	< 1		3.07**	.78	-0.85	-.33	0.30	.12	
II. Talking to student									
Fourth grade	< 1		-0.71	-.16	0.26	.06	1.05	.23	
Seventh grade	< 1		-1.59*	-.38	-1.21	-.30	2.38**	.52	
Tenth grade	< 1		-2.05**	-.54	0.92	.28	5.01***	.85	
Teachers-in-training	105.62***b	.97	0		2.50**	.69	3.66***	.81	
Experienced teachers	3.46	.60	-0.76	-.30	0.35	.14	0.78	.30	

Note. Positive values of *t* and *r* indicate a higher level of activity for the high-expectancy student.

<sup>a</sup>Collapsed over three channels. <sup>b</sup>Due to missing data, this *F* is based on only 5 *df*.

\**p* < .10; \*\**p* < .05; \*\*\**p* < .01; all *t*'s are one-tailed.

seemed to have derived different information from the audio and video channels: the teacher was *seen* as warmer and more flexible to the high-expectancy student, but she *sounded* warmer and more flexible to the low-expectancy student. This discrepancy brings to mind the conception of “leakage” (Babad et al., 1989a, Ekman & Friesen, 1974)—the discrepancies between affective messages transmitted through more controllable and less controllable channels when the transmitter wishes to conceal negative affect. Verbal content is considered to be most controllable while the face, and then the body, leak negative emotions more readily. Rosenthal and DePaulo (1979) and Zuckerman, DePaulo, and Rosenthal (1981, 1986) extended the 1974 leakage hierarchy to include Transcript and Tone of Voice. Thus, the discrepancies between audio and video channels in the ratings of the younger judges may well have reflected a leakage effect. It was not possible to conduct a full leakage analysis on the present data because face and body (combined in this study) occupy separate levels in a leakage hierarchy and the audio channel included two aspects—verbal content and tone of voice—which also differ in their leakage potential. However, the present pattern suggests an interesting hypothesis for further research, namely, that younger perceivers might be more susceptible to leakage effects than older perceivers. More experienced individuals might “see through” deceitful transmissions, detecting concealed negative affect more readily.

A hypothesized developmental trend in susceptibility to teachers’ deceit appeals to common sense: teachers wish to conceal from their students their negative affect toward low-expectancy students, and they use their more controllable channels (speech content in this instance) to transmit deceitful messages to low-expectancy students. The younger judges might have been persuaded by teachers’ speech, concluding that teachers indeed spoke more warmly to the low-expectancy students. The experienced teachers, who implicitly “know” from their own experience of this negative affect and of the wish to conceal it, did not “fall” for the positive speech of the teachers they observed.

The results for negative affect (Table 6) showed a similar pattern, again in line with our 1989b findings. No main effects were found in the talking about condition, but several close-to-significant contrasts for the adult judges showed more negative affect when talking about the low-expectancy student, in both audio and video channels. (Note that the expectancy hypothesis predicts negative *rs* for this composite score.) In the talking to condition, a significant expectancy main effect was found for the experienced teachers, and the older judges perceived the teacher, through the video and audio-video channels, as being more negative toward the low-expectancy student. Thus, the teacher’s facial expressions and body movements led the older judges to see her friendlier and more relaxed when interacting with the high-expectancy student, and more hostile, condescending, tense and nervous in her interaction with the low-expectancy student. For the

younger judges, a trend indicating discrepancy between the audio and video channels was observed again in the talking to condition: in rating the teacher's speech, the younger judges thought she was more negative toward the high-expectancy student (positive *rs*). Again, this was negated by their visual impressions and by the combined ratings. However, this trend is based on the directionality of the differences and not on significant differences.

The results for level of activity (Table 7) were somewhat confusing and not readily interpretable. In the talking about condition, no main effects were found, and the effect sizes associated with the contrasts suggested a trend in which judges *saw* the teacher as more active when talking about the low-expectancy student and *heard* the teacher as more active when talking about the high-expectancy student. The pattern seems reversed in the talking to condition, where the teachers were *seen* as more active toward the high-expectancy student and *heard* as more active toward the low-expectancy student. In our previous study (Babad et al., 1989b), expectancy effects for level of activity were found mostly for the talking to condition, showing that teachers' faces were judged as expressing more activity toward the low-expectancy student, a finding we interpreted as reflecting compensation of low-achievers. In this study, the face was not separated from the body, and the results did not replicate our previous findings. [The *F*-value of the expectancy main effect for teachers-in-training (although based on 5 *df* only) was surprisingly high. However, the results for this composite score were not conclusive, and our interpretation of patterns is highly tentative.]

To summarize, this set of teacher characteristic variables was less effective than the student detection variables in tracing expectancy effects. This was particularly true for the young judges whereas for the older judges, and particularly the experienced teachers, expectancy effects were found for both sets of variables. The young students sensed quite clearly whether the target of the teacher's behavior was excellent and loved or not, but they were less capable of distinguishing differences in specific behaviors or communicated affect.

Both the warmth and flexibility and negative affect composite scores represented the "emotional climate" factor in Rosenthal's (1973; Harris & Rosenthal, 1985) four-factor theory of mediation. The present findings indicated that the high-expectancy student was judged as receiving a more positive climate than the low-expectancy student. This trend was stronger in the talking to than the talking about condition, and more noticeable in the video channel through nonverbal expressions of the face and body. The teachers' verbal content in talking to the students probably did not correspond to their expressions, and the young judges rated the teachers' speech as reflecting somewhat more positive affect toward the low-expectancy student.

## Discussion

The results showed that extremely brief samples of context-minimal teacher behavior provided differential expectancy information which could be reliably detected by students and teachers. Extending our previous findings on adult judges (Babad et al., 1987, 1989a, 1989b), we found expectancy effects of substantial magnitudes in ratings of judges ranging from fourth graders to experienced teachers. After 10 seconds of seeing and/or hearing a teacher, even very young students could detect whether the teacher talked about, or to, an excellent or a weak student, and could determine the extent to which that student was loved by the teacher.

When teachers are videotaped, they put on their best behavior. We took care to habituate the teachers to the camera by videotaping throughout an entire class session prior to the recording of the clips used in this study. Nevertheless, it would have been only natural for teachers to make an effort to display whatever they considered to be the best and most appropriate behavior when talking about students and when interacting with students. And if 10-second clips recorded under these conditions were so informative, one can only imagine what students may experience in daily, unobserved interaction in the classroom.

Weinstein (1985, 1989) showed that young students are sensitive to the differential behavior of their teacher, on the basis of their accumulated experience of interaction with her. In this study, we demonstrated that students can serve as observers and judges of unfamiliar teachers, and that accurate detection can be made on the basis of brief exposure to those teachers.

Some may think that children's sensitivity to subtle communication is so obvious and universal that it should never have been questioned at all. While this view may be held widely, we think that many people also believe that they can deceive others (particularly children) and successfully conceal their true feelings. Such belief is probably based on the (empirically proven) ability to control speech and verbal content, and people are less conscious of their facial and bodily expressions. For example, in studying the teacher's pet phenomenon, Tal and Babad (1989, 1990) found that most teachers believed that their students would *not* know at all about the existence (and identity) of their pets and favorites. The empirical data proved extreme sensitivity and awareness on the part of young students to the teacher's pet phenomenon. Therefore, we believe that children's sensitivity to teachers' nonverbal communication must be demonstrated as dramatically as possible, and this issue has grave implications, especially as far as understanding the emotional experiences of low achievers in the classroom is concerned. Biased teachers were found to show more Golem (negative expectancy) effects (Babad, Inbar, & Rosenthal, 1982) and more leakage of negative affect in their classrooms than unbiased teachers (Babad et al.,

1989a), and yet biased individuals viewed themselves as more objective, balanced, rational, and logical (Babad, 1979). It would be reasonable therefore to hypothesize that the belief about successful concealment of negative affect would be held more strongly among those teachers whose emotions tend to leak more frequently through uncontrollable channels.

The difference between the patterns of findings for the talking about and talking to conditions reflected the different nature of the two situations. In talking about students when they are absent, teachers feel free to express themselves verbally with less restraint, and this explains why detection in the talking about condition was made mostly through the audio channel. Teachers exercise more control over their behavior when directly interacting with the students, and control is more readily accomplished in the verbal, compared to the nonverbal, domain. In talking to students, expectancy differences emerged more strongly from the video channel, and messages transmitted through the audio channel sometimes contradicted expressions of the face and body.

The inclusion of both talking about and talking to conditions in the design had several reasons and implications. The original study employing this design (Rosenthal et al., 1984, on therapists' tone of voice) posed a theoretical question in the field of nonverbal communication, namely, whether tone of voice when talking about patients could *predict* tone of voice when talking to these patients. In our 1989b study, the question concerning prediction of "to" from "about" was less emphasized. The two conditions represented typical situations in bias (corresponding to "about") and mediation of expectancy research (corresponding to "to"), and the question was whether expectancy effects would be found in either or both of these conditions, given the context-minimal measurement approach. The findings showed that expectancy effects were derived in different ways for each condition, reflecting the differences between these situations, and thereby provided more validity to the method of investigation. From a purely educational point of view, the results of the "talking to" condition are probably more significant and of graver implications.

In talking to students, teachers behaved differently toward the high- and low-expectancy students, and these differences were picked up by the judges from the brief, context-minimal clips. The differences were found mostly in the visual medium (facial expressions and body movements) and particularly for ratings of affective aspects. These results were consistent with our previous findings with this method. The present data indicated that the young judges *were* somewhat influenced by the verbal messages in the affective domain, showing a trend toward reversed expectancy—while the older judges perceived more negative emotional messages toward the low-expectancy student in both video and audio channels. The fact that the same clips were rated concurrently by two groups of judges in each age group made it possible to examine this issue further, and it seems that

the verbal/visual confusion was confined to the ratings in the teachers' characteristics study. While the young judges in that study might have been somewhat confused by the discrepancy between the audio and video messages when rating teachers' affective behaviors, young judges rating student's excellence and teacher's love showed no hesitation in making very clear discriminations concerning the unseen target students. Thus, the young judges' *conclusions* about whom the teacher was talking to were not influenced by this apparent verbal-nonverbal discrepancy in the teacher's behavior.

In retrospect, the operationalization of expectancy effects through direct detection of an unseen target was significant. Had we used only the conventional method of tracing expectancies through characterizations of teacher behavior, our conclusions would have been quite different! The clearest and most dramatic evidence of the young children's sensitivity emerged in the detection study.

Children are keen observers of subtle nuances in verbal and nonverbal communication, but not every method is appropriate to tapping their perceptions. Cooper and Good (1983), Weinstein (1989), and Babad (1990) asked school children about their teachers' differential behavior, and found that some methods (e.g., asking about behavior toward hypothetical children) were more effective than other methods (e.g., asking about how the teacher treats *you*, or how she distributes particular behaviors among students). Similarly, Tal and Babad (1989, 1990) found that the weakest results in the investigation of the teacher's pet phenomenon were recorded for students' reports of specific teachers' behaviors. Lack of differentiation in students' assessments of teacher behavior might be explained as reflecting defensiveness (for self and for the teacher) (see Cooper & Good, 1983, and Weinstein, 1989), but a cognitive explanation is also plausible: children are not experienced in thinking about specific behaviors of their teachers; behavioral definitions such as "hostile," "flexible" or "dominant" may be foreign to them; and they may have little or no competency for rating comparative levels of such variables. On the other hand, they form clear conclusions about student's excellence and teacher's love. They "know" about expectancies, but they are not capable of conveying their impressions in characterizations of teacher behavior. This explains why the detection study yielded clear and systematic effects for all groups of judges, while the teacher characteristics study yielded significant and consistent effects only for the adult, experienced judges.

### Notes

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<sup>1</sup>The words *loved* and *liked* are represented by the same word *AHUV* in Hebrew, and the appropriate connotation in English is *liking* rather than *love*.

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