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ABSTRACT

This report presents the findings of a three-year study that was based on the hypothesis that expectations play a critical role affecting different educational opportunities and rewards for learning, ultimately contributing to differences in educational outcomes between individuals and groups of individuals. The study assessed how 579 students in grades 1, 3, and 5 perceived teachers' treatment of male and female high and low achievers. Relationships between student perception measures, teacher and parent expectations, and students' achievement gains over the course of the school year were investigated. Preliminary results suggested that students as early as the first grade are aware of differences in how teachers interact with high and low achievers in the classroom. In their own treatment as well, first grade high and low teacher expectancy students reported differential teacher treatment. Evidence was found for developmental differences (as well as classroom differences) in the extent of student awareness of specific teacher expectations. Copies of the instruments used in the study are appended. (JD)

FINAL REPORT

ECOLOGY OF STUDENTS' ACHIEVEMENT EXPECTATIONS

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Abstract

This three year research grant extended the study of students' perceptions of the processes that communicate academic expectations in the following ways. First, the study built in a developmental perspective to the investigation of student perceptions of teacher treatment. A cross-sectional sample of first, third, and fifth graders was used. A study at different time periods of students' lives yields differing pictures of students' construction of reality as well as differing susceptibility to the impact of that reality. Second, in order to describe the factors that underlie classroom variability in student-perceived differential treatment, classrooms were systematically observed. Finally, this study examined parental expectations and students' perceptions of parental expectations as contributing factors to the development of the self-fulfilling prophecy.

In 30 classroom, 10 each at grades 1, 3, and 5, the study assessed how 579 students, as a function of developmental stage and individual differences, perceived teachers' treatment of male and female high and low achievers in the fall of the school year. Relationships between student perception measures, teacher and parent expectations, and students' achievement gains over the course of the school year were investigated. Observations in the winter of a subset of 12 classrooms, chosen to exemplify extremes of perceived high and low differential teacher treatment provided information about classroom processes underlying perceptions of differential treatment. For a subset of students within the observed classrooms (N = 144) and their teachers, a second round of assessment was undertaken mid-year. In this study, a multimethod approach (combining inventory and interview, quantitative and qualitative classroom observations) was used within a triangulated design contrasting student perspectives with the views of others.

Our preliminary instrument development work led to a revised three-scale Teacher Treatment Inventory suitable for use with first through fifth graders and with adequate test-retest reliability. Evidence for the construct validity of the inventory was also provided. Preliminary results from the study suggest that students as young as first graders are aware of differences in how teachers interact with high and low achievers in the classroom, differences which find support in observed frequencies of differential teacher interactions as well as in observer judgments of teacher treatment. In their own treatment as well, first grade high and low teacher expectancy students report differential teacher treatment. There is also evidence for developmental differences (as well as classroom differences) in the extent of student awareness of specific teacher expectations, but grade level differences in reactivity to teacher expectations has yet to be ascertained. Our subsequent analyses should shed light on the role of individual student perceptions in moderating teacher expectancy influences, the relative contributions of individual difference factors and classroom factors, and the nature of what

teachers do differently in classrooms where students perceive more or less differential teacher treatment.

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I. INTRODUCTION

Currently, our educational system is mandated to provide equality of educational opportunity to minorities, to women, and more recently through mainstreaming legislation, to the educationally handicapped. Yet the processes which stand in the way of equality of opportunity to learn are less clearly known.

Among the hypothesized barriers to educational equity are differential experiences encountered by different groups of learners both within schools and within families. One important factor channeling these differential experiences may lie in the expectations that individuals hold for others and for themselves. Interest in the role of expectations as a determinant of behavior has both broadened and intensified since Merton's (1957) elaboration of the "self-fulfilling prophecy." Expectations have been studied in relation to the course of both health and disease, the process of psychological diagnosis, and in prejudice (Jones, 1977). In educational settings, "expectancy effects" have come to be viewed as one cause of consistently low performance of inner-city blacks in school as well as compensatory education programs (Clark, 1963; Rappaport & Rappaport, 1975). This research is based on the hypothesis that expectations play a critical role affecting different educational opportunities and rewards for learning and ultimately contributing to differences in educational outcomes between individuals and between groups of individuals.

Research on Teacher Expectancy Effects to Date.

Since the Rosenthal and Jacobson study (1968), much research has been directed toward specifying the components of the causal process underlying classroom expectancy effects (Brophy, 1983). The causal sequence includes teacher input factors, such as possible sources of teacher expectations, teacher characteristics, including differential susceptibility of teachers to input information, teacher output factors, in the form of teacher behaviors that transmit expectancy cues; learner characteristics such as differential susceptibility of learners to teacher cues; and finally, learner output factors, including learner responses to expectancy cues, self-expectations, and performance (Braun, 1973, 1976; Brophy & Good, 1970, 1974; Good, 1980). Theory has also distinguished between direct and indirect effects of teacher expectations on student performance. Differential teacher treatment (e.g. unequal time to practice material) can directly affect student achievement gains without involving student interpretive processes. Teacher expectations can also influence student performance indirectly by informing students about expected behavior and by affecting their self-concept and motivation. Thus, performance deterioration can occur with (student mediated), or without the erosion of student self-image and motivation. Until recently, most research has addressed teacher variables, with student achievement outcomes as the only learner variable measured (Weinstein & Middlestadt, 1979). Largely neglected are the intervening

processes within the student which may mediate between teacher behavior and student performance.

A Missing-Link: Student Mediation Model

We are just beginning to gain some understanding of the student mediated mechanisms by which patterns of teacher treatment result in enhancement or deterioration of performance (Weinstein, in press). Recent theorizing has underscored the importance of students' perception and interpretation of teacher behavior (Braun, 1976; Cooper, 1979; Darley & Fazio, 1980). Children's perceptions of classroom events have been shown to be different from those of observers (Clark & Creswell, 1979). Their perceptions of teaching behavior have been found to mediate the effect of that behavior on achievement (Stayrook et al., 1979). Our own work has demonstrated that students are aware of differences in teacher's treatment of high and low achievers.

Understanding the outcomes of reading group membership. That students' perceptions of teacher feedback could provide a missing link in understanding the transmission of expectations became evident in this author's study of the process and outcomes of grouping for reading in three first grade classrooms (Weinstein, 1976). In this study, findings about teacher-student interaction patterns and about student outcomes proved difficult to reconcile. On one hand, observations of teacher treatment toward reading groups suggested that the teacher favored low reading group members with more praise and less criticism than that accorded high reading group members. On the other hand, over the school year, the gap in achievement, peer status, and experienced anxiety about school performance widened significantly between high and low reading group members. Of note, classroom observers reported that the praise to lows was qualitatively different from the praise to highs. It was hypothesized that the more frequent comments concerning performance directed toward highs might suggest high expectations to students and that the high rates of praise for lows (and as the observers also pointed out, for less than perfect answers) conveyed an indiscriminate "fine, fine, fine" to those from whom less was expected. What did the students think? At issue was the perception of these differences and its impact. By tapping student perceptions of teacher feedback, one might clarify how expectations are conveyed in classrooms.

Pilot studies. Reported in a paper entitled Student perceptions of teacher interactions with male high and low achievers (Weinstein & Middlestadt, 1979a) are the findings of the first pilot study. The subjects for the study were 102 first through sixth graders, who were attending a summer program in math and science. The intent of the pilot study was to explore whether (a) students perceive differential teacher treatment of high and low achieving male students (one sex only to simplify the design; males chosen because of greater salience in the classroom), (b) students perceive differences in learner attributes between highs and lows, (c) perceptions of differential teacher treatment are

shared across students or moderated by perceiver characteristics (sex, perceived ability) and (d) consistencies in perception appear across grade level. The results revealed that students perceived differential treatment across one quarter of the teacher behaviors studied. In some cases, the perceptions were shared; in others, grade level as well as perceiver characteristics colored perceptions. Student-perceived teacher treatment of male highs reflected high expectations, academic demand and special privileges. Male lows were viewed as receiving fewer chances, yet greater teacher concern and vigilance. Students also perceived differences between male highs and lows that went beyond the academic, extending into the social realm.

Pilot interviews conducted with 45 first through sixth graders provided interesting data about how students interpret teacher treatment [presented in Learning about the achievement hierarchy of the classroom: Through students' eyes (Weinstein & Middlestadt, 1979b)]. Most importantly, students read into teacher behavior much beyond what researchers commonly think they are measuring. For example, in the Teacher Treatment Inventory, the behavior "call on" (included as an example of teacher attention) was not perceived as differentially accorded high and low achievers. Not surprisingly, open-ended responses revealed at least four varieties of "call on". For example, the teacher "calls on the smart kids for the right answer . . . .She expects you to know more and won't tell answers." The teacher calls on low achievers sometimes "to give them a chance" or "because they goof off" or she often "doesn't call on them because she knows they don't know the answer." These differentiated perceptions can explain why measuring the sheer frequency of "call on" might cancel out differences between the treatment of high and low achievers. These first studies of students' perceptions of teacher behavior demonstrated that students perceive differential treatment by the teacher and suggested that a multimethod approach using the inventory as well as more open-ended interviews might provide the fullest picture of students' awareness of differential treatment.

Student perceptions of differential teacher treatment. Given the need to explore students' perceptions of female as well as male treatment, (due to sex differences in interaction), to examine perceptions with classroom membership controlled, and to contrast different classroom environments, a second study was designed to (a) examine perceptions of the treatment of both male and female high and low achievers, (b) explore perceptions of teacher treatment within and as a function of classrooms, in particular, within contrasting classrooms of open and traditional structure, (c) systematically explore (under more controlled conditions) the influence of subject sex and achievement level on perceptions of differential treatment, (d) examine students' own constructions and interpretations of differential teacher treatment and (e) relate the extent of differential teacher treatment perceived (for individuals and for classrooms) to student academic self-expectations and achievement gains.

The subjects were 234 fourth, fifth, and sixth graders in 16 classrooms in an urban ethnically mixed school district. Classrooms were selected to represent a broad spectrum of educational philosophy from the more traditional to the open classroom. The results (Weinstein et al., 1982) were largely supportive of the earlier investigation. Students described low achievers as the recipients of more negative feedback and teacher direction, and more work and rule orientation than high achievers. High achievers were perceived as receiving higher expectations, more opportunity and choice than low achievers. No differences were documented in the perceived degree of supportive help. These findings underscore the perceived differential usage of teacher direction versus student autonomy. Students are clearly aware of the greater teacher input, help and structure accorded low achievers in contrast to the more autonomous learning context accorded high achievers. The teacher treatment differences between highs and lows were perceived both for male and female target students. Further, no differences in the treatment of boys and girls across different classrooms were reported.

Contrary to the hypothesis that perceptions of differential treatment would be more likely in traditional than in open classrooms (because in traditional classrooms teacher feedback to students was apt to be more comparative and more public), differential treatment toward highs and lows (at a classroom level) was perceived in both open and traditional classrooms (as measured by principal nominations or teacher ratings). The extent of perceived differential treatment was also unrelated to the mean achievement level of the students in the classroom. Differential treatment was perceived by students in high as well as low achievement classes. However, classrooms were found to vary in the extent of differential treatment perceived by students, with large differences in treatment perceived in some classrooms and little difference in others. Further, teachers were perceived to differ more in their treatment of low achievers than in their treatment of high achievers. Not surprisingly, students from high differential treatment classes reported in interviews more public cues about smartness than did students from low differential treatment classrooms (Weinstein, 1981). Hence, public comparability of performance was an important differentiating factor perhaps not captured by the open/traditional distinction, at least as measured by principal and teacher ratings.

Student interview findings. Content analyses of the taped interviews with a subset of fourth graders within each classroom were performed with excellent inter-rater agreement and these analyses have begun to provide insights into the ways that students learn about their own academic competence and how they come to see high and low achievers (Marshall et al., 1982; Weinstein, 1982). Students learn about their own smartness largely through teacher feedback practices. Interestingly, the main difference found between students in high and low perceived differential treatment classrooms was that in high differential treatment classrooms, cues about good and poor performance--but particularly poor

performance--more often were reported to occur in public rather than in private settings. Supporting the findings from the TTI, high achievers were spontaneously described as receiving more rewards and privileges and more opportunities for learning, and more positive rather than negative teacher relationships. They were also depicted as receiving higher marks, less help and less pressure to achieve. High achievers were also described as displaying academic task behaviors which conformed to class standards, exhibiting greater independence and having a more positive attitude towards themselves and school, compared to low achievers who "goof off" and don't like school and feel they can't learn. In high differential treatment classrooms, students described a greater divergence between the academic task behaviors of high and low achievers than students in low differential treatment classrooms. In addition, the students in the high differential treatment classrooms seem to show more agreement about high achievers displaying positive academic task behaviors and low achievers demonstrating negative academic task behaviors than do students in low differential treatment classrooms. Cues about these academic task behaviors may be more apparent in the high differential treatment classrooms. Thus, the interviews whet one's curiosity about the events in classrooms that contribute to these differences in perceptions.

Unanswered Questions in Student Mediation of Expectancy Effects

While the importance of students' perceptions of teacher treatment has been demonstrated, critical questions remain unexplored.

Role of perceptions and other mediating processes. To date, we know far more about what students perceive in teacher behavior than about the impact of such perceptions on other student processes. The linking of student perceptions of teacher treatment (toward others) to student self-perceptions and to their behavioral responses is an important priority for research. Individual students' perceptions of teacher treatment have not yet been directly linked to changes in self-expectations, motivation or performance, since our previous studies assessed classroom level perceptions of treatment.

Developmental factors. In our studies of student-mediation effects, we must examine the developmental capacity of children to process social information from classroom interaction and the ability to apply such information to themselves in the form of stable self-perceptions. The tasks of integrating findings from developmental social cognition studies as well as of building developmental comparisons into our research on expectancy effects are necessary steps in order to make sense of what has been described as young children's resistance to negative feedback (Blumenfeld et al., 1982; Entwisle & Hayduk, 1978; Stipek, 1977).

Children's views of ability and its relationship with effort and outcome change with age (Dweck & Elliot, 1981; Nicholls, 1978;

Yussen & Kane, 1980). Young students are less able to integrate prior outcome information and seem less affected by social comparisons in making predictions for future performance (Parsons & Ruble, 1977). These developmental patterns may bias young students' self-perceptions in a positive direction (Blumenfeld et al., 1982). Their academic expectations seem resistant to negative feedback (Entwisle & Hayduk, 1978; Stipek, 1977). With age, students' perceptions of their ability become more congruent with those of their teachers (Stipek, 1981). Further, each grade level carries a set of goals, teaching strategies (McDonald, 1976), common grouping structures and expected outcomes. Thus, differences in perceptions of teacher behaviors may reflect grade level or developmental differences. Research must examine student mediating processes at different developmental stages. The availability of classroom observations can help unconfound grade level from developmental differences.

Individual susceptibility. All students may not be susceptible to expectancy effects (Braun, 1976). Yet, the moderating influence of student self-concept on the impact of teacher expectations as suggested by Braun (1976) had not been tested. Self-image may affect the potency of expectancy cues such that an individual whose self-view is that of a competent learner may be able to resist attempts to change this image. Little is known about conditions under which individuals will accept, reject or attempt to disprove another's expectations. The moderating influence of self-concept on the impact of teacher expectations merits further investigation.

Parental expectations as moderators. Parental expectations and actions may also serve an important mediating role. The role of parents in shaping children's academic expectations and in integrating the continuities and discontinuities (Lightfoot, 1979) between home and school has largely been ignored. Parsons and colleagues (1982) found children's perceptions of their parents' expectations often were more highly related to their self-concept than to parents' actual beliefs. Information on the processes by which parental expectations are conveyed to children and how children's perceptions of parental expectations interact with perceptions of classroom cues needs investigation.

Classroom environmental factors. Observational studies indicate that differential treatment toward high and low achievers is not exhibited in all classrooms (Brophy, 1983; Good, 1980). Similarly, our studies show that classrooms vary in the extent of perceived differential treatment, with large differences reported in some classrooms and few differences in others. What factors underlie this classroom variability and what can be learned from classrooms where differential treatment is and is not perceived?

Differential teacher treatment occurs in the context of and as a consequence of teacher selected structures for organizing instructional activities, in particular (a) grouping practices, (b) the reward and evaluation system, (c) the organization of

subject matter and materials, and (c) the locus of responsibility for learning. With few exceptions (Blumenfeld et al., 1979), research on the expectancy effect has largely ignored the potential influence of varied classroom organization structures and the role of these variations in creating public and stable expectations for individual student performance (Rosenholtz, 1979). Investigations need to look beyond teacher interactional behavior to the organizational context in which it occurs. These aspects of the social setting may be critical in discounting or minimizing the impact of teacher expectations in the students' eyes.

Specific Aims of this Study

This three year research grant extended the study of students' perceptions of the processes that communicate academic expectations in the following ways. First, the study built in a developmental perspective to the investigation of student perceptions of teacher treatment. A cross-sectional sample of first, third and fifth graders was used. A study at different time periods of students' lives yields differing pictures of students' construction of reality as well as differing susceptibility to the impact of that reality. Second, in order to describe the factors that underlie classroom variability in student-perceived differential treatment, classrooms were systematically observed. Finally, this study examined parental expectations and students' perceptions of parental expectations as contributing factors to the development of the self-fulfilling prophecy. Special features of the design included (1) an integration of the mediating-process and classroom ecology paradigms (Doyle, 1978), where we examined students' perceptions and interpretations of events which may mediate the expectancy effect as well as exploring relationships between the natural environment of the classroom and student responses; (2) a triangulated design (Cicourel, 1974) where information was obtained from the viewpoint of various participants in the environment (students, teachers, parents) as well as from observers; and (3) a multi-method approach combining questionnaires with interviews and structured observations with ethnographic approaches.

The specific aims were to: 1) assess students' perceptions of teacher interactions with one of four hypothetical students--male and female high and low achievers--and identify patterns of teacher behavior which differentiate the treatment of these types of students; 2) explore through interviews, students' own construction and interpretation of classroom and family events, probing for the meaning and consequences of high and low achievement and its implications for perceived academic competence; 3) examine the effects of the perceiver's self-concept and age or grade level on perceptions of classroom and family events; 4) explore through classroom observations, the organization of instructional activities, grouping practices, evaluation and reward systems, and locus of responsibility in a subset of contrasting classrooms within each of the grade levels studied and examine the relationship between these factors, expectations, and achievement; 5) relate

the extent of perceived differential teacher treatment to students' academic self-expectations and gains in achievement as a function of self-concept and grade level; 6) explore the influence of parental views and expectations.

Prior to undertaking this study, several preliminary smaller studies were conducted to investigate the properties of our student perception instrument as well as to revise it for use with a younger population.

II. TEACHER TREATMENT INVENTORY (TTI) INSTRUMENT DEVELOPMENT STUDIES

In preparation for the large study, several smaller studies were conducted in order to adapt the TTI for use with younger children (since this study included a grade level comparison) and to test its properties more extensively. First, a study of the meaning to students of the items on the TTI was conducted. This study was carried out to determine whether students interpreted the items as they were intended and to clarify any ambiguous items so that they could be understood across grade levels. Second, the reliability of a revised TTI was investigated to assess the stability of the items and scales over a two-week period and to ascertain the internal consistency of the scales on a new sample of first, third, and fifth graders. This study also permitted an exploration of the replicability of the perceived differential teacher treatment found with fourth, fifth, and sixth graders (Weinstein et al., 1982) with a new sample of first, third and fifth graders. Third, the construct validity of the earlier version of the TTI was examined using achievement data previously collected in another sample.

Study #1: Student Interpretation of Teacher Treatment Inventory Items.

Method

Subjects. Thirty students, 5 boys and girls from each of two classes at grades one, three, and five served as subjects for this study.

Procedures. In individual sessions, each student was read each of the 44 TTI items which had been typed on index cards. The sex and ability level of the hypothetical student (who was named S.R.) was not identified. Following each item, students were asked (1) to indicate if each behavior happened in their classroom, (2) to give an example from their classroom or from another classroom, and (3) to indicate if the teacher did the same thing or different things for students who were smart and students who were not so smart. Students' replies were probed to increase clarity of responses. These interviews were taped and transcribed onto individual index cards (one for each question) for later coding.

Results

The data were analyzed for two purposes: (1) to determine how students of different age levels understood each item, and (2) to investigate whether students perceived that these behaviors were accorded similarly or differently to high and low achievers in their classes.

Item Understanding. Students' responses were analyzed to determine whether their understanding of the item was the same as that intended. Students' responses were also inspected to determine whether children at different age levels had difficulty

understanding any of the items. These analyses helped to identify a small number of items which were unclear or ambiguous.

For a number of items, the specific examples that students gave varied with their grade level. These differences may be related to age-dependent cognitive changes or to changes in teachers' use of teaching strategies at different grade levels. Older children often qualified and extended their examples, whereas younger children tended to respond quite literally.

With regard to teaching strategy differences across grades, hints were described as being used more as a tool for learning in first (60%) and third grades (50%) than fifth (30%); whereas teachers more often had older students figure things out for themselves or went over the material again with the student (30% vs. 0%). Opportunities for student decision making also seemed to increase in upper grade levels. Fifth graders more often reported that teachers gave a structured choice in letting them decide things (60%) than did first (20%) or third graders (20%). Conversely, more first graders (70%) stated that they did not make up their own projects than did third (20%) and fifth (30%) graders. The greater role of socialization in the early grades can be seen in the greater reporting of being called on "when we are quiet" by first graders (40%) decreasing for third (20%) and fifth (10%) graders. These results were useful in identifying troublesome items as well as providing a base of examples of teaching behaviors that students of the three grade levels think of when completing the Teacher Treatment Inventory.

Same or Different Treatment. Not all students were able to respond as to whether the teacher's treatment in the example they gave was the same or different for high and low achievers. For those students who were able to respond, a large percentage of the responses at each grade level indicated that the treatment of high and low achievers is the same. First graders reported on the average 82% of the teaching behaviors to be the same for high and low achievers; third graders reported on the average 75% and fifth graders reported on the average 80% of the teaching behaviors to be the same for high and low achievers.

These results suggest that when students are asked directly about differential teacher treatment, they are likely to respond that the treatment is the same. In contrast, when students are asked to describe their teacher's treatment of high achievers and low achievers separately, as on the separate forms of the Teacher Treatment Inventory or in separate interview questions (Weinstein, 1980), the treatment described for high and low achievers is different. These findings highlight the influence of differences in methodology on the results.

Study #2: Reliability of Teacher Treatment Inventory

Method

Revision of TTI. The TTI was revised based on (a) the results of the study of the meaning of the items described above, and (b) an analysis of the data collected in the earlier study of fourth, fifth, and sixth graders (Weinstein et al., 1982). Criteria for retaining items included: (1) differentiation between high and low achievers, i.e. items describing behaviors for which students perceived teachers as giving different amounts to high and low achievers (Weinstein, 1980); (2) teacher differences in differential treatment, i.e. items for which some teachers were perceived as differentiating in the treatment of highs and lows but other teachers were not; (3) lack of reversals in differential teacher treatment, i.e. items which did not favor highs in some classrooms and lows in others; (4) high item-scale correlation (Weinstein, 1980); (5) high loading on a discriminant function scale of differential treatment, (6) low correlation with a social desirability scale (Brattesani, 1980); and (7) unambiguous and understandable meaning.

In an effort to derive a shorter inventory which would discriminate differential teacher treatment, most of the items on one scale (Supportive Help) which in a previous study did not differentiate the treatment of high and low achievers were omitted. Four items which did differentiate treatment and which had substantial item-scale correlations with other scales were transferred to the scales with which they were substantially correlated. Items (14 in all) which did not meet at least one of the above criteria were omitted. Items with unclear meaning, but which would otherwise be retained, were reworded to increase item clarity. This procedure resulted in three revised 10-item scales: (1) Negative Feedback and Teacher Direction; (2) Work and Rule Orientation; (3) High Expectations, Opportunity and Choice. These scales were previously numbered 2,3, and 4 (in the earlier study). The revised scales can be seen in Table 1.

Internal consistency coefficients (Cronbach's alpha) were recalculated for the revised scales, using the data with which the scales were originally constructed. Little difference was noted in the alphas between the old and the new versions. Correlations between the scales of the new and the scales of the old versions ranged from .94 - .98. Inter-scale correlations were slightly higher in the new version than the old version. These comparisons between the three-scale 30-item version of the TTI and the original four-scale 44-item TTI were sufficiently strong to warrant proceeding with the reliability study using the shorter version.

Subjects. Three hundred and eighteen students from grades one (N=87), three (N=94, and five (N=137) in 26 classrooms served as subjects for this study. An additional 39 students were present for only one administration of the TTI. Due to poor testing conditions in one session where students became distracted and

could not hear well, one third grade class (N=13) was dropped from the analysis.

Procedures. Students who returned their permission slips were taken out of their classroom as a group to a separate room where the TTI was administered. Half of the students in each class were given the form that described a high achiever named S.R. and half were given a form that described a low achiever named S.R. (S.R. was used to eliminate the need to identify the sex of the target student.) One experimenter read the instructions and the items to those with the high form and a second experimenter read to those with the low form. Administration of the TTI was repeated after a two-week interval, with each student receiving the same form on the second administration.

Results

The data from these first, third, and fifth graders were analyzed for three purposes. First, the internal consistency for each of the scales was assessed and compared to the internal consistency information obtained from the earlier sample of fourth, fifth, and sixth graders with the original items. Second, the test-retest reliability coefficients were calculated in order to ascertain the stability of students' perceptions over a two-week period. Third, the means on the high and low forms were calculated for each scale by grade level and by classroom and tested for significance in order to determine whether students in these three grade levels perceived differential teacher treatment using the revised form.

(a) Internal Consistency. Cronbach's alphas for Scales 1, 2, and 3 for students in all grades were .70, .63, and .81, respectively. Alphas for both forms combined for all students and by grade level are presented in Table 2.

(b) Test-retest Reliability (Stability). Pearson's correlation coefficients over both forms (High and Low) and over all grades were .73, .70, and .80, for the three separate scales. Correlation coefficients for both forms combined for all students and by grade level are also presented in Table 2. The lower correlations at grades one and three may in part be due to the smaller number of subjects tested in these grades.

(c) Replication of Differential Teacher Treatment. The means for the high achiever and low achiever forms for each scale (with classroom as the unit of analysis) are presented for each grade level in Table 3. T-values indicate significant differences between the means for the high form and the means for the low form for each scale for each grade level. These significant differences indicate that students at first and third grades as well as at fifth grade perceive differential teacher treatment on each of the scales. Differences between the scores on the high form and the scores on the low form were also calculated for each scale for each classroom. The range of difference scores between classrooms

suggests that in this sample, as in our earlier sample, teachers vary in the amount of differential treatment perceived to be given to high and low achievers. (See Table 4.)

Summary. The results of the reliability study indicate that the revised version of the TTI is adequately stable over a two week period at first, third, and fifth grade levels. The internal consistency figures are at a satisfactory level as well when compared to other scales for children (e.g. Perceived Competence Scale for Children, Harter, 1978). Finally, students at first and third grades as well as at fifth grade were found to perceive differential teacher treatment for high and low achievers and the amount of differential teacher treatment perceived by students varied in different classrooms. These results replicate the findings from our earlier study of fourth, fifth, and sixth grade classrooms (Weinstein et al., 1982). Interestingly, even in a sample which was not selected on the basis of any differences in teaching strategies or classroom types, differences in the amount of perceived differential teacher treatment were documented.

Study #3: Construct Validity of the Original Teacher Treatment Inventory.

A student mediation model of teacher expectation effects postulates that differential teacher expectations can be conveyed indirectly through a sequence of processes wherein students perceive differential treatment, interpret and internalize these perceptions into self-expectations, and then act on this information that stems from teacher cues about expected achievement. Our earlier work using the TTI has shown that students perceived differences in the treatment of high and low achievers and that these differences varied by classrooms (Weinstein et al., 1982). Evidence of the construct validity of the TTI can be provided by examining whether classrooms where students perceive much differential teacher treatment towards high and low achievers (perceived high differential treatment classrooms) are different from classrooms where students perceive little differential treatment (perceived low differential treatment classrooms) in ways that are consistent with predictions from the theoretical framework. According to this framework, in classrooms where large differences in the ways teachers work with high and low achievers are perceived, students should be more likely to obtain information about their abilities from their teachers' cues. Thus, stronger relationships among student expectations, teacher expectations, student perceptions of teacher behavior toward them, and student achievement are expected in high than in low differential treatment classrooms.

These propositions were tested in two available and compatible data sets. (Brattesani et al., 1984).

Method

Subjects. The subjects in the first of two data sets consisted of 101 third, fourth and fifth graders in seven classrooms

in an urban, ethnically mixed school district (Brattesani, 1979). Subjects in the second data set were 234 fourth, fifth, and sixth graders from 16 additional classrooms in the same school district (Weinstein et al., 1982). The classrooms represented a broad spectrum of education philosophy, including both open and more traditional classroom structures.

Procedures. All students completed the 44-item Teacher Treatment Inventory. The first sample of students completed either a high or low achiever form without reference to sex of the target student. In the second sample, to maximize the number of subjects available for within-classroom comparisons, only two of the four forms were assigned in each classroom, the high and low achiever forms for the male target or the female target. In both cases, high and low achiever forms were randomly assigned to students within each classroom. The first sample of students also completed the Teacher Treatment Inventory: Self-rating, in which each item paralleled the original TTI but was phrased in the first person. On the TTI: Self-rating, students indicated how often their teacher worked with them in the ways described.

Additional data collected from all students included (1) year-end achievement scores (from the previous year and the current school year), and (2) a self-concept of attainment measure (Nicholls, 1976). Teachers provided rankings of expected achievement in reading, mathematics, and schoolwork for each of their students.

The amount of perceived differential treatment occurring in each classroom was determined in four ways. For each of the three TTI scales used (Scales 2, 3, and 4 from the unrevised version), the mean response given for the high achieving target was subtracted from the mean response given for the low achieving target, providing a classroom index of perceived differentiation specific to each scale. A median split along these difference scores determined the perceived high and low differential treatment classrooms. A fourth index, a global index, was created by combining the differentiation criteria from the three individual scales.

Because the hypotheses referred to within-classroom relationships among the variables, standardized scores within each classroom were calculated for each variable (except for the aggregate perceived differential treatment variables), and these standardized scores were used in the analyses for this report.

Results

Teacher expectations and perceived treatment toward self. In the first sample, students' aggregate perceptions of differential teacher treatment were used to corroborate individual students' reports of teacher treatment toward self. That is, high and low differential treatment classrooms, as perceived by students, were compared for the degree to which individual student perceptions of

teacher treatment toward self were related to teacher expectation level and student achievement level.

The mean correlations of TTI: Self-rating Scales 2, 3, and 4 with prior reading achievement scores and teacher expectations for reading are shown in Table 5. This table shows that the average classroom level correlations, regardless of classroom level of differential teacher treatment, are below .10 for prior reading achievement, and between -.20 and +.20 for teacher expectations for reading achievement.

However, the mean correlations for high differential treatment classrooms are significantly different from those for low differential treatment classrooms in three of the six comparisons ($p<.05$); two additional comparisons reached a probability level of $p=.057$. For each of these five cases, the correlations obtained for high differential treatment classrooms were in the predicted direction. Students who received high prior reading achievement scores or high teacher expectations perceived higher expectations, greater opportunity and choice from their teachers. Students who received low achievement scores or low teacher expectations tended to perceive more frequent negative feedback and direction from teachers; low achievers, but not low expectation students, also perceived more work and rule oriented treatment.

In low differential treatment classrooms, in contrast, four of the six correlations ranged from -.10 to +.15. In addition, students who received <u>low</u> prior reading achievement scores tended to perceive higher expectations, opportunity and choice, and students who received <u>high</u> teacher expectations for reading tended to perceive more work and rule orientation from the teacher.

These data provide evidence that students perceive teacher treatment toward themselves that is congruent with their achievement or expectation levels only in classrooms where students reported a large amount of differential teacher treatment toward hypothetical high and low achieving students. That is, aggregate classroom perceptions of the level of differential teacher treatment corroborated student reports of teacher treatment toward themselves.

<u>Relationship of teacher expectations to student achievement.</u> Hierarchical regression analyses were performed on the second data set to test whether teacher expectations predict outcomes beyond what is predicted by prior achievement. Three pairs of regression analyses were calculated, one for each of the three dependent variables: student expectations for reading, student expectations for schoolwork, and year-end reading achievement. In each pair of analyses, prior achievement was entered into the regression analysis as the first predictor and teacher expectations for reading was entered as the second predictor in the first analysis. Teacher expectations for schoolwork were entered as the second predictor in the second analysis.

Table 6 shows the percent of variance (R^2) in each dependent variable that was accounted for by prior achievement, and the percent of variance that was accounted for by teacher expectations for reading in the first equation and by teacher expectations for schoolwork in the second equation. Although prior achievement accounted for 10 to 63% of the variance in the dependent measures, teacher expectations explained an additional 2 to 7% of the variance, suggesting that teacher expectations contribute uniquely to student expectations and achievement.

To compare the predictive power of teacher expectations in perceived high and low differential treatment classrooms, similar sets of regression analyses were calculated separately for these two groups. Then, F statistics were calculated to compare the mean square residuals of the whole group analyses with the mean square residuals of the separate group analyses to determine if the prediction equations for each dependent variable were different for the classrooms with perceived high compared to low differential treatment.

Table 7 shows the percent of variance in each dependent variable accounted for by each independent variable for the high and the low differential treatment classrooms. Also in Table 7 are the F statistics calculated to compare the separate regression equations for high and low differential treatment classrooms. The significant F(Read) for Year End Reading on the Global Index, for example, means that when classrooms were divided by the overall amount of differentiation across all the TTI scales, and separate regression equations were calculated for each group of classrooms, the independent variables combined in significantly different ways for each group of classrooms to predict year end reading achievement.

In each of these cases, prior achievement and teacher expectations did not simply allow greater overall predictive power in high than in low differential treatment classrooms. Each separate regression equation predicted similar percentages of total variance in the dependent variables. Instead, the patterns of R^2 values in Table 7 indicated that prior achievement tended to be a better predictor in low than in high differential treatment classrooms, and teacher expectations tended to be more powerful predictors in high than in low differential treatment classrooms.

Thus, in classrooms with perceived low differential treatment, where we hypothesized that little information about differential student ability is communicated by the teacher, student achievement was best predicted by a previous measure of achievement, accounting for 64 to 77% of the variance in the dependent measure. In other words, students continued to perform at about the same levels, relative to their classmates, as they had performed before. In contrast, in classrooms with perceived high differential treatment, where we hypothesized that teachers give more differential information about students' abilities, student achievement was less effectively predicted by prior achievement,

accounting for 47 to 62% of the variance in the dependent measure. In these high differential treatment classrooms, teachers' expectations explained an additional 9 to 18% of the variance in student achievement, whereas teacher expectations explained only an additional 1 to 4% of achievement variance in low differential treatment classrooms. Similar patterns of results occurred for predictions of student expectations for their own performance.

Thus, our findings are consistent with the hypotheses that teachers behave in ways that communicate their achievement expectations to their students--expectations that may deviate from a student's prior achievement--and that students perceive these expectations from their teachers' behavior, that these expectations influence students' own expectations, and that students achieve at the expected levels. The different predictive patterns in high and low differential treatment classrooms show that student perceptions of differential teacher behavior toward high and low achievers as measured by the TTI influence the relationships between the independent variables measured and the achievement outcomes predicted.

Summary

As evidence of the construct validity of the TTI, these analyses have shown that classrooms divided according to the amount of perceived differential teacher treatment as measured by the TTI differ in the predicted manner. Students in classrooms where there is high perceived differential teacher treatment have expectations for themselves that are more strongly related to their teachers' expectations than students in low differential treatment classrooms. As well, student achievement in high differential treatment classrooms is more strongly related to teacher expectations and less strongly related to prior achievement than in low differentiating classrooms. Furthermore, high and low achievers perceive teacher behaviors toward themselves that are congruent with students' perceptions of teacher behavior toward high and low achieving target students, particularly in classrooms with high perceived differentiation. The findings for treatment towards self demonstrate that students have access to information about their own abilities that is communicated to them by their teachers. These findings also provide one source of validation for the differential teacher treatment perceived by students.

III. ECOLOGY OF ACHIEVEMENT EXPECTATIONS STUDY

Method

Design of the Study

As displayed in Table 8, we collected data from teachers, students, and parents in 30 classrooms at three grade levels. Entering achievement scores and teacher and student expectation data were obtained in the fall. A subset of four classrooms from each grade level, selected on the basis of the fall student perception data to represent the extremes of perceived differential teacher treatment, was observed in the winter. In the spring, year-end achievement scores were recorded from student records and parent questionnaires were collected. Capitalizing on the opportunity to intensively study students from these specially selected classrooms over time, we collected additional data beyond that originally proposed.

Whereas the funded study focuses on an analysis of student and teacher perceptions obtained in the fall (one period in time) and uses observational and interview data collected in winter to highlight the important processes in high and low differential treatment classrooms, we decided as well to address changes in these perceptions over time and to make direct comparison of student and teacher perception data with observer data all obtained in the winter. Thus, we have an additional strong study-within-a-study, with two between classroom factors of comparison (grade level and classroom type based on degree of differential teacher treatment as perceived by students) and one within classroom factor (time of year). Further, within the winter testing period, we now have available comparable data from teacher, student and observer (and almost comparable data from mothers) which can be contrasted and integrated. Table 9 depicts the design of the subsample study, and a comparison of the two tables highlights their relationship.

While all measures and procedures utilized in generating this data base are described here, only results from the initially proposed study (Table 8) are presented in this report. As well, given the scope of the questions that can be addressed in this data set, the results described are still preliminary —pending confirmation from other analyses at the same time period as well as between time periods.

Sample

Teachers. Thirty teachers, 10 each at grades one, three and five, in twelve urban ethnically mixed schools in two school districts were recruited on a voluntary basis, as subjects for the large sample study. From this sample, twelve teachers, (four each at grades one, three and five) in nine schools, in these two school districts were selected for further observational study. Only self-contained, single grade classrooms were used. These

classrooms were selected on the basis of data collected in the fall of the school year from the larger sample of 30 classrooms as representing the extremes of high and low differential teacher treatment as perceived by students. The classrooms were selected according to the following criteria. In each classroom, for each of the three scales of the Teacher Treatment Inventory, a difference score was obtained between mean student responses on high and low achiever long forms (combined across male and female versions). The values of the three scale difference scores were added together (irrespective of sign) to yield a classroom level perceived differential teacher treatment score. Classrooms were then ranked within grade level on the amount of perceived differential teacher treatment and two each of the (two or three) highest and lowest scoring classrooms within each grade were chosen for observation. Of the eleven female and one male teachers, three were Black, three were Asian, and six were Caucasian. Four classrooms were in one district and six--including all four fifth grades--were in the other.

Students. Of the 870 students enrolled in these classrooms in October, 579 boys and girls who returned parental permission slips (67%) served as subjects. An average of 19 students in each classroom returned permission slips, with a range of 8 to 24. For the subsample study, 144 high and low achieving boys and girls, 12 from each targeted high and low differential treatment classroom, were chosen on the basis of prior year-end reading achievement scores (N = 3 from each group per classroom, N = 48 from each grade level).

Parents. Of the 501 mothers of the students in the 30 classrooms who indicated on the permission slips that they were willing to participate in the study as well, 243 mothers (49%) completed questionnaires. Mothers were asked to complete the questionnaires where possible, since the views of mothers and fathers are often different, and because in the many single parent families in our study, children more often lived with their mothers. Of the 144 student subsample subjects, 68 of their mothers completed the parent questionnaire, 38 from high differential treatment classes and 30 from low differential treatment classes.

Student Measures

Students' perceptions of teacher treatment. The Teacher Treatment Inventory (TTI) was used to measure students' perceptions of the frequency of 30 teacher behaviors towards a hypothetical male or female high or low achieving student. Items on this instrument were derived from reviews of the literature on the relationships between teaching behaviors and student achievement, on the expression of teacher expectations in behavior, and student perceptions of classroom environments as well as from pilot interviews with students (Weinstein & Middlestadt, 1979). The instrument was further refined based on an assessment of the meaning and reliability of the items and reliability, stability, and validity of the scales detailed earlier. Instrument refinement resulted in

a reduction of the original four scales to three 10-item scales: (1) Negative Feedback and Teacher Direction; (2) Work and Rule Orientation; and (3) High Expectations, Opportunity and Choice, suitable for administration to first through fifth graders. (See Appendix.)

Internal consistency coefficients (Cronbach's alphas) for the three scales over both forms for students in grades one, three, and five were .70, .63, and .81, respectively. Two-week test-retest reliability coefficients, as indicated by Pearson's correlation coefficients, over both high and low forms and over all three grades were .73, .70, and .80 for the three separate scales.

In addition to the 30-item (long) form, a shortened form of the TTI was constructed consisting of eight items, four positive treatment items and four negative and structuring items. Items which significantly differentiated the treatment of high and low achievers at an item level in earlier studies were selected for this form. A version of this short form was written to describe teacher behaviors towards the student himself or herself (own treatment) as well as towards a high and low achieving male and female. (See Appendix.)

The items on all forms of the TTI were administered according to whether the hypothetical student described was male or female and a high or low achiever or whether the items referred to the student himself or herself. The descriptions of the targeted students follow:

> High achiever form. This boy/girl is someone who does really well in school. In fact, he/she always gets the best grades in the class. Everyone thinks he/she is very smart.
>
> Low achiever form. This boy/girl is someone who does not do very well in school. In fact, he/she always gets the lowest grades in the class. Everyone thinks he/she is not very smart.
>
> Own Treatment Think about the things you do in school and the way your teacher works with you.

For the high and low achiever forms, students were asked to pretend that this was a student in their own class. For all forms, students were asked to rate how frequently their own teacher would work with him/her in the ways described. Students responded to each item by marking one of four different circles of decreasing size, labeled "Always," "Often," "Sometimes," and "Never." A sample item and practice trial were also provided.

Academic self-expectations. The Self-Concept of Attainment scale developed by Nicholls (1976) was modified to assess students' expectations of how well they expect to do in school relative to their classmates. Thirty O's are printed on a page in a line running from top to bottom with "Top of the Class" written

above the top circles and "Bottom of the Class" written below the bottom circle. The students were instructed to pretend that the circles represented all the students in their class with the ones who will get the highest marks at the top and the ones who will get the lowest marks at the bottom. Students were asked, "How well do you expect to do in your schoolwork? Put a X in one circle to show how well you will do." Responses were scored from 1 (top of the class) to 30 (bottom of the class). This measure was repeated for a separate assessment of expectations for reading and for math, in addition to school work. Students were also asked to repeat the procedure with similar columns of circles to indicate how well they thought their teacher and their parents expected them to do in schoolwork.

Nicholls (1976) found test-retest reliability to be .83 after a 14-day interval. Test-retest reliabilities over a two-week interval in our earlier study were .70, .68, and .76 for schoolwork, reading, and math, respectively.

Self-Concept. Two seven-item subscales from the Perceived Competence Scale for Students (PCSC) (Harter, 1982) were used to assess self-concept: the cognitive competence subscale and the general competence subscale. Internal consistencies reported for these scales were .76 and .73, employing coefficient alpha, for students in grades three through six. Three-month test-retest reliability coefficients, corrected for attenuation, were reported as .78 and .70.

This scale uses a "structured alternative format" to ask students to decide whether they are more like one of two types of kids described for each item. Students are further asked to indicate whether the description of the kid selected is "really true" or "sort of true" for them. A slight modification was made in the format of the form for our study for ease of understanding. The equal-size squares on Harter's form were replaced with small and large circles to correspond to the meaning of "a lot" and "a little" rather than the original phrasing of "really true" and "sort of true". Two additional modifications were made to simplify the task for students in grade one. A red mark was placed on one side of the top of the page and a blue mark on the other side. First graders were then asked whether they were more like the kid on the red side of the page or the kid on the blue side of the page. First graders were also asked to mark only the large circles, rather than to make the second decision about how true the description was of them. The scale for first graders is thus a 2-point rather than a 4-point scale.

Achievement motivation. Five of the seven achievement motivation items from the Uguroglu & Schiller Multi-dimensional Motivation Instrument (1979) were used to assess students' achievement motivation. The items reflected persistence in general, persistence in the face of difficulty, willingness to try, enjoyment of the new and enjoyment of the difficult. The items and instructions were given in the same manner as the modified

format and instructions of the Perceived Competence Scale for Children.

Achievement measures. Grade placement scores on the Comprehensive Test of Basic Skills (CTBS) Reading and Math Achievement Tests were collected from the prior year-end and current year-end district-wide testing.

Notions of ability. A measure was designed to explore the development of students' ideas about the nature of intelligence. Two pairs of contrasting conceptualizations were included on this measure. One contrasting view of intelligence compares an "entity theory" of intelligence with an "instrumental-incremental" theory of intelligence (Dweck & Elliot, 1981). Entity theory conceives of intelligence as a stable (static) and global trait. Normative comparisons are used to document individual competence. In contrast, instrumental-incremental theory depicts intelligence as a repertory of specific skills which can be modified over time based on one's own efforts. The second contrasting pair of conceptualizations of intelligence opposes unidimensional and multidimensional views of ability (Cohen, 1974; Rosenholtz, 1979; Simpson, 1977). According to the unidimensional view, intelligence is seen as a single underlying ability which is responsible for success or failure in various academic activities. Similar to the entity theory, individuals are compared along this single dimension. On the other hand, a multidimensional or multi-abilities view of intelligence emphasized the variety of abilities and skills that comprise intelligence.

After pilot testing and revision, five bipolar forced-choice items were used which focus on (a) whether intelligence can be increased by one's own actions, (b) whether intelligence is a single or multiple ability and (c) the importance of normative comparisons. Three items reflecting the entity vs. instrumental-incremental contrast were adapted from M. Bandura's dissertation and M. Bandura and Dweck (1981). The remaining two items were constructed to investigate the multiple vs. single ability comparison.

Student interview questions. Derived in part from our earlier interviews with students (Weinstein, 1980), a semi-structured, nine-question Home and School Interview schedule was developed to examine (a) students' perceptions of the importance of success in school to their mother, (b) students' perceptions of their mother's views as well as their own of how well they are doing in school, (c) students' perceptions of their mother's reactions to good and poor work, (d) students' perceptions of their teacher's views of how they are doing in school, (e) students' perceptions of their teacher's reactions to good and poor work, and (f) students' own reactions to their teacher's responses to good and poor schoolwork.

Teacher Measures

Ways teachers think about students. Teachers were presented with a deck of small index cards on which their students' names were typed and were asked about how they viewed their students and what they might expect of them. They were requested to describe or group them using whatever criteria they wished. Spontaneous comments were recorded. If they grouped the cards, they were asked to label the piles.

Teacher expectations for students. Teachers were presented with an additional three decks of student name cards, one at a time, and asked to rank them in order of expected year-end performance in reading, in math and in overall schoolwork.

Teaching strategies. The Teaching Strategies Questionnaire was devised to ascertain variations in classroom organization and structure (Marshall, 1981). Teachers were asked to rate from a set of alternatives how frequently they used different types of instructional grouping as well as how often they used certain types of reading materials, methods of evaluation, and types of student choice. Items on evaluation and choice were adopted from a questionnaire by Cohen used in a study by Rosenholtz and Wilson (1980).

Teacher Interview. An interview schedule consisting of both structured and open-ended questions was created to clarify the classroom observations. Interview questions focused on (a) grouping practices, (b) uniformity of curriculum sequence, (c) evaluation practices, (d) locus of responsibility (student or teacher), (e) conceptualization of students' abilities, and (f) effective teaching strategies for high and low achievers.

Classroom Observation Methods

A two-part system for observing in classrooms, the Classroom Dimensions Observation System, was developed and refined based on previous work. This observation system includes both qualitative field notes and a quantitative observation scale. This system centers on aspects of the classroom which are believed to have implications for the communication of achievement expectations: (a) Structure of the tasks, subject matter and materials, (b) Grouping practices, (c) Locus of responsibility in learning, (d) Feedback and evaluation, (e) Motivation, structure and procedures, (f) Quality of teacher-student relationships and (g) Statements of expectations (Marshall & Weinstein, in press). See Table 10.

Focused field notes. In using the Classroom Dimensions Observation System, the classroom observer first keeps a running account of events in the classroom, focusing on those aspects of the classroom structure and teacher-student interactions outlined above. Teacher statements other than subject matter content are recorded as closely to verbatim as possible. Individual students with whom interaction occurs are identified. Also recorded is

whether the interaction occurs with the class as a whole, with a group or group with others around, with an individual alone, an individual within group (group setting), or an individual with others around. The observer also makes separate notes of impressions and interpretations of events. Field notes are typed immediately according to a format for ease of retrieval of teacher statements.

Observational scale. At the beginning of the observation period, the observer uses the Classroom Dimensions Scale (CDScale) to code an overview of the general structure of the learning environment. Following the observation period, the observer records the exact number of instances certain teacher behaviors were observed and rates aspects of the climate on the CDScale based on the field notes. The CDScale is a low inference observational scale designed to provide both quantitative and qualitative information concerning the cognitive, affective, interpersonal, and structural aspects of the classroom. This scale is derived from the Dimensional Occurrence Scale (Marshall, 1976).

The scale is divided into three parts. Part I yields an overview of the general structure of the tasks, grouping, and evaluation which create the context for learning during the observation period. This section provides a general picture of (a) whether the students are working individually, in groups, or together as a class; (b) where the teacher is working; (c) the subject matter content and types of tasks; (d) the amount of choice that the students have; and (e) the predominant type of teacher evaluation.

Part II focuses more specifically on the nature of the teacher's interactions with the students or with groups of students. Items in this section provide additional information about (a) the type of task, (b) motivation, (c) responsibilities, (d) evaluation and feedback and (e) the quality of relationships. The items in Part II represent countable instances of behavior and are coded for the exact number of times that the behavior occurs. This part also allows for the coding of whether the teacher's interaction is with individuals, groups of students, or the class as a whole.

In Part III, the frequency and intensity of the warmth and irritation conveyed to the class, groups or individuals are rated.

Observers undertook extensive training over a period of eleven weeks, including more than 30 2-hour training sessions, beginning with videotapes and moving into actual classrooms. As a check on inter-observer agreement, the transcripts of the field notes were inspected for correspondence of events between observers. Inter-observer agreement for the CDScale for each of the three observers with the trainer (who served as the fourth observer) was calculated using the percent exact agreement averaged over six observation periods, three observation periods for two teachers. Percent agreement ranged from .94 to .97 for the

items on Part I, from .94 to .96 for the items on Part II, and from .88 to .92 for the overall level of variables on Part III. Calculation of agreement for the items on Part II is based on the exact number of times that the behaviors were observed to occur as well as the observation that the behaviors did not occur. Because many of these behaviors are infrequently occurring events and did not occur during the observation periods when the observers observed the same events, agreement concerning the actual occurrence of some of these infrequent behaviors could not be directly ascertained. To ensure agreement on these behaviors when they were encountered during the data collection, weekly meetings were held to discuss all occurrences of infrequent behaviors and to resolve other coding problems. In addition, the trainer read all transcripts and re-checked the coding of infrequent events for consistency within and across observers.

Observers' perceptions of teacher treatment. After observing in a classroom, the observers completed four short forms of the TTI for male and female high and low achievers in each classroom.

Parent Measures (Administered to Mothers)

Parent influence and reactions to schoolwork. A questionnaire was developed which includes questions about (a) family size and birth order, (b) mothers' views of their child, their child's school experience, and their child's success in school, (c) their perceived influence on school success, (d) their responses to their child when satisfied or dissatisfied with his/her schoolwork, and (e) their aspirations for their child.

Parent expectations. The questionnaire also includes the same modification of the Self-Concept of Attainment scale used for the students. Mothers were asked to indicate how well they thought their child will do this year in his/her schoolwork relative to other children in the class.

Fall Data Collection Procedures

Teacher interview session. In the early fall, individual sessions were held with teachers to assess their ways of thinking about their students and their expectations for their students. They were presented first with a deck of student name cards and asked to describe how they thought about students and what they expected from them in an open-ended manner. They were then presented with three additional decks of cards, one at a time and asked to rank their students from one to 30 on year-end expected achievement. The teachers then completed the Teaching Strategies Questionnaire.

Student data collection. Data from students were collected following collection of the teacher data. Based on prior year-end reading achievement scores, a randomized blocking procedure was used to assign forms to participating students within sex within

each classroom. Students for whom achievement data were missing were blocked together and similarly assigned forms. Each student was assigned to a TTI long form of either a male of female high or low achiever version and to a TTI short form of the same sex but the opposite level achievement.

Due to the amount of time required to administer all the instruments, two group testing sessions were held for each student. During the first session, measures were administered in small groups of students receiving the same TTI form. Trained testers administered a long form of the TTI (male or female, high or low achiever), followed by a non-related filler task and then an opposite achievement level same sex short form of the TTI.

Two weeks after the first session, a second session was held to administer the instruments which focused on the self: the measure of self-expectations for schoolwork, reading, and math, student perceptions of teacher expectations and parent expectations for schoolwork, followed by the self form of the TTI, the cognitive and general competence subscales of the PCSC, and the achievement motivation measure.

In each session, all instructions and items were read aloud to the students to avoid problems of varying reading levels.

Winter Data Collection Procedures

Classroom observations. Observers were assigned randomly to classrooms with the following restrictions: (a) Each observer was assigned one classroom at each of the three grade levels. (b) No more than two of the three classrooms assigned to an observer had the same level of perceived differential treatment (high or low). All observers were blind to the actual amount of differential teacher treatment perceived by students in all of the classrooms.

The order in which classes at the three grade levels were observed was varied across observers.

Each observer observed in one classroom at a time for a period of two to four weeks. Preliminary observations were made to acclimate the observer to the classroom and the students to the observer as well as to learn the students' names. After these initial observations, an additional 12 hours of observations per classroom or more were made in an attempt to observe three periods during which high and low reading groups received instruction, three math lessons, and some group discussion or organizational time. The context of the observations during the remainder of the time varied according to the type of activity common to the particular classroom.

Observers used the Classroom Dimension Observation System to make running notes of the teacher's interactions with individuals and groups of students as well as the class as a whole, and recorded teacher comments in the areas hypothesized to be

important to the development of achievement expectations. Observations were immediately coded on the CDScale.

Observers' impressions of differential teacher treatment. After observing in a classroom, the observer completed four short forms of the TTI for a high and low achieving male and female for that classroom. Observers also wrote a summary of their impressions and made an estimate as to whether the classroom was a high or low differential treatment classroom.

Teacher interviews. After the observations in each classroom, the observer interviewed the teacher. Teachers were asked to rank their students again on expected year-end achievement in reading and math and were then asked the questions on the interview schedule. Interviews were audiotaped and observers recorded the responses to the forced choice questions.

Student interviews. After the observations were completed, twelve students in each classroom were individually interviewed by trained interviewers. The interview sessions lasted about one-half hour. Students were first given a series of measures as follows: (a) self-expectations for schoolwork, reading, and math, (b) TTI Short form for the same sex and achievement level as the long form in the first Fall testing session, (c) Self-form of the TTI, (d) Achievement motivation measure, (e) Notions of smartness, and (f) TTI Short form for the same sex and opposite achievement level. The Home and School Interview questions were then given. Questions and students' responses were audiotaped and then transcribed.

Spring Data Collection Procedures

Parent Measures. Questionnaires were mailed to all of the parents who indicated their willingness to participate in the study. Follow-up telephone calls were made to increase the return rate.

Student achievement scores. At the end of the school year, reading and math achievement test scores were collected from school records.

Results

This report addresses four areas of findings obtained thus far. We first explore aspects of what students perceive in the fall of the school year about teacher treatment toward high and low achievers in their classrooms and about their own treatment by the teacher. Second, we examine differences between classrooms identified by students in the fall as high and low differential treatment classrooms. Here, we look at differences in the types of expectations held by teachers and students, and differences in observer perceptions of teacher treatment as well as observed (that is, recorded) structure and interactional processes within classrooms obtained in the winter of the school year. Third, we

report on whether fall identified high and low differential treatment classrooms are associated with different patterns of student achievement in the spring. Finally, we examine how these classroom differences identified in the fall predict mothers' views of their children in the spring. In considering each of these questions, we explore how the documented findings may vary as a function of the grade level of the student, the teacher expectancy level of the student and the self-concept of the student.

Student Perceptions of Treatment

Perceptions of Differential Treatment Toward Others

To test whether students perceive differences in the teacher treatment of four types of hypothetical students (defined by gender and achievement level), a series of three-factor randomized block analyses of variance were conducted with one between-block factor of grade and two within-block factors of target achievement level and target sex (characteristics of the hypothetical student described on the Teacher Treatment Inventory). The three scale scores of the TTI (long form) served as the dependent measures, and a classroom mean was the unit of analysis.

This type of analysis is analogous to those previously reported (Weinstein et al, 1982) except in two critical ways: (a) for the first time, we are examining grade level or developmental differences in students' perceptions of treatment and (b) we can also test perceptions of differential treatment across gender as well as achievement level, both assessed within classrooms for the first time.

The results of these analyses were as follows. Significant main effects were found for Target Achievement on all three scales: Scale 1, $F(1,27) = 37.65$, $p < .001$; Scale 2, $F(1,27) = 52.95$; $p < .001$; Scale 3, $F(1,27) = 60.16$, $p < .001$. That is, students described high achievers as receiving less negative feedback and teacher direction, less work and rule orientation and more high expectations, opportunity and choice than did low achievers. The means and standard deviations can be found in Table 11.

A significant main effect for Grade was also documented on all three scales: Scale 1, $F(2,27) = 4.96$, $p < .05$; Scale 2, $F(2,27) = 6.08$, $p < .01$; Scale 3, $F(2,27) = 9.15$, $p < .01$, suggesting grade level differences in the sheer frequency of teacher treatment behaviors reported. Post hoc analyses revealed a significant linear trend on two of the three scales. Younger children reported both more frequent negative feedback and more frequent high expectations in the teacher treatment of others than did older children: Scale 1, $F(1,27) = 4.40$, $p < .05$; Scale 3, $F(1,27) = 6.56$, $p < .05$. With regard to perceived frequency differences in work and rule oriented teacher behaviors, post hoc comparisons demonstrated significant differences between first and third grade students only, $F(1,27) = 5.49$, $p < .05$), with first graders

reporting less frequent work and rule oriented behaviors in general. Whether these differences in sheer frequency of teacher behaviors reported reflect developmental differences in perception or actual classroom grade level patterns cannot be ascertained here without comparable observational data.

However, despite these grade level differences in the perceived frequency of teacher behaviors in general, no significant Grade x Target Achievement interactions were documented. Thus, children at all the three grade levels studied perceived differences in teacher treatment toward high and low achievers.

Student perceived differences in the teacher treatment of boys and girls were found to be far less striking. On only one of the three TTI scales, did the main effect for Sex approach significance: Scale 2, $F(1,27) = 4.05$, $p<.10$. In this case, there was a tendency for students to perceive girls as receiving more work and rule orientation from the teacher than did boys. However, this trend was qualified by a significant Sex x Grade interaction, $F(2,27) = 7.96$, $p < .01$. An examination of the means suggests that this effect holds at first and third grades but was reversed at fifth grade where boys are perceived as receiving more work and rule oriented treatment than girls. Finally, a significant three way interaction was documented on Scale 3, $F(2,27) = 3.45$, $p < .05$. An examination of the means suggests that in all cases, students perceived high achievers as receiving higher expectations, opportunity and choice than low achievers. However, low achieving females were perceived as more favored than low achieving males at first grade, with no difference perceived between high achieving males and females; whereas at fifth grade, the female advantage over males was for high achievers not low achievers. There were no gender differences in the perceived frequency of treatment on this variable among the high or low achievers in the third grade sample.

In sum, these results replicate for first, third, and fifth graders our earlier findings (Weinstein et al, 1982) that students perceive differential treatment by the teacher of high and low achievers. The only documented effect of grade level is on the frequency of teacher behaviors reported, not on the report of differential treatment itself. Finally, in a more precise test of student perceptions of gender differences in teacher treatment (where gender and achievement level of the target student are assessed in a blocked design within classrooms, that is, all four forms of the TTI are distributed within each classroom), evidence for gender-related differential treatment on these particular teacher behaviors is less clear. On two of the three scales, gender related differential treatment is perceived but patterns differ according to grade level in one case, and grade and achievement level in another. However, with regard to our interest, however, in differential treatment toward high and low achievers, the gender of the student does not appear to be an important factor. Perceived differences in the treatment of high and low achievers appear for both boys and girls.

Identifying high and low differential treatment classrooms. In our previous work, and again in this study, the identification of high and low differential treatment classrooms was made on the basis of classroom level means scores. That is, the criterion of differentiation was based on the absolute sum (irrespective of sign) of the difference score between the class means for the high and low achiever forms for each of the three TTI scales. These summed differences scores were then ranked within grade and split along the median to create high and low differential treatment classrooms within each grade group. It should be noted that despite the fact that this criterion reflects the amount of differentiation present regardless of direction, (that is, favoring highs or lows), the data overwhelmingly demonstrate that when differentiation occurred, it favored highs with positive treatment and less negative treatment than lows. Using a criterion of a .10 difference in mean difference score in favor of lows to constitute a reversal of differentiation, only 4 instances occurred in 30 classrooms over the three scales, that is, in 90 opportunities, yielding a reversal rate of 4%. These instances occurred in three first grade classrooms and in one third grade classroom, (the difference occurring on only one scale within a classroom), with all scales represented. Thus, in 96% of the cases, students' perceptions of differential treatment (at a classroom level) favored highs with more positive treatment.

Individual students' perceptions of differential treatment. In previous analyses, classroom level means of the perceptions of independent groups of students within classrooms were used to determine the existence as well as levels of differential treatment. In this study, in addition to completing the long form of the TTI for a particular target student, students were also asked to fill out the shortened TTI form for a student of the opposite achievement level. Thus, as a form of validation, we could ask whether individual students also perceived more differential teacher treatment in these "classroom level determined" high differential treatment classrooms than in those classrooms identified as low on that criterion. Individual student perceptions of differential treatment were obtained by subtracting a students' score on the short form of the TTI (High or Low Achiever) from his/her score on the same eight items of the long TTI form (Low or High Achiever).

A randomized block ANOVA was conducted with the difference score as the dependent measure, and two between classroom factors (Type of Classroom and Grade) and one within classroom factor (Target Sex). Significant main effects were found for Type of Classroom, ($F(1,24) = 26.07$, $p < .001$, and for Grade, $F(2,24) = 11.24$, $p < .001$, but not for Target Sex. Further, no significant interactions between factors were documented. These results suggest that children regardless of grade level perceive more differential teacher treatment in "class identified" high differential treatment classrooms than in low differential treatment classrooms. In general, younger children reported less differential treatment than did older children, with significant

differences occurring in perceptions between first and third graders ($F(1,24) = 19.61$, $p < .01$) but not between third and fifth graders. The sex of the target student rated did not affect the amount of differential treatment perceived by students. That is, differential treatment toward high and low achievers was not perceived by students to be greater among boys than among girls, thus enabling us to combine differential treatment scores across the sex of the target in subsequent analyses (See Table 12).

In sum, individual students' perceptions of differential teacher treatment concurred with classroom level derived perceptions. Further, correlational analyses between classroom derived measures of differential treatment and individual student derived measures demonstrated the extent of this relationship ($r = .75$ overall; grade 1, $r = .76$; grade 3, $r = .70$; grade 5, $r = .88$). Hence, these two indices of perceived differential treatment are highly related but clearly not identical.

Teacher expectations, student self concept, and individual perceptions of differential treatment. A second randomized block ANOVA was conducted with the individual student perceptions of differential treatment as the dependent measure (aggregated to a classroom level mean), this time introducing two within classroom factors of Teacher Expectancy Level and Academic Self-concept, and again including the two between classroom factors (Grade, Type of Classroom). In this analysis, the main effect of Teacher Expectancy Level approached significance $F(1,24) = 3.87$, $p < .10$, indicating that high teacher expectancy students tended to report more differential treatment than low teacher expectancy students. However, this result was qualified by an also near significant interaction between teacher expectancy level and type of classroom, $F(1,24) = 3.85$, $p < .10$, which demonstrated that high teacher expectancy and low teacher expectancy students did not differ in these reports of the extent of differential teacher treatment in low differential treatment classes, but they did differ in high differential treatment classrooms. High and low academic self-concept students did not differ in their reporting of the extent of differential treatment perceived.

Perceptions of Own Treatment

To determine whether high and low teacher-expectancy students perceived differences in their own treatment from the teacher and whether these differences were affected by grade level or the type of classroom students were in, a randomized block ANOVA was conducted with two between block factors (Grade and Type of Classroom) and one within block factor of Teacher-Expectancy Level (high or low based on a median split of teacher expectancy ratings within classrooms). A total score on the own-treatment inventory, reflecting the frequency of positive teacher treatment, served as the dependent measure. Significant main effects were found for Grade, $F(2,24) = 17.70$, $p < .001$, for Type of Classroom, $F(1,24) = 5.88$, $p < .05$, and for Teacher Expectancy Level, $F(1,24) = 28.10$, $p < .001$. The only significant interaction documented was a Grade

x Teacher Expectancy Level interaction, $F(2,24) = 5.45$, $p < .05$. (See Table 13.)

These results suggest that in general, students perceived more positive teacher treatment in high differential treatment classrooms than in low differential treatment classrooms. Students for whom teachers held high expectations reported more positive treatment from the teacher than did those students for whom teachers held low expectations. However, during this point of testing, the fall of the school year, these differences in perceived treatment between high and low expectancy students were not any greater in high differential treatment classes than in low differential treatment classes. However, when the "own" treatment items were run separately instead of as a total score, there was some support for a differential effect in these two types of classrooms on 3 of the 8 items.

Older students reported significantly less positive teacher treatment than did younger students with a significant difference appearing between third and fifth graders' views, $F(1,24) = 15.12$, $p < .01$, but not first and third graders. An inspection of the means suggests that at all grade levels, high teacher-expectancy students perceived more positive treatment than low expectancy students. However, these between-group differences in the positivity of teacher treatment were significantly greater at fifth grade compared to third grade, $F(1,24) = 19.55$, $p < .001$, with no differences in relative effects between first and third grade. At fifth grade, low teacher expectancy students report significantly less positive treatment than do third grade low teacher expectancy students ($F(1,24) = 27.68$, $p < .001$). This grade level difference does not hold for high-expectancy students.

A second analysis was run introducing a second within-classroom factor of student Academic Self-Concept. In this analysis a significant main effect for Self-Concept was documented, $F(1,24) = 16.40$, $p < .001$, with no significant interactions with any of the other factors. Thus, we can conclude that students with high academic self-concepts perceived more favorable treatment towards themselves from their teachers than did students with low academic self-concepts. This held at all grade levels in both types of classrooms.

Differences Between Perceived High and Low Differential Treatment Classrooms

Characteristics of Teachers' and Students' Expectations in the Fall

Correlations were computed and aggregated at a classroom level within the set of teacher expectation variables, within the student expectation variables, and between student and teacher variables to examine relationships as a function of grade level and type of classroom. These correlations transformed into z scores served as dependent variables in a series of Grade x Type

of Classroom ANOVAs. Tables 14, 15, and 16 show these correlations broken down by grade level, type of classroom, and type of classroom by grade level, as well as separately for the subsample of classrooms at the extremes of high and low differential treatment (chosen for observations).

Grade level differences. Table 14 highlights these relationships by grade level. In the fall of the school year, students' awareness of specific teacher expectations, as measured by the correlation between student-perceived teacher expectations in schoolwork and teachers' actual expectations, is slight at the early grades and increases by grade level, $F\ 2.24 = 4.22$, $p < .05$. Only in the fifth grade sample is there any significant evidence of such awareness ($r = .37$). Further, students' expectations and teachers' expectations in the fall show little congruence until the fifth grade. This pattern holds for expectations in reading ($F,2,24 = 13.66$, $p < .001$) and schoolwork ($F,2,24 = 2.74$, $p < .10$). Student expectations are more related to perceived teacher expectations than to actual teacher expectations at each grade level, suggesting either that students' own expectations are more in line with what they think their teachers' expectations are or that they project their own expectations for their teacher expectation estimate.

When we examine the extent to which teachers' expectations for students are linked across the content areas of reading and math, we see a strong congruence of estimates ($r = .73$) which does not vary across grade level. Of interest, students' estimates of their abilities are not so linked across areas as are teachers'. And the congruence between areas in student views is greatest in the first grade sample ($F\ 2,24 = 4.41$, $p < .05$). Prior reading achievement scores predict from 25% to 55% of the variance in teacher expectations for students' reading performance, with the relationship higher at third and fifth grades than at first grade ($F,2,24 = 6.15$, $p < .01$). Prior reading achievement scores also predict teacher expectations in mathematics performance, a little less strongly than reading expectations, but again demonstrating a stronger relationship in the higher grades ($F,2,24 = 3.04$, $p < .10$). In contrast, for students, prior reading achievement scores have no influence on their math expectations and on their reading expectations with no grade level effects.

Type of classroom differences. How are these patterns in the fall affected by the type of classroom a student is in, that is, by a membership in a perceived high or low differential treatment classroom? In the entire sample of classrooms (Table 15) we see no difference in student awareness of teacher expectations or in the degree of congruence between student and teacher expectations in the fall between these two types of classrooms. However, in the subsample of 12 classrooms chosen to represent the extremes of high and low differential treatment classes (Table 16), student awareness of teacher expectations is higher in high differential treatment classrooms than in low differential treatment classrooms at the fifth grade level only. Further, again, at the fifth grade

level, teacher and student expectations are more congruent with each other in reading, math and schoolwork in high differential treatment classrooms than in low differential treatment classrooms in the fall of the school year.

Looking again at the entire sample, it is also interesting to note that at the third and fifth grade level, teachers in high differential treatment classes as compared to low differential treatment classes hold more congruent expectations for their students across reading and math (Grade x Type of Classroom interaction, $F(2,24 = 2.99$, $p < .10$). Further, at all grade levels, they are more influenced by prior reading scores in developing their expectations for both math as well as reading (Type of Classroom main effect $F(1,24) = 4.33$, $p < .05$; and $F(1,24) = 3.33$, $p < .10$ respectively). The characteristics of student expectations do not show this differential pattern between the two types of classrooms.

Level of student expectations in the fall. An examination of Table 17 demonstrates that the mean student expectation ranking falls in the upper third of the class distribution (relative to 30 students). This mean ranking appears slightly higher in the younger grades than in the older grades. From one perspective, it could be argued that the students have fairly positive expectations for their reading performance relative to their classmates. If, however, the breakdown of ratings by level of teacher expectancy and by type of classroom is examined, the differences in the positivity of own expectations between high and low teacher expectancy students appear greater in high differential treatment classes than in low differential treatment classes at first, third, but not fifth grade levels (observed patterns, currently undergoing statistical analysis). Previous analyses have demonstrated that low expectancy fifth graders in general have less positive views of their own teacher treatment, in both types of classrooms in the fall. These patterns suggest that although the mean level of student expectation ratings is high, students' own expectations vary as a function of their teacher's expectations for them, and that this variation according to teacher expectation level is greater in perceived high differential treatment classrooms than in low differential treatment classrooms. However, fifth graders do not show this differential classroom effect in the fall of the school year.

Winter Observational Study of 12 Classrooms (Whole-Class Comparisons)

Data preparation and analysis. The analyses reported here reflect preliminary work on the observational data. They focus on variables drawn from Part I and Part II of the CDScale. Analyses of variables from Part III and from the narrative records of classroom events are still underway. Further, the results reported here describe whole-class characteristics. We are in the midst of conducting between-reading group analyses of structuring and interactional strategies.

The CDScale yielded four kinds of data; nominal scores, ratings, and frequencies of teacher behavior as well as amount of time spent. Since we observed whole lessons within the classroom, the amount of time spent in each classroom and time spent observing reading groups and other subject matter lessons varied between teachers. Similarly, the number of CDS forms completed for each teacher and for different subject matters varied as well (since CDS forms were changed each time the subject matter was changed or within subject matter each time the grouping structure or group with whom the teacher worked changed).

In order to compensate for the varying lengths of time for each CDS form, for each subject matter, and for total amount of observation, raw scores were adjusted by the number of CDS forms used or by the number of minutes of observation, where appropriate. (Table 18 shows the mean number of CDS forms used and the mean number of minutes classrooms were observed.) In addition, a number of proportional variables were created.

Creation of variables. Variables were created to describe three levels of classroom structure and process: a) the class as a whole, which included class level ratings of structure as well as the summed frequency of teacher behaviors across individuals, individuals in groups, groups, individuals in class, and whole-class contexts; b) characteristics of groups, which included data from all times during which groups were in operation and c) high and low reading groups, which included observations separated by subject matter (in this case, reading) and for all times in which the teacher worked with the highest and lowest reading group (in one classroom only, math groups were substituted since the teacher did not use group instruction for reading).

Part I of the CDScale yielded structural information about the classroom. Four variables were created to describe the predominant type of classroom organization used (the proportion of individual structure overall observations, the proportion of group structure, the proportion of whole class structure and the proportion of mixed structure, that is, some combination of individual, group, and whole class structure). Four variables were created to indicate aspects of task structure: the presence of student choice (occur vs. not occur), the use of divergent tasks (occur vs. not occur), the concurrent use of different subject matter (occur vs. not occur) and the sameness of the tasks (on a 5 point score from same exact, same series, different tasks in a series, same broad topic, different activities).

Four variables described the nature of group instruction. These included the number of groups worked with during observation, the proportional use of short-term flexible grouping over the total number of group observations, the proportional use of heterogeneous grouping over the total number of group observations and the type of label given to the groups (no label or neutral label, consecutive label and imagery label). A fifth variable was created based on information obtained from the teacher prior to

the observation: groups identified for instruction in reading as well as math and spelling.

Part II of the CDScale provided frequency data on 42 types of teacher interactions with students concerning task strategies, motivational strategies, establishing responsibility, evaluative feedback, and interpersonal relationships. Items were combined on a conceptual basis and aggregated to create a set of proportional variables. These included the (1) proportion of encourage expressiveness (proportion observations in which teachers encouraged expressiveness), (2) proportion of cooperative strategies (proportion of observations in which the teacher used cooperative strategies), (3) proportion of positive display (frequency of positive display for academic and behavioral purposes divided by the total display behaviors), (4) proportion of positive academic evaluation (all positive academic evaluative items divided by positive plus negative academic evaluative items), (5) proportion of positive behavioral evaluation (all positive behavioral evaluative items divided by positive plus negative behavioral evaluative items), (6) proportion of praise (frequency of praise divided by the frequency of praise plus criticism), (7) proportion of buffered criticism to total criticism, and (8) proportion of positive interpersonal behavior to total interactions.

Statistical analyses. Due to the unequal variances and non-normal distributions, nonparametric methods were used to analyze the data from the CDScale. Different methods of statistical analysis were used for the proportional variables and for the rating variables.

To test for equality of proportions, a series of a priori contrasts were performed. (These contrasts are commonly associated with the Chi Square Test of Homogeneity.) In order to retain the equal contribution of each teacher in the analyses, the proportions utilized by each teacher were given equal weight. Thus, for example, the proportion of "Praise" in Grade 1 actually represents the average proportion of "Praise" across the four teachers in that grade. The standard error of each contrast was computed under H_1 (Goodman, 1963).

To test for equality of ratings, a series of a priori contrasts were performed based upon the Kruskal Wallis test. For these analyses, the model was "laid out" as a one-way design. To correct for tied values when ranking, average ranks were assigned. This correction for ties was also utilized in calculating the variance of each contrast. As in the proportional analysis, equal weighting was employed.

For both of the above analyses, the contrasts under consideration were (a) the difference between Type of Classroom (high and low differential treatment classrooms), (b) differences among Grades, and (c) Type of Classroom by Grade interactions. Since each of these three groups of contrasts represents "families" of hypotheses, a family-wise error rate of .05 was used. For

example, each of the three contrasts for grade were assigned an alpha of .0167, or .05/3 (Marascuilo & Levin, 1983).

Structural features of the observed classrooms. In this sample, only 4 of the 12 teachers used an individualized structure for teaching during our observation periods; hence differences in usage of individualized structure could not be tested. Table 19 documents the proportion of observation time during which each type of organizational structure was in use. A priori contrasts on the proportional use of group, whole class, and mixed structure revealed significant main effects for grade level on two of the three variables, with significant Grade x Type of Classroom interactions of two of the three variables as well. No main effect for type of classroom was documented.

A greater proportion of whole class structure was observed in first grade compared to fifth grade ($z = 2.43$) with no other effects noted. Further, proportionally less mixed structure was observed at the first grade level compared to the third grade level ($z = 2.66$) and the fifth grade (although not significantly). However, here there was more use of mixed structure in perceived high compared to low differential treatment classrooms at the first grade whereas at third and at fifth grades, the higher proportion of mixed structure was found in low differential treatment classrooms ($z = 2.48$). For the proportional use of group structure, these relationships were reversed. More group structure was documented in low differential treatment classrooms compared to high differential treatment classrooms at first grade whereas the higher proportion of group structure was found in high differential treatment classrooms at third ($z = 3.10$) and at fifth grades ($z = 2.66$).

With regard to aspects of the task structure, Table 19 demonstrates that the proportion of student choice, divergent tasks and concurrent use of different tasks and subjects was not high. In fact, the observed instances of concurrent use of different subject matters was too low to allow statistical analysis. Of the remaining three task variables, significant Grade level effects were documented for two of these three variables and significant Type of Classroom effects for all three variables. The proportion of student choice was higher in third ($z = 4.91$) and fifth grades ($z = 3.03$) than in first grade, as was the concurrent use of different tasks (here tested by the Kruskal Wallis test). The proportional use of divergent tasks did not show overall grade level differences. Use of student choice, divergent tasks and concurrent different tasks were all found to be higher in perceived high compared to low differential treatment classrooms ($z = 2.84$; $z = 6.27$; $z = 3.62$), contrary to our hypotheses. A significant Grade x Typ of Classroom interaction for divergent tasks suggests that the type of classroom difference was greatest at the first grade level.

Characteristics of grouping. During meetings with teachers preceding the observations, teachers were asked for a list of

their groups in reading, math and spelling, and in whatever other subjects they used grouping. The number of groups that the teachers identified in conference with the observer did not always correspond with what the observers actually recorded as they watched the teachers in the classroom. In some cases, the teachers identified groups to the observers, for example, by what book or level they were in, but in reality combined several of these groups for instruction. Another teacher identified three groups but never instructed groups in reading during our observations. Instead, this teacher circulated among the students in individualized instruction. Table 20 shows the mean number of identified and observed groups by type of classroom. Whereas we would have predicted a larger number of reading groups in low compared to high differential treatment classrooms, the means suggest only a slight difference in instructed groups in favor of low differential treatment classrooms. Perceived high differential treatment teachers identified more reading groups than did low differential treatment teachers. However, the difference between the number of groups identified and instructed is greater for perceived high than for low differentiating teachers.

The use of flexible short-term grouping and heterogeneous group composition (that is, not ability based) was not observed in all classrooms; thus differences in degree of usage could not be analyzed. However, Table 21 shows the proportion of teachers in our sample who used these structural strategies by type of classroom. Inspection of these patterns suggest variability in use; for flexible groups, perceived high differential teachers appeared more likely to use this strategy in first and third but not fifth grade. For heterogeneous grouping, perceived low differential teachers appeared more likely to utilize this strategy in first and fifth grade but not in third grade.

Concerning the degree of imagery in the labeling of groups, contrasts based on the Kruskal Wallis test suggest main effects for Grade level and for Type of Classroom. Labels conveying no or neutral messages were more likely to be found in first grade than in third or fifth grade ($z = 2.66$; $z = 2.83$). Only 2 of the 12 teachers used image labels for their groups. As well, contrary to our hypothesis, neutral labels were more likely to be used in perceived high differential treatment classrooms than in low differential treatment classrooms ($z = 2.17$). No significant interactions were documented.

Interactional differences in the observed classrooms: Whole class findings. A priori contrasts and Kruskal Wallis contrasts on the eight teacher interaction variables revealed a significant overall difference between perceived high and low differential treatment classrooms for seven of the eight variables. (See Table 22 for the proportions and Table 23 for the significant effects for these variables.) Teachers in perceived high differential treatment classrooms were observed in general to be more encouraging of student expressiveness, use more cooperative strategies, more positive display, more positive academic evaluation, more

positive behavioral evaluation, more praise, and more positive relationship behaviors. No overall classroom differences were documented for the amount of buffered criticism. However, these overall classroom type differences were qualified by significant Classroom x Grade interaction on six of the eight variables. In addition, for buffered criticism, a significant Classroom x Grade interaction was also noted. These interactions suggest that the perceived high and low differential treatment classroom differences noted in the positivity of teacher interactions overall only favored high differential treatment classrooms for first grade, and sometimes for third grade, but that at fifth grade, perceived low differential treatment classrooms were observed to have more positive teacher interaction behavior than did high differential treatment classes. At fifth grade, teachers in perceived low differential treatment classrooms were observed to be more encouraging of student expressiveness, use more positive display, more positive academic as well as behavioral evaluation, more buffered criticism, and more positive relationship behaviors than did teachers in high differential treatment classrooms. Teacher use of cooperative strategies showed no such interactions and thus was higher in perceived high differential treatment classrooms at all grade levels. In addition, differences in levels of teacher praise were not documented between types of classrooms at fifth grade.

These analyses also demonstrated significant grade level effects in the frequencies of seven observed teacher interaction variables. Teacher's use of positive display, positive behavioral evaluation (but not academic evaluation) and praise was higher in first grade than in third grade (for display) and third and fifth grade (for evaluation and praise); whereas the observed frequency of buffered criticism and positive relationships was higher in the later grades. Third grade teachers encouraged student expressiveness more than did fifth grade teachers and fifth grade teachers used more cooperative strategies than did third grade teachers.

Spring Observational Study of First Grade Reading Groups ("The Social-Emotional Dimension of Teacher-Student Interactions during Beginning Reading Instruction;" Mary Lou Bedrosian Vernon, Doctoral Dissertation, University of California, Berkeley, 1983).

In four first grade classrooms (in this sample), chosen from the extremes of perceived high and low differential treatment classes, Vernon (1983) investigated the social-emotional dimension of teacher-student interactions, examining both verbal and nonverbal behaviors of teachers and students. She was interested specifically in comparing the social-emotional environment of high and low ability reading groups, examining differences in instructional effectiveness, and contrasting observer and student views of teacher treatment.

Vernon videotaped the high and low reading group lessons (from three to four visits per group) in each classroom during the spring of the school year. These lessons were transcribed and

then coded by two coders blind to the hypotheses of this study and to the identification of the classrooms. Interrater reliability was higher than 80% on all variables used.

Chi-square tests of binomial proportions were performed to test for differences between high and low reading groups within each of the four classrooms. Vernon found that the social-emotional environment as measured by seven teacher behaviors was more favorable for high ability reading groups than for low ability reading groups, although it is interesting to note that the pattern and extent of differential treatment did vary across the four teachers (See Table 24). Further, instructional effectiveness (as defined by the proportion of time engaged in reading and the proportion of correct responses) was rated higher in high reading groups compared to low reading groups. Vernon's test of the match between student perceptions of differential treatment and observed teacher behaviors was in essence an individualized one based on a tally of the number of significant differentiating findings within each classroom. On the basis of this method, she found that students' perceptions of high teacher differentiation in the fall agreed with observed high teacher differentiation in the spring in two of the four classrooms.

By collapsing frequencies across classrooms to test this hypothesis of greater observed differential treatment in perceived high compared to low differential teacher treatment classrooms, it appears that there might be some evidence for greater differentiation between high and low reading groups in classrooms where students report more differential teacher treatment (see Table 25); statistical tests of this relationship are currently underway. Vernon's dissertation results do suggest that teachers treat high and low reading groups differently in all four classrooms in the spring. Our first grade students in the fall did report differences in teacher treatment toward high and low achievers. What they also reported was a relative difference between classrooms in the sheer amount of differential treatment perceived. Vernon found such classroom differences in differential treatment patterns with some agreement with student views. How much concurrence awaits further statistical analysis.

Match between Observer (Winter) and Student (Fall) Perceptions of Teacher Treatment.

Using the same instrument given to students (TTI short form), we asked observers to report on their perceptions of teacher treatment toward targeted students in the winter. We wanted to know whether observers perceived greater differential teacher treatment toward high and low achievers in classrooms identified by students as high differential treatment classrooms. This comparison of views is perhaps a more accurate one than a comparison of observed frequencies of interactions with students' ratings of frequencies, as was discussed earlier. Although the time periods of assessment differ (changes in patterns might occur), the task given students and observers is identical, that is, to report on

their perceptions of the frequencies of certain teacher behaviors. Comparisons of student perceptions with observational data suffer from a lack of comparability on a number of dimensions, first in the particular behaviors noted and second, in the actual counting of behaviors versus the rating of frequency.

A repeated measures ANOVA was conducted with two between group factors of Grade and Type of Classroom, and two within observer factors of Target Achiever (high and low) and Target Sex (boy and girl), and with the TTI short form total score as the dependent measure. The results of this analysis documented a significant Target Achiever Effect ($F(1,6) = 6.23$, $p < .05$), Target Sex effect ($F(1,6) = 11.59$, $p < .01$) but no overall main effects for grade and type of classroom. Two significant interactions were noted, a Target x Grade interaction ($F(2,6) = 5.77$, $p < .05$) and a Target x Type of Classroom x Grade interaction ($F(2,6) = 7.00$, $p < .01$). These results suggest that observers perceive more positive teacher treatment of high achievers compared to low achievers, and of females compared to males. Perceived positivity of teacher treatment did not vary by grade level or type of classroom overall. However, the observer perceived differential teacher treatment of high versus low achievers was more pronounced in the student perceived high differential treatment classrooms than low differential treatment classrooms at first grade and fifth grade but not third grade. Thus, there exists some evidence at two of the three grade levels that observers perceive more differential treatment in classrooms identified by students as exhibiting greater differential treatment.

Achievement Outcomes

Residual Gain Analyses

We asked whether the amount of differential gain in reading achievement between high and low teacher expectancy students was greater in classrooms identified by students as exhibiting high differential treatment compared to low differential treatment classes. We also asked whether students' perceptions of differential treatment or their academic self concept played an interactive role in determining their achievement gains during the school year. In two randomized block ANOVAs, with residualized reading achievement gain as the dependent measure, we included two between classroom factors of Type of Classroom and Grade (only the third and fifth grade sample were used here because of scaling differences in entering first grade achievement scores). Two within-classroom factors were also included. The first of these was teacher expectation level (a median split within classes to yield high and low groups). Two factors were used as the second within classroom factor and separate analyses were carried out for each of these: (a) individually perceived differential treatment (a median split within classrooms to yield high versus low groups) and (b) academic self-concept (also a median split within classes to determine highs and lows).

The results for these analyses document a significant main effect of Teacher Expectancy level on student gains, $F(1, 16) = 15.69$, $p < .001$. High teacher expectancy students gain more than low teacher expectancy students, after controlling for entering achievement (High M = .19, SD = 15; Low M = -.25, SD = .19). Gain was not found to be significantly different across the two grade levels or the two types of classrooms. Further, no significant interactions were documented, suggesting that the differential gain pattern between high and low teacher expectancy students was not larger in perceived high differential treatment classrooms compared to low differential treatment classrooms, as had been hypothesized. However, given that the breakdown of means is suggestive of such an effect (differential Hi TE - Low TE gain at third grade in high diff classes = .41 and low diff classes = .31; at fifth grade, high diff = .66 and low diff = .40), analysis of this issue is still underway.

Individual student perceptions of the extent of differential treatment in their classroom was not found to affect their gain patterns alone or in interaction with any of the other factors. Further analyses are underway looking at the interactive effects of other student perceptions, such as perceived teacher expectations, perceived parental expectations, and perceived positive or negative teacher treatment.

With regard to student academic self-concept, only a significant two-way interaction between self-concept and grade level was found ($F(1, 16) = 5.13$, $p < .05$. Post hoc contrasts indicated a differential gain at third grade, with low self-concept students gaining more than high self-concept students ($F(1, 16) = 4.48$, $p < .05$, but no effect at fifth grade. Beyond this relationship with grade, no other significant findings with self-concept were found here, suggesting that high and low self-concept students were not differentially reactive (in the gains they achieved) to differential levels of teacher expectations and/or to the different types of classrooms. Additional work on the student susceptibility hypothesis is reported below.

The Role of Initial Self-Evaluation in Student Susceptibility to Teacher Expectation Effects (Karen A. Brattesani, Doctoral Dissertation, University of California, Berkeley, 1984)

Combining the third and fifth grade data base in this study (N = 285 students) and utilizing student as the unit analysis (in contrast to the classroom level results reported above), Brattesani explored more complex models of student susceptibility to teacher expectation effects, resulting from an interaction between one's academic self concept and the kind of feedback one receives (operationalized here as the level of teacher expectations). Selected results from her dissertation research will be presented in brief.

The partial correlations between teacher expectations for

reading and student year-end achievement, controlling for prior achievement, and calculated separately for high, moderate, and low self-concept groups, did not support the hypothesis that low self-concept students are more influenced by teacher expectations. In fact, students with moderate self-concepts show the most influence of teacher expectations, differing significantly from high self-concept students ($z = 2.33$, $p < .01$) and almost significantly from low self-concept students ($z = 1.47$, $p < .10$).

Brattesani also found some evidence for a consistent feedback explanation of strongest teacher expectation influence. While all students show a significant influence of teacher expectations on year-end achievement beyond the effects of entering achievement in both high and low differential treatment classrooms, there was a trend for consistent feedback to have the most influence (see Tables 26 and 27):

> When students received teacher feedback (teacher expectations) that was consistent with their own self-concept (high or low), students achieved at a higher (or lower) level than moderate teacher expectation controls. When teacher feedback was inconsistent with their self-concepts, students achieved at the same level as moderate expectation controls. (Brattesani, 1983, p. 6).

In addition, Brattesani's results suggest that teachers' expectations for students tend to predict more of the variance in year-end achievement (beyond that of initial achievement differences) in (perceived) high differential teacher treatment classrooms than in low differential treatment classrooms. Using the Teacher Treatment Inventory three scale criterion of differential treatment in the combined third and fifth grade sample, the R s were .73 and .65 for the high and low differential treatment classrooms respectively ($z = 1.53$, $p = .07$). The effects are clearest at fifth grade ($R^2 = .78$ compared to $R^2 = .64$) with partial correlation differences in the predicted direction at third grade $R^2 = .68$ vs. $R^2 = .65$). Using a TTI single scale of work and rule orientation as the criterion of differential treatment classrooms yielded similar results ($z = 1.81$, $p < .05$).

Mothers' Views in the Spring

Only preliminary analysis of the mothers' questionnaire data has been completed thus far. We examined how mothers' views of their children in the spring were related to the teachers' expectations for their child in the fall and to the type of classroom their child was in (a perceived high or low differential treatment classroom). A series of randomized block ANOVAs were conducted with two between classroom factors (Grade and Type of Classroom) and one within classroom factor (Teacher Expectation Level) and with mothers' responses on the eight quantitative items on the parent questionnaire as the dependent variables.

The results of these analyses (see Table 28) suggest that

mothers of students for whom the teacher has high expectations in the fall, themselves rate their child's ability as higher in the spring relative to other students in the class in reading ($F(1,24) = 28.86$, $p < .001$) and in overall schoolwork ($F1,24) = 76.61$, $p < .001$) but not in math. In math, mothers of low teacher expectancy students rate their children as higher in math ability than mothers of high teacher expectancy students ($F(1,24) = 22.65$, $p < .001$). Further, where teachers have higher expectations for students, mothers perceive the teachers' expectations as higher ($F(1,24) = 26.87$, $p < .001$). Where teachers have higher expectations for students, mothers also report that they are more satisfied with their child's performance ($F(1,24) = 9.95$, $p < .01$). However, mothers of high and low teacher expectancy students do not differ in the degree to which they believe they have influence over their child's success in school.

On all these variables, no significant interaction between teacher expectancy level and type of classroom was documented, as had been hypothesized. That is, mothers' views of their high teacher expectancy versus low teacher expectancy children were not more sharply differentiated in classrooms identified as high differential treatment classrooms. The only other finding concerned a main effect of type of classroom for mothers' ratings of their child's overall ability relative to others and a main effect for grade level for mothers' satisfaction with performance. Mothers of children in high differential treatment classrooms compared to low differential treatment classes rate their child's overall ability as higher relative to others. Parental satisfaction with their child's achievement tended to decrease over the three grades ($F(2,24) = 2.93$, $p < .10$).

With regard to mothers' educational aspirations, the patterns are more complex. With desired educational level, significant interactions were noted (Grade level x Type of Classroom $F(1,24) = 3.46$, $p < .05$; and Grade level x Type of Classroom x Teacher Expectancy level $F(1,24) = 3.88$, $p < .05$). Mothers' aspirations for high teacher expectancy students and low teacher expectancy students are more sharply discrepant for highs (in the direction of desired higher educational level) in high differential treatment classes compared to low differential treatment classes, but only at first, third, but not fifth grade. At fifth grade, the pattern is reversed, with parental aspirations more sharply delineated in low differential treatment classes. In two of these comparisons, parents of low teacher expectancy students have higher educational aspirations. However, when we turn to expected level of educational accomplishment, parents of students for whom teachers hold higher expectations overall expect their children to complete higher levels of schooling, $F(1,24) = 8.16$, $p < .01$). No significant interactions with grade or type of classroom were noted.

In brief, these analyses suggest mothers' views of their children in the spring differ largely as function of the teacher expectancy level of the child but do not differ very much by grade or type of classroom the child is in. That mothers' views in the

spring are more favorable the higher the fall teacher expectations may simply represent mothers' views of higher versus lower achieving students. The separate effects of teacher expectations over and above initial achievement differences have not been tested in this analysis. But the finding of main import for our hypothesis is that we did not find confirmation in mothers' views in the spring of a differential effect of high versus low differential treatment classrooms except in the area of educational aspirations for their children and here at only two of the three grade levels.

IV. DISCUSSION

The results reported here reflect a preliminary and first cut look at a large and complex data base concerned with student mediation of self-fulfilling prophecies in the classroom at three levels of elementary schooling. As such, these findings must be viewed with some caution until they can be put in the larger perspective of the entire study, where the qualitative information of interviews and classroom narrative records will be integrated with the quantitative scores, where changes over the course of a school year will be assessed, and finally, where the views of student, teacher, observer, and parent will be interrelated. Data analysis is still underway.

The instrument development work that was conducted on the student perception measure (the Teacher Treatment Inventory) suggests that the revised 30 item three scale inventory (when read to students) is adequate for use with first grade through fifth grade students. Further, the test-retest reliability is also adequate over a two week period. Children at the different grade levels were found to interpret the items as intended although the frequencies as well as the context or purpose of certain teacher interactions varied by grade level. When students were asked directly whether high and low achievers received the same or different treatment on each teacher behavior variable, students at all grade levels were more likely to respond that the treatment was the same; whereas independently made judgments about teacher treatment of high and low achievers yields a picture of differential treatment. The difference in methodology may alleviate students' concerns about protecting the teacher.

Evidence for the construct validity of the Teacher Treatment Inventory was also provided in an analysis of previously collected data from a fourth grade student population. In classrooms where students reported a great deal of differential treatment toward high and low achievers, teachers' expectations predicted more of the variance in students' own expectations and in students' achievement (after controlling for initial achievement differences) as compared to classrooms where students reported little differential treatment. This suggests that students in classrooms with perceived high differential treatment have access to more information about their teacher's expectation for them and incorporate this information into their own expectatons as well as perform accordingly.

What can we conclude thus far about developmental or grade-level differences in students' perceptions of teacher treatment and of themselves? First, children at all three grade levels perceived differences in the teacher treatment of high and low achievers. Thus, first graders as well as older students perceive high achievers as receiving higher expectations, more opportunity and choice from the teacher, and less negative feedback and less work and rule oriented behavior than do low achievers. These patterns of differentiation were found to describe the treatment of

high and low achievers regardless of whether they were male or female students.

Second, younger children reported higher frequencies in general of negative feedback and of high expectatons, opportunity and choice, and lower frequencies of work and rule orientation behaviors in the teacher treatment of other students. As well, in describing their own treatment by the teacher, younger students (first and third graders as compared to fifth graders) report more positive treatment by the teacher. Younger students also reported less differential treatment by the teacher toward high and low achievers than do older students. However, this latter finding is specific to the shortened version of the Teacher Treatment Inventory (containing the most differentiating items). When students were asked to describe teacher treatment using the 30 items (three scales) of the inventory, first graders reported as much differential treatment as did older students. While our classroom observational data do not mirror the specific teacher behavior items that the students rated, the significant grade level findings on the frequency of types of teacher interactions suggest that first grade teachers as compared to third and fifth grade teachers in the observed classroom subsample were observed in general to use more praise, more positive display and more positive behavioral evaluations (but not academic evaluations). Observed patterns of differential treatment between high and low achievers have not yet been tested across the grade levels. Thus far, then, it seems that these perceptual differences may reflect actual grade level differences in the frequencies with which teachers use certain behaviors in general or differences in the frequency with which they differentiate the treatment of high and low achievers (although not yet tested) rather than developmental differences in children's awareness of teacher treatment.

Third, students for whom teachers held high expectations reported more positive treatment from the teacher than did those students for whom teachers held low expectatons and these perceived differences in the positivity of teacher treatment were greatest for fifth grade students. Fifth grade low expectancy students perceived much less positive treatment than low expectancy students in the earlier grades.

Fourth, in the fall of the school year, older students show more awareness of their teachers' expectatons for them and their own expectations are more congruent with those of the teachers, in reading and in schoolwork but not in math. Older students also have more differentiated rankings of their own ability in reading and math than do younger students who see these abilities as more highly correlated.

What can be concluded about <u>differences between classrooms</u> identified by students in the fall (on the basis of a class level measure of differential treatment) as exhibiting more versus less differential teacher treatment? With regard to <u>student perceptions of treatment</u>, individual students also report more

differential treatment toward high and low achievers (in a repeated measures assessment of the treatment both target student on the short form of the Teacher Treatment Inventory) in "class level identified" high differential treatment classrooms than in low differential treatment classrooms. Yet, in both types of classrooms, when reporting on their own treatment, students for whom the teacher holds high expectations report more favorable treatment than do students for whom the teacher holds low expectatons. Thus, during the fall of the school year, these self-described treatment differences between high and low expectancy students were not any greater in high differential treatment classes than in low differential treatment classes.

With regard to expectations held in the fall (students' own as well as perceptions of their teachers), it is only in the sub-sample of 12 classrooms chosen to represent the extremes of high and low differential treatment classes, and only at the fifth grade level, that we see a classroom effect; in the fall of the school year, fifth graders show more awareness of teacher expectations and their own expectations are more congruent with their teachers' expectatons for them in perceived high compared to low differential treatment classrooms. However, if we look at students' own expectations as a function of the type of student they are (high or low teacher-expectancy student), it appears (subject to statistical testing) that "own" expectations differences between high and low teacher expectancy students are greater in high differential treatment classes than in low differential treatment classes.

With regard to patterns of teacher expectations in the fall, student-identified high differential treatment teachers were more likely to hold more congruent expectations for their students across reading and math and to be more influenced by students' entering reading achievement scores in formulating expectations for both reading as well as math than were student-identified low differential treatment teachers. We found no evidence that students' expectatons followed this pattern in the fall.

With regard to observed patterns of teacher structuring and interactional behavior obtained in the winter, the evidence to date is less clear. Teachers at different grade levels differed widely in the frequency with which they were observed to use certain teaching behaviors. As well, classroom type effects were often different at different grade levels. When we examined the organizational structure teachers used in working with their students, we did not find that the two types of classroom differed in their proportional use of whole class instruction. We did find differences in teachers' use of a mixed structure for teaching (concurrent individual, group, and whole-class). Student-identified low differential treatment teachers at third and fifth grade were more likely than high differential treatment teachers to use a mixed structure for teaching; whereas a higher proportion of group structure was found in high differential treatment classrooms at third and fifth grade. First grade classrooms showed the

opposite pattern. When we examined task variables, contrary to our hypotheses, student-identified high differential treatment teachers used more student choice, more divergent tasks, and more concurrently different tasks in their classrooms as compared to low differential treatment teachers, and at all grade levels. With regard to aspects of grouping, the two types of classrooms did not differ in the number of reading groups taught. There was great variability in the observed use of flexible groups and heterogeneous groups among the classrooms; with student-identified high differential treatment teachers more likely than low differential treatment teachers to use flexible grouping at first and third grades, and with low differential treatment teachers more likely to use heterogeneous grouping at first and fifth grade as compared to high differential treatment teachers. Finally, student-identified high differential treatment teachers were more likely to give neutral labels (rather than consecutive labels) to their reading groups. In sum, we did find classroom structural differences between the two types of classrooms, but except for the use of mixed organization structure and heterogeneous grouping, these differences were not in the predicted direction.

When we examined teachers' interactions with their students as a whole, that is, the average frequency of selected teaching behaviors, we found that at fifth grade (and sometimes third grade), student-identified low differential treatment teachers were observed to be more encouraging of student expressiveness, use more positive display, more positive academic as well as behavioral evaluation, more buffered criticism and more positive relationship behaviors as compared to high differential treatment teachers. However, at the first grade level (and sometimes third grade level), high differential treatment teachers were observed to interact more positively with students as compared to low differential treatment teachers. As well, teacher use of cooperative teaching strategies was higher in high differential treatment classrooms than in low differential treatment classrooms at all grade levels. In sum, here we find some observational support for more positive but not a more cooperative environment in student-identified low differential treatment classrooms at the fifth grade level but not at the first grade level which shows a reversal of this pattern.

We have yet to explore observed patterns of differential teacher treatment toward high and low achievers or toward different groups of students in our sample of 12 classrooms. Yet the Bedrosian Vernon dissertation study of four first grade classrooms in our sample suggests that such differentiation occurs. She found that the social-emotional environment as measured by seven teacher behaviors was more favorable for high ability reading groups than for low ability reading groups although the pattern and the extent of differential treatment did vary across the four teachers. On the basis of a tally of significant differentiating findings in each classroom, Bedrosian Vernon found that students' perceptions of high teacher differentiation in the fall agreed with high teacher differentiation in the spring in two of the four

classrooms. A statistical test of this match is currently underway.

The collection of observational data in the winter was not intended to serve as a validation for student perceptions of teacher treatment. Such a comparison suffers from a lack of comparability on a number of dimensions: first, the different time periods as well as time of year studied (fall and winter or spring); second, the range of as well as the specific behaviors assessed; and third, the actual counting of behaviors versus the rating of frequency. Instead, the intent of observing in depth in classrooms identified by students as exhibiting high differential treatment and low differential treatment was to clarify the ways in which teachers communicated their expectations in their organization of instruction and in their interaction with their students. Thus far, the quantitative analysis does not support our hypothesized structural differences between these two types of classrooms nor our hypothesized whole-class interactional differences (except at the fifth grade), but some support is given for hypothesized within-class differential treatment (thus far only tested at the first grade). A profile analysis of the ways in which the structural and interactional variables interrelate and operate within individual classrooms supplemented by a qualitative analysis of the classroom narrative records suggest a much more complex picture of what is happening in these classrooms. These analyses are currently underway and suggest that these variables must be considered within the larger context of the classroom as a whole as well as in terms of how these variables influence and are influenced by other variables. That is, certain teaching behaviors may compensate for or negate the effects of other teaching behaviors (for an elaboration of these ideas, see Marshall & Weinstein, in press).

With regard to the match between observers' and students' perceptions of teacher treatment (albeit at different time periods), our results indicate that at two of the three grade levels (first and fifth), observers perceive more differential treatment in classrooms identified by students as exhibiting greater differential treatment, providing some validating support for student perceptions.

With regard to student achievement outcomes at the end of the school year (to date, only tested at third and fifth grades because of problems with the first grade achievement data), high teacher expectancy students gained more than low teacher expectancy students, after controlling for entering achievement differences, but the differential pattern of gain between these types of students was not significantly larger in perceived high differential treatment classrooms compared to low differential treatment classrooms, as hypothesized. However, the mean gains are suggestive of such a differential effect. Brattesani's individual level analysis in the combined third and fifth grade sample also suggests that teachers' expectations for students tend to predict more of the variance in year-end achievement (beyond that of

initial achievement differences) in perceived high differential treatment classrooms than in low differential treatment classrooms.

With regard to mothers' views of their children in the spring, we did not find confirmation of a differential effect of student-identified high versus low differential treatment classrooms reflected in mothers' ratings. Mothers of students for whom the teacher has high expectations in the fall, themselves rate their child's ability as higher, are more satisfied with their child's performance and expect their child to complete higher levels of education than do mothers of students for whom the teacher holds low expectations. However, mothers' views of their high teacher expectancy versus low teacher expectancy children were not more sharply differentiated in classrooms identified as high differential treatment classrooms.

Beyond the effects of classroom differences on the mediation of expectancy effects, we also explored issues concerned with student susceptibility to teacher expectation effects. Cognitive developmental level was one source of susceptibility which we investigated and our analyses are still incomplete. As discussed earlier, younger students appear to perceive differentiation in the treatment of others but their awareness of the teacher's specific expectation for them is more limited. How their own expectations, motivation and achievement are shaped over the course of the school year relative to older students is under investigation. We are also examining individual differences in students' awareness of teachers' expectations and parents' expectations and we are asking how these perceptions alter the course of teacher expectancy effects. As well, we have been exploring the role of student self-concept in moderating teacher expectancy effects. When we examine student effects as a function of "early in the school year" academic self-concept differences, we find that high and low self-concept students do not differ in their reporting of the extent of differential treatment perceived in the treatment of others. However, students with high self-concepts report that their own treatment from the teacher is more positive than do students with low self-concepts. High and low self-concept students were not found to be differentially reactive (in the achievement gains they achieved) to different levels of teacher expectations and/or to different types of classrooms (high and low differential treatment classrooms).

Brattesani's dissertation study (1984) on the combined third and fifth grade sample suggests a more complex effect of student self-concept differences. She found that students with moderate self-concept, not high or low, are most influenced by teacher expectations. Further, she found that when students received teacher expectations that were consistent with their own self-concept (high or low), students achieved at a higher or lower level than moderate teacher expectation control students. Her results suggest that it is the match of teacher and student views that is critical. Teacher feedback that is very inconsistent with

a student's self-image may have less of an effect on achievement.

In summary, to date we have evidence to suggest that students as young as first graders are aware of differences in how teacher interact with high and low achievers in the classroom, differences which find support in observed frequencies of differential teacher interactions as well as in observer judgments. In their own treatment as well, first grade high and low teacher expectancy students report differential teacher treatment. Yet we can also see evidence for grade level or developmental differences as in the extent of student awareness of specific teacher expectations. Grade level differences in reactivity to teacher expectations have yet to be ascertained. As well, the match between a student's self-concept and the teacher's expectations appears to be a critical variable in a student's reactivity to influence. Our subsequent analyses should shed some light on the role of individual student perceptions in moderating teacher expectancy influences and the relative contributions of individual difference variables versus classroom difference variables to the equation. As well, our work will hopefully better describe what teachers do differently in classrooms where students perceive more or less differential teacher treatment.

When the analyses have been completed, these results will expand in new and as yet unstudied ways our knowledge of the dynamics underlying the self-fulfilling prophecy and the mediators of achievement. Investigating within one study the perceptions of students, teachers, peers and parents in conjunction with the influence of different classroom environments at different grade levels will provide a powerful tool in increasing our understanding of the development of expectatons and their effects. An in-depth look at student perceptions and conceptions of classroom processes creates an incisive perspective on the reality and effects of classroom life. In addition, studying these processes at different age levels may provide knowledge of critical points in time as well as factors relevant to children's cognitive development which have implications for planning the timing and implementation of educational practices to promote more positive expectations and greater achievement for a broader spectrum of learners.

Examining varying classroom environments at different grade levels is also expected to yield specific information about teaching and organizational strategies appropriate to different grade levels which facilitate children's views of themselves and others as competent. In particular, knowledge of how teachers work effectively with the increasing diversity of individual differences and needs represented in one classroom setting has become a question of urgent and primary concern not only as it relates to educational equity but also in our shift to a mainstreaming model of education.

Finally, obtaining information from parents may generate clues regarding factors which allow some children to gain an

internal frame of reference, apparently less susceptible to negative effects of the expectations of others. These clues may suggest ways of helping parents strengthen their children in this area.

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Table 1

Revised Teacher Treatment Inventory Scales

Scale 1: Negative Feedback and Teacher Direction

(1) The teacher decides how S.R. spends time in class.

(2) S.R. has to do homework every day.

(3) The teacher makes S.R. feel bad when S.R. does not have the right answer.

(4) When S.R. has to work with another student, the teacher tells S.R. who to work with.

(5) The teacher scolds S.R. for not trying.

(6) The teacher scolds S.R. for not listening.

(7) The teacher chooses the books S.R. will read in class.

(8) The teacher makes S.R. feel that S.R. has not done the work well.

(9) The teacher collects work before S.R. has a chance to finish.

(10) The teacher watches S.R. closely when S.R. is working.

Scale 2: Work and Rule Orientation

(1) When S.R. is working on a project or assignment, the teacher tells S.R. what to do.

(2) The teacher asks S.R. if S.R. understands the work.

(3) When S.R. gives the wrong answer, the teacher tells S.R. how to make the answer better.

(4) The teacher expects or thinks that S.R. will stick with what S.R. is working on.

(5) The teacher thinks that it is more important for S.R. to learn than to have fun.

(6) The teacher explains the rules to S.R.

(7) The teacher asks other students to help S.R.

(8) If S.R. breaks the rules, S.R. is punished.

(9) When S.R. gives the wrong answer, the teacher calls on someone else.

(10) The teacher spends time working with S.R.

Scale 3: High Expectations, Opportunity and Choice

(1) The teacher calls on S.R. to answer questions.

(2) The teacher asks S.R. to lead activities.

(3) The teacher makes S.R. feel good about how hard S.R. tries.

(4) The teacher calls on S.R. to explain things to the class.

(5) The teacher trusts S.R.

(6) The teacher lets S.R. make up S.R.'s own projects.

(7) The teacher is interested in S.R.

(8) The teacher lets S.R. do as S.R. likes as long as S.R. finishes the work.

(9) The teacher makes S.R. feel S.R. did very well when S.R. reads well or gives the right answer.

(10) S.R. is given special privileges. S.R. gets to do special things in class.

Table 2

Internal Consistency and Test-Retest Reliability

for Scales on the TTI

	Internal Consistency		Test-Retest	
Scales	a	n	r	n
	Grade 1			
1	.69	95	.67	86
2	.58	94	.65	87
3	.81	94	.78	87
	Grade 3			
1	.69	91	.74	80
2	.68	90	.69	80
3	.78	91	.77	81
	Grade 5			
1	.71	155	.77	137
2	.63	154	.75	136
3	.83	155	.83	137
	All Students			
1	.70	341	.73	303
2	.63	338	.70	303
3	.84	340	.80	305

Table 3

Mean Frequency of Perceived Teacher Treatment toward High and Low Achievers by Grade Level

		Grade 1				Grade 3				Grade 5			
Scale	Form	n	Mean	S.D.	t	n	Mean	S.D.	t	n	Mean	S.D.	t
1	Low	8	2.92	.29	4.71***	7	2.70	.14	4.23***	11	2.60	.26	4.75***
	High	8	2.22	.30		7	2.18	.30		11	2.11	.22	
2	Low	8	2.89	.16	3.51*	7	2.93	.16	6.65***	11	3.03	.24	6.33***
	High	8	2.40	.36		7	2.40	.14		11	2.47	.17	
3	Low	8	2.22	.24	-6.09***	7	2.31	.30	-2.98*	11	2.21	.28	-5.52***
	High	8	3.03	.30		7	2.80	.32		11	2.89	.30	

Table 4

Mean Frequency of Perceived Treatment toward High and Low Achievers in Each Classroom

		Classroom												
Form		1	2	3	4	5	6	7	8	9	10	11	12	13
Scale 1 - Negative Feedback and Teacher Direction														
High	M	2.59	1.96	2.01	2.50	2.14	2.50	2.28	2.21	1.87	2.65	2.28	2.48	1.94
	SD	.37	.35	.44	.28	.52	.24	.54	.40	.44	.24	.33	.29	.39
Low	M	2.69	2.88	2.44	2.56	2.38	3.14	2.70	2.34	2.61	2.90	2.82	3.15	2.80
	SD	.55	.74	.49	.47	.37	.20	.24	.44	.63	.35	.70	.38	.30
Scale 2 - Work and Rule Orientation														
High	M	2.46	2.39	2.24	2.50	2.44	2.62	2.55	2.42	2.47	3.10	2.50	2.39	2.40
	SD	.32	.47	.47	.35	.44	.43	.58	.42	.20	.18	.27	.60	.29
Low	M	2.83	3.07	2.77	3.38	2.61	2.78	3.11	2.60	3.21	2.78	3.00	3.10	3.10
	SD	.37	.50	.31	.11	.56	.22	.28	.34	.20	.43	.36	.46	.44
Scale 3 - High Expectations, Opportunity, and Choice														
High	M	2.87	3.02	2.34	2.60	3.23	3.30	2.79	2.92	2.96	3.20	3.08	2.90	2.46
	SD	.41	.32	.34	.56	.58	.43	.54	.44	.84	.42	.25	.36	.48
Low	M	1.95	2.87	2.34	2.72	2.44	2.08	2.23	2.19	2.25	2.44	2.35	2.32	2.07
	SD	.55	.50	.37	.63	.41	.73	.40	.36	.40	.73	.76	.39	.30

Table 4 (cont.)

Mean Frequency of Perceived Treatment toward High and Low Achievers in Each Classroom

Form		Classroom 14	15	16	17	18	19	20	21	22	23	24	25	26
Scale 1 - Negative Feedback and Teacher Direction														
High	M	1.95	2.44	2.20	1.90	1.82	2.02	2.55	1.89	2.07	2.13	1.87	1.92	2.07
	SD	.24	.63	.57	.43	.28	.62	.51	.54	.33	.25	.46	.45	.49
Low	M	3.18	2.82	2.77	3.30	2.97	2.71	2.65	2.71	2.50	2.40	2.58	2.20	2.68
	SD	.65	.35	.85	.20	.47	.34	.44	.38	.15	.57	.43	.16	.27
Scale 2 - Work and Rule Orientation														
High	M	2.90	2.46	2.30	2.02	2.08	2.05	2.55	2.18	2.20	2.47	2.53	2.50	2.42
	SD	.38	.32	.00	.29	.21	.44	.48	.71	.45	.21	.32	.46	.57
Low	M	3.20	3.16	3.13	3.02	2.87	3.00	2.75	2.88	3.09	3.10	2.78	3.03	2.70
	SD	.44	.23	.57	.42	.23	.23	.52	.39	.32	.14	.24	.20	.34
Scale 3 - High Expectations, Opportunity, and Choice														
High	M	3.25	3.22	2.70	2.38	3.02	3.17	2.85	3.30	2.30	3.13	3.13	2.70	2.85
	SD	.24	.28	1.56	.84	.39	.41	.41	.44	.33	.15	.49	.37	.47
Low	M	1.82	2.01	2.20	1.78	2.00	2.33	2.28	2.44	2.43	2.60	1.92	2.19	2.00
	SD	.41	.22	.36	.27	.61	.38	.66	.35	.40	.28	.54	.40	.39

Table 5

Mean Correlations of Student Achievement and Expectation Level with TTI: Self-rating Scales for All Classrooms and for High and Low Differential Treatment Classrooms

	TTI: Self-rate Scale	All Classrooms (N=7)	High Differential Treatment	N	Low Differential Treatment	N	Mann-Whitney U-statistic U(3,4)
			Prior Reading Achievement Level				
2	Negative Feedback and Teacher Direction	.04	-.30	(3)	.07	(4)	U=0, p<.05
3	Work and Rule Orientation	.08	-.18	(3)	.15	(4)	U=1, p=.057
4	High Expectations, Opportunity and Choice	.03	.21	(4)	-.20	(3)	U=0, p<.05
			Teacher Expectations for Reading				
2	Negative Feedback and Teacher Direction	-.18	-.32	(3)	-.09	(4)	U=1, p=.057
3	Work and Rule Orientation	.17	.06	(3)	.25	(4)	U=2, n.s.
4	High Expectations, Opportunity and Choice	.18	.31	(4)	.01	(3)	U=0, p<.05

Note: Positive correlations indicate that high achievers or high expectation students reported a higher frequency of the teacher treatment.

Table 6

Percent of Variance (R^2) in Student Expectations and Achievement Accounted for by Prior Reading Achievement, and Teacher Expectation Measures

Independent Variables	Order of Entry in Hierarchical Regression Analyses	Dependent Variables (N=196)		
		Student Expectations Reading	Student Expectations Schoolwork	Year End Reading Achievement
Prior Achievement Reading	1st	.17**	.10***	.63***
Teacher Expectations Reading	2nd	.02*	.04**	.07***
Teacher Expectations Schoolwork	2nd (in separate analyses)	.04**	.06***	.07***

*p < .05, **p < .01, ***p < .001.

Table 7 (cont.)

Percent of Variance (R^2) in Student Expectations and Achievement Accounted for by Prior Reading Achievement, and Teacher Expectations in Hgh and Low Differentiating Classrooms

Differentiation Determined by:	N		Independent Variables	Order of Entry in Hierarchical Regression Analyses	Dependent Variables (N=196)					
					Student Expectations				Year End Reading Achievement	
					Reading		Schoolwork			
	High	Low			Hi Diff	Lo Diff	Hi Diff	Lo Diff	Hi Diff	Lo Diff
Global Index	103	93	Prior Ach R	1	.17***	.17***	.06*	.14***	.57***	.68***
			T Exp Read	2	.07**	.002	.10**	.01	.14***	.03**
			T Exp SWork	2	.06**	.02	.12***	.03	.16***	.03**
			F(Read)		1.03, ns		1.53, ns		3.12*	
			F(SWork)		.30, ns		1.17, ns		3.84*	
Scale 2	99	97	Prior Ach R	1	.15***	.20***	.05*	.16***	.62***	.64***
			T Exp Read	2	.06**	.004	.08**	.01	.09***	.05***
			T Exp SWork	2	.05*	.03*	.08**	.05*	.10***	.05***
			F(Read)		.92, ns		1.29, ns		1.25, ns	
			F(SWork)		.19, ns		.84, ns		1.36[a]	
Scale 3	99	97	Prior Ach R	1	.09**	.27***	.06*	.14***	.47***	.77***
			T Exp Read	2	.13***	.003	.12***	.001	.16***	.01**
			T Exp SWork	2	.13***	.001	.16***	.02	.18***	.01*
			F(Read)		4.50**		2.29[a]		9.16**	
			F(SWork)		2.04*		1.94, ns		6.46**	
Scale 4	118	78	Prior Ach R	1	.14**	.19***	.03	.18***	.50***	.65***
			T Exp Read	2	.05*	.01	.12**	.01	.13***	.04***
			T Exp SWork	2	.05*	.03	.13**	.04*	.17***	.03**
			F(Read)		.50, ns		2.80*		2.03, ns	
			F(SWork)		.20, ns		2.39[a]		3.17*	

[a] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 8

Design: Ecology of Children's Achievement Expectations

	Time Period: Fall	Winter		Spring
Subjects				
Children	579			579
Classrooms		High Diff T	Low Diff T	
Grade 1	10	2	2	10
Grade 3	10	2	2	10
Grade 5	10	2	2	10
Total	30	6	6	30
Parents				243
Measures				
Children	Entering Achievement Status Perceptions of Teacher Treatment High Achiever Low Achiever Self Expectations Reading Math School work Perceived Teacher Expectations Perceived Parent Expectations Achievement Motivation Self-Concept Cognitive General			Year-End Achievement Status
Teacher	Teacher Expectations Free Sort Reading Math School work Teaching Strategies Questionnaire			
Classroom		Classroom Dimension Observation System Rating Scale Narrative Records of Classroom Structure and Process		
Parent				Parent Expectations School work Parent Questionnaire

Table 9

Design: Mediators of Self-fulfilling Prophecies in Classrooms

	Time Period				
	Fall	Winter		Spring	
Subjects					
Children	144 (12 per class)	144		144	
Classrooms		High Diff T	Low Diff T	High Diff T	Low Diff T
Grade 1	4	2	2	2	2
Grade 3	4	2	2	2	2
Grade 5	4	2	2	2	2
Total	12	6	6	6	6
Parents				38	30
Measures					
Children	Entering Achievement Status			Year-End Achievement Status	
	Perceptions of Teacher Treatment: High Achiever, Low Achiever, Self	Perceptions of Teacher Treatment: High Achiever, Low Achiever, Self			
	Expectations: Reading, Math, School work, Perceived Teacher Expectations, Perceived Parent Expectations	Expectations: Reading, Math, School work, Perceived Teacher Expectations, Perceived Parent Expectations			
	Achievement Motivation	Achievement Motivation			
	Self-Concept: Cognitive, General				
		Notions of Ability			
		Clinical Interviews			
Teacher					
	Teacher Expectations: Free Sort, Reading, Math, School work	Teacher Expectations: Reading, Math			
	Teaching Strategies Questionnaire				
		Teacher Interview			
Classroom					
		Classroom Dimension Observation System: Rating Scale, Narrative Records of Classroom Structure and Process			
		Reading and Math Group Membership			
		Observer Perceptions of Teacher Treatment: High Achiever Male, High Achiever Female, Low Achiver Male, Low Achiever Female			
Parent				Parent Expectations: School work	
				Parent Questionnaire	

Table 10

Classroom Structure Variables Affecting the Development of Achievement Expectations

I. Structure of Task

1. Variety of Tasks
2. Sequence of Tasks
3. Divergent Processes and Products
4. Amount (pace) of Content covered
5. Nature of Content
6. Level of Task Difficulty

II. Grouping

1. Size
2. Number
3. Basis for Grouping (Ability, Skills, Interests, Peer Interaction)
4. Areas for Grouping (Content)
5. Flexibility (Amount of Re-grouping, Length of Grouping)
6. Mobility of Individuals (Within Stable Groups)
7. Stability of Groups (Across Content Areas)
8. Labelling (Imagery)
9. Group Operation (Number of Groups Functioning as Groups at Once)
10. Amount of Time in Groups (vs. Individual and Whole Class Structure)

III. Locus of Responsibility in Learning

1. Areas of choice (Tasks, Timing, Sequence, Group, Creation or Direction of Tasks)
2. Evaluation (T - Joint - St)
3. Pace (T vs. St. determined)
4. Self-direction
5. Responsibilities Assigned

IV. Feedback and Evaluation

1. Areas of Competence (Uni-dimensional vs. Multi-dimensional
   - Variety of Tasks within Regular Curriculum
   - Multi-faceted Assessment
   - Global or Specific Recognition of Competence
2. Standard of Evaluation
   - Comparativeness (Class, Age, Grade Normative)
   - Absolute or Program Standard
   - Self (Prior Work)
   - Possibility of Meeting Standard
   - Categories for Evaluation (Mastery vs. Rating, Ranking)
3. Visibility of Evaluation
4. Treatment of Correct/Incorrect Responses, Behavior
   - Confirm/Disconfirm
   - Probe errors/Expand thinking vs. Move on
   - Information given
   - Praise/Criticism
   - Reward/Punishment
   - Encouragement of self-assessment
   - Remediation (Progress vs. Punitive)

V. Motivation

- Goal Structure (Cooperative, Competitive, Individualistic
- Reward Structure (Intrinsic vs. Extrinsic)

VI. Quality of Relationships

- Positive
- Negative

VII. Statement of Expectations.

Table 11

Mean Frequency of Perceived Teacher Treatment Toward High and Low Achievers and by Grade Level

Teacher Treatment Inventory Scales		Target Achievement		Grade Level		
		High Achievement Form (n=30)	Low Achievement Form (n=30)	1 (n=10)	3 (n=10)	5 (n=10)
I	Negative Feedback and Teacher Direction					
	M	2.27[a]	2.60	2.53	2.48	2.31
	SD	.27	.20	.18	.18	.17
II	Work and Rule Orientation					
	M	2.61	2.93	2.67	2.85	2.80
	SD	.18	.18	.15	.12	.05
III	High expectations, Opportunity and Choice					
	M	2.83	2.44	2.77	2.57	2.57
	SD	.19	.24	.15	.12	.08

[a]A rating of frequency of teacher interaction where 4=always and 1=never.

Table 12

Mean Frequency of Differential Teacher Treatment by Type of Classroom and by Grade

	Type of Classroom		Grade Level		
	High Differential Treatment Classrooms (n=15)	Low Differential Treatment Classrooms (n=15)	1 (n=10)	3 (n=10)	5 (n=10)
Mean	7.02[a]	4.21	3.77	6.79	6.29
SD	2.24	1.73	2.28	2.34	1.16

[a]A higher score indicates a greater frequency of differential treatment favoring high achievers as perceived by individual students within classrooms.

Table 13

Mean Frequency of Positive Teacher Treatment by
Type of Classroom, Grade and Teacher-Expectancy Level

	Type of Classroom		Grade			Teacher-Expectancy Level	
	High Differential	Low Differential	1	3	5	High	Low
Mean	21.92	21.20	22.30	21.88	20.50	22.06	20.74
SD	1.13	1.05	1.12	.78	.57	1.21	1.62

		Grade		
		1	3	5
Teacher Expectancy Reading	High	22.73	22.06	21.40
		1.33	1.04	.93
	Low	21.59	21.64	19.00
		1.32	.74	1.02

Table 14

Correlations among Expectation Variables (Teacher and/or Student) by Grade Level

Variables	Grade 1	Grade 3	Grade 5
Awareness of Teacher Expectations			
Correlation between student perceived teacher expectations and teacher expectations	-.04	.12	.37
Congruence of Student and Teacher Expectations			
Reading	.05	.18	.40
Math	.01	.04	.43
Schoolwork	.02	.04	.48
Congruence of Student and Perceived Teacher Expectations			
Schoolwork	.24	.38	.56
Characteristics of Teacher Expectations			
Congruence between Reading and Math	.73	.73	.73
Influence of prior Reading achievement on teacher expectations--Reading	.50	.72	.74
Prior Reading on teacher expectations--Math	.41	.61	.56
Characteristics of Student Expectations			
Congruence between Reading and Math	.32	-.07	-.06
Influence of prior Reading achievement on student expectations--Reading	.15	.13	.35
Prior Reading on student expectations--Math	.06	.15	.05

Table 15

Correlations among Expectation Variables (Teacher and/or Student) by Type of Classroom and Grade Level

Variables		Grade 1 High D	Grade 1 Low D	Grade 3 High D	Grade 3 Low D	Grade 5 High D	Grade 5 Low D	High D	Low D
Awareness of Teacher Expectations		.00	-.07	.18	.06	.23	.50	.14	.16
Congruence of Student and Teacher Expectations	Reading	.15	-.06	.35	.00	.30	.50	.27	.15
	Math	-.03	-.06	.07	.00	.43	.42	.16	.16
	Schoolwork	.01	.04	.06	.03	.44	.52	.17	.20
Congruence of Student and Perceived Teacher Expectations	Schoolwork	.21	.28	.35	.40	.54	.58	.37	.42
Characteristics of Teacher Expectations									
Congruence between Reading and Math		.62	.84	.83	.64	.82	.65	.76	.71
Influence of prior Reading achievement on teacher expectations--Reading		.60	.40	.78	.67	.76	.73	.71	.60
Prior Reading on teacher expectations--Math		.49	.34	.70	.52	.61	.52	.60	.46
Characteristics of Student Expectations									
Congruence between Reading and Math		.36	.28	-.14	.00	-.14	.02	.03	.10
Influence of prior Reading achievement on student expectations--Reading		.19	.11	.17	.09	.21	.49	.19	.23
Prior Reading on student expectations--Math		.06	.17	.06	.23	.12	.03	.00	.03

Table 16

Correlations among Expectation Variables by Type of Classroom and Grade Level in a Subsample of Extreme Classrooms

Variables	Grade 1 High Diff	Grade 1 Low Diff	Grade 3 High Diff	Grade 3 Low Diff	Grade 5 High Diff	Grade 5 Low Diff
Student Awareness of TE	-.15	-.29	.11	-.13	.65	.37
Congruence between TE and SE						
Reading	-.01	-.06	.30	-.15	.42	.29
Math	-.07	.06	-.06	-.13	.67	.27
Schoolwork	.14	.17	.09	-.05	.66	.49
Congruence of Student and Perceived TE	.14	-.16	.59	.05	.51	.63
Characteristics of Teacher Expectation						
Congruence between R & M	.40	.79	.80	.66	.90	.52
Influence of prior Reading on TE--Reading	.48	.48	.84	.50	.74	.67
Influence of prior Reading on TE--Math	.34	.32	.69	.45	.70	.40
Characteristics of Student Expectation						
Congruence between R & M	.27	.31	.01	.17	.28	-.12
Influence of prior Reading on TE--Reading	.26	.16	.15	.17	.33	.48
Influence of prior Reading on TE--Math	.24	.02	.15	.37	.21	.27

Table 17

Mean Student Expectations Rating in Reading in the Fall as a Function of Grade and Type of Classroom

Grade	High Differential	Low Differential	High Differential		Low Differential	
			High TE	Low TE	High TE	Low TE
1	5.60[a]	5.41	4.00	7.49	5.81	4.79
3	5.73	4.17	3.98	8.10	4.44	3.86
5	7.20	7.23	5.65	9.57	5.60	9.71

[a]A lower number represented a higher expectation level.

Table 18

Mean Number of CDS Forms Used and Minutes of Observation

		CDS's	Minutes Obs.
Grade 1	High Diff	38.50	745.00
	Low Diff	28.50	709.50
Grade 3	High Diff	27.50	618.00
	Low Diff	32.00	723.00
Grade 5	High Diff	26.00	746.50
	Low Diff	31.50	728.50
Sample Mean		30.67	711.75

Table 19

Proportions and Standard Errors for Structural Variables by Grade Level and Type of Classroom

Variables		Grade 1 High D	Grade 1 Low D	Grade 3 High D	Grade 3 Low D	Grade 5 High D	Grade 5 Low D	High Diff Classes	Low Diff Classes	Grade 1	Grade 3	Grade 5
Type of Organization												
Group Structure	P	.21	.36	.34	.15	.40	.24	.32	.25	.29	.24	.32
	Se	.05	.07	.06	.10	.07	.05	.03	.03	.04	.04	.04
Whole Class Structure	P	.58	.49	.39	.48	.37	.39	.45	.45	.54	.44	.38
	Se	.06	.07	.07	.06	.07	.06	.04	.04	.05	.04	.05
Mixed Structure	P	.19	.13	.25	.32	.17	.35	.20	.27	.16	.29	.26
	Se	.04	.04	.06	.05	.05	.06	.03	.03	.03	.04	.04
Task Structure												
Student Choice	P	.11	.05	.36	.27	.31	.12	.26	.15	.08	.31	.22
	Se	.03	.03	.07	.05	.07	.04	.03	.03	.02	.04	.04
Task Divergence	P	.56	.07	.42	.22	.44	.27	.47	.19	.31	.32	.36
	Se	.05	.03	.07	.05	.07	.05	.04	.03	.03	.04	.05
Task Difference:												
Same task		.54	.80	.38	.41	.33	.38	.42	.53	.42	.40	.36
Same series		.17	.12	.21	.21	.10	.44	.16	.26	.15	.21	.32
Different task in series		.025	.015	.24	.30	.36	.13	.21	.15	.02	.27	.24
Same broad topic		.12	.04	.11	.08	.06	.03	.10	.05	.08	.09	.05
Different task		.155	.04	.07	.02	.16	.02	.13	.02	.10	.04	.09

Table 20

Group Structural Variables by Grade Level and Type of Classroom

Variables	Grade 1		Grade 3		Grade 5		High Diff Classes	Low Diff Classes	Grade		
	High D	Low D	High D	Low D	High D	Low D			1	3	5
Mean # identified reading groups	5.0	3.0	6.5	5.5	3.0	3.0	4.8	3.8	4.0	6.0	3.0
Mean # instructed reading groups	2.5	2.0	6.0	4.5	1.5	3.0	2.7	3.2	2.3	4.3	2.3
Mean # math groups	0	1.5	1.5	0	3.0	2.5	1.5	1.3	0.8	0.8	2.8
Group labels											
No or neutral labels[a]	.50	.87	.69	.04	.50	.44	.56	.45	.69	.37	.47
Consecutive labels[a]	.51	.13	.32	.93	.25	.56	.36	.54	.32	.63	.41
Image labels[a]	0	0	0	.03	.25	0	.08	.01	0	.02	.13

[a]Proportion of observed groups where these labels were used.

Table 21

Proportion of Teachers within Grade and Type of Classroom Using Flexible and Heterogeneous Grouping

	High Differential	Low Differential
Flexible		
1	1.00	0
3	1.00	.50
5	.50	.50
Heterogenous		
1	.50	1.00
3	1.00	.50
5	.50	1.00

Table 22

Proportions and Standard Errors for Teacher Interaction Behavior by Grade Level and Type of Classroom

Variables		Grade 1 High Diff	Grade 1 Low Diff	Grade 3 High Diff	Grade 3 Low Diff	Grade 5 High Diff	Grade 5 Low Diff	High Diff Classes	Low Diff Classes	Grade 1	Grade 3	Grade 5
Encourage Expressiveness	P	.33	.08	.36	.25	.15	.19	.28	.17	.20	.31	.17
	Se	.05	.03	.07	.05	.05	.05	.03	.03	.03	.04	.03
Cooperative Strategies	P	.29	.20	.24	.08	.39	.16	.31	.15	.24	.16	.28
	Se	.05	.06	.06	.03	.07	.05	.03	.03	.04	.03	.04
Positive Display	P	.86	.57	.67	.44	.58	.74	.70	.58	.71	.55	.66
	Se	.03	.06	.08	.06	.07	.09	.04	.04	.03	.05	.06
Positive Academic Evaluation	P	.92	.68	.81	.66	.68	.83	.81	.72	.80	.75	.75
	Se	.02	.03	.03	.03	.03	.04	.02	.02	.02	.02	.03
Positive Behavioral Evaluation	P	.46	.16	.07	.12	.06	.13	.20	.14	.31	.09	.09
	Se	.04	.02	.03	.02	.02	.03	.02	.02	.02	.02	.02
Buffered criticism	P	.38	.18	.30	.15	.47	.69	.38	.34	.28	.22	.58
	Se	.05	.03	.05	.03	.03	.04	.03	.02	.03	.03	.03
Praise	P	.92	.43	.67	.49	.56	.52	.71	.48	.68	.58	.54
	Se	.02	.03	.04	.03	.02	.03	.02	.02	.02	.02	.02
Positive Relationships	P	.09	.02	.09	.06	.08	.13	.09	.07	.06	.08	.10
	Se	.01	.00	.06	.01	.01	.01	.01	.00	.00	.01	.01

Table 23

Significant Effects on Teacher Interaction Variables

Interaction Variables	Differential Treatment Classroom Effects			Grade Level Effects			Interaction Effects		
	Z	P level	Direction	Z	P level	Direction	Z	P level	Direction
Encourage student expressiveness	2.61*		H>L	2.53*		3>5	3.10*		H>L (1>5)
Cooperative strategies	3.78*		H>L	2.25*		5>3			
Positive display	2.14*		H>L	2.76*		1>3	3.48*		H>L (1>5)
							2.60*		H>L (3>5)
Positive academic evaluation	3.40*		H>L				6.08*		H>L (1>5)
							4.71*		H>L (3>5)
Positive behavioral evaluation	2.64*		H>L	7.77*		1>3	6.19*		H>L (1>3)
				7.67*		1>5	6.59*		H>L (1>5)
Buffered criticism				9.21*		5>3	5.41*		H>L (1>5)
				7.66*		5>1	4.94*		H>L (3>5)
Praise	9.80*		H>L	3.49*		1>3	5.57*		H>L (1>3)
				5.09*		1>5	8.09*		H>L (1>5)
Positive relationships	2.99*		H>L	2.90*		1>1	3.56*		H>L (1>5)
							2.26*		H>L (3>5)

*Significant

Table 24

Proportion of Teacher and Student Behavior by Teacher in High and Low Reading Groups and by Type of Classroom: Bedrosian-Vernon Dissertation

	High Differential Classes				Low Differential Classes			
	Teacher 1		Teacher 3		Teacher 2		Teacher 4	
Variables	High Group	Low Group	High Group	Low Group	High Group	Low Group	High Group	Low Group
Teacher Variables								
Informality	.97	1.00	.98	.94	.95	.73*	.97	.99
Trust	.78	.50	.91	.60	.36	.00**	.75	1.00
Warmth	.99	.99	.98	.77*	.44	.16*	.81	.64*
Support	.97	.90*	.99	.68*	.84	.62*	.83	.77
Favorably acknowledged student remarks	.95	.89**	.96	.61*	.80	.63*	.84	.83
Teacher questions followed by favorable behavior	1.00	.98*	.99	.95**	.73	.41*	.95	1.00
Buffered criticism	1.00	1.00	.45	.03*	.75	1.00	.83	1.00
Student Variables								
Time engaged in reading	.95	.89*	.88	.67**	.94	.73**	.79	.55**
Proportion of correct responses	.89	.86	.91	.77**	.81	.69**	.90	.88

Table 25

Proportion of Teacher Behavior by Group and by Type of Classroom: Bedrosian-Vernon Dissertation

Teacher Variables	High Differential Classes		Low Differential Classes	
	High Group	Low Group	High Group	Low Group
Informality	.98	.97	.96	.86
Trust	.85	.55	.56	.50
Warmth	.99	.88	.63	.40
Support	.98	.79	.84	.70
Favorably acknowledged student remarks	.96	.75	.82	.73
Teacher questions followed by favorable behavior	1.00	.97	.84	.71
Buffered criticism	.73	.52	.79	1.00

Table 26

T-tests Indicating Cell Comparisons of Mean Classroom Reading Achievement Gains

Student Self-evaluation	Teacher Expectation (TE) Group Comparison: Hi vs Mod TE	Mod vs Lo TE
High Differential Teacher Treatment Classrooms (N=10)		
High S-E	$t(9)=1.80$, $p< .10$	$t(9)=.57$, n.s.
Low S-E	$t(9)=.06$, n.s.	$t(9)=1.39$, $p< .10$
Low Differential Teacher Treatment Classrooms (N=10)		
High S-E	$t(9)=1.22$, $p< .15$	$t(9)=.21$, n.s.
Low S-E	$t(9)=.18$, n.s.	$t(9)=1.79$, $p< .10$

Table 27

Mean Classroom Reading Achievement Gains in High and Low Perceived Differential Treatment Classrooms for Students Varying in Self-evaluation and Teacher Expectations

Student Self-evaluation	Teacher Expectation: High		Moderate (Control)		Low
High Differential Teacher Treatment Classrooms (N=10)					
High S-E	.26	>	-.31	=	-.13
SD	.66		.43		.88
Low S-E	.05	=	.03	>	-.41
SD	.46		.67		.51
Low Differential Teacher Treatment Classrooms (N=10)					
High S-E	.14	>	-.27	=	-.34
SD	.47		.88		.33
Low S-E	.16	=	.22	>	-.38
SD	.85		.51		.59

Note: Because scores are residualized achievement gains, positive scores indicate greater gains than would be predicted from prior achievement scores. Negative scores indicate less gain than predicted.

Table 28

Parent Views in Spring as a Function of their Child's Grade, Type of Classroom, and Teacher Expectancy Level

Parent Variables		High Teacher Expectancy Students	Low Teacher Expectancy Students	P Level
Ability Ratings				
Rating of relative reading ability	M	1.66[a]	2.54	p<.001
	SD	.60	.73	
Rating of relative math ability	M	2.48[a]	1.88	p<.001
	SD	.47	.57	
Rating of overall academic ability	M	5.30[a]	11.71	p<.001
	SD	1.91	4.06	
Perceived Teacher				
Perceived teacher rating of child's ability	M	1.73[a]	2.56	p<.001
	SD	.53	.65	
Affect and Control				
Satisfaction with child's achievement	M	1.62[a]	2.25	p<.01
	SD	.46	.99	
Perceived influence on child's success in school	M	1.46[a]	1.54	n.s.
	SD	.28	.37	
Educational Aspirations				
Desired completion	M	4.33[b]	4.19	n.s.
	SD	.49	.49	
Expected level of completion	M	3.93[b]	3.52	p<.01
	SD	.57	.65	

[a]Lower number is higher score.

[b]Higher number is higher score.

APPENDIX: MEASURES

Student Measures

Teacher Treatment Inventory: Long Form (What is School Like for Students?)

Cover page for High and Low Achiever, Male and Female

Complete form

Teacher Treatment Inventory: Short Form

My Classroom

Expectations: Self, Perceptions of Teacher, Perceptions of Parents modified from Self-Concept of Attainment Scale (Nicholls, 1976)

Self-Concept Items from Cognitive and General Scales of Perceived Competence Scale for Children, (Harter, 1982) and Achievement Motivation Items (What I am Like)

Student Interview Questions

Teacher Measures

Ways Teachers Think about Students

Teacher Expectations

Teaching Strategies

Teacher Interview

Classroom Dimensions Observation System *

Field Note Record Form

Classroom Dimensions Scale

Parent Measures

Parent Questionnaire: Influence and Reactions to School Work and Expectations

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* Coding Manual is available from the Project Office.

WHAT IS SCHOOL LIKE FOR STUDENTS?

Name _____ Age _____

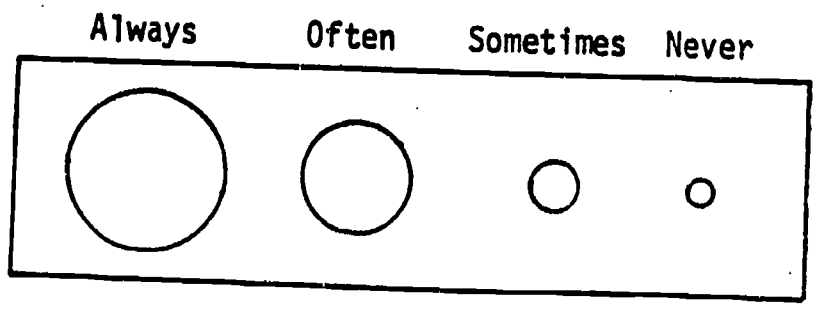
Imagine that there is a pretend student in your class.

> This boy is someone who does not do very well in school. In fact, he always gets the <u>lowest</u> grades in the class. Everyone thinks he is not very smart.

How do you think your teacher works with him?

Here is an example:

The teacher moves his seat.



	(1-3)
	(4-5)
2	(6)
2	(7)
1	(8)

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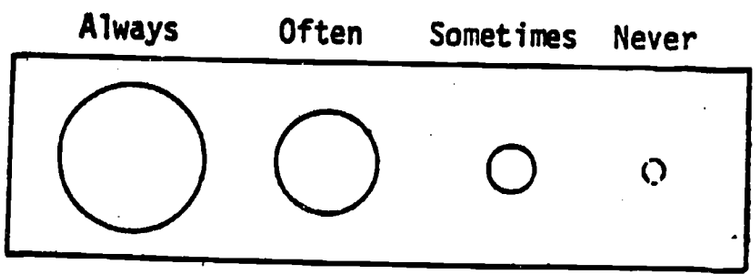


(1-3)
(4-5)
2 (6)
2 (7)
2 (8)

WHAT IS SCHOOL LIKE FOR STUDENTS?

Name _____ Age _____

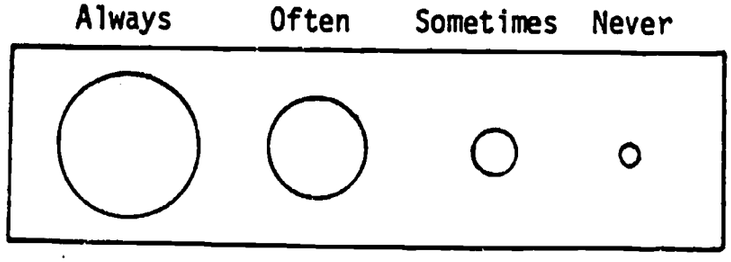
Imagine that there is a pretend student in your class.

This boy is someone who does really well in school.
In fact, he always gets the best grades in the class.
Everyone thinks he is very smart.

How do you think your teacher works with him?

Here is an example:

The teacher moves his seat.



	(1-3)
	(4-5)
2	(6)
1	(7)
1	(8)

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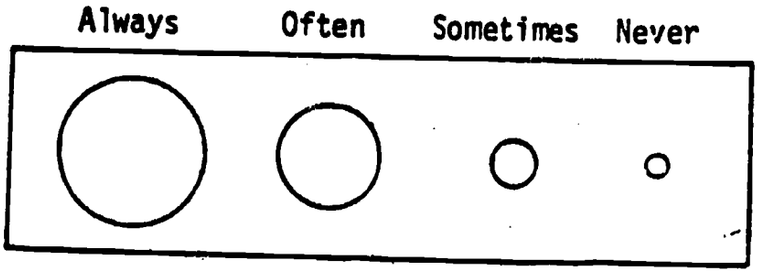
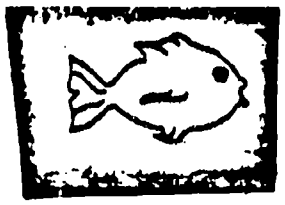
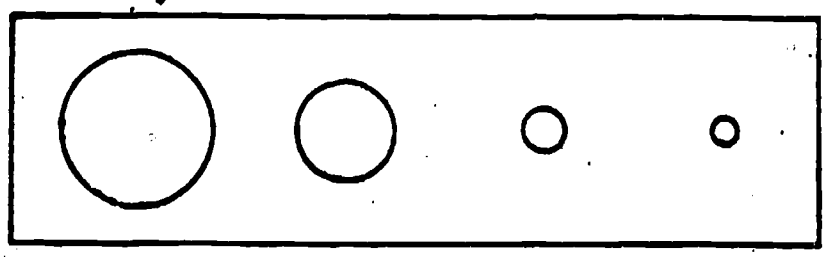


	(1-3)
	(4-5)
2	(6)
1	(7)
2	(8)

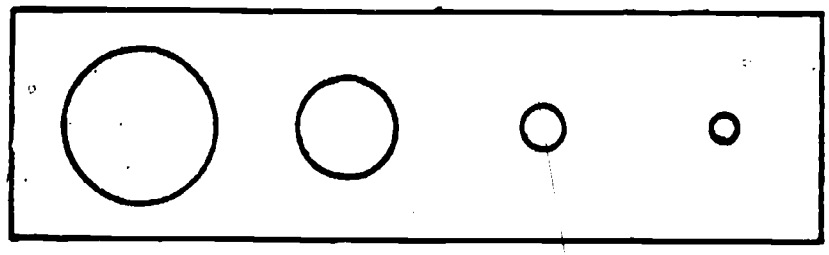


Always Often Sometimes Never

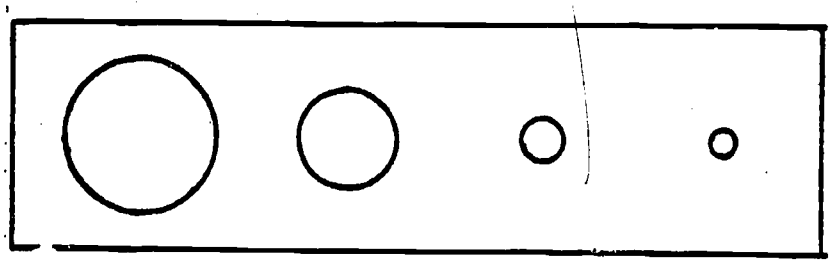
1. When she is working on a project or assignment, the teacher tells her what to do.



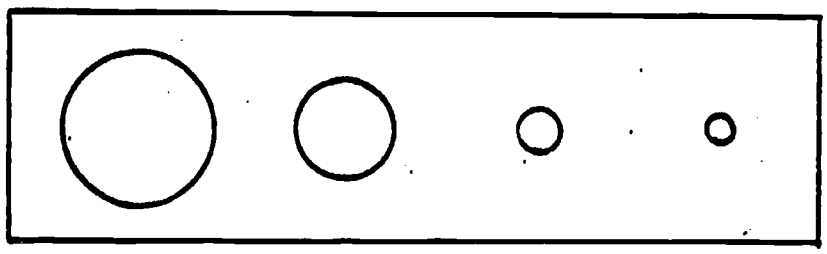
2. The teacher decides how she spends time in class.



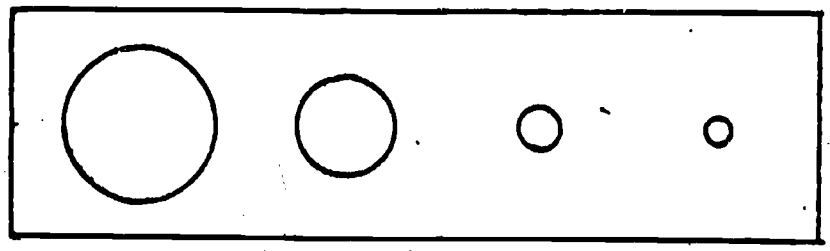
3. She has to do homework every day.



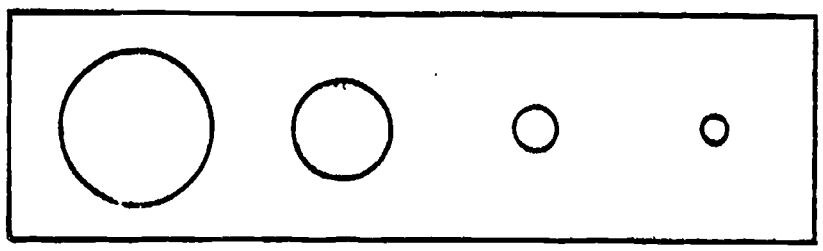
4. The teacher makes her feel bad when she does not have the right answer.



5. The teacher calls on her to answer questions.



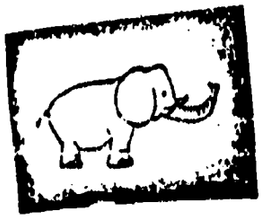
6. The teacher makes her feel she did very well when she reads well or gives the right answer.



	Always	Often	Sometimes	Never
7. The teacher asks her if she understands the work.	○	○	○	○
8. When she has to work with another student, the teacher tells her who to work with.	○	○	○	○
9. The teacher spends time working with her.	○	○	○	○
10. When she gives the wrong answer, the teacher tells her how to make the answer better.	○	○	○	○
11. The teacher scolds her for not trying.	○	○	○	○
12. The teacher asks her to lead activities.	○	○	○	○

	Always	Often	Sometimes	Never
13. The teacher expects or thinks that she will stick with what she is working on.	○	○	○	○
14. The teacher makes her feel good about how hard she tries.	○	○	○	○
15. The teacher scolds her for not listening.	○	○	○	○
16. The teacher thinks that it is more important for her to learn than to have fun.	○	○	○	○
17. The teacher chooses the books she will read in class.	○	○	○	○
18. The teacher makes her feel that she has not done the work well.	○	○	○	○

	Always	Often	Sometimes	Never
19. The teacher calls on her to explain things to the class.	○	○	○	○
20. The teacher collects work before she has a chance to finish.	○	○	○	○
21. The teacher trusts her.	○	○	○	○
22. The teacher lets her make up her own projects.	○	○	○	○
23. The teacher explains the rules to her.	○	○	○	○
24. She is given special privileges. She gets to do special things in class.	○	○	○	○



	Always	Often	Sometimes	Never
25. The teacher lets her do as she likes, as long as she finishes the work.	○	○	○	○
26. The teacher asks other students to help her.	○	○	○	○
27. If she breaks the rules, she is punished.	○	○	○	○
28. The teacher is interested in her.	○	○	○	○
29. The teacher watches her closely when she is working.	○	○	○	○
30. When she gives the wrong answer, the teacher calls on someone else.	○	○	○	○

WHAT IS SCHOOL LIKE FOR YOU?

Think about the things you do in school and the way your teacher works with you.

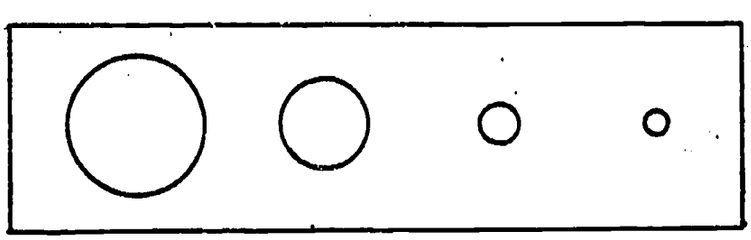
HOW DOES YOUR TEACHER WORK WITH YOU?

Example:

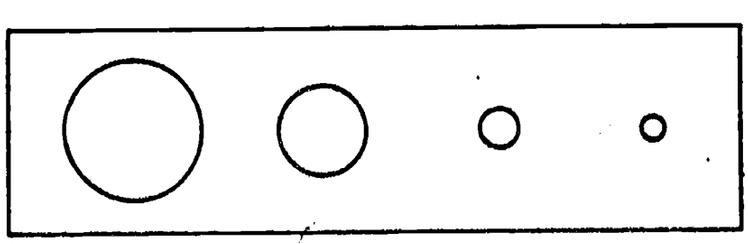
The teacher helps me.

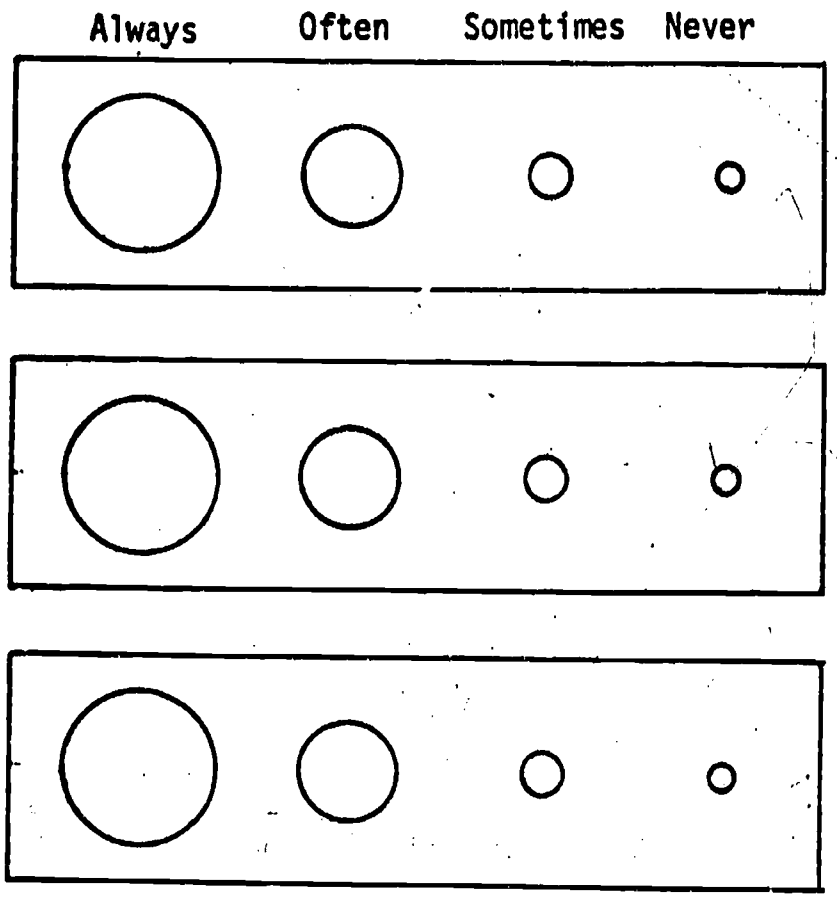
Always Often Sometimes Never

1. The teacher asks me if I understand the work.



2. The teacher scolds me for not trying.





3. The teacher asks me to lead activities.

4. The teacher makes me feel that I have not done the work well.

5. The teacher calls on me to explain things to the class.

6. I am given special privileges. I get to do special things in class.

7. The teacher asks other students to help me.

8. The teacher is interested in me.

Name_____

Here are a few more questions about YOU.

Pretend that the circles are all the students in your class, with the ones who will get the highest marks at the TOP and the ones who will get the lowest marks at the BOTTOM.

Put an X in one circle to show how well you think YOU will do in your

SCHOOL WORK

TOP OF THE CLASS

BOTTOM OF THE CLASS

BEST COPY AVAILABLE

(1 -3)
3
(4)

Adapted from Nicholls, 1977.

TOP OF THE CLASS

Now, put an X in one circle to show how well you think YOU will do in

READING

BOTTOM OF THE CLASS

Put an X in one circle to show how well you think YOU will do in

MATHEMATICS

BOTTOM OF THE CLASS

How well does your <u>teacher</u> think you will do in your SCHOOL WORK?

BOTTOM OF THE CLASS

TOP OF THE CLASS

How well do your parents think you will do in your SCHOOL WORK?

(13-14)

BOTTOM OF THE CLASS

WHAT I AM LIKE

A lot	A little				A little	A lot
		Sample Sentence: Some kids would rather play outdoors in their spare time.	BUT	Other kids would rather watch T.V.		

1.		Some kids feel that they are very good at their school work	BUT	Other kids worry about whether they can do their school work.		
2.		Some kids feel that there are a lot of things about themselves that they would change if they could	BUT	Other kids would like to stay pretty much the same.		
3.		Some kids feel like they are just as smart as other kids their age	BUT	Other kids aren't so sure and wonder if they are as smart.		
4.		Some kids are pretty sure of themselves	BUT	Other kids are not very sure of themselves.		
5.		Some kids are pretty slow in finishing their school work	BUT	Other kids can do their school work quickly.		

Items 1-14 adapted from Harter, 1978. Items 15-19 adapted from Uguroglu & Walberg, 1979.

	A lot	A little			A little	A lot
6.	◯	○	Some kids feel good about the way they act	BUT	Other kids wish they acted differently.	○ ◯
7.	◯	○	Some kids often forget what they learn	BUT	Other kids can remember things easily.	○ ◯
8.	◯	○	Some kids think that maybe they are not a very good person	BUT	Other kids are pretty sure that they are a good person.	○ ◯
9.	◯	○	Some kids like school because they do well in class	BUT	Other kids don't like school because they aren't doing well.	○ ◯
10.	◯	○	Some kids are very happy being the way they are	BUT	Other kids wish they were different.	○ ◯
11.	◯	○	Some kids wish it was easier to understand what the teacher says	BUT	Other kids don't have any trouble understanding what the teacher says.	○ ◯
12.	◯	○	Some kids aren't very happy with the way they do a lot of things	BUT	Other kids think the way they do things is fine.	○ ◯

	A lot	A little			A little	A lot
13.	◯	○	Some kids have trouble figuring out the answers at school	BUT	Other kids almost always can figure out the answers.	○ ◯
14.	◯	○	Some kids are usually sure that what they are doing is the right thing	BUT	Other kids aren't so sure whether or not they are doing the right thing.	○ ◯
15.	◯	○	When some kids start a new project, they usually finish it	BUT	When other kids start a new project, they don't finish it.	○ ◯
16.	◯	○	Some kids like new work to be mostly easy	BUT	Other kids like new work to be mostly hard.	○ ◯
17.	◯	○	Some kids try new activities	BUT	Other kids never try new activities.	○ ◯
18.	◯	○	When some kids have a hard problem, they keep trying to solve it	BUT	When other kids have a hard problem, they usually give up.	○ ◯
19.	◯	○	Some kids feel afraid when the teacher starts a brand new subject	BUT	Other kids feel excited when the teacher starts a brand new subject.	○ ◯

NOTIONS OF ABILITY

Name_____

III. Notion of Smartness

Different kids have different ideas about smartness. I am going to read two kinds of ideas about smartness. Then you can tell me which one you believe.

1.	You can become as smart as you want. ☐	You can learn new things but how smart you are stays pretty much the same. ☐	(42
2.	There are some things you won't be good at no matter how hard you try. ☐	You can learn anything if you try. ☐	(43
3.	There are many kinds of smartness: if kids are not smart in one thing they might be smart in something else. ☐	Smartness is one kind of thing: either kids're smart or they're not smart. ☐	(44
4.	It's important to know how smart you are compared to other kids. ☐	It's important to know that you have learned something even if other kids learned it faster. ☐	(45
5.	Some kids aren't smart in anything. ☐	All kids are smart in some things or in some ways. ☐	(46

STUDENT INTERVIEW

Name _____

V. Now we would like to know about your mother's feelings. (If not live with mother: who _____) (58)

1. How important do you think it is to your mother that you do well in school?

☐ Not at all ☐ A little ☐ Sort of ☐ Pretty ☐ Really (59)

2. What does your mother ask you about school?

3. When you bring home a good report card or work without mistakes, tell me one thing your mother says or does.

4. When you bring home a bad report card or work with lots of mistakes, tell me one thing your mother says or does.

5 In your school work, does your mother think you are doing

☐ your best or ☐ you can do a little better or ☐ you can do a lot better? (60)

VI. Now we would like to know about what happens <u>in school</u>.

6. Does your teacher think that you are doing:

☐ your best or ☐ you can do a little better or ☐ you can do a lot better? (61)

Why?

7. Do you think that you are doing

☐ your best or ☐ you can do a little better or ☐ you can do a lot better? (62)

Why?

8. Most kids make mistakes on their work sometimes. Can you think of a time <u>when you made mistakes on your work</u>? (Share about self making mistakes)

Tell me about it.

What did the teacher say or do? (If inappropriate example, ask st to think of another time when the teacher made comment or did something about mistakes)

Name a second way you are like them (not like them)?

(If academic similarity is not mentioned:) Any other way?

9. Can you think of a time <u>when you did good work or got a paper back with no mistakes on it</u>?

   Tell me about it.

   a. What did your teacher say or do?

   b. Where did this happen? ☐ Front of class ☐ Front of group ☐ Others around ☐ Alone (66)

   c. What did you think or feel when s/he said or did that?

   d. Did your teacher have any ideas why you did well?

b. Where did this happen? ☐ Front of class ☐ Front of group ☐ Others around ☐ Alone (63)

c. What did you think or feel when s/he said or did that?

d. Did s/he have any ideas why you made mistakes?

e. When you have another assignment (paper, worksheet) like that, what will you do?

f. Does this happen to other kids?(refer to mistakes) ☐ Yes ☐ No (64)

Can you name them?

How much are you like them? ☐ Not like ☐ A little ☐ A lot (65)

Name one way that you are like them (not like them).

e. When you have another assignment (paper, worksheet) like that, what will you do?
(If say "same") What is it?

f. Does this happen to other kids? ☐ Yes ☐ No (67)

Can you name them?

How much are you like them? ☐ Not like ☐ A little ☐ A lot (68)

Name one way that you are like them (not like them)

Name a second way you are like them (not like them)?

(If academic similarity is not mentioned:) Any other way?

Interviewer _____ (69)

Rhona S. Weinstein, Principal Investigator
Hermine H. Marshall, Project Coordinator

WAYS TEACHERS THINK ABOUT STUDENTS

There are several parts to our interview. In the first part, we'd like to learn more about how teachers think about their students.

1. Teachers think about their students in different ways. Here are some cards with your students' names on them. We would like to learn about how you see your students and what you might expect from them. Different teachers have different ideas. When some teachers think about their students, they think of them in terms of putting them together, or arranging or grouping them in one way or another. Other teachers may not. When you think of the students in your class, do you think of them along some dimension? Or do you have some categories in your head? We're interested in whatever your conceptualizations are of how you view your students. For example, you might choose to group them in some way. Or you might view them in other ways. Use whatever criteria you would like.

If group: What were the criteria? RECORD spontaneous comments. What labels would you give to the piles? WRITE LABELS on blank cards on piles.

If not group, but begin to describe individually: Record spontaneous comments. [After teacher has described 2 or 3 students: "That gives me some idea of how you think of students." (Record a couple..)] What criteria are you using (if not obvious)? (Record criteria)

TEACHER EXPECTATIONS

2. Now we'd like you to think about how well you think each student will do at the end of the year, and put the cards into an order so that the student you think will do best will be at the top of the pile and the one you think will do the least well will be at the bottom of the pile.

SORT FOR READING, MATH, SCHOOL WORK.

Name _____ Grade _____ Years Teaching _____

TEACHING STRATEGIES

T Code _____

1. Please rate how frequently you are likely to use each of the following types of classroom organizations.

	Hardly Ever		Sometimes		Almost Always
Whole class grouped together	1	2	3	4	5
2-3 Groups	1	2	3	4	5
4 or more Groups	1	2	3	4	5
Students work individually	1	2	3	4	5

2. Rate how frequently you use each basis for grouping:

	Hardly Ever		Sometimes		Almost Always
Ability levels	1	2	3	4	5
Specific skill needs	1	2	3	4	5
Student interests	1	2	3	4	5
Helping students work together	1	2	3	4	5

3. Indicate how many students use each type of reading materials.

	Some Individuals		Some Groups		All Students
Basal readers	1	2	3	4	5
Trade books	1	2	3	4	5
Individualized programs (e.g. SRA)	1	2	3	4	5
Students' own stories	1	2	3	4	5

4. When you evaluate a student at the end of some period of time, you may consider many factors. Four such factors are listed below. Please rank them to show which you emphasize most in evaluating a student. (1 = most important, 2 = second most important, etc.)

	Rank
How each student's work compares to the work done by the rest of the class.	_____
Whether the student's work meets criteria set for all students at his/her level.	_____
The amount of improvement the student has shown during the year, regardless of actual level of performance.	_____
How hard the student has worked, regardless of actual level of performance.	_____

5. Indicate how many of your students <u>regularly</u> make the following decisions:

	None	One or a Few	About Half	All or Most
Choose a task to work on from a set of alternatives provided by the <u>teacher</u>	1	2	3	4
<u>Choose a task</u> to work on from a set of alternatives decided on at least in part by <u>the student</u>	1	2	3	4
<u>Choose which student(s)</u> to work with	1	2	3	4
<u>Decide which period or day</u> to pursue an activity	1	2	3	4
<u>Decide</u> that he or she <u>has met a learning objective</u>	1	2	3	4

Rhona S. Weinstein, Principal Investigator
Hermine H. Marshall, Project Coordinator

TEACHER INTERVIEW

Part I: SORT

Put these sts into a pile so that the ones you think will do best in reading at the end of the year will be at the top of the pile and the ones you think will do least well at the end of the year will be at the bottom of the pile.

Repeat for math.

Part II: CLARIFICATION OF OBSERVATIONS

When we observe in your classroom, we only see what you are doing at one point in time and from a limited perspective. We'd like to have your help in understanding what happens over the year. It will help clarify some of the things that we have been observing.

1. Grouping

When you have visitors in your classroom (or an observer), they can see you working with children but they can't tell how you decide (on) who(m) you will work with. Can you describe briefly how you group for instruction?

a. (Basis for grouping)

(1) What kind of grouping do you use most frequently: Order

ability
skill learning regardless of ability (flexible) ____
interests ____
interpersonal interactions ____
____

What kind do you use second most frequently? Third?

In what content do you use grouping?

skills (if appropriate)?
interests (if appropriate)?

And how often?

(2) When a new student comes into your room, how do you decide what group(s) to place him/her in?

b. (Mobility of individuals between stable groups) (If ability grouping is used) How many sts might move up or down a group during the year in reading?

In math?

c. (Flexibility of grouping)

After you set up your groups in September, do you ever regroup the whole class or change the number of groups?

How often?

Which class would you say is most like yours? (circle one)

A. In class A, the composition of the groups that the teacher works with remains pretty much the same throughout the year.

B. In class B, there is a great deal of movement of students between the groups over the year.

C. In class C, the teacher occasionally regroups the whole class, sometimes changing the number of groups.

D. In class D, regular groups are not used. The teacher sometimes pulls sts together to learn certain skills or for other purposes.

2. Curriculum Sequence

I've seen you working with groups of sts (if appropriate), but I'd like to know a little more about how you use curriculum materials, given the range of abilities in your class.

Do all the sts go thru the same materials? in the same or different sequence? Or are there different sets of materials? Different series? Or supplementary materials?

Reading?

Math?

Other:_____

5. (For the child that the teacher places at the top and the bottom of the reading sort, (excluding LES/NES sts) ask about each:)

Student at top:

Tell me how you see this student's ability or abilities?
(Describe how you see this student's ability or abilities)

Are there any other ways you think about him/her?

Student at the bottom:
Tell me how you see this student's ability or abilities?

Are there any other ways you think about him/her?

6. Effective Teaching Strategies

What teaching strategies have you found to be particularly effective for high achievers?

for low achievers?

3. Evaluation

How about how you evaluate your students?

a. I've seen you _____ (if appropriate. What do you do most frequently:

Order of frequency

a. Look at whether answers are right or wrong. ___
b. Consider whether the student is at/above/below grade level ___
c. Consider how well sts are doing in comparison to the others in their class. ___
d. Compare a child's work to his previous work ___

What do you do second most frequently? Third?

b. What areas (subjects) are sts evaluated in?

c. Do sts ever participate in evaluating their own work? How? (Under what circumstances?)

4. Responsibility

a. How do you assign responsibilities? Probe for all vs certain sts. (Use examples from observations)

b. Are there areas or times when sts have choices?

e.g. Tasks (what to do, how to do it)
Timing (when to do what work)
Creation or direction of own projects (what types)
Who to work with

Classroom Dimension Scale

#_____ (1-2) T _____ (3-4) Card 1 (5) Obs._____ (6) Cal. Day _____ (7-9) Beg. Time _____ (10-13)

Date _____ Time _____ Subject _____

Part I

SUMMARY

Min	Struct IGSCM 1-5	#Gp	#Ongo	Label O/N/C/I 1 2 3 4	Across Unit Subj S/D 0 1	Across Unit Task S/D 1-5	Task Dv 1 0	Choice + 1 0	Total # Sts
(14-15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24-25)

Rd 1 Sci 5 Oth 9
Ma 2 SS 6
Sp 3 Mx 7
La 4 Org 8

OVERVIEW

	Settg I G S C 1 2 3 4	Funct I/G/C 1 2 3	Adult T/TA/A 1 2 3	#Ss	Cont	Pace T/J/S 1 2 3	Choice No	Choice Lt	Choice Br	Task Cn	Task Mx	Task Dv	Eval ✓ Ld Wk 1 2 3 4	W/in Group Type Hm/Ht 0 1	W/in Group Flx + 1 0	W/in Group Task S/D 1-5	W/in Group Lvl	W/in Group Name
(26-43)																		
(44-61)																		
(62-79)																		
2 (1-23)																		
(24-41)																		
(42-59)																		
(60-77)																		
3 (1-23)																		

NOTES:

PART II

		CLASS	INDIV IN CLASS	GP	INDIV IN GP	INDIV	N.O.
	TASK						
[1] [ ] [ ] [4] (6-16)	1. T encourages expressiveness, exploration	—	—	—	—	—	—
(17-27)	2. T discourages expressiveness, exploration	—	—	—	—	—	—
	MOTIVATION						
(28-38)	3. Competitive: academic	—	—	—	—	—	—
(39-49)	4. Competitive: behavior	—	—	—	—	—	—
(50-60)	5. Cooperative: academic	—	—	—	—	—	—
(61-71)	6. Cooperative: behavior	—	—	—	—	—	—
	RESPONSIBILITIES						
[ ] [ ] [ ] [5] (6-16)	7. T assigns responsibilities	—	—	—	—	—	—
(17-27)	8. T seeks, accepts procedural suggestions	—	—	—	—	—	—
(28-38)	9. T encourages self-direction, planning	—	—	—	—	—	—
(39-49)	10. T encourages self-eval.	—	—	—	—	—	—
(50-60)	11. T has sts correct own work	—	—	—	—	—	—
[ ] [ ] [ ] [6] (6-16)	12. T has sts correct each others' work	—	—	—	—	—	—
(17-27)	13. T has sts record progress	—	—	—	—	—	—

EVALUATION	CLASS	INDIV IN CLASS	GP	INDIV IN GP	INDIV	N.O.
(28-38) 14. Praise: academic	—	—	—	—	—	—
(39-49) 15. Praise: behavior	—	—	—	—	—	—
(50-60) 16. Critical: academic	—	—	—	—	—	—
(61-71) 17. Critical: behavior	—	—	—	—	—	—
7						
(6-16) 18. Buffered criticism: academic	—	—	—	—	—	—
(17-27) 19. Buffered criticism: behavior	—	—	—	—	—	—
(28-38) 20. Rewards, privileges	—	—	—	—	—	—
(39-49) 21. Punishes, threats	—	—	—	—	—	—
(50-60) 22. Compares perf. (academic) +	—	—	—	—	—	—
(61-71) 23. Compares perf. (academic) -	—	—	—	—	—	—
8						
(6-16) 24. Compares behavior +	—	—	—	—	—	—
(17-27) 25. Compares behavior -	—	—	—	—	—	—
(28-38) 26. Compares own prior performance (acad) +	—	—	—	—	—	—
(39-49) 27. Compares own prior performance (acad) -	—	—	—	—	—	—
(50-60) 28. Compares own prior behavior +	—	—	—	—	—	—
(61-71) 29. Compares own prior behavior -	—	—	—	—	—	—

		CLASS	INDIV IN CLASS	GP __	INDIV IN GP	INDIV	N.O.
9							
(6-16)	30. Displays academic work +	—	—	—	—	—	—
(17-27)	31. Displays academic work -	—	—	—	—	—	—
(28-38)	32. Displays good behavior	—	—	—	—	—	—
(39-49)	33. Displays poor behavior	—	—	—	—	—	—
(50-60)	34. Affirms correct	—	—	—	—	—	—
(61-71)	35. Disconfirms incorrect	—	—	—	—	—	—
10							
(7-17)	36. Probes incorrect, incomp, waits, clues	—	—	—	—	—	—
(18-28)	37. Informs	—	—	—	—	—	—
(29-39)	38. Moves on	—	—	—	—	—	—
	RELATIONSHIPS						
(40-50)	39. Supportive	—	—	—	—	—	—
(51-61)	40. Fairness	—	—	—	—	—	—
(62-72)	41. Humor	—	—	—	—	—	—
11							
(7-17)	42. Interest (personal)	—	—	—	—	—	—

PART III

		None	Low	Moderate	High
(18-25) WARMTH					
To: Overall					
	Intensity	0	1	2	3
	Frequency	0	1	2	3
Group(s)					
	Intensity	0	1	2	3
	Frequency	0	1	2	3
Several Sts					
	Intensity	0	1	2	3
	Frequency	0	1	2	3
1-2 Sts					
	Intensity	0		2	3
	Frequency	0	1	2	3
(26-33) IRRITATION					
To: Overall					
	Intensity	0	1	2	3
	Frequency	0	1	2	3
Group(s)					
	Intensity	0	1	2	3
	Frequency	0	1	2	3
Several Sts					
	Intensity	0	1	2	3
	Frequency	0	1	2	3
1-2 Sts					
	Intensity	0	1	2	3
	Frequency	0	1	2	3

Time	T: ____ O ___ Date _____ Time _____ Subj_____ Pg ___	TONE:	TO:
		Humor Warm Enthus Matt-F Firm Irr/Sar Ang	Indiv Group Class
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PARENT QUESTIONNAIRE

Dear Parent,

We are interested in parents' ideas about their child's school experiences and how parents respond to these experiences. We are currently studying mothers' ideas and would like mothers to complete this form. However, if the child's mother does not live in the household, can you as the child's _____ take time to fill this out? (fill in relationship)

Earlier this year you indicated your willingness to have your child _____ participate in our study by answering questions about how children think about school. You also showed interest in participating in our study. We would appreciate your answering the following questions and returning the questionnaire in the enclosed stamped, addressed envelope within one week.

Your participation in this project will help us to better understand how students develop in both school and home settings. Thank you very much for your help.

Sincerely,

Ms. Lee Sharp
Dr. Hermine Marshall
Dr. Rhona Weinstein
University of California
(642-2056)

Name of child_____

Number of children in family _____

Is this child the oldest ____, somewhere in the middle ___, or the youngest ___ in the family?

1. When your child describes what school is like for him or her, what is your child most likely to say?

2. If you were describing your child to a new teacher, what would you tell that teacher?

3. What do you think being successful in school depends on?

4. How much influence do you think you can have in how successful your child is at school? Circle one.

a great deal	some	a little	none

5. If you think that you have some influence, what are some of the ways that you can help your child to be successful in school?

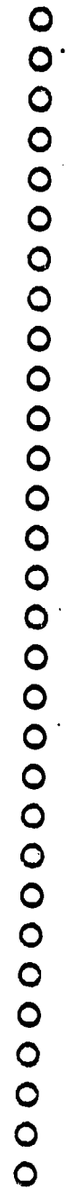
6. If you compared your child's ability at school with other children of the same age, how would you rate your child in reading and math? Circle one rating for each of these.

READING	one of the highest	above average	average	below average	one of the lowest
MATH	one of the highest	above average	average	below average	one of the lowest

7. We would also like to know how you would rate your child's academic ability overall.

Pretend that the circles to the right are all the students in your child's class, with the ones who will get the highest marks at the TOP and the ones who will get the lowest marks at the BOTTOM.

Put an X in one circle to show how well you think your child will do in his or her school work this year compared to the other children in the class.



100 Te.

8. How satisfied are you with how well your child is doing in his or her school work this year? Circle the one that best describes your feeling.

very satisfied	somewhat satisfied	neither satisfied nor dissatisfied	somewhat dissatisfied	very dissatisfied

9. When you are satisfied with how well your child is doing in his or her school work, what are you most likely to say or do?

10. When you are <u>not</u> satisfied with how well your child is doing in his or her school work, what are you most likely to say or do?

11. How do you think your child's <u>teacher</u> would rate your child's ability in school compared with other students in the class? Circle one.

one of the highest	above average	average	below average	one of the lowest

12. What level of education would you like your child to complete? Check one.

___ some high school
___ high school
___ some college or vocational training beyond high school
___ four years of college
___ graduate school or professional school

13. Sometimes what we want for our children and what can actually happen are not the same. Taking this into consideration, what level of education do you expect your child actually to complete?

___ some high school
___ high school
___ some college or vocational training beyond high school
___ four years of college
___ graduate or professional school