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# Interventions designed to effect conscious changes in teacher behaviors that convey expectations.

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INTERVENTIONS DESIGNED TO  
EFFECT CONSCIOUS CHANGES IN  
TEACHER BEHAVIORS THAT CONVEY EXPECTATIONS

A Dissertation Presented

By

Earline Sloan

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

DOCTOR OF EDUCATION

May

1977

Education

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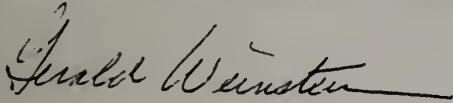
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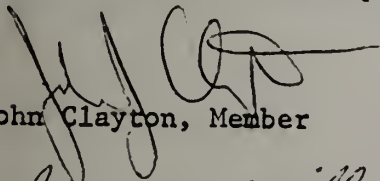
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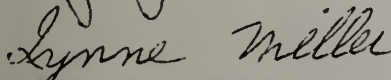
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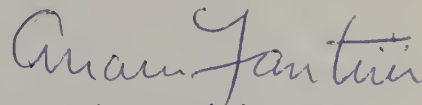
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May, 1977

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I also know that it would have been many times more difficult to finish this thesis 500 miles from Amherst if Kathy Phillips had not been such an efficient and willing administrative assistant in residence.

Finally, I want my mother and father to know that now that I'm this close to getting my doctorate, it doesn't feel qualitatively different than finishing my homework did when I was seven. I am simply finishing the task they

started me on many, many years ago. Without the study habits and values they helped instill in me, I would never be writing this acknowledgement page today.

## ABSTRACT

Interventions Designed to Effect Conscious Changes  
in Teacher Behaviors that Convey Expectations

May 1977

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The problem that gave rise to this study stems from the disturbing fact that schools are not making an impact on children independent of their background and general social context. One well-documented reason schools fail in this regard is that teacher expectations regarding pupil performance are heavily influenced by racial and socio-economic characteristics of the child and the child's family. Teacher expectations, in turn, influence student achievement.

Numerous studies have identified aspects of the dynamics by which teachers are conveying their expectations to students. Robert Rosenthal (1973) organized the findings of these studies into four categories: 1) Socio-emotional climate, 2) Feedback after student question or response, 3) Input (substance to be learned), and 4) Output (encouraging responsiveness).

While much is known about the dynamics and effect of the teacher expectation phenomenon, very little has been

done in this country to change directly teachers' classroom behaviors based on this knowledge. In response to this need, this thesis designed, and tested with teachers, four interventions that allowed teachers consciously to decrease behaviors that have been shown to convey negative expectations to students and to increase behaviors that have been shown to convey positive expectations. The four interventions were:

- 1) Simulations in which the teachers experienced at their own level many of the important factors operating in the dynamics between expectations of teachers and pupil performance;
- 2) Didactic teaching of relevant information on the role of interpersonal expectations as a variable in the classroom and on teacher behaviors that communicate these expectations;
- 3) Feedback to the teachers on the results of classroom observations;
- 4) Self-monitoring devices on which teachers rated their performance of relevant behaviors on a weekly basis.

The first two interventions were delivered during two training sessions: one six-hour and one two-hour session, respectively.

In order to give focus to the teachers' efforts to change and to make the task manageable, four specific be-

haviors representing the Rosenthal categories of behaviors were selected to use during the observation sessions and to concentrate on in the self-monitoring devices. Those behaviors were smiling, substantive interaction, thought-provoking questions, and wait-time.

Ten experimental and ten control teachers were selected for this study. Pre and post observations were performed for each of the four behaviors mentioned above. For each behavior teachers received two scores: 1) the total frequency of those behaviors observed during the one-and-one-half hour observation periods, both pre and post, and 2) the number of different student recipients of each of the four behaviors during the same observation periods. In the instance of wait-time, the length of wait-time and the number of students receiving wait-times of three seconds or more were recorded. An analysis of variance with T tests was used to determine pre-post changes in the quantity of relevant behaviors, and an analysis of variance with F tests was performed to determine the effect of the interventions on the number of students to whom teachers addressed these behaviors. All results were positive and significant.

This study has shown that it is possible to alter significantly those important behavioral expressions of teacher expectations that students experience directly. It has also shown that teachers can learn to exhibit more appro-



priate behaviors to a wider range of students in the classroom. By so doing, the study has, in effect, helped to diminish unconscious, discriminatory practices by teachers that perpetuate privilege and opportunity for some students while limiting the growth of others.

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C H A P T E R I

INTRODUCTION

General Nature of the Problem

Given the present social structure in the United States and the vested interest of the upper and middle classes in maintaining this structure (Stein, 1971), certain inequalities of opportunity exist among classes and races of people. According to American rhetoric, public school education offers equal opportunity to all and should, therefore, be a significant factor in equalizing the inequalities among members of social groups. Obviously public education is not living up to the rhetoric that supports it. As the Coleman Report so bluntly states:

"One implication stands out above all: That schools bring little influence to bear on a child's achievement that is independent of his background and general social context; and that this very lack of independent effect means that the inequalities imposed on children by their home, neighborhood, and peer environment are carried along to become the inequalities with which they confront adult life at the end of school. For equality of educational opportunity through the schools must imply a strong effect of schools that is independent of the child's immediate social environment, and that strong independent effect is not present in American Schools." (Coleman, 1966: 325)

In the late 60's Ray Rist conducted a three-year study in which he concluded that one very important reason that a student's academic achievement is so closely tied to his social background is that a teacher's expectations regard-

ing the academic potential of a child in his/her first year of schooling, frequently kindergarten, are based almost totally on racial and socio-economic facts about the child.

A large body of research concurs in the Rist findings.

(Reviewed in Brophy and Good, 1974, 6-13) Differential treatment from the teacher based on these expectations then contributes to the realization of these expectations.

Thereafter, the initial achievement level of the child in his/her first year of schooling is reenforced by each subsequent teacher.

The subject of this dissertation addresses the general problem of helping the school to make an impact on students independent of the child's background and general social context. It will address the problem at the level of the individual classroom by attempting to affect one aspect of teacher-pupil interaction, namely that of teacher expectations as they influence student achievement.

### Specific Nature of the Problem

Ray Rist established one link between social inequalities and student academic achievement by relating both of these to teacher expectations and the accompanying teacher behaviors. Robert Rosenthal and numerous other researchers did not consider the social origins of teacher expectations and student achievement, but they had already established a convincing link between teacher expectations and student



achievement. The classic example is the "Intellectual Bloomers Study". In the Spring of 1964, Robert Rosenthal and Lenore Jacobson administered the "Harvard Test of Inflected Acquisition" to all the students in an elementary school in a lower socio-economic neighborhood. The test was described to teachers as being a highly accurate predictor of "intellectual blooming" potential. In actuality, it was a relatively non-verbal I.Q. test. After the administration of the test, Rosenthal and Jacobson randomly selected 20% of the children in each room and informed their teachers that these students could be expected to bloom during the next few months. In reality, the only difference between the experimental and the control children was induced in the minds of their teachers. After eight months both groups were retested.

"For the school as a whole they found that the experimental children, those whose teachers had been led to expect 'blooming' showed an overall gain of four points over the I.Q. gain of the control children. ...Moreover, it made no difference whether the child was in a high-ability or low-ability classroom. The teachers' expectations benefited children at all levels." (Rosenthal, 1973: 58)

Although this original experiment generated much controversy,

"...work by a large number of investigators using a variety of methods over the past several years has established unequivocally that teachers' expectations can and do function as self-fulfilling prophecies, although not always or automatically."

(Brophy and Good, 1974: 32)

Several researchers concerned with teacher expectations have gone so far as to identify the specific behaviors by which teachers are conveying their expectations to students. One glaring omission still exists, however, in the exploration of teacher expectations and their influence on student achievement. Research in this area has confined itself almost entirely to describing the problem; at this point in time what is needed are solutions. Teacher training agencies, institutions, and professionals have reported very few explicit and straightforward attempts to work with teachers to alter behaviors that convey negative expectations to students and increase behaviors that convey positive expectations. In such experiments as the Intellectual Bloomer Study, researchers have managed to change teacher expectations successfully only by deceiving the teachers involved by giving them false information. Their interventions have been both impractical and inconsistent with the goals, values and criteria of humanistic education. One very fine explicit experiment was conducted by Evertson, Brophy, and Good (1973, 1974). The design, however, involved 80 hours of observation per teacher, thus making it rather impractical for general use in its present form.

The current educational need related to teacher expectations is for a sequence of explicit, short-term, humanistic interventions that 1) allow teachers to consciously

alter behaviors that communicate inappropriate expectations to students, and 2) eventually can be used with large groups of teachers.

### Purpose and Description of the Study

The purpose of this study was to design and field test a sequence of interventions that allow teachers consciously 1) to decrease teacher behaviors that have been shown to convey negative expectations to students; 2) to increase those behaviors that have been shown to convey positive expectations; and 3) while increasing the overall number of positive behaviors, to distribute those behaviors more equally among all students. In essence, what was being tested was the effectiveness of a teacher training program. The value of demonstrating the effectiveness of such a program derives from the fact that voluminous research has shown that growth in extremely important behaviors does not occur naturally for many teachers; there are, in fact, strong social forces shaping teacher behaviors in contrary ways.

"Teacher expectations" are defined in this study as "inferences that a teacher makes about the present and future academic achievement and general classroom behavior of students". (Brophy and Good, 1974, 32) As such, teacher expectations involve an internal state. Fortunately, however, in the case of teacher expectations, very specific



behavioral correlates of this internal state have been identified. Thus, teacher expectations, for the purposes of this study, will be operationally defined and measured in terms of its behavioral correlates.

The behavioral correlates of teacher expectations are summarized in Table 1-1. The categorical divisions for grouping these behaviors were suggested by Robert Rosenthal (1973) as a way of organizing the findings of numerous studies in this field.

The specific behaviors to be measured in this study are 1) frequency of smiling, 2) substantive interaction, 3) higher order questioning, and 4) wait-time.

"Frequency of smiling" was selected for measurement in this study because of all the behaviors in the socio-emotional cluster, it was the easiest to measure in a classroom setting. "Substantive interaction" is a term which covers most of the behaviors in categories II, III, and IV, although admittedly in a more general way. In this study, it refers to any teacher-student interaction involving the content of a lesson. It does not refer to interactions around behavior or directions. "Higher order questioning" and "wait-time" were selected because they are easily measured and because this researcher believes them to be extremely powerful conveyors of expectations. "Higher order questioning" distinguished between questions that require short, rote, convergent answers and questions which require

TABLE 1-1: BEHAVIORS THAT CONVEY EXPECTATIONS

I. Socio-Emotional Climate
Smiles at Student
Nods Head Approvingly or Leans Toward Student
Sustains Eye Contact
Positions Self Physically Close to Student
II. Feedback after Student Question or Response
Positive Verbal Response
Positive Nonverbal Response
Negative Verbal Response
Negative Nonverbal Response
No Response
III. Input (Substance to be Learned)
Difficulty of Task
Amount of Direct Teaching
IV. Output (Encouraging Responsiveness)
Asks Higher Order Question
Calls on Student
Wait-time

The categorical divisions for grouping these behaviors and the designation of these specific behaviors were suggested by Robert Rosenthal, (1973), as a way of organizing the findings of numerous studies in this field.

\* \* \*

more divergent and/or analytical thinking to answer. "Wait time" is the interval between the time a teacher calls on a student to answer and the next intervention of any kind on the part of the teacher.

The interventions that will be used to bring about these changes in behavior are of four types:

One: Simulations in which the teachers experience at their own level many of the important factors operating in the dynamics between expectations of teachers and pupil performance;

Two: Didactic teaching of relevant information on the role of interpersonal expectations as a variable in the classroom and on teacher behaviors that communicate these expectations;

Three: Feedback to the teachers on the results of classroom observations;

Four: A self-monitoring device, on which teachers will rate their performance of the identified behaviors on a weekly basis.

Twenty teachers were selected for this study. Ten teachers constitute the experimental group and ten the control group. Teachers are matched by grade level and school. The only requirements for teacher participation will be 1) that they volunteer for this study after hearing its purpose and projected design, and 2) that on some regular basis they instruct their class as a whole during some part of the language arts and reading programs. The latter is not essential to the dynamics being scrutinized in this study, but will facilitate the collection of relevant data; it would be more difficult to devise uniform observation

procedures if some of the teachers taught in a totally open classroom structure and others taught in the more traditional structure.

### An Overview of the Implementation of the Study

In early fall (October) the participating teachers were identified and baseline data were provided by systematic observations of each teacher.

Following the initial observations, experimental teachers participated first in a six-hour training session consisting of relevant simulations and didactic interventions; then, during the following week, they participated in a two-hour follow-up session that completed the workshop sequence.

After the training was completed, each teacher examined the results of the initial observation in a private feedback session with the researcher and analyzed the data to glean learnings regarding the expectations she/he might be conveying to individual students or groups of students.

Each week, for a period of fifteen weeks following the training, participating teachers then filled out a self-monitoring device designed to help them to monitor their own behavioral expressions of their expectations. Six months after the initial training, post observations were performed to measure teachers' long-term behavior changes.



### Statement of Limitations

The body of literature reviewed in Chapter II shows that research efforts have established certain correlations between teachers' expectations, teacher behaviors, and student achievement. While the training program developed in this study aims at changing teacher expectations and the behaviors that reflect them, the measurement component focuses only on the teachers' behaviors. For the purposes of this study, the internal attitudinal phenomenon of expectations is defined in terms of its behavioral correlates. One limitation of this study is that it does not attempt to measure directly changes in teachers' internal attitudes. Nor does the study attempt to measure changes in student achievement. In other words, for the validity of its approach, this study relies heavily on effects established by other research and does not attempt to reestablish correlations flowing directly from interventions used in this study.

Another limitation of this study is that it begins by measuring the effects of a cluster of four interventions without assessing the relative power of each of the four in the observed results. Following this study, subtractive research could be helpful to determine whether or not a subset of the interventions could achieve equally powerful effects.

## Outline of the Dissertation

Chapter II will be devoted to a review of the theoretical and experimental literature on interpersonal expectations. A review of such literature will establish the importance of interpersonal expectations as a key variable affecting educational outcomes and develop a case for an explicit teacher training program on this variable consistent with the values of humanistic education. The review of the literature will focus on these topics:

1. Organization and interpretation of expectation literature.
2. The relationship between the teacher expectancy effect and the social evils of poverty and prejudice.
3. The self-fulfilling and self-perpetuating nature of the teacher expectancy effect.
4. Behaviors that have been identified as mediators of the expectancy effect.

Chapter III, "Methodology", describes the specific goals of the training program developed in this study, as well as the research design used to evaluate the program's effectiveness. Topics developed in the chapter include:

1. The specific hypotheses tested.
2. The actual research design, including a description of the teachers involved in the study, the

observation and measurement procedures used, the variables involved in the observations, and the training of the observer.

3. An over-view of the treatment which outlines the implementation and measurement schedule and describes the specific experimental conditions.

Chapter IV describes the specific interventions which constitute the training program implemented and evaluated in this study. The description of the treatment is divided into five sections:

1. The six-hour training design aimed to increase teachers' understanding of the dynamics of the expectancy phenomenon.
2. An anecdotal account of the actual implementation of the major six-hour training workshop.
3. The two-hour follow-up session which concentrated on encouraging specific teacher behaviors identified as important conveyors of appropriate teacher expectations.
4. The self-monitoring devices used to keep teacher awareness alive over time and to help teachers systematically to incorporate appropriate behaviors into their teaching repertoires.
5. The procedures and the forms used to give teachers feedback on the results of initial classroom observations, so that they could pin-

point specific areas of need in their own classrooms and personalize the problem of discriminatory behaviors based on inappropriate expectations.

Chapter V, "Results, Discussion and Conclusions" presents statistical results which substantiate the success of this study and explores the study's implications for further educational efforts. Topics include:

Statistical procedures and results.

Conclusions based on the results of the study, including the applicability of this study to other audiences and variations in the delivery system.

A personal statement by the author on the meaning this study has had for her and her hopes regarding its future use.



## CHAPTER I I

### REVIEW OF THE LITERATURE

#### Introduction

Rarely does educational research have widespread impact. However, in 1968, when Lenore Jacobson and Robert Rosenthal published Pygmalion in the Classroom, their findings jolted the American educational community and stirred the imagination and conscience of the American public.

What the American public understood was that in one school teachers had been led to expect, through falsified test data, that certain students would "bloom" that year; and simply and solely because of their teachers' induced expectations, these students did bloom. Their I.Q. gain in a reasoning subtest was seven points greater than the gain of the control group, and the over-all gain for the experimental group was four points above the controls.

Among educators these findings sparked a heated debate and motivated numerous subsequent research studies. The debate centered mainly on the Rosenthal-Jacobson research design (Snow, 1969; Taylor, 1970) and their analysis of data (Thorndike, 1968). The follow-up studies were primarily of three types: 1) those that attempted to replicate the Intellectual Bloomer Study, 2) those that attempted to increase our knowledge regarding how and why teacher expectations affect student achievement, and 3) those that

sought to determine the nature of the formation of teacher expectations.

It is not the purpose of this chapter to examine the above-mentioned debate nor the implications of the controversial follow-up studies, since this has been done extensively and adequately elsewhere (Finn, 1972; Kester & Letchworth, 1972; Brophy & Good, 1974) and with similar conclusions: Irrespective of weaknesses in the original Jacobson-Rosenthal work and irrespective of the results of any other isolated study, work done by a large number of researchers over the past several years supports the findings that teachers do hold differential expectations regarding students' probability of achieving; these differential expectations can inappropriately affect the way teachers interact with students; and the resulting patterns of teacher-student interaction can affect students' ultimate achievement.

This chapter will present samples of the literature which has helped researchers to draw the above conclusions. However, the primary purpose of the chapter will be to provide a context for the present study -- a study which attempts to mitigate the negative effects of the teacher expectancy effect by changing teacher behaviors. The chapter will provide this context in three ways: first, by showing how this study relates to the total body of current expectation literature; second, by documenting the special need

for expectation research in urban settings; and third, by reviewing studies which explore teacher behaviors communicating expectations.

Section one will describe several studies that represent the range of expectation studies and will present a schema for organizing the abundant expectation literature.

Section two than explores the powerful relationship between the teacher expectancy effect and the social evils of poverty and prejudice -- a relationship which underlies the particular appropriateness of this study's Philadelphia setting. It also describes studies of the means by which the social evils are directly translated into the teacher expectancy effect.

Section three then reviews studies which describe the self-fulfilling nature of the teacher expectancy effect and provide support for focusing in this study on teacher behavior change.

With Sections one, two, and three as background, Section four then presents the body of literature most specifically relevant to the current study -- namely, studies that identify specific teacher behaviors that contribute to the expectancy effect on students.

#### Organization & Interpretation of Expectation Literature

To date there are many more than sixty studies which bear directly on the phenomenon of the teacher expectancy

effect. (Rosenthal, 1973, refers to 264 different studies.) This section will present a sampling of these studies to illustrate the range of settings and experimental designs involved in that conglomerate. The sampling will provide a basis for a proposed schema for organizing and understanding the body of expectation research. The schema, in turn, will provide a context for this study.

In an article in Psychology Today (1973) Rosenthal describes two experiments he conducted with Kermit Fode which were instrumental in shaping the Intellectual Bloomer Experiment:

In the first study of this problem, over a decade ago, Kermit Fode and I asked 10 students to be "experimenters". We gave each experimenter, in turn, about 20 subjects. The experimenter showed each of his subjects a series of faces, which the subject rated on 'degree of success or failure' from +10 to -10. We had previously selected photos that most people consider quite neutral.

We gave our experimenters identical instructions on how to administer the test, with one exception. We told half of them that the 'well-established' finding was that the subjects would rate the photos positively; we told the rest that subjects would probably rate the photos negatively....In spite of the fact that all experimenters read the same instructions to their subjects, we found that they still managed to convey their expectations. Experimenters who anticipated positive photo ratings got them, while those who expected negative ratings got them too. How did the experimenters silently let their subjects know what they wanted? John Adair and Joyce Epstein repeated this experiment and tape-recorded the experimenters reading the instructions. They got the same results we did, and then repeated their experiment, this time using only the tape recordings of their



experimenters to instruct their new sample of subjects. They found that subjects exposed only to these tape recordings were just as much influenced by their experimenters' expectations as were those subjects who had experienced "live" experimenters. Apparently, tone of voice alone did the trick. (Rosenthal, 1973, 57)

The second Rosenthal-Fode experiment not only produced significant expectancy results, but gave rise as well to interesting interpersonal dynamics:

Fode and I told a class of 12 students that one could produce a strain of intelligent rats by inbreeding them to increase their ability to run mazes quickly. To demonstrate, we gave each student five rats which had to learn to run to the harder of two arms of a T-maze. We told half of our student-experimenters that they had the "maze-bright", intelligent rats; we told the rest that they had the stupid rats. Naturally, there was no real difference among any of the animals.

But they certainly differed in their performance. The rats believed to be bright improved daily in running the maze -- they ran faster and more accurately -- while the supposedly dull animals did poorly. The "dumb" rats refused to budge from the starting point 29 percent of the time, while the "smart" rats were recalcitrant only 11 percent of the time.

Then we asked our students to rate the rats and to describe their own attitudes towards them. Those who believed they were working with intelligent animals liked them better and found them more pleasant. Such students said they felt more relaxed with the animals; they treated them more gently and were more enthusiastic about the experiment than students who thought they had dull rats to work with. Curiously, the students with "bright" rats said that they handled them more but talked to them less. One wonders what students with "dull" rats were saying to those poor creatures. (Rosenthal, 1973, 57)

The Clifford Pitt study, conducted in 1956, has interesting implications for teachers even though the experiment failed to produce any expectation effect that could be measured by I.Q. or achievement test scores. Pitt attempted to induce certain expectations in teachers by altering the I.Q. scores of 165 fifth grade boys. He randomly inflated the scores of one-third of the boys, deflated the scores of another third, and reported one-third accurately. Achievement test data and school grades taken at the end of the year provided no support for the expectancy effect hypothesis. However, there were some effects on a self-report measure administered to the boys themselves at the end of the year. The boys whose I.Q.'s had been lowered felt that they did not work so hard at their school work as other boys, that school work was more difficult for them, that the teachers were harder in grading them, and that in general school was less enjoyable for them. Thus, the treatment affected the boys' feelings about themselves and about school, although this effect was not strong enough in the short run to affect the boys' achievement scores.

In 1970 King conducted five studies which exemplify how the expectancy effect has been tested outside traditional educational settings. Three of these studies involved workers being trained to be press machine operators, welders, or auto mechanics in Manpower Training Programs; one involved nurses aides being trained by a nursing school

in a hospital; and one involved women being trained in electronics assembly line skills in a factory. In each case, superintendents were informed that tests had shown that certain trainees had special potential for this type of job. At the end of the experimental period a variety of product measures were used to assess expectancy effect -- standardized tests, peer ratings, absenteeism rates, and general overall ratings of performance on criterion referenced tests of the job skills being taught. Expectation effects were observed in four of the five experiments on most or all of these measures. (King, 1970)

Palardy (1969) found expectancy effects while exploring the popular belief that girls learn to read faster and earlier than boys. He identified five teachers who did not expect boys, on the average, to learn to read as well or as fast as girls in the first grade and five teachers who did not expect sex to make any difference. He then used achievement test scores in the spring to measure the boys' actual achievement in these teachers' rooms. What he found was that when teachers did not expect boys to learn as well as girls, they did not; and when teachers didn't expect there to be a difference, there was no difference.

Beez (1968) obtained expectancy effects with graduate students tutoring Head Start children. Each tutor was given twenty word-cards and instructed to teach the tutee as many as possible. Children were randomly assigned, and half the

tutors were told they were working with a low-ability child; half were told they were working with a high-ability child. Not only did testing reveal a significant expectancy advantage for the high-expectancy group (they learned an average of 6 words, in contrast to an average of 3 words for the other group), but observations of the tutoring sessions showed that in every case the major cause of this difference was the number of words that tutors tried to teach. Tutors with high expectations attempted to teach an average of 10.4 words, while tutors with low expectations attempted an average of 5.9 words. Among the other variations in tutor behavior observed was the fact that tutors with low expectations spent much more time in non-teaching activities.

This brief sample of studies of expectancy effects just presented contains all the major variables in the schema Brophy and Good propose for organizing the body of expectation literature. The schema can be outlined as follows:

- I. Studies measuring the effects of induced expectations:
  - A. Studies that include product data only.
  - B. Studies that include process data only.
  - C. Studies that include both product and process data.
  
- II. Studies measuring the effects of naturally formed expectations:
  - A. Studies that include product data only.
  - B. Studies that include process data only.
  - C. Studies that include both product and process data.



As can be seen from the outline, the major distinction between studies is whether they deal with expectations that are induced experimentally, or formed naturally. In the above experiments, Rosenthal-Fode, King, and Pitt induced certain expectations by manipulating the data the subjects received. The Intellectual Bloomer study was of this type. Obviously certain ethical questions arise when falsifying data. In addition, when an experimenter is trying to test for an expectancy effect, he/she must consider whether or not the desired expectations were ever successfully induced in the first place. Many of the experiments which attempted to replicate the Rosenthal study and failed are questionable for this reason. (Brophy & Good, 1974, 46-54) The widespread publicity of the Intellectual Bloomer Study made it difficult to find a group of teachers naive to this particular experimental paradigm. Then again, if the teachers place little faith in test results per se (the major expectancy inducement treatment) or have little faith in the experimenters ("What do these university people know!") especially when the experimenters are violating judgments the teachers have already formed for themselves, then it is highly unlikely that the teachers will adopt the expectations the experimenter intends them to have.

Naturalistic studies, on the other hand, are concerned with expectations that are formed through natural channels. With teachers, these channels usually include firsthand

interaction with students, I.Q. scores, examination of students' past achievement records, popular beliefs, myths, or stereotypes, family resemblances, reports from other teachers, and tracking system labels. The studies attempt to measure the correlation between teachers' expectations regarding students' probable achievement and 1) those students' actual achievement, and/or 2) the teacher's patterns of behavior with these students. The Palardy study mentioned above exemplifies such a naturalistic study. The numerous studies examining the results of tracking systems offer other important examples. (Mackler, 1969; Pidgeon, 1970; Husen & Svensson, 1960; Burstall, 1968; Douglas, 1964; Tuckman & Bierman, 1971)

While naturalistic studies do not lend themselves to the careful controls of the laboratory, neither do they contain the problems inherent in inducing expectations.

Naturalistic studies have produced a bulk of unequivocal data that support the existence of the teacher expectancy effect. Nearly every study in this category has yielded positive results of one type or another. (Brophy and Good, 1974, 120) (For an exhaustive analysis of the studies in this category, see Brophy and Good, 1974, 78-128.)

Within each of the two major categories Brophy and Good propose in their organizational schema (induced vs. naturally formed expectation studies), there are three

subcategories -- studies which yield only product data, studies which yield only process data, and studies which yield both product and process data.

Product measures include I.Q. tests, achievement tests, sociometric popularity traits or behaviors and normative devices which measure the student on variables of interest and allow analysis of his/her progress on these variables during the course of the experiment in comparison with the progress of other students. (Brophy & Good, 1974, 43)

Experiments using process measures look for predictable group patterns in student-teacher interactions. Once product measures were used to establish the reality of the expectation effect, process measures were needed to discover causal relationships. Many process studies are described in Sections two and four in this chapter.

The Brophy and Good schema is useful for organizing the majority of experimental literature to date. However, it is time for the educational community to provide literature for a new category, an "applied science" category, so to speak. Applied science experiments would assume the reality of the expectancy effect as established by experiments in the above categories, would draw on the results of previous experiments which have identified causal dynamics, and would be designed to harness accumulated knowledge to produce important effects on teachers and students. This present study would fit in such a category called "Educational Interventions".

Brophy and Good (1972) report one major experiment that involves an educational intervention related to teacher expectations. This study by Brophy and Good was extremely thorough, comprehensive, and effective. Many aspects accounting for its effectiveness stem from sound, well-documented practices and suggest practical procedures for other educational interventions attempting to effect any type of teacher behavior change. For that reason, several of the steps in the Brophy and Good paradigm are incorporated into this present study.

Basically, the study consisted of four parts:

1) Teachers were asked to rank students in order of expected achievement. Based on teachers' rankings, three "high" boy and three "high" girl students were selected for observation.

2) During the first semester teachers were observed for a total of 40 hours each. Observers used the Dyadic Interaction Observation System -- a system designed to record all dyadic contacts (15 observation categories) between a teacher and an individual student, while emphasizing those contacts related to school work that had been found to be most related to communicating expectations of academic achievement. (Brophy & Good, 1970b) Brophy and Good report that data were then tabulated separately for each student, with each student receiving two scores -- a mean score that reflected the quantity of contacts with the



teacher, and a percentage score that reflected the quality of these contacts. It was found that students ranked as "high" were the recipients of significantly more appropriate teacher attention, in terms of quantity and quality.

3) In a single interview, teachers were given specific feedback about their interaction with four types of students: low participation students (those with whom the teacher had a low number of interactions); the extension group (those students the teacher tended to "give up on" if they answered incorrectly the first time); and a contrast group for each of the above (a group the teacher was treating appropriately in contrast to the low participation and extension groups).

4) During the second semester, observers collected data for another 40 hours, with the following results;

The effects of the treatment for the extension students were rather general across teachers but mostly confined to the measures of teacher behavior in staying with students following failure. For the most part, the advantages accruing to the extension students as a result of the treatment were not gained at the expense of classmates (although there was one exception), and the extension group treatment sometimes radiated to the benefit of classmates.

The treatment regarding low participation students showed large gains in the frequencies of response opportunities and interactions that they were afforded by the teachers following the treatment. In a sense, these quantitative gains were at the expense of their classmates, since the mean for the classmates tended to go down in most classes where the mean for the low participation students went up. However, the effect of the treatment was

to more nearly equalize response opportunities in teacher-student contacts for low participation students and their classmates, rather than to make the teachers spend most of their time with low participation students and begin to ignore their classmates. Further, even after the considerable improvement following treatment, most of the measures of frequency of contacts with teachers showed low participation students to be still behind their classmates, even in the second semester. (Brophy and Good, 1974, 290-291)

Even though Brophy and Good sought to develop an intervention procedure with widespread applicability, their treatment failed in this respect for two reasons: 1) The observation instrument is lengthy and difficult for people to use if they are not highly trained as observers. 2) In order to establish credibility with teachers and reduce teacher defensiveness, they use a large number of initial observations. Rarely will anyone working with teachers be able to approach 40 hours with an individual teacher.

This present study, therefore, combines the awareness-raising power of simulations and a dydactic presentation of the compelling research information on teacher expectations with a much shorter teacher observation period. Used together, these approaches establish credibility and promote observable behavior change with teachers.

The practical, well-documented principles and/or procedures in the Brophy and Good study that were incorporated into this present study follow:

1) Awareness-raising in teachers promotes teacher behavior change. (For an example of support for this principle see Emmer, Good, and Pilgrim, 1972, on the effects of set induction on teacher behavior.) It is basic to this study and to the Brophy and Good study that teachers usually do not act inappropriately toward students out of malice, but rather out of lack of awareness and alternatives.

2) Teachers benefit from direct feedback about their classroom behavior...(Tuckman, McCall, and Hyman, 1969), particularly when it is coupled with specific prescriptive advice (Gage, Runkel, and Chatterjee, 1960).

3) Teacher defensiveness is reduced a) by using a contrast group (in this study the contrast students were identified during the feedback session), and b) by basing the feedback on the data alone.

Even though there is a dearth of experiments attempting to mitigate the teacher expectancy effect directly, many educational interventions have been developed to effect changes in the specific teacher behaviors described in Section four which have been shown to communicate expectations. These related interventions that focus on individual behaviors are an important, but incomplete, resource for Educational Interventions designed to Influence Teacher Expectations.



The Relationship Between the Teacher Expectancy  
Effect and the Social Evils of  
Poverty and Prejudice

One group of studies establishes the teacher expectancy effect as a social, not just an educational, problem. These studies demonstrate a high correlation between low teacher expectations and certain socio-economic and racial characteristics of students.

1. Socio-economic status. Miller and associates (1969) asked teachers to predict the future academic success of four fictional first-grade students, based on case history reports. The students were matched for I.Q., school grades, and history of behavior problems. However, teachers were led to believe that two of the students came from middle class homes and two from lower class homes. Teachers rated the middle class students higher on ten of twelve scales, even though students were matched on the seemingly more relevant variables.

Similarly, Goodwin and Sanders (1969) asked teachers to rank the importance of seven variables as predictors of future success for first and sixth-grade students. Socio-economic status was ranked number one for the first-grade pupils, followed by I.Q., standardized test scores, age, sex, anecdotal notes, and, finally, grade-point average. For the sixth-graders, standardized test scores were first followed by grade-point average. Socio-economic status still ranked above I.Q., age, and anecdotal notes.

Friedman and Friedman (1973) studied twenty-four fifth and sixth-grade classrooms to ascertain the relationship between teacher reinforcing behavior and student social class. They found that significantly more total reinforcements, and especially nonverbal reinforcements, were given to middle-class children than to lower-class children. In 1940 Davis and Dollard found similar results.

Eleanor Leacock (1969) compared second and fifth-grade classrooms in four New York City schools matched or contrasted according to certain socio-economic and racial criteria. Included in the study were one lower-income "Black" school, one lower-income "White" school, one middle-income "Black" school; and one middle-income "White" school. Classroom observation as well as teacher and student interview data were analyzed in detail, according to the following categories:

- 1) the nature and clarity of the teacher's teaching concept, particularly with regard to the integration and development of curriculum content; 2) the depth, richness, and variety of the curriculum content; 3) the style of learning and thought being encouraged in the classroom; 4) the value content of classroom materials; and 5) the relation of curriculum content to the children's experiences. (Leacock, 1969,23)

Leacock points to the feedback pattern of the second-grade teacher in the lower-income "Black" school as illustrative of the failure syndrome created in such schools. "The teacher in the low-income all-Negro school both re-

flects and creates the expectation of defeat for the children in her class. She is the teacher whose response to the children's work was negative twice as often as it was positive..." (Leacock, 1969, 139)

Leacock reports further:

The teachers of the fifth and second grades in the lower-income Negro school, at first impression, did not seem unsupportive of the children....Both, however, shared a derogatory attitude toward the children and their potentialities as groups. The second-grade teacher denied much of what the children offered from their own experience...The fifth-grade teacher...continually derogated and undermined the children's academic contributions. In both classrooms, the children were constantly receiving the message, "You are not going to do very much." The researchers were struck by the fact that standards in the low-income Negro classrooms were low for both achievement and behavior. They had assumed that the middle-income schools would stress achievement and that the lower-income schools would emphasize behavior. Yet it was in the middle-income schools, both Negro and white, that the strictest demands were made. (Leacock, 1969, 155)

Leacock's findings emphasize, in particular, the differences in teachers' goal-setting statements for the different socio-economic status students.

What we observed in the classroom was not the attempt to "impose middle-class goals" on the children, but rather a tacit assumption that these goals were not open to at least the vast majority of them. The "middle-class values" being imposed on the low-income Negro children defined them as inadequate and their proper role as one of deference.

Despite the fact that some teachers in the low-income schools stated they felt a responsibility to set "middle-class standards" for the children, their lowered expectations were expressed by a low emphasis on goal-setting statements altogether. In a three-hour period, clear-cut overt goal-setting statements numbered 12 and 13 for the low-income Negro school, 15 and 18 for the low-income white school and 43 and 46 for the middle-income white school. (Leacock, 1969, 205)

Ray Rist, in his provocative study (1970), identified the role that cultural expectations play in the formation of low teacher expectations and the resulting effect on student achievement. The teachers he observed were all Black teachers dealing with Black students.

The study began at the kindergarten level. Each kindergarten teacher in the study had several sources of information available to him/her before the students ever came to school, although not a single source was related directly to the academic potential of the incoming kindergarten child. "Rather, they concerned various types of social information, revealing such facts as the financial status of certain families, medical care of the child, presence or absence of a telephone in the home, as well as the structure of the family in which the child lived: i.e., number of siblings, whether the child lived with both, one, or neither of his natural parents." (Rist, 1970, 418)



Within eight days of starting school, the students had been placed in "ability" reading groups which were shown to remain basically the same in composition until at least the end of the Rist study three years later.

As Rist observed students in the reading groups, he discovered that the students at Tables 1, 2, and 3 became increasingly dissimilar according to a number of criteria. First of all, students' physical appearances were noticeably different. Students with darkest skin, shabbiest clothes and worst body odor were all at Table 3. Secondly, students at Table 1 seemed most at ease in their interactions with one another and the teacher, especially when initiating contacts with the teacher. The use of language within the classroom appeared to be the third major differentiation among the children. While students at the first table were most verbal and used more standard English, students at the third table were least verbal and used more dialect. The final criterion by which the children at the first table were quite noticeably different from those at the other tables consisted of a series of social factors which were known to the teacher prior to her seating the children.

TABLE 2-1: DISTRIBUTION OF SOCIO-ECONOMIC STATUS FACTORS  
BY SEATING ARRANGEMENT AT THE THREE TABLES  
IN THE KINDERGARTEN CLASSROOM

Factors	Seating Arrangement*		
	Table # 1	2	3
Income			
1) Families on welfare.....	0	2	4
2) Families with father employed.....	6	3	2
3) Families with mother employed.....	5	5	5
4) Families with both parents employed.....	5	3	2
5) Total family income below \$3,000./yr.**	0	4	7
6) Total family income above \$12,000./yr.**	4	0	0
Education			
1) Father ever grade school.....	6	3	2
2) Father ever high school.....	5	2	1
3) Father ever college.....	1	0	0
4) Mother ever grade school.....	9	10	8
5) Mother ever high school.....	7	6	5
6) Mother ever college.....	4	0	0
7) Children with pre-school experience.....	1	1	0
Family Size			
1) Families with one child.....	3	1	0
2) Families with six or more children.....	2	6	7
3) Average number of siblings in family....	3-4	5-6	6-7
4) Families with both parents present.....	6	3	2

\* There are nine children at Table 1, eleven at Table 2, and ten children at Table 3.

\*\* Estimated from stated occupation.

(Rist, 1970, 421)

Rist hypothesized that the above criteria became for teachers indicative of expected success and others became indicative of expected failure. Those children who closely fit the teachers' "ideal type" of the successful child were chosen for seats at Table 1. Rist further speculated that the criteria upon which the teachers constructed this ideal



version of the successful student rested in their perception of certain attributes in the child that they believed constituted success in the larger society. One particular teacher's normative reference group, for example, was a mixed Black-White, well-educated middle class. Those attributes most desired by educated members of the middle class became the basis for her evaluation of the children. "The organization of the kindergarten classroom according to the expectation of success or failure after the eighth day of school became the basis for the differential treatment of the children for the remainder of the school year. ....The fundamental division of the class into those expected to learn and those expected not to permeated the teacher's orientation to the class." (Rist, 1970, 423)

By the time the children reached the second grade, their grouping assignments appeared to be based not on the teacher's expectations of how the child might perform, but rather on the basis of past performance of the child. Still there was no mobility between groups.

When Mackler (1969) studied the effects of tracking systems in Harlem, he reported findings similar to Rist's. Kindergarten teachers grouped children according to such valued traits as politeness, passivity and listening to and following directions. Eventually it was the kindergarten teachers' evaluation of students along these dimensions that determined the "track" the students were placed

in early in the first grade. Students who had not attended kindergarten were automatically placed in the lower tracks. Once placed, students in subsequent years rarely changed from their original first-grade placement.

Three of the largest studies analyzing the effects of ability grouping (Douglas, 1964; Goldberg, Passow, and Justman, 1966; Husen and Svensson, 1960) support the above findings. Children of higher socio-economic status tend to be placed in higher tracks than their measured ability would predict. Furthermore, once placed in a given track, students tend to stay there. Less than 5% move, and that movement is most often downward.

Tuckman and Bierman experimented with reassigning students in a tracking system. Four hundred twenty-one Black junior high and senior high students were randomly and unobtrusively assigned to the next higher ability group in a suburban city school system. Three hundred eighty-four comparable students were retained as controls. At the end of the year teachers recommended that 54% of those moved up be retained in the higher tracks. Only 1% of the controls were recommended for a higher placement. Experimental students in the higher tracks scored as well on achievement tests, received comparable grades, and attended school as regularly as other highs. They did significantly better in every way than the controls who remained in their original placements. Lows who had been

reassigned to a middle track did not do as well as controls, according to report card grades. However, they did do significantly better than controls, according to test scores, and their attendance and school satisfaction ratings were similar.

The tracking system unquestionably affects the attitudes and expectations of students, teachers and parents, and contributes to the continued failure of many students. On the other hand, parents and teachers, in attempting to change this system, could find themselves in a double bind. Wasserman (1974) claims that the absence of tracking in low socio-economic schools, particularly Black schools, is equivalent to thrusting the entire student body into the "low group". A tracking system gives a small portion of students labeled "fast" a semblance of a chance, because colleges and potential employers might consider them exceptions.

2. Race. The degree to which race is a determiner of teacher expectations is greatly confounded by an overlapping of race with socio-economic status. In our society, controlling for socio-economic status too frequently has the effect of controlling for race as well. Despite the fact that Leacock (1969) found it difficult to locate middle-class Black schools for her study, she was able to conclude that socio-economic status was more relevant

a variable than race. However, she did uncover a disturbing race-related finding.

In the middle-income white school, the children toward whom the teacher felt most positive had an average I.Q. score some eleven points higher than those toward whom she felt negative. Those toward whom she felt neutral fell in between, although closer to the high than the low scorers. This was not the case in the low-income Negro school. Here the children about whom the teacher felt positive or neutral had an average I.Q. score almost ten points lower than those about whom she felt negative. As to "ability" and achievement, the average reading-achievement scores in the middle-income classroom followed I.Q. scores, while they did not in the low-income Negro school. In the latter, average reading achievement was the same for the different I.Q. groups. Although far from being completely culture-free, I.Q. tests are at least more so than reading-achievement tests, and they indicate the untapped abilities of those more creative, hence often more problematical, children who are rebelling against the constrictions of school and society. That they often express the frustration felt by the group as a whole is suggested by a further finding. In the middle-income school the popularity of the better readers and unpopularity of the poorer readers was clear. In the low-income school, however, it was the slightly better readers with the average I.Q. who were, as a group, more unpopular than the poorer readers with the higher I.Q.  
(Leacock, 1969, 136-7)

In a study using white and Black students, with the same white teachers, Rubovits and Maehr (1973) found that the "gifted Black" students were the least liked, most ignored, and most criticized students, even in comparison to their "nongifted" Black counterparts. Attitudes and behaviors on the part of teachers could not be accounted for by



student behavior because the students in this study had been randomly labeled as "gifted" or "nongifted".

The teachers in the Rubovits and Maehr study were relatively inexperienced in dealing with Black students and probably did not expect to find gifted Blacks. If so, Rubovits and Maehr's findings are not surprising. There is much evidence to show that teachers are not happy with students who violate their expectations, even when these "violations" are in a positive rather than negative direction. (Jacobson & Rosenthal, 1973b; Brophy & Good, 1970; Jeter & Davis, 1973; Shore, 1969)

Coates (1972) conducted an experimental study similar to Rubovits and Maehr's. In this study, adult men and women taught learning problems to one of four nine-year-old boys (two Black, two White) who were following the directions of the experimenters. While each adult worked with a child, he or she could see the child, but not his responses. The adults received feedback suggesting that the child was slowly and gradually learning the problem. After each response from the child, the adult received information about the correctness of that response. The experimenter gave the same feedback to all adult participants about each of the four children. The adult then had to select a feedback statement for the child from a list of five that represented a scale from criticism to praise. When the session with one child was completed, the adult

filled out an adjective description rating of that child. Data analysis of the feedback statements the adults made to children during the teaching time revealed that the women treated the Black and White children similarly, while the men showed greater negativity toward the Black children. However, on sixteen of the nineteen trait-rating scales, the child's race proved to be a significant factor for both men and women. They rated the Black boys more negatively (e.g. as dull, unfriendly, and passive) than they rated the white boys.

In Yee's study of teacher and student attitudes (1968), student race and ethnicity, as well as student socio-economic status, were shown to influence teacher attitudes. Middle-class White students were viewed most favorably by teachers, followed by lower-class White students, lower-class Mexican-American students, and finally, lower-class Black students. This held true despite the fact that most teachers of the Black students were Black.

While the influence of race on the formation of teacher expectations has probably not as yet been adequately researched, evidence to date does suggest that being Black or a member of any minority for that matter (Kleinfeld, 1972; Yee, 1968) can negatively affect teacher expectations. Certainly, being both Black and poor at this time in history is an ill-fated combination that is likely to breed teacher behaviors that impede student success in school.



The Self-fulfilling and Self-perpetuating Nature  
of the Teacher Expectancy Effect

Section Three outlines the self-fulfilling, spiraling nature of the teacher expectancy phenomenon and points to the need to end discriminatory teacher behaviors stemming from low teacher expectations.

Low teacher expectations can set in motion a vicious, self-perpetuating cycle of teacher and student behaviors. The cycle is triggered when low teacher expectations result in inappropriate behaviors on the part of the teacher which ultimately result in the low-expectation students learning less. Inappropriate behaviors include undesirable behaviors, such as telling a student that he/she probably cannot do the work at hand, as well as the absence of certain desirable behaviors, such as reinforcing student responses.

The pattern begun by the teacher in the Rist study (1970) is illustrative. By the eighth day of school one teacher had grouped her students. From that day forward this teacher spent more time teaching the "brighter" students at table one, interacted with them more frequently and more positively, assigned them all the positions of leadership and responsibility, held them up as examples to the rest of the class, demonstrated lessons on the section of the blackboard nearest them, and, when incorporating personal experiences into lessons, used "middle-class"

content that the students at table three frequently could not identify with. This pattern was continued by the first and second grade teachers.

The general pattern of teachers toward low-expectation students simply exacerbates variabilities among student performances. Pidgeon (1970), in two separate studies, compared the achievement levels of students from twelve different countries. He found the greatest variability in student achievement in countries such as Britain that have rigid tracking systems.

Douglas (1964) examined the effects of tracking on eight-year-olds in British schools. He compared their relative achievement at age eight and at age eleven. The results were clear, significant and consistent. The achievement of high-track students improved; the achievement of low-track students deteriorated, stagnated or, at best, improved only slightly. The gap between "highs" and "lows" widened dramatically.

Related to student achievement, of course, are the effects of low teacher expectations on student motivation. Low teacher expectations can lower the morale of students and teachers alike (Leacock, 1969), affect students' self-concepts (Pitt, 1956), and cause students to respond with passive, indifferent, or disruptive behavior (Silberman, 1971; Rist, 1970).

Student behavior and achievement, in turn, reinforce and shape teacher expectations. The latter effect is most acute with reactive and particularly overreactive teachers. Reactive teachers are those who are passive and who generally act responsively to students. They do not tend to be in control of the interaction between teacher and student. This type of teacher will show the greatest expectancy effect on measures related to student initiation. The overreactive teacher is one who over-generalizes and over-compensates for what she/he might see in the students. This type of teacher, therefore, is most likely to think in terms of stereotypical labels (bright student, troublemaker, etc.) and, thus, most inclined to exacerbate differences among students and produce expectancy effects.

(Brophy & Good, 1973)

However, given the tendency of human beings to assess people and make predictions about their future behavior based on very little contact (four minutes, according to Zunin in Contact: The First Four Minutes, 1972), combined with both the large number of students associated with any one teacher and the rapid pace of their interaction (Jackson, 1968), one can easily imagine that all teachers at times will find their behavior shaped inappropriately by the behavior of the students.

The solution to the problematic fact that negative effects of low teacher expectations have negative effects for

students is not for teachers to rid themselves of all expectations. That would be impossible, even undesirable. Nor would it be appropriate for teachers to pretend as if everyone in their classes were operating at the same level and learning at the same pace. Instead, teachers need to base assessments of students on appropriate data, be open to re-assessing student achievement and potential for achievement, and end those discriminatory practices based on low expectations that are directed either toward individual students, toward groups of students, or toward entire classes.

Behaviors That Have Been Identified as  
Mediators of the Expectancy Effect

Section Four will survey major studies that have yielded information regarding the way people, particularly teachers, communicate their expectations to students.

To date there have been at least fifty such studies with positive results. Two findings stand out consistently in the literature. First, teachers give more attention to students for whom they have high expectations. (Brophy & Good, 1973; Good, 1970; Friedman & Friedman, 1973; Jackson, 1967; King, 1971; Kranz, 1970; Meichenbaum, et al, 1969; Rist, 1970; Rothbart, et al, 1971; Tyo & Kranz, 1973; Willis, 1970.) Second, when a teacher expects more of students, she/he tries to teach them more and sets higher



standards for them. (Beez, 1968; Brophy & Good, 1970; King, 1971; Leacock, 1969; Rist, 1970.)

Differences regarding the amount a teacher attempts to teach students should be considered in two ways. Eleanor Leacock's observations (1969) suggest that the amount of actual teaching time varies by school and class. The works of Ray Rist (1970), Beez (1968), Kranz (1970) and others reviewed below reveal that substantive time also varies from group to group or student to student within the same classroom.

Robert Rosenthal analyzed forty-two studies available to him in 1973, including many unpublished manuscripts, and proposed a four-factor model for categorizing their results. The four factors Rosenthal identified are: 1) Climate, 2) Feedback, 3) Input, and 4) Output. His system is extremely helpful, first of all, in that it reduces the number of specific behaviors identified in these studies to a manageable number by clustering and relating them. The clusters, or categories, then can contribute to the identification of other important specific behaviors.

Rosenthal stresses the interrelatedness of the categories, including each as a factor only when five or more studies supported it and fewer than one-fifth of the studies relevant to each factor disagreed with it. (Rosenthal, 1973)



1. Factor one: climate. According to Rosenthal the following studies suggest inclusion of "climate" as an important factor in the transmission of expectations:

TABLE 2-2: STUDIES RELEVANT TO THE CLIMATE FACTOR IN THE MEDIATION OF TEACHER EXPECTANCY EFFECTS

Authors	Dates
1. Alpert .....	1970
2. Chaikin, Sigler, & Derlega	1972
3. Dalton .....	1969
4. Fine & McLean .....	1972
5. Fuhriman .....	1969
6. Gess .....	1969
7. Gibbs .....	1970*
8. Jose & Cody .....	1971
9. Kester .....	1969
10. King .....	1970, 1971
11. Leacock I .....	1969
12. Leacock II .....	1969*
13. Meichenbaum, Bowers, & Ross	1969
14. Page .....	1970, 1971
15. Rist .....	1970

\*This study tends to give results in the opposite direction. (Rosenthal, 1973a,15)

Several specific teacher behaviors related to climate have been identified. Brophy and Good report that Alexander, Elsom, Means, and Means (1971) had teachers deliberately treat students differentially. Students, matched on grade point average, were randomly assigned to two different treatment groups. Teachers did not use the names of students in Group One; nor did they address them during class. If the students initiated contact or asked a question, the teacher responded politely and perfunctorily.

With Group Two, on the other hand, the teachers made a point of learning and using the names of the students, and initiated conversations with them before or after class at least three times a week. Teachers were not instructed to differentiate between the two groups in any other way. At the end of the semester, a ninety-item multiple-choice test was used to assess achievement. Students who had received the personalized treatment performed significantly better than students who were ignored by the teacher. Favored students outperformed ignored students at all grade point levels, but the relative difference in performance was much greater for students with lower grade point averages.

Alan Chaikin, Edward Sigler, and Valerian Derlega asked male and female college undergraduates to teach a short unit on home and family safety to a 12-year-old boy. One third of the "teachers" thought that the boy had an IQ of 130 and did very well in school; one third thought that the child had an IQ of 85 and did poorly in school; and the last third had no information about the boy's IQ. Then the experimenters videotaped the exchange between teachers and student to see what non-verbal cues were going on.

Teachers who thought they were dealing with a bright student were more likely to smile at the boy, nod their heads approvingly, lean toward the boy, and look him in the eye for longer periods. A variety of analogous studies have found that "special-potential" subjects report their teachers or counselors as being more positive, accepting, perceptive, friendly, fond of them, and supportive. (Rosenthal, 1973, 60)

J. Page (1971) studies the effects of teacher expectations in a conditioning experiment. Twenty-five male

undergraduates were instructed to say "good" any time the subjects they saw chose to use the pronouns "I" or "we" in a sentence. Before the sessions experimenters were given bogus psychological profiles on the subjects containing data supposedly predictive of the subjects' susceptibility to this type of reinforcement. The experiment produced significant expectancy effects for the group as a whole, although there was wide variance among the individual experimenters. Analysis of videotapes showed that the experimenters who produced the greatest changes smiled much more often, had much greater eye contact with their subjects, and spent more total time reinforcing them.

Positive expectations have a self-reinforcing property that is bound to enhance student-teacher relationships. As several of the studies cited under "Output Factor" support, teachers frequently fail to notice what they do not expect to find. Meichenbaum et al (1969) changed teachers' expectations regarding certain delinquent girls by relabeling the low-prior-expectancy girls as "late-bloomers". The girls made significant academic gains which Meichenbaum attributed not to any increase in the amount of attention the girls received from their teachers, but rather to a change in the quality of teacher interaction with the students. Positive interactions increased and negative interactions decreased. Most importantly, the teachers began to notice more positive behaviors in the girls -- behaviors which,

according to observations, had been exhibited previously, but which teachers had simply failed to notice before they changed their expectations.

Support for the Climate Factor also derives from the perceptions of those who are the object of others' expectations. In particular, people held in special regard are much more likely to perceive their teacher/therapist/supervisor as being warm toward them, as well as conscientious and concerned regarding their progress, than are people not held in special regard. (Alpert, 1970, reviewed in Rosenthal, 1973a; King, 1971)

The interrelatedness of Rosenthal's categories is particularly important to remember while considering the Climate Factor. Climate in some cases may be the crucial factor, as it was, for example, in the crosscultural situations studied by Kleinfeld (1972) and Tyo & Kranz (1973). On the other hand, Leacock (1969) points out that teacher behaviors related to climate (smiling, touching, etc.) can simply be a veneer for low teacher expectations.

2. Factor two: feedback. Feedback refers to a teacher's reaction after a student has answered a question or initiated some contact. Rosenthal lists ten studies bearing on the tenability of the feedback factor as one of the mechanisms serving to mediate interpersonal expectation effects in classroom situations.



TABLE 2-3: STUDIES RELEVANT TO THE FEEDBACK FACTOR IN THE MEDIATION OF TEACHER EXPECTANCY EFFECTS

Authors	Dates
1. Beez .....	1968, 1970
2. Brophy & Good .....	1970
3. Dalton .....	1969
4. Gess .....	1969
5. Lanzetta & Hannah .....	1969
6. Medinnus & Unruh .....	1971
7. Rothbart, Dalfen, & Barrett	1971*
8. Rubovits & Maehr .....	1971
9. Rubovits & Maehr I .....	1972
10. Rubovits & Maehr II .....	1972**

\*This study gives results not supporting the hypothesis.

\*\*This study gives results in the opposite direction. (Rosenthal, 1973a, 18)

Many studies not directly related to expectations shed light on the effects of feedback. Hughes (1973) structured teacher feedback during science lessons. The teachers systematically reacted to an experimental group in a supportive manner, praising them when they answered correctly, supporting them when they answered incorrectly. Control group students' answers were acknowledged as correct or incorrect, but they received no other feedback. Achievement test results showed that positive teacher reactions do facilitate student achievement. Furthermore, "the increase in achievement of the reacting group over the non-reacting group appears to be the result of the generalized effect of



positive teacher reactions and not reinforcement of particular responses." (Hughes, 1973, 35-6)

Similarly, Tyler (1958) manipulated the feedback that students received in problem-solving situations. Results showed that students who received consistent encouragement and students who received no response at all performed significantly better than students who received consistent discouragement. However, even the discouraged group did better than the students who received inconsistent feedback -- first encouragement, then discouragement. Further analysis showed that students in the latter two groups tended to try to memorize solutions to problems rather than work them out logically. Tyler also concluded that, on the whole, the negative effects of discouragement are more extreme than the positive effects of encouragement.

Tyler's results should be considered in conjunction with Silberman's (1969): he found that the typical teacher posture toward students they have rejected is to give them frequent praise and attention on the one hand and punish them through denial, criticism, and even expulsion on the other.

Sarbin and Allen (1968) convincingly demonstrated that positive teacher feedback, both verbal and non-verbal, can effectively increase participation rates in students who are low participators, while negative feedback can decrease participation rates in students who are high participators.

Given these findings in the above studies, one would expect teachers to be most supportive of those students most in need of achievement gains. Research studies, however, consistently reveal that the opposite is the case. (Kranz, et al, 1970; Medinnus & Unruh, 1971; Rist, 1970; Rubovits & Maehr, 1973) Students perceived as brighter receive more praise and support from teachers and students perceived as duller receive more criticism.

Brophy and Good (1974) analyzed the feedback patterns of several teachers in their own classrooms, with the following results:

TABLE 2-4: GROUP DIFFERENCES FROM INITIAL STUDY ON VARIABLES RELATED TO THE COMMUNICATION OF TEACHER EXPECTATIONS (FROM BROPHY AND GOOD, 1970a)

MEASURES	LOWS	HIGHS
Percent of correct answers followed by praise .....	5.88	12.08**
Percent of wrong answers followed by criticism .....	18.77	6.46***
Percent of wrong answers followed by repetition or rephrasing the question or by giving a clue .....	11.52	27.04*
Percent of reading problems followed by repetition or rephrasing the question or by giving a clue .....	38.37	67.05***
Percent of answers (correct or incorrect) not followed by any feedback from the teacher .....	14.75	3.33***
*p < .10	**p < .05	***p < .01

In view of the highs' greater success in reading and answering questions, we were not surprised by the data in Table 2-4 showing that highs received more total praise and less total criticism than lows. However, in view of the advice given prospective teachers in educational psychology books and of our common sense predictions about teachers' reactions to successes and failures by these two contrasting groups, we had expected that the percentage measures for praise of success and criticism of failure in Table 2-4 would favor the lows.

Because the lows are successful less frequently, we assumed that a correct response from one of these children would be more significant to the teacher and more likely to elicit praise than a correct answer from one of the highs. Similarly, we expected that teachers would be less likely to criticize the lows for failure to respond correctly, because of their greater learning difficulty. However, the results were precisely the opposite. The lows were only half as likely as the highs to be praised following a correct response, and they were three times as likely to be criticized following failures. The teachers were encouraging and supportive toward the children who needed it least, but were cool and critical toward the children who most needed encouragement! (Brophy and Good, 1974, 98)

Lanzetta and Hannah's experiment (1969) adds two other important dimensions to the consideration of teacher expectations and feedback. They asked undergraduate students to teach a concept-formation task to other students. Half of the time the teachers expected the learner to show high potential for learning the task, and the other half of the time they expected the learner to show low potential. Within each of these conditions, half of the teachers were told that the lesson they were teaching was difficult, while the other half were told that the lesson was rela-

tively easy. While the teacher could see the learner, the learner, who was a confederate of the experimenters, fed pre-planned answers into a machine so that in every case the teacher received approximately thirty-six correct responses and eighty-four incorrect responses. Following each response, the teacher was given five feedback choices: a strong electric shock, a mild electric shock, a neutral light, a small monetary reward, and a large monetary reward. Results were clear: learners in high expectancy conditions received the strongest rewards and the strongest punishments. In other words, they received the clearest feedback from the teacher. Even when the task was perceived as difficult and the teacher was receiving the same number of correct answers from the low and high expectancy students, the "lows" received the small monetary reward 17% of the time, while the "highs" received it only 7% of the time.

Findings regarding criticism are somewhat mixed, as can be seen from the above studies. They indicate that criticism can convey either high or low expectations and can be helpful or debilitating, depending on the severity of the criticism, its relative balance with positive feedback, the make-up of the student, and the correlation of feedback with the climate factor.

3. Factor three: input. Input refers to the amount of actual instructing a teacher does. Rosenthal claims



that teachers tend to teach more to children of whom they expect more. Input can be said to vary if a teacher spends more time teaching certain students, or if the teacher attempts to fit more content into the same amount of instructional time. Four of the five studies cited by Rosenthal in support of the existence of the Input Factor explored the amount of content a teacher tried to convey in a given time period.

TABLE 2-5: STUDIES RELEVANT TO THE INPUT FACTOR IN THE MEDIATION OF TEACHER EXPECTANCY EFFECTS

Authors	Dates
1. Beez .....	1968, 1970
2. Brown .....	1969
3. Carter .....	1969
4. McLean .....	1970
5. Rist .....	1970

(Rosenthal, 1973a, 20)

The Beez (1968) experiment described in the introduction to this section is the classic paradigm on this factor. Beez, Brown, Carter, and McLean each followed basically the same procedure. They led teachers to believe that certain students they would be teaching showed high potential for learning a given task, while certain other students showed low potential. The teachers were then given a specified amount of time with each student. In every case the students believed to be brighter learned significantly more



than the students believed to be slower, because the teachers attempted to teach them more during that specified time.

Given the results of the studies, it seems likely that if a teacher spends more time with high expectation students, then the teacher is attempting to teach those students more. Thus, studies like those of Kester and Letchworth (1972), Good (1970) and Kranz et al (1970) that show that teachers frequently spend more time with their high expectation students can be said to support indirectly the input hypothesis.

Variances in teacher input, according to their expectations of students, were dramatically clear in the classroom observations of Ray Rist (1970). He reports that the division of students into the caste system represented by the seating arrangement at tables one, two, and three became the basis for differential treatment of the children for the remainder of the year. The teachers gave much more total attention to the students at table one (those expected to learn) than they gave to students at tables two and three. They gave these students the majority of their instructional time, sat or stood near them more often, looked at and stood near them when giving directions to the total class, and incorporated these students' personal experiences into class lessons more frequently. One teacher's rationalization for narrowing her attention to selected

students was that most of the other children "just had no idea of what was going on in the classroom". (Rist, 1970, 424). Rist tells of one teacher who, though the blackboard was long enough to extend parallel to all three tables, wrote such assignments as arithmetic problems and drew all illustrations on the board in front of the students at table one. "A rather poignant example of the penalty the children at table three had to pay was that they often could not see the board material." (Rist, 1970, 425) Rist further illustrates his point that children pay a penalty for sitting at table three with extensive observational notes. For example:

Lilly stands up out of her seat. Mrs. Caplow asks Lilly what she wants. Lilly makes no verbal response to the question. Mrs. Caplow then says rather firmly to Lilly, "Sit down". Lilly does. However, Lilly sits down sideways in the chair (so she is still facing the teacher). Mrs. Caplow instructs Lilly to put her feet under the table. This Lilly does. Now she is facing directly away from the teacher and the blackboard where the teacher is demonstrating to the students how to print the letter, "O". (Rist, 1970, 425)

The above studies on teacher input can obviously be used to explain why the gap between low-expectation students and high-expectation students widens so dramatically as the students progress through school.

4. Factor four: output. The output Factor relates to responsiveness on the part of students: i.e., the amount of "air-time" students are allowed or encouraged to

take. Research studies suggest that teachers encourage greater responsiveness from students of whom they expect much. Such encouragement might take the form of calling on these students more often, asking them more difficult questions, being willing to wait longer for them to respond, and helping to shape partially correct answers into correct answers.

TABLE 2-6: STUDIES RELEVANT TO THE OUTPUT FACTOR IN THE MEDIATION OF TEACHER EXPECTANCY EFFECTS

Authors	Dates
1. Brophy & Good .....	1970
2. Dalton .....	1969
3. Davis & Levine .....	1970
4. Gess .....	1969
5. Haskett .....	1968
6. Hersh .....	1971
7. King .....	1970, 1971
8. Rist .....	1970
9. Rowe .....	1969
10. Rubovits & Maehr .....	1971
11. Rubovits & Maehr I .....	1972
12. Rubovits & Maehr II .....	1972*

\*This study gives results in the opposite direction. (Rosenthal, 1973a, 22)

Good (1970) found that the total number of times the teachers he observed called on their high-expectation students exceeded the number of times they called on their middle and low-expectation students combined. Gess (1969) observed the same ratio. Rubovits and Maehr (1971, 1972) and Davis and Levin (1970) simply found that teachers call

on their "highs" more often than they call on the other students.

The Rubovits and Maehr study (1972), which Rosenthal lists above as not supporting the Output Factor, is the one described in Section two involving Black students. In this study, teachers dealing with high-expectation students did call on the White high-expectation students more often, but not on the Black high-expectation students.

Rothbart (1971) attempted to discover whether or not teachers give more verbal and gestural encouragements to some students than to others. In his limited setup he did not find this to be true. However, he did find that teachers paid disproportionate amounts of attention to high-expectation students and that these students responded by talking more than their low-expectation counterparts.

As can be easily seen from the Brophy and Good table reproduced under "Feedback" (p.52), encouraging output can be closely related to feedback. Brophy and Good (1970b), Rowe (1969), and Silberman (1969) found that teachers were much more likely to give high-expectation students (or, in the Silberman case, the "attachment students") a second chance and/or help shape their original response into a correct answer.

Other findings, (Kleinfeld, 1972; Tyo & Kranz, 1973), directly connect output and climate factors. In these



cross-cultural cases, verbal participation of students was found to be directly related to teacher warmth.

For schools in low socio-economic Black areas, the Hasket study (1968) cited by Rosenthal above, is particularly important because her paradigm allows one to compare the behavior of teachers across schools. Hasket compared the behavior of teachers who had generally high expectations for their students' potential reading gains with the behavior of teachers who had generally low expectations. She found that teachers with the high expectations showed the highest proportion of high-demanding behaviors: 71% and 63%, compared to 49%, 38% and 38%. The teachers with generally high expectations consistently asked a greater number of higher-order questions, gave students more opportunities to respond and participate, waited longer for student answers, and more frequently prompted students whose initial responses were incorrect or incomplete. "With so small a sample of teachers, these results cannot reach statistical significance, yet the effects are dramatic in magnitude. The correlation between proportion of high-demanding behavior and favorableness of teacher expectation was 0.60." (Rosenthal, 1973a, 23). Leacock's cross-school analysis (1969) yielded similar conclusions.

When considering the Output Facotr, the work of Mary Budd Rowe (1972) is particularly striking and important. For five years she and her associates studied the influence



of teacher wait-time on student language and logic. Their initial study began when they found that children taught by teachers with considerable training in certain promising science programs did not exhibit substantially different rates of inquiry from those taught by teachers with little or no training. Analysis of over 300 tape recordings taken in urban, suburban, and rural classrooms showed that the curriculum was a relatively insignificant factor; however, the pace and reward system mattered. From the time a teacher asked a student a question, the student had an average of one second to begin a reply. Otherwise, the teacher would repeat the question or call on someone else to respond. When the student did respond, the teacher usually waited less than a second (average of 0.9 seconds) before commenting on the response, asking another question, or moving to a new topic. Only the highest-expectation students received longer average wait-time (3.0 seconds).

After training teachers to increase their wait-times to three-to-five seconds, Rowe discovered, by analysis of more than 900 tape recordings, that nine student variables had been affected:

- 1) The length of student responses increased. Under fast-paced conditions, students tended to answer in short phrases and rarely explain their answers with any degree of complexity.
- 2) The number of unsolicited, but appropriate, student responses increased.
- 3) Failures to respond decreased. "I don't know", or no response at all, are often

- as high as 30% in normal classrooms:  
i.e., the one-second wait-time conditions.
- 4) Confidence as reflected in fewer inflected responses increased. (Under a fast schedule, responses tend to be phrased as though the child were saying, "Is that what you want?" In the middle of a prolonged fast sequence you can ask a child his name and it will not be unusual to have him respond with a question mark in his tone. This confidence indicator, inflected responding, is also susceptible to the reward variable. As reward increases, so does the incidence of inflected responses.
  - 5) Incidence of speculative responses increased.
  - 6) Incidence of evidence-inference statements increased.
  - 7) Incidence of child-child comparisons of data increased.
  - 8) The frequency of student questions increased.
  - 9) Incidence of responses from students rated by teachers as relatively slow increased.  
(Rowe, 1972, 8-9)

Once teachers changed their wait-time, Rowe and her associates noted that three other important teacher behaviors changed as well. First of all, "teachers exhibited greater response flexibility, as indicated by the occurrence of fewer discourse errors". (That is, non sequiturs decreased.) Rowe claims that in fast-paced classrooms "the sequence of discourse resembles a smorgasbord line, in which everyone goes along commenting on what he passes and picks up but nobody pays any attention to or gives any indication that he has heard the comments of others". (Rowe, 1972, 9)

Secondly, the quantity and type of teacher questions changed. "Prior to wait-time training, it was not unusual to find as many as seven to ten questions asked by the teacher per minute! ....Inner city rates tend to be slightly higher than suburban rates." (Rowe, 1972, 9). The following chart illustrates how the type and pattern of questions changed for a sample of 74 teachers who achieved criterion wait-times of three seconds or longer.

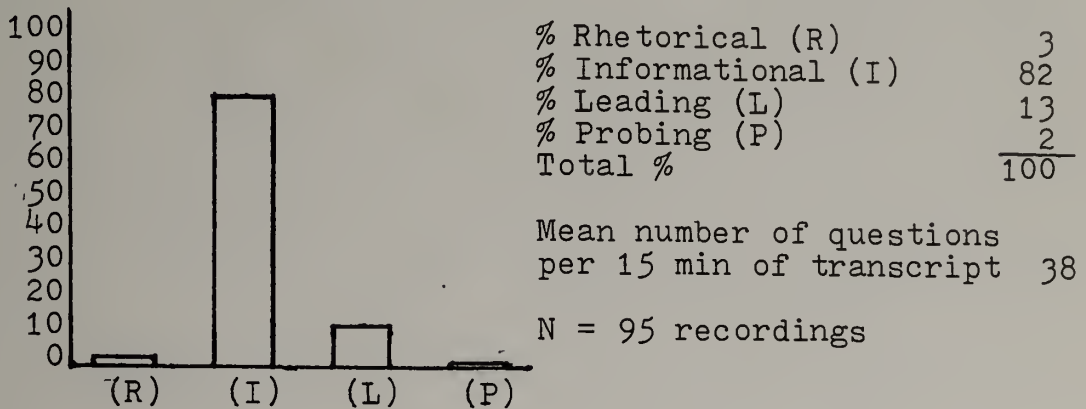


Figure VII. Typical distribution of question types asked by teachers prior to wait-time training.

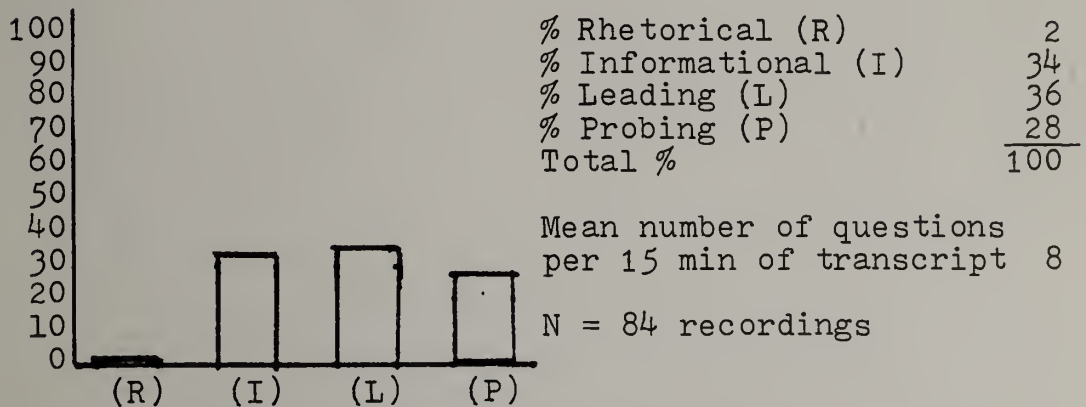


Figure VIIb. Typical change in distribution of question types once criterion wait-times of three seconds or more are attained and sustained. (Rowe, 1972, 30)

Finally, when teachers increase their wait-times, "teacher expectations for performance of certain children seem to change". In a micro-teaching setup, the experimenters arranged various pairings of students whom other teachers had rated as their highest verbal and their lowest verbal students. Teachers in the micro-teaching situation knew they were dealing with high and low verbal students. However, as they achieved criterion wait-times of three seconds or more, they were frequently unable to label the students correctly -- one of the most common errors being that a high and low combination were labeled as two highs.

Twenty-six teachers supplied students for the last experiment described, and all twenty-six were observed to give their high-verbal students longer wait-times in the classroom.

When one considers the findings of Mary Budd Rowe in conjunction with other research showing that decision time tends to be longer under anxiety conditions, (Combs, 1952; Lotsof, 1956; Marquart, 1948), one can see the no-win situation in which low-expectation students find themselves. As was reported in relation to feedback, when low-expectation students respond, they get less support and frequently more criticism from teachers. Under this anxiety condition, one can expect low-expectation students to take longer to respond. However, because they are low-expectation students, the teacher gives them less time to respond --



typically, one second or less. The minimal response on the part of the students then reaffirms and reinforces the teachers' low expectations, and the self-fulfilling prophecy prevails.

### Summary

Research exploring the existence of the teacher expectancy effect and its mediation can be divided into two major categories: 1) experiments in which the expectancy postures of the experimental group are induced and 2) experiments in which the expectancy postures of the experimental group are formed naturally.

An experimenter usually attempts to induce certain expectations in his/her subjects by manipulating the information the subjects receive regarding the aptitude of certain students, clients, etc. for the task or treatment at hand. Rosenthal-Jacobson's Intellectual Bloomer Study was of this type. When attempting to measure the effects of induced expectations, the experimenter should consider whether or not the expectancy posture was ever successfully induced in the first place. Most of the early experiments attempting to replicate the Intellectual Bloomer Study did not take this factor into consideration.

Naturalistic studies are concerned with expectations that are formed without an intervention on the part of the experimenter. Common influences on the formation of nat-



ural teacher expectations include firsthand interaction with students, I.Q. scores, examination of students' past achievement records, popular beliefs, myths, or stereotypes, family resemblances, reports from other teachers, and tracking system labels.

Results of induced expectation experiments regarding the existence of a teacher expectancy effect have generally been mixed. Naturalistic studies, on the other hand, have been consistently positive, and it is from the latter category that the bulk of unequivocal data supporting the existence of the teacher expectancy effect comes.

Within the two major categories of induced or naturally formed expectations are three subcategories:

- A) Studies that include product data only.
- B) Studies that include process data only.
- C) Studies that include both product and process data.

Product measures are used to ascertain ultimate outcomes on the people involved, while process measures attempt to establish causal relationships by identifying predictable group patterns in student-teacher interactions.

If the results of the above types of research are ever going to affect teachers' classroom behaviors, there needs to be a new body of knowledge developed: namely, knowledge about educational interventions designed to effect change in teacher and/or student behaviors based on expectations.

Because the need for such interventions is so great, these interventions should be replicable under ordinary situations in existing school systems. In 1971, Brophy and Good developed an educational intervention that very effectively changed certain inappropriate and discriminatory behaviors on the part of the teachers in their study. Many aspects of their design provide valuable pointers for other educators working on this problem. However, their intervention as a whole is difficult to replicate because it involved forty hours of observations of each teacher to establish credibility and motivation.

Much of the most powerful and striking literature on teacher expectations establishes this phenomenon as a social, as well as an educational, problem because research has demonstrated a high correlation between low teacher expectations and certain socio-economic and racial characteristics of students.

Teachers' subjective predictions regarding students' future academic success (particularly when these students are still in the lower grades), seemed to be based on characteristics associated with the income-level of the students' families. Research also shows that teachers tend to treat students from low-income families less appropriately than they treat students from middle-income families. Based on his observations, Ray Rist hypothesized that a teacher's normative reference group (usually the educated

middle class), becomes the basis for the teacher's evaluation of a student's potential; and on this basis, children are sorted into those expected to learn and those not expected to learn. This division is accomplished through ability grouping within a classroom and institutionalized through the tracking systems in the schools.

The effects of socio-economic status seem to be particularly evident at the kindergarten and first grade levels. Rist (1970) showed that before students had a chance to demonstrate their ability, they were placed in ability groups based on such factors as their use of standard English, their cleanliness, color of their skin, income of their parents, and size of their family. Thereafter, the differential treatment they received from the teacher would insure that the so-called high-ability group would be better prepared for the first grade than would the so-called middle and low-ability groups.

Mackler (1969) found that kindergarten children are evaluated and tracked into the first grade according to such traits as politeness, passivity and ability to listen to and follow directions. Not attending kindergarten automatically puts one into a low track.

The major studies analyzing the effects of tracking systems show, first of all, that higher-income students tend to be placed in higher tracks than their measured ability would predict, and that there is a disproportionate

number of lower-income children in the lower tracks. The tracking system widens the achievement gap separating high, middle, and low-track students. Once students are placed in low or middle tracks, there is very little chance that they will ever move upward.

Tuckman and Bierman (1971) experimented with moving 421 junior and senior high Black students up one level. At the end of the year teachers recommended that 54% of those moved up be retained in the higher tracks. Only 1% of the controls were recommended for a higher placement. Experimental students in the higher tracks scored as well on achievement tests, received comparable grades, and attended school as regularly as other highs. They did significantly better in every way than the controls, who remained in their original placements. Lows who had been reassigned to a middle track did not do as well as controls according to report card grades. However, they did do significantly better according to test scores and their attendance and school satisfaction reports were similar.

The degree to which race is a determiner of teacher expectations is greatly confounded by an overlapping of race with socio-economic status. In spite of this fact, some studies have uncovered definite race-related findings. One finding is that, in contrast to their White counterparts, "gifted" or high I.Q. Black students are less likely to receive preferential treatment from the teacher and more



likely than any other type of student, Black or White, to receive harsh treatment. Generally, it appears that Black students are viewed less favorably than White students, although research in the area of the effect of race on the formation of teacher expectations and attitudes is still inadequate to warrant many definite conclusions.

Low teacher expectations can set in motion a self-perpetuating, self-defeating cycle. This expectancy attitude can cause teachers to behave in inappropriate ways toward the low-expectation students. As a result, these students are less motivated, learn less, and feel worse about themselves. Tracking systems simply institutionalize and magnify the problems of low teacher expectations.

The solution to the problematic fact that low teacher expectations have negative effects for students is not for teachers to have no expectations at all; but rather, for teachers to end discriminatory practices based on low expectations.

Rosenthal suggests that the discriminatory behaviors that mediate the expectancy effect cluster around four major factors: Climate, Feedback, Input, and Output.

Climate refers to student-teacher relationship issues. There is some evidence to show that when teachers believe they are dealing with high-potential students, they exhibit more of the behaviors that help to establish a warm student-teacher relationship, such as smiling at the stu-



dent, having greater eye contact, and talking to them more. One experiment, Alexander et al (1971) achieved significant product results simply by having teachers systematically initiate conversations with certain students and use their names whenever addressing them, in contrast to a control group who received neither treatment.

The behaviors delineated under the Climate Factor can be a cover for low expectations unless accompanied by other content-oriented teacher behaviors. However, the Climate Factor is not to be dismissed lightly: it can be the most crucial factor for some students in facilitating their learning and participation; and further, it probably determines the effects of other teacher behaviors, such as criticism.

The Feedback Factor refers to teacher reactions after a student answers a question or initiates some contact. It appears that clear, supportive feedback is most helpful and productive for students, while intermittent encouragement-discouragement or constant discouragement can greatly depress learning and higher-order thinking. Evidence also strongly suggests that it is the low-expectation student who receives the least encouragement and the most discouragement from teachers; although high-expectation Black students might be an exception to this norm. In the few limited cases studied, they received more criticism and less

support than any other group of student -- Black or White, high or low-potential.

The Input Factor refers to the amount of actual instructing a teacher does. Input can be said to vary if a teacher spends more time teaching some students than others or if the teacher attempts to fit more content into the same amount of instructional time. Studies suggest that some teachers do spend more time with their high-expectation students; no study showed teachers spending less time with these students. All relevant studies showed that teachers simply try to teach more in any given time period to students of whom they expect more -- one blatant reason high-expectation students learn more.

The Output Factor relates to responsiveness on the part of students: i.e., the amount of "air-time" students are allowed or encouraged to take. Research studies suggest that teachers encourage greater responsiveness from students of whom they expect much. Such encouragement might take the form of calling on those students more often, asking them more difficult questions, being willing to wait longer for them to respond, and helping them to shape partially correct answers into correct answers. It is not uncommon for teachers to call on high-expectation students more than they call on their middle and low groups combined.

Hasket (1968) compared the behaviors of teachers who held generally high expectations for their classes with teachers who held generally low expectations. What she discovered was that teachers with high expectations showed the highest proportion of high-demanding behaviors: i.e., they consistently asked a greater number of higher-order questions, gave students more opportunities to respond and participate, waited longer for student answers, and more frequently prompted students whose initial responses were incorrect or incomplete. Studies of this type are valuable because they more easily allow for inter and intra-school comparisons. Eleanor Leacock's study was of this nature.

Probably the most thoroughly researched and impressively important teacher behavior related to the Output Factor to date is wait-time. Rowe's analysis (1971) of over 300 tape recordings taken in urban, suburban and rural classrooms showed that from the time a teacher asked a student a question, the student had an average of one second to begin a reply. Otherwise, the teacher would intervene again in some way. High-expectation students might be given longer wait-times, as much as 3.0 seconds. After training teachers to increase their wait-times to three-to-five seconds, Rowe discovered that students improved dramatically in several areas: the length of their answers increased; they volunteered responses more frequently; they were much less inclined to say, "I don't know", or not re-

spond at all; their answers displayed evidence of various types of higher-order thinking; their self-confidence increased; they showed more signs of listening to other students as well as the teacher; and, in particular, students previously rated as relatively slow by the teachers began to participate more often. As a result of increasing their wait-times, teachers began to alter their behaviors in other important ways as well. They asked more higher-order questions, displayed fewer non sequiturs in their own discourse, and changed their expectations regarding the performance of certain students.

In conclusion, one might say that the existence, the potency, and the importance of the teacher expectancy effect have been demonstrated. Its ultimate mediation, and thus, ultimate negative outcomes for students, are not magical occurrences; but rather the consequence, at least in large part, of certain inappropriate teacher behaviors. It would follow, then, that to eliminate the negative effects of teacher expectations and maximize its positive potential, one should attempt to increase the facilitating behaviors associated with high expectations and eliminate the debilitating behaviors associated with low expectations.

## C H A P T E R   I I I

### M E T H O D O L O G Y

#### Introduction

In defining the teacher expectancy effect as a social, as well as an educational, problem, Chapters I and II established the need for an explicit, easily replicable training program for teachers. The overall goal of this study was to develop, implement, and evaluate a training program that met this established need. Chapter III describes the specific goals of the program that was developed and the research design used to evaluate the program's effectiveness.

The chapter first enumerates the specific hypotheses tested.

Secondly, it presents the actual research design, including a description of the teachers involved in the study, the observation and measurement procedures used, the variables involved in the observations, and the training of the observer.

Finally, this chapter provides an over-view of the treatment by outlining the implementation and measurement schedule and describing the specific experimental conditions.



### Hypotheses

1) Teachers who receive experimental interventions show significantly greater increases in the number of individual students receiving substantive interactions than do teachers who do not receive these interventions.

2) Teachers who receive experimental interventions show significantly greater increases in the number of students receiving wait-times of three seconds or more than do teachers who do not receive these interventions.

3) Teachers who receive experimental interventions show a significantly greater increase in their average wait-time than do teachers who do not receive these interventions.

4) Teachers who receive experimental interventions show a significantly greater increase in the number of students receiving smiles than do teachers not receiving these interventions.

5) Teachers who receive experimental interventions show a significantly greater increase in smiles directed toward individual students than do teachers not receiving these interventions.

6) Teachers who receive experimental interventions show a significantly greater increase in the number of students of whom they ask thought-provoking questions than do teachers not receiving these interventions.

7) Teachers who receive experimental interventions show a significantly greater increase in the number of thought-provoking questions asked than do teachers not receiving these interventions.

### Research Design

1. Teacher sample. Ten experimental and ten control teachers were selected from two Philadelphia public schools. Both schools selected qualify for Title I aid, which means that at least 38.6% of their pupils come from families that qualify for Aid to Dependent Children.

Because involvement in the workshop interventions required that teachers be released from school, it was necessary to involve teachers from two schools so that no one school would be depleted of professional staff on a given day.

To recruit teachers, this researcher explained the purpose and design of the study to both principals and, after having secured their support, asked them to list people on their faculties who they thought would be open to this type of training. The researcher met with the recommended teachers individually or in small groups to explain the purpose and design of the study and distribute written summaries of it. The teachers received the following written summary.

Dear Teachers,

Consciously or unconsciously you know that other people are constantly conveying the fact that they expect certain things of you, certain behaviors, reactions, feelings, etc. You, in turn, are conveying the fact that you expect certain things of other people. In particular, you in your role as teacher are conveying certain expectations to your students. The research shows that the expectations you have of your students could be affecting their academic achievement.

I believe, as do others in this field, that if perchance a teacher is conveying any low or negative expectations to students, it is rarely through any malicious intent. The fact is that we can't help but convey expectations and we are frequently unaware of what we are conveying. When we become aware, we change. The problem is that we practically never get any help in this area either from college courses or supervisors.

Because of the tremendous lack, some associates and I have developed a cluster of simulations and other devices which could help you to examine the expectations you are conveying to various students and thereby make appropriate behavior changes where you feel the need.

I am very anxious to test out the effectiveness of our workshop sequence and am looking for a group of teachers who would consider participation in this workshop sequence as a potential "shot in the arm" professionally speaking.

If you choose to participate, **this is what I will be asking of you:**

1. Use an observation day to attend an all day workshop, 9:00 a.m. to 3:00 p.m. November 6.

2. Attend a 2-hr. after-school session the following week, 3:30 to 5:30, Tuesday, Nov. 11, or Wednesday, Nov. 12.
3. Allow someone to observe you twice, once in October and once in May.
4. Get feedback on initial observation in a short session with me.
5. Fill out a self-monitoring device once a week until May.

## This is what you will be getting:

1. Professional assistance and feedback in an extremely important area of teacher behavior.
2. Two intriguing and very involving workshops which could be of immense professional benefit to you.
3. Full knowledge of the results of this study.

I am looking forward to working with many of you.

*Sincerely,  
Earline Sloan*





It was impossible to match experimental and control teachers for grade level, student ability level, and principal recommendation because there are just not that many classes at a given grade level to select from in any one school. However, experimental and control teachers are equivalent regarding student ability level across schools and grade levels.

2. Measurement. Both experimental and control teachers were observed for one hour-and-a-half period before the treatment began in October and again in May, approximately seven months after the first six-hour training session.

Each one-and-a-half hour observation period was divided into 14-minute segments. Each teacher was actually observed for a total of 84 minutes; 42 for each behavior.

The observation sequence was as follows:

For 7 minutes the observer recorded substantive interaction and wait-time.

For the next 7 minutes she recorded smiling and type of question.

For 1 minute she rested.

Then she began another 7-minute segment.

The students wore numbers on their fronts and backs so that the observer could match students with the teacher behaviors.

3. Definition of Variables. "Substantive interaction" refers to any teacher-student interaction involving

the content of a lesson. It does not refer to interactions around behavior or directions.

"Wait-time" refers to the interval between the time a teacher calls on a student to speak and the next teacher intervention of any kind. (See Rowe, 1972) Teacher interventions might be verbal ones; e.g., saying "good" to the child called on, or calling on another child; or they might be non-verbal ones, such as turning toward another child.

"Smiling" refers to a common facial expression interpreted as positive.

A "rote question" refers to a question that requires a convergent answer. Typically such answers are short; e.g., "Who was the hero of the story?" However, they might require longer responses, as does the following question: "Name the five causes of the Civil War". Such a question is coded as rote if the teacher has five specific causes in mind, requiring the student to rely more on memory than on thought.

A "thought-provoking question" refers to a question that allows for divergent answers. They might call for creativity on the part of the student or require such processes as analyzing, generalizing, synthesizing, applying, or speculating. At a minimum, they allow for diverse answers; ones that do not rely on memory: e.g., "What color would you paint the house?", or, "Name any word that starts with the letter 'S'."

4. Observer. Since all of the observations were conducted by the same person (an unemployed social worker), there was no need to establish inter-rater reliability. There was need, however, to validate the content of her observations. Her training occurred in two phases.

Phase One: In a preliminary session the variables were defined by the researcher and several examples of each were discussed. It was decided that the observer would use a stop-watch to clock seven-minute intervals, but would rely on counting to herself "one one-thousand, two one-thousand, three one-thousand, etc." in order to measure wait-time. The consistency of her counting was checked against a stop-watch for short periods (three seconds), medium periods (twelve seconds), and for longer periods (fifty seconds). In all three cases, her counting was accurate within tenths of a second.

Phase Two: Phase two of her training consisted of four ten-minute classroom practice sessions with two teachers not involved in the study. During the practice sessions, three people observed simultaneously; the observer, this researcher, and a consultant to the researcher. The consultant had extensive experience as an observer of teacher behaviors and had consulted in the definition of variables and design of the study. After each ten-minute segment, these three observers compared results and discussed ambiguities; e.g., whether or not question x should

be coded as rote or thought-provoking, or whether teacher comment y constituted a substantive interaction. By the third and fourth intervals, ambiguities were resolved and the three observers coded reliably, that is within one tally of each other in each category.

### Treatment

#### 1. Schedule of interventions and data collection.

Early October	Participating teachers were identified.
Late October	Initial systematic observations were made to provide baseline data.
Early November	Teachers will participate in a six-hour training session consisting of relevant simulations and didactic instruction.
	Teachers will participate in a two-hour follow-up training session.
Late November	Teachers will be given results of initial observations.
November - May	Once a week teachers will fill out a self-monitoring checklist.
May	Systematic observations will be repeated to measure long-term behavior changes.

2. Experimental conditions. In the Philadelphia Public Schools each teacher is entitled to three observation days; i.e., days in which the teacher is excused from teaching in order to observe at another school or partake in some in-service opportunity. In order to attend the



six-hour training session, experimental group teachers agreed to use one of their observation days.

Twenty teachers other than those in the experimental group were invited to attend this training day since the two major simulations are more effectively run with larger numbers of people. Also, larger numbers of participants make a wider range of responses probable. Four trainers from the Affective Education Program assisted in conducting this training session. While one leader would be able to direct all of the activities in the workshop design, the quality of small group work and discussion is greatly enhanced if each small group has a trained leader.

Each experimental teacher attended the two-hour follow-up session, which ran from 3:30 p.m. to 5:30 p.m. on Tuesday, November 10. The teachers received no remuneration for attendance at this session.

Each experimental group teacher was given the results of the initial behavioral observation by the researcher at an individual conference. These conferences occurred during teacher preparation or "free" periods.

### Summary

The training program that was developed to meet the need established in Chapters I and II was designed to test seven hypotheses dealing with the frequency and distribution of four specific teacher behaviors: namely, smiling,



wait-time, thought-provoking questions, and substantive interactions. It was hypothesized that the experimental teachers would show a significantly greater increase with regard to frequency and distribution of each of these behaviors than would teachers in the control group. (An increase in frequency of substantive interactions was not predicted, for reasons that will be explained in Chapter V.) A pre-post observation method with the experimental and control group was used to test the effectiveness of the interventions.

Ten teachers from two different schools of equivalent socio-economic status were recruited to participate in the training program.

The treatment or training program received by the experimental teachers consisted of five training interventions. Chapter III has described the methodology used to implement and evaluate the training program. Chapter IV will describe in detail the five interventions that constitute the training program.

## CHAPTER IV TREATMENT

### Introduction

This study focuses on a training program designed to negate the effects of discriminatory teacher behaviors based on inappropriate expectations of students and to facilitate student achievement by increasing teacher behaviors which convey appropriate expectations to students. Chapter III described the overall research design used to implement and evaluate the program. Chapter IV describes the training program itself; i.e., the five interventions which constitute the training program being evaluated in this study.

Section one describes the six-hour training design which focuses on increasing teachers' understanding of the dynamics of the expectancy phenomenon.

Section two provides an anecdotal account of the actual implementation of the major six-hour training workshop.

Section three details the two-hour follow-up session which concentrated on encouraging specific teacher behaviors identified as important conveyors of appropriate teacher expectations.

Section four presents the self-monitoring devices used to keep teacher awareness alive over time and to help

teachers systematically incorporate appropriate behaviors into their repertoires of teacher behaviors.

Section five describes the procedures and the forms for giving teachers feedback on the results of initial classroom observations. These sessions were used to help teachers pinpoint specific areas of need in their own classrooms and to personalize the problem of discriminatory behaviors based on inappropriate expectations.

Training Design: "Expectations that Influence Learning"

Date: November 6, 1975

Time: 9:00 a.m. to 3:00 p.m.

Participants: 1) The 10 teachers who constitute the experimental group for this study.

2) 20 other teachers K-12 who teach in the Philadelphia School System. An invitation was extended to teachers other than those in the study because the two major simulations during the day evoke a much wider range of responses and are more effectively run with about 30 people.

Leaders: Earline Sloan, developer of this study

Wendy Gollub, Sunny Shulkin, Kathy Doughty, Allie Mulvihill -- trainers in the Philadelphia Affective Education Program

The above persons directed the various activities and served as facilitators during small group work.

Objectives: 1) To increase awareness and understanding regarding the role of expectations in the learning process.

Specifically,

- a. How the expectations of others can influence behavior. We adjust our behavior frequently to meet the expectations of significant others. This is one aspect of the meaning of "self-fulfilling prophecy".
  - b. How teachers' expectations are sometimes determined by cultural biases.
  - c. How expectations are conveyed through various subtle and sometimes not-so-subtle behaviors, especially those mentioned by Robert Rosenthal -- climate, feedback, input, and output -- and the grouping policies discussed by Ray Rist.
2. To engage teachers in a data-gathering process through which they begin to recognize the expectations they are conveying and the behaviors by which they are conveying them.

#### Warm-up and Group Builder

- A. Have each participant give his/her name and tell something people here probably don't know about him/her yet. (Each person repeats name and statement of the three people preceding him/her.)
- B. Play game "Mess in the Kitchen" (a variation of game in Fred Harris' Game Book.)

Overview of the day: As each of you already knows, the purpose of today's workshop is to increase our awareness and understanding regarding the role of expectations in the learning process. During the morning you will participate in two simulations, both of which are designed to increase your awareness regarding some of the more powerful dynamics that are sometimes created by various interpersonal expect-

tations, particularly teacher expectations that tend to be communicated to students.

Later in the morning and during the early part of the afternoon, you will be asked to generate data regarding

- 1) your own expectations towards the students you teach,
- and 2) the behaviors by which you might be conveying these expectations.

Finally, our staff will demonstrate for you some of the observable behaviors which various researchers have identified as conveying certain expectations to students.

#### PART ONE: RAISING GENERAL AWARENESS REGARDING THE DYNAMICS OF INTERPERSONAL EXPECTATIONS

##### I. Expectation Poker: A Simulation

Objective: To have participants experience, in dramatic fashion, the power and cumulative effect of interpersonal expectations in shaping peoples' behaviors.

- A. Directions for "Expectation Poker: A Simulation" are on pp. 105-111.
- B. A summary of the comments, insights, and issues that this simulation stimulated during the training day follow on pp. 111-115.
- C. Short lecture on the research findings relevant to the dynamics operating in Expectation Poker.

Objective: 1) To crystalize experiential learnings from the simulation, and 2) to validate learnings by establishing a theoretical and empirical base.

Points to be made: People sometimes tend to change their behaviors based on the expectations of other people. People and animals tend to learn more and/



or faster when the expectations of the teacher are higher. (Cite examples of studies summarized in "The Pygmalion Effect Lives", by Robert Rosenthal, (1973, 56-63). Pass out article. Describe "Intellectual Bloomer Study: in detail. Briefly explain refutation of study. At this point DO NOT get into the specific behaviors mentioned by Rosenthal and others.)

## II. Holiday Bazaar: A simulation

Objective: To have participants experience the dynamics that tend to develop from various so-called ability grouping practices as observed by Ray Rist in his study. (Rist, 1970)

- A. Directions for "Holiday Bazaar: A Simulation" follow on pp. 115-119.
- B. An anecdotal description of the outcomes of this simulation follows on pp. 119-124.
- C. Short lecture on the findings of the Rist study.

Objective: 1) To reinforce the experiential learnings of this simulation by showing that researchers have observed these same dynamics in actual classrooms, and 2) To alert teachers to the socio-economic factors which sometimes influence grouping practices.

Points to be made: "First, the kindergarten teacher in the study possessed a roughly constructed 'ideal type' as to what characteristics were necessary for any given student to achieve 'success' both in the public school and in the larger society. These

characteristics appeared to be, in significant part, related to social class criteria.

Secondly, upon first meeting her students at the beginning of the school year, subjective evaluations were made of the students as to possession or absence of the desired traits necessary for anticipated 'success'. On the basis of the evaluation, class was divided into groups expected to succeed (termed by the teacher 'fast learners') and those anticipated to fail (termed 'slow learners').

Third, differential treatment was accorded to the two groups in the classroom, with the group designated as 'fast learners' receiving the majority of the teaching time, reward-directed behavior, and attention from the teacher. Those designated as 'slow learners' were taught infrequently, subjected to more frequent control-oriented behavior, and received little, if any, supportive behavior from the teacher.

Fourth, the interactional patterns between the teacher and the various groups in her class became rigidified, taking on caste-like characteristics, during the course of the school year, with the gap in completion of academic material between the two groups widening as the school year progressed.

Fifth, a similar process occurred in later years of schooling, but the teachers no longer relied on subjectively interpreted data as the basis for ascertaining differences in students. Rather, they were able to utilize a variety of informational sources related to past performance as the basis for classroom grouping." (Ray Rist, 1970)

Pass out summary of "Student Social Class and Teacher Expectations: The Self-Fulfilling Prophecy in Ghetto Education", by Ray Rist.

## PART TWO: APPLYING GENERAL LEARNINGS TO THE INDIVIDUAL'S SITUATION

### I. Fear in a Hat

Objective: To reduce resistances participants might have to exploring their own expectations of students. (Past experience suggests that teachers might be reluctant to explore their own expectations because they are afraid of what they might find. "Fear in a Hat", an exercise used frequently in humanistic education training, reduces such resistances by showing participants that their fears are shared by others.)

Directions: Each person writes on a separate piece of paper a fear or concern he/she is having regarding exploring their own expectations.

(Participants are given all the instructions for the exercise ahead of time so that they know they will never have to own their own fear publicly.)

Papers are collected, mixed up, and passed out again so that no one knows who has whose. One at a time, people read the fear they have on the paper as though it were their own. After they have read what

is on their paper, they continue to expound on the fear for 30-60 seconds, still as though that fear were theirs.

## II. Fishing Expedition:

Objective: To have participants consider their students from a number of provocative perspectives in order to identify their real expectations of students.

Individually, people generate lists on "Fishing Expedition" paper and formulate hypotheses about the expectations they might be conveying to various students.

### FISHING EXPEDITION

Try to think of all the students in your classroom and then generate the following lists. The lists are simply exploratory in nature. Do not get hung up on the number "5" or on any one list if that category seems totally irrelevant to you.

- 1) List 5 kids who might think you are a good teacher.
- 2) List 5 kids who might think you are a bad teacher.
- 3) List 5 kids who turn you off the most.
- 4) List 5 kids you find it easy to hang in with when they don't understand something.
- 5) List 5 kids you find it hard to hang in with when they don't understand something.

- 6) List 5 kids you expect to be successful in life.
- 7) List 5 kids you don't expect to be successful in later life.
- 8) List 5 "woodwork" kids.

Make up some categories of your own and generate lists.

- 9)
- 10)
- 11)

Based on this information or any previous thoughts, what hunches do you have about the expectations you are communicating to any of your students? e.g., "I am probably communicating to William, Lisa, Tanya, and Richard that I expect them to do their work and do it well." "I might be communicating to Carol, Jessie, and Chuck that I don't expect them to do much except keep quiet."

### III. Identifying the Student Group of Interest

Objective: To allow participants to focus their exploration of expectations on the most potentially fruitful area.

Participants decide whether they want to work with a sub-group or their entire class for the remainder of this personal application section of the workshop. (That is, would they prefer to explore fur-



ther the expectations they might be conveying in terms of their entire class or some specific subgroup?)

Participants divide into groups (total number of participants divided by 5, so that each group has a facilitator.)

LUNCH BREAK.....

#### IV. Identifying One's Hidden Expectations

Objective: To have teachers express the feelings they have for their classes/groups on the assumption that getting in touch with the feelings will help to generate more accurate and honest expectation statements.

##### A. Metaphor Exercise

Directions: Each person completes the sentence stub orally and briefly explains the meaning of the metaphors he/she chose.

1. "If my class (this group) were an animal, it would be..."
2. "If my class (this group) were some electrical appliance, it would be..."
3. "If my class were a color, it would be..."

##### B. Guided Fantasy (Omit if time doesn't seem adequate for all parts of section IV.)

Directions for fantasy: "You are on the beach in Hawaii, relaxed, and enjoying yourself thor-

oughly. Your class (group) approaches. How do you feel when you first recognize them? What do you do? What do they do?"

Results are shared within each small group.

C. Sentence Stub Exercise

Objectives: 1) To show how expectations are frequently couched in other language; 2) To help teachers pinpoint their expectations toward their class/group.
--

Directions: Using dittoed form, participants first fill out sentence stubs on left, e.g. "These kids always ...". After they have finished the lefthand column, participants are asked to rewrite these statements into expectation statements in the right-hand column. e.g. "These kids always come late," becomes "I expect these kids always to come late." From this list, teachers are asked to star the statements they own as true for them.

Directions: Complete the following sentence stubs. Go with the first things that come into your mind. Use one stub over and over if you want. Alter stubs if necessary. Skip ones where nothing comes to your mind -- well, try first and then skip. (Switch verbs, etc. to singular form if you're only thinking about one student.)

The kids in this group are

These kids always

These kids never

I think (feel like) these kids want to

I think these kids don't want to

Use the above sentence stubs plus any others you want to add to get additional information regarding the way you think these kids

THINK

ACT

FEEL

## V. Abstract Profile

Objective: To begin process of showing how specific behaviors can convey certain expectations.

Directions: From the above list (IV c) each teacher selects one expectation he/she owns and suspects is important. In the small groups facilitators ask for one volunteer and, focusing on the volunteer's chosen expectation statement, asks the group to generate a list of possible teacher behaviors that might tend to convey such an expectation. (An actual sample of such a list produced during this training day is included at the end of this section.) After the list is generated, the volunteer has an opportunity to own and disown the behaviors brainstormed. This process is repeated with other volunteers as time allows.

### PART THREE: PRESENTING RESEARCH FINDINGS REGARDING BEHAVIORS THAT CONVEY EXPECTATIONS

#### I. Role Play Scene

Objectives: 1) To present didactically a summary of the research findings about behaviors that convey expectations; 2) To give teachers introductory training in observing for such behaviors.

A. Introductory Statement: The first question Rosenthal and other researchers asked was, "Do the expectations of teachers affect the academic performance of students?" Once they had satis-

fied themselves that, yes, teacher expectations can indeed have such an effect, the researchers then sought to find out how the expectations were being transmitted to students. What cues were the students receiving? Teachers must be doing something and they wanted to know what. So, they observed in actual classrooms and in other learning environments. This afternoon we are going to demonstrate for you the results of their findings by staging a role play.

- B. Description of Role Play: Five people (4 facilitators and one volunteer participant) will role play students designated as: Kid #1 BRIGHT, INTERESTED; Kid #2 BRIGHT, BORED; Kid #3 SLOW, EAGER; Kid #4 SLOW, WITHDRAWN; Kid #5 SLOW, DISRUPTIVE. The teacher will try to typify in her interactions with the students those patterns of behavior that Rosenthal and others have identified as transmitters of differential expectations. Each participant receives an observation sheet listing these behaviors. One behavior on each sheet is starred. That is the particular behavior the participant with that sheet will be observing. Whenever the participant sees the teacher show that behavior, he/she



should put a tally mark next to it in the column under the number of the student to/with whom it happened.

C. Explanation of Categories and Behaviors: As you can see, there are seventeen behaviors listed in all. Rosenthal suggests four groupings for these behaviors:

- 1) SOCIO-EMOTIONAL CLIMATE. The findings are that teachers frequently establish a better relationship and a warmer socio-emotional climate with students of whom they expect the most academically.
- 2) FEEDBACK AFTER STUDENT RESPONSE. This refers to a teacher's reaction after a student has either answered a question or initiated some verbal interaction. The research findings are confusing here. Some researchers have found that bright students get more positive feedback but not more negative. Others have found that bright students get more feedback, both positive and negative. One thing was certain -- the students of whom the teacher had low expectations were much more likely to get "no response" than those students of whom the teacher had high expectations.
- 3) INPUT. This refers to the quality and quantity of what a teacher presents students. Researchers have found that teachers literally teach more to children of whom they expect a lot. We are not asking anyone to observe for anything in this category because input differences are harder to simulate in one short role play than are the other categories of behavior.
- 4) OUTPUT. This refers to the way in which a teacher encourages responsiveness on the part of students. Just whom does she call on most often? What kinds of questions does she ask -- questions that require one-word answers or ones that require more

expanded, thoughtful responses? To what extent does the teacher persist with the student after he/she has answered or given a wrong answer? How long is she willing to wait for an answer? Two of the behaviors in this category -- thought-provoking questions, and wait-time -- are so important that we plan to devote the entire after-school session to them.

- D. Running of Role Play: Teacher simulates a lesson for about 5 minutes. Observers code teacher behaviors.

I. SOCIO-EMOTIONAL CLIMATE	KID 1 bright, inter- ested	KID 2 bright, bored	KID 3 slow, eager	KID 4 slow, with- drawn	KID 5 slow, dis- rup- tive	TOTAL #
SMILES AT KID						
NODS HEAD APPROV- INGLY OR LEANS TOWARD KID						
SUSTAINS EYE CONTACT						
PHYSICALLY CLOSE TO KID						
TOTAL #						
II. FEEDBACK AFTER STUDENT RESPONSE	KID 1 bright, inter- ested	KID 2 bright, bored	KID 3 slow, eager	KID 4 slow, with- drawn	KID 5 slow, dis- rup- tive	TOTAL #
POSITIVE VERBAL RESPONSE						
POSITIVE NON-VERBAL RESPONSE						
NEGATIVE VERBAL RESPONSE						
NEGATIVE NON-VERBAL RESPONSE						
TOTAL # RESPONSES						
NO RESPONSE						

III. INPUT (SUB-STANCE TO BE LEARNED)	KID 1 bright, inter- ested	KID 2 bright, bored	KID 3 slow, eager	KID 4 slow, with- drawn	KID 5 slow, dis- rup- tive	TOTAL
DIFFICULTY OF TASK (challenging)						
SUBSTANTIVE VERBAL COMMENT OR QUESTION						
TOTAL						
IV. OUTPUT (encour-aging respon-siveness)	KID 1 bright, inter- ested	KID 2 bright, bored	KID 3 slow, eager	KID 4 slow, with- drawn	KID 5 slow, dis- rup- tive	TOTAL
CALLS ON KID						
ASKS SHORT-ANSWER QUESTION						
ASKS THOUGHT-PROVOK- ING, OPENENDED, OR EXPLANATION QUESTION						
(When kid has been asked a question & either hasn't ans- wered or gave wrong answer) TEACHER						
A) moves to another						
B) sticks with kid by making com- ment or another question						
C) gives right answer						
	KID 1 bright, inter- ested	KID 2 bright, bored	KID 3 slow, eager	KID 4 slow, with- drawn	KID 5 slow, dis- rup- tive	AVER- AGE
WAIT TIME (#seconds T waits for answer)						
AVERAGE # SECONDS PER KID						

E. Tally Results: Participants group according to the category of the behavior they have been coding. They record the results of their observations on a large chart identical to their section of the observation sheet and summarize the results for the entire group.

### Conclusion

Participants are asked to comment in writing on a) important learnings for them during the day and b) on their reaction to the training design.

### "Sample Abstract Profile"

(The following profile is one of the five generated during the training session.)

Expectation Statement: "These kids never follow directions!"

Brainstorm of possible behaviors that might be conveying this expectation to the students:

1. Teacher might make the directions too difficult.
2. (She) might say them too fast.
3. (She) may not look at them.
4. Maybe there's something in (her) tone.
5. Maybe (she) repeats the directions several times and the students come to expect this.
6. Maybe (she) doesn't really ask for their attention before (she) gives the directions.



7. Possibly (she) interrupts her own directions for one reason or another, like finally remembering to send the lunch count down or something.
8. If (she) doesn't expect them to follow them, maybe (she) doesn't bother to give them clearly in the first place.
9. (She) might be in the habit of giving the directions to individual students after (she) finishes the whole class directions.
10. (She) might not set the right mood or scene.
11. (She) might do things while (she's) giving directions.
12. (Her) voice might be too soft or too loud.
13. (Her) position in the room might say that (she) only expects certain kids to listen, or (she) may be simply too far from some kids.
14. (She) may leave out part of the room by where (she) looks.

### Descriptions of the Major Simulations

#### 1. Directions for expectation poker: a simulation

Objective: To have participants experience, in dramatic fashion, the power and cumulative effect of interpersonal expectations in shaping peoples' behaviors.

- A. Introduction: The purpose of the simulation is made public. Then the leader gives an overview of how Expectation Poker is run.

Each of you will eventually be wearing a band on your forehead. You won't know what it says but it will tell other people what to expect of you. For example, I might be wearing a band that says,



"You think I am a lunatic," and everyone throughout the game would treat me as though they expected me to be a lunatic.

At the end of the second round you will be asked to guess what is written on your band. However, the object of the game isn't just to guess what your band says. Instead, we want you to experience what it's like to have people expect that of you. So don't be too preoccupied with what's on your forehead; just try to hang-in with the experience and see what happens even if you know for sure what your band says.

#### Content of Headbands

You think I'm a trouble maker.	You think I am terrific.
You think I am very smart.	You think I am a blah person.
You think I am very dumb.	You think I am a funny person.
You think I am smart but do not try.	You think I am a devious person.
You think I am dumb but try hard.	You think I am out to get you.
You think I never pay any attention.	You think I am a rebellious person.
You think I hate your guts.	You think I am a lazy person.
You think I am always testing you.	You think I am a hyper-active person.
You think I am a perpetual pain.	You think I have a short attention span.

You think I am too passive.      You think I am a manipulator.  
 You think I am too aggressive.      You think I can do no wrong.

B. Round One: Facilitators dress every person's head with a headband. The group is divided in half; A's and B's. B's form an inner circle, facing out. A's form an outer circle, with each A facing a B. (A's turn their bands so that they are not visible to B's at this time. They will be working only with B's expectation statements during this half of Round One.)

A's read the headband of the person-B they are facing and try to adopt the indicated attitude toward B. The pairs are then instructed to interact for a few seconds as they might interact at a party or in any situation where they were just meeting one another. During the interaction A's subtly convey their expectations of B's.

After approximately 15 seconds A's rotate clockwise and follow same procedure with new B's. This continues for 6 rotations. Then inner and outer circles switch. A's make their headbands visible now, while B's make theirs invisible. The same interaction procedure continues for approximately 6 rotations. (Outer circle people rotate

counter-clockwise this time so that participants continue to pair with people with whom they have not yet interacted.)

The group leader then tells participants to freeze, suggests that they close their eyes and consider how they are feeling now. In particular, they should consider how their feelings and behaviors might have changed as people treated them according to the expectations on their foreheads. (Allow 20 seconds or so.)

Leader then allows participants about three minutes to fill out processing questions for Round One. At this point verbal interaction among participants is discouraged, since there is another important round in the game.

#### Processing Sheet

End of Round One

1. By the time 7 or so people had greeted you, how were you feeling about yourself?
2. Did you come to expect certain behaviors from people? What were they?
3. By the time a few people had greeted you, do you think you were acting differently toward people than you usually do? Explain.

C. Round Two: Participants pair up -- an A with a B. For the first two minutes A is the teacher and B the student. "A" (teacher) reads the headband on

B's (student's) forehead and, for the next two minutes, tries to respond to B accordingly. (At this point B ignores the expectation on A's forehead.) During this two-minute interval, the student's task is to interview the teacher.

Directions to Student: You have been given an assignment by another teacher to interview this teacher. The topic is "Ways to save money during these days of inflation". During the two-minute interview you need not record anything, but do be alert to the verbal and non-verbal cues the teacher is sending you.

At the end of this two-minute segment, participants find new partners and switch roles. Those who had a turn as teachers become students and vice versa.

Participants then fill out 1) the observation sheet for Round Two and 2) the Processing Questions for the End of Round Two.

In groups of 6, participants gather to share their reactions to the simulation. They begin by stating what they think is on their foreheads and comparing their guess to the expectation actually written on their bands.

## Processing Sheet

## End of Round Two

1. From the behaviors of others toward you, what do you think is on your forehead?
2. Because of people's responses to you, did you change the way you were acting or feeling? In what ways?
3. When you were in the teacher's role and read what was on the student's forehead, what kinds of changes did you have to go through to respond to him/her? (Think of physical and mental changes.)
4. If you can, name actual kids that you teach who could be matched up with some of the cards you saw today. (Don't spend a long time on this question now. Just put down the ones who come to mind quickly.)
5. What cards can you think of that should have been included in today's game?
6. What conclusions can you draw from today's game?

## Directions to Students:

You have been given an assignment by another teacher to interview this teacher. The topic is WHAT ARE THE BEST WAYS TO SAVE MONEY DURING THESE DAYS OF INFLATION? During the two-minute interview you need not record anything except data which will help you answer the questions on your observation sheet. After you interview your partner and vice versa, you will be given additional time to complete your observation sheet. You will make out a separate sheet for each person you interview.

## OBSERVATION SHEET

1. When your partner was the teacher, what did you notice about his/her facial expressions?



## TONE OF VOICE?

What would you interpret these expressions and voice tones to mean?

2. How do you think the teacher felt toward you?
3. How did you feel toward the teacher?
4. How did the teacher make you feel about yourself?

2. Descriptive summary of Expectation Poker. The foregoing description of Expectation Poker presents the rules of the game. What turned this game into an educational experience is the impact it has on the participants. To capture and convey their highly charged emotional responses and their resulting insights, a descriptive summary of the subjective experiences of participants seems also essential.

Remarks by participants are sometimes direct quotations taken from their Round One and Two response sheets and the end of the day feedback sheets. In other cases the remarks are paraphrases of comments noted during the general discussion.

Before the game began, people roamed around reading the various headbands to get an idea of the range of expectation statements. Laughter and general noise level were high as Round One started. Half the participants, those in the inner circle, were being greeted and responded to according to the expectation on their foreheads. Noise level remained high as the fast-paced interactions of Round One proceeded. The primary changes an observer could detect were gradual shifts in body language of people in the inner circle. There was not, of course, one type of response to a positive or negative headband. The following shifts were actually observed and serve as illustrations: By the time the inner-circle people had changed partners three or four times (consuming approximately 45 to 60 seconds total) the woman who wore "You think I'm lazy.", who had with her first two partners initiated the conversation, was now obviously doing nothing but responding. From her lip movements one could tell she was giving one-word or short-sentence answers and her arms were now folded over her chest. The man who wore "You think I am a manipulator." cocked his

head and raised his eyebrows as each new partner approached. "You think I'm terrific" smiled broadly and increased both the quantity and magnitude of her gesticulations.

A few random comments were addressed to the leader: "I'm not sure I can take another round of this."

"This is amazing!"

"I think I know what I've got and I don't like it."

The room quieted as people took time to fill out the processing sheet at the end of Round One. A later reading of the sheets revealed that most participants were already feeling the effects of having people expect them to be dumb or funny or smart or conceited or whatever it was they were expected to be.

Round Two was designed to deepen the effects of Round One and give the new dynamics time -- time to sink in and time to influence the peoples' behaviors as well as their thoughts and feelings.

Sample comments and insights of the participants offered during the processing of the game capture the essence of this experience:

"You think I'm lazy." "After I realized what I had on my forehead, I felt a real relief because I knew I didn't have to do anything. Everyone would carry the ball for me."

"You think I'm funny." "It hurt because no one would take me seriously. I didn't get funny; I got more serious, almost pleading with people to listen."

"You think I'm intelligent." "I felt great! People really wanted to hear what I had to say. After a while I felt like I could probably come up with some answer to any question anyone might ask."

"You think I'm smart." "I had the feeling that I had a lot of power over other people. Particularly in Round Two, I figured I could probably get all the time and attention I wanted from the teacher."

"You think I'm terrific." "I noticed people touched me a lot. There was a lot of physical contact."

Leader question to "pain-in-the-neck": "Mina, did people touch you much?"

Mina: "No, no one."

Leader question: "How about others who are wearing negative headbands, did you get touched much?"

Only one person answered positively to this question.

That was the person wearing "You think I'm dumb but try hard."

"You think I'm too aggressive." "People consistently took a step back from me after reading my headband. I really think people stood farther away from me than from other people."

"You think I'm a pain-in-the-neck." "This whole thing was very painful for me because I think I am a pain-in-the-neck to people. I still think it has been a good experience for me, but painful."

"You think I'm undependable." "There was more pain for me in the beginning than in the end of the game. When I first started to realize what I had, it hurt because I didn't want that. But gradually I came to accept it. I already knew I was undependable and everyone else already knew it too, so it was o.k."

Leader Question: "Did anyone else find this phenomenon true for them, i.e. it hurt more at first until you accepted it?"



Approximately twelve participants raised their hands.

"You think I'm a trouble maker." "After a while I really got into it. I thought, hell, I might as well give 'em something to complain about."

"You think I hate you." "I just thought people were cold toward me and didn't like me. I had no idea my headband said I didn't like them."

"You think I'm smart but lazy." "I had no idea there was a 'good' part to my expectation. I just picked up the lazy part."

"You think I am a blah person." "I never gave up. Right to the end, I kept trying to think of ways to get my partner interested in our conversation. However, I'm not sure how long I could keep this up. If people treated me this way day in and day out, I think I'd say 'to hell with everybody' after a while."

3. Directions for Holiday Bazaar: a simulation

<p>Objectives: To demonstrate to teachers the fact that groupings can convey expectations and that the very existence of groups can widen the initial ability gap among the groups. To give participants an opportunity both to feel and analyze the effects of being treated differentially by a teacher.</p>
--

- A. Introduction: The purposes of the simulation are made public. Then the leader, who is role playing a teacher, sets the scene for the simulation:

We, as a group, are going to raise money for a holiday celebration by sponsoring a bazaar at which we will sell such items as tree ornaments, house decorations, and mobiles handcrafted by paper-folding. Due to a scarcity of time to pre-



pare for the bazaar, the group needs to produce a large number of high-quality, appealing items in a efficient and organized way.

We cannot, therefore, afford time for experimentation and individual uniqueness.

- B. Round One: Everyone is taught to fold a picturesque rocket. To provide a basis for ability grouping, participants are then asked to demonstrate their speed and accuracy at paper-folding such rockets in a four-minute timed production period. They are forewarned about the purpose of the trial. After the four minutes the teacher and her associates (other facilitators) inspect each plane, rejecting those that do not meet quality check points.

Participants are now grouped by "ability". (Make the cutoff points such that less than 1/3 of the participants end up in the top group and less than 1/3 end up in the bottom group.)

- C. Round Two: Participants are told that there will be another four-minute production period to make sure that people have been properly grouped. After this four-minute trial, groups are re-aligned if need be. (If time is running short, this round can be skipped.)

D. Round Three: At this point, the three groups are spaced in different parts of the room to learn their next tasks. Having demonstrated manual dexterity, the "fast group" is instructed to create elegant, origami birds out of large, dazzling squares of origami paper. The whole class is shown a sample of the bird and the type of paper this group will be using. Given the apparent difficulty of their task, the group receives the undivided attention of a helper, a trainer other than the one role-playing the teacher. The "slow group", on the other hand, is given large sturdy sheets of construction paper (with enough extra for mistakes) and told to make a very long paper chain, which will be draped around the bazaar display table and wall. The teacher shares enthusiastically her confidence that this group can create a terrific chain.

The teacher then moves to teach the "middle group" how to make small, moderately challenging geodesic domes out of squares of origami paper, smaller than those bestowed upon the "fast group". At this point, all three groups are given time to work on the products matched supposedly to their ability levels.

As they work, group members are asked to name their group and to price their product.

As groups complete their tasks, people are told to display their wares with price tags at a prepared display area.

- E. DIRECTIONS TO TEACHER: To have participants experience the full effects of this simulation, the trainer who is role-playing the teacher must accord the groups the kind of differential treatment that Rist observed in actual classrooms. Thus the teacher should 1) stand closer to the "fast group" while giving directions; 2) look at the "fast group" most frequently, the "slow group" least frequently; 3) give the "fast group" more instructional time, (in the simulation this is accomplished by assigning another trainer to work just with the "fast group" while they are folding the origami bird; the teacher teaches group two to fold the geodesic dome and checks on the "slow group" every once in a while, quiets them when they need it, etc.); 4) interact with the "slow group" mainly to discipline and direct them; 5) provide better materials to the top two groups. (In this case, the top two groups work with colorful origami paper; the bottom group uses construction paper and has to share scissors.)

After the folded products have been displayed, participants gather to process the simulation.

They are encouraged at first to stay in role long enough to vent whatever feelings they feel at that moment toward the teacher. Then members of each ability group in turn are asked to describe their experiences during the game, especially their thoughts, feelings and behaviors at different critical points.

4. Descriptive summary of Holiday Bazaar. During Round One everyone was obviously trying hard to fold rockets, although several people commented that they were inept on tasks of this sort.

One man made his own version of a paper plane, which he claimed should be accepted because of its creativity; trainers rejected it because it failed to meet specifications that had, in all fairness, been made public earlier.

Participants made no bones about not liking it when some of their rockets were rejected during inspection, and many complained bitterly or made cracks about the groups to which they were assigned.

The final group composition was: Group One (best and fastest), consisted of seven people; Group Two (average paper-folders), numbered thirteen; and Group Three (slow folders), numbered ten.



A. The Experience of the "Slow Group"

In the course of the game, the "slow group", amid gripes about their task, had become increasingly boisterous and noisy, inviting humanistic reprimands from the teacher and from distracted "middle group" members. They did succeed in creating an elaborate paper chain with several unique twists, but discounted with hostile and sarcastic remarks other people's comments on their creativity. Great camaraderie developed within the "Chain Gang" and eventually they agreed to sell their massive group product for \$100.00. In the discussion after the game, the "slow group" members talked about their experience. Some expressed bursts of anger and rebellion, not to mention hostility, toward the leader. Others were left preoccupied with self-doubt; are they really below average in paperfolding and what does this mean? Still others shared a deadening indifference to the whole task, toward the teacher and toward other group members. One person, on the other hand, boasted about the group's spirit and cooperation and met with loud cheers of support from comrades. As the atmosphere calmed, others dwelled on the residue of resentment they felt about having been thrust into the "slow group" on the basis of what seemed to them an



arbitrary and silly test of paper-folding performance. Although group members' reactions to the game varied, all admitted to dramatic effects on their thoughts, feelings and behaviors in ways that undermined either their performance or feelings of accomplishment. Sample comments were:

"I didn't belong in the slow group. I was only slow because I'm careful and thorough -- a perfectionist with high standards."

"I could have made a brilliant origami bird and I resent that only the fast group was taught to make them. I couldn't believe you asked us to make paper chains!"

"You just didn't want to have to teach us anything, so you gave us this mechanical, independent, simpleminded thing to do. I resented that you didn't spend more time with us."

"I got rowdy because I was angry at being placed in the slow group. I was embarrassed."

"Our group got chummy and we had a great time putting down everyone else in the other groups working so hard."

"I noticed that even though we said we didn't care if we weren't making birds, we kept looking at the people in the other groups."

"We made more negative cracks about ourselves than about any one else."

"I wanted to work to make ours a good group anyway, but people kept fooling around."

"We put ourselves down a lot."

"I loved the slow group. I felt safe knowing I didn't have to produce anything much and I could behave any way I wanted."

#### B. The Experience of the "Fast Group"

Members of the "fast group" all succeeded in completing one origami bird. A trainer worked full time with this group since folding this bird was

difficult and involved many steps. She encouraged them in their work, reminding them of its difficulty, but reassuring them that they had already clearly demonstrated unusual competence at paper-folding and that she would give them all the help they needed. "Fast group" members concentrated intently on their task, sparing idle chatter. They priced their products high, without hesitation, and every single group member continued making birds even after the simulation game was officially ended. "Fast group" members also experienced a range of reactions, both positive and negative, to the game. Some shared feeling insecure and self-conscious, others proud and challenged, others superior but isolated and alone. Those who felt insecure and pressured envied members of other groups who were having such raucous fun. All expressed appreciation to the trainer who gave them so much time and help. They reported:

"We were special and we knew it."

"I was mad at the slow group for making so much noise and making it hard for me to concentrate."

"I felt scared and pressured. I was sure I got into the fast group by accident or fluke and then, there I was, having to perform better than most of the class. At first I wished I had goofed up on the airships, but then we got so much help from the trainer and each other that I grew less nervous."

"I felt kind of uneasy at first because I thought people in other groups would tease me later. Then I just got absorbed in the task and didn't worry about other people."

"People in our group helped each other a lot."

"I really liked being in this group because the task was interesting and we got all the help we needed. The paper was beautiful, too."

### C. The Experience of the "Middle Group"

The "middle group" seemed to be a no-person's land. Its members pooh-poohed the geodesic dome as a product, even though the trainers thought it was quite appealing. Group members complied with the teacher's instructions, but without much visible enthusiasm. Generally, when people talked, their voices were low and muffled. There was not much interaction of any sort among them. Even though these participants showed few emotions during the simulation, they reported intense reactions to being in this "middle group".

"The teacher didn't really focus on us; she was too busy keeping those other people quiet."

"We didn't get to do the really interesting task the top group did and we weren't having the fun the bottom group was having. We were in the boring middle."

"The teacher taught us what we needed to know, but she didn't show much feeling for us. She hardly noticed us."

"Being in the middle is nowhere. You're lost in the crowd."

"I kept wondering if there'd be enough rounds for me to get to the top group."  
 "We didn't build any group spirit."  
 "I felt o.k. here because there wasn't much pressure."

### After-School Training Session

Objectives: 1) To encourage greater use of thought-provoking questions on the part of teachers;  
 2) to increase teachers' "wait-times".

#### Warm-up

Play "Assassin", p. 26 in Fred Harris' Game Book.

## PART ONE: PROMOTING GREATER USE OF THOUGHT-PROVOKING QUESTIONS

### I. Introduction

Objective: To help teachers to recognize and generate thought-provoking questions.

Have teachers distinguish between thought-provoking and rote questions by outlining criteria for each. (At a minimum, criteria should include the points listed below. Leaders supply these if the teachers do not.)

#### Thought-Provoking

1. Allows for divergent answers.
2. There is no one right or wrong answer.

#### Rote

1. Requires convergent answer.
2. Student relies almost entirely on his/her memory to give answer.
3. Frequently requires short answer.



- II. Generating "handles", i.e. sentence stubs that might introduce thought-provoking questions.

Objective: To increase teachers' facility with and repertoire of handles for asking thought-provoking questions.

- A. Teachers divide into groups of three. One person in each group describes a lesson she has been teaching recently. Group generates at least twenty questions a teacher might use with that lesson and then identifies the sentence stubs or starters that were used to form the thought-provoking questions.
- B. In the total group, teachers make a composite list of the various handles used.
- C. In same groups of three, teachers try to generate at least five more thought-provoking questions for the same lesson.

III. Practice Time:

Objective: To give teachers practice in generating thought-provoking questions quickly.

Teachers divide into two large groups. Leader performs a series of activities: 1) reads poem, 2) shows large photograph, 3) reads newspaper article. After each activity one group of teachers makes up rote questions and the other group makes up thought-provoking questions. The grade level for which the questions are intended is announced by



the leader and varied frequently, as is the type of question assigned to each group. Questions are called out verbally.

## PART TWO: INCREASING WAIT-TIME

### I. Introduction:

Objective: To educate teachers concerning the research on wait-time.

Define wait-time for teachers as "the interval between the time a teacher calls on a student to answer and the next intervention of any kind on the part of the teacher." Summarize article by Mary Budd Rowe, "Science, Silence, and Sanctions." The major points are:

1. Most experienced teachers wait an average of one second or less for a student to respond. The lower a teacher's expectations of a student, the lower the wait-time.
2. Increasing wait-time to at least five seconds increases:
  - a) the number of whole sentence answers a teacher gets from a student,
  - b) the number of answers based on speculative thinking,
  - c) the number of arguments based on evidence,
  - d) the number of questions coming from students, and
  - e) the number of student-student interactions around subject matter.

3. Changing wait-time can change a teacher's expectations regarding the ability of a child to answer.
4. As wait-time increases, teachers begin to show much more variability in the kinds of questions they ask.

## II. Experiencing Change in Wait-time:

Objective: To have teachers experience the differential effects of increasing wait-time.

Teachers form triads (persons A, B, and C). Person A interviews Person B regarding Person B's life. Person C is timekeeper. Before rounds begin, everyone generates a list of fifteen questions they might ask someone when interviewing them about their life.

Round One: Using the questions already generated, A interviews B. A is instructed to keep asking questions at one to two-second intervals regardless of B's response, even if it means interrupting B. C observes.

Round Two: A asks same questions of B at three-second intervals. C stands behind B and signals when three seconds are up. (To keep time, C counts "one - one-thousand, two - one-thousand, three - one-thousand.")

Round Three: Same as Round Two, with five-second intervals.

Round Four: Same as Round Two, with seven-second intervals.

(A should repeat some questions and make up some new ones if they seem appropriate.)

Participants now switch roles and rounds one through four are repeated until everyone has had a chance to play all three roles. Process activity from:

- 1) point of view of one being questioned, and
- 2) point of view of one doing the questioning.

#### Self-Monitoring Devices

Every experienced teacher and trainer knows that once you are back on the home front, it is all too easy to forget the good intentions and resolutions stimulated by some interesting workshop session. The purpose of the self-monitoring devices was to keep the teachers' resolutions alive and to encourage sustained practice on the specific behaviors relevant to this study. After using the self-monitoring devices for six months, it is very likely that the new behaviors will be integrated into the teacher's normal repertoire of behaviors.

The content of each self-monitoring device related to one of the four behaviors observed or other related behaviors in the categories from which the observed behaviors came. Usually the teacher would be told the focus for the week on Monday, encouraged to do something specific that

week in relation to the focus, and then asked to report on the results in some way on Friday. It was expected that it would take a teacher no more than five to ten minutes to fill out the self-monitoring device on Friday. If it took any longer than that, this researcher figured that the teachers would not do it. Again, the purpose of the device was to keep the teachers' awareness alive; it was not primarily to collect data.

Sometimes the researcher would deliver the self-monitoring devices personally on Monday and collect the ones from the previous week; or she would arrange to have them delivered and collected by mail. In one way or another, they were collected each week.

Contents of the self-monitoring devices were as follows:

#1 Subject: Thought-Provoking Questions

Attached to this paper is a list of your students. Check the names of those students you are sure you asked thought-provoking questions of this week. Put a "?" next to the names of the students you are not sure about and a "0" next to those students you probably didn't ask any thought-provoking questions of this week.

#2 Subject: Thought-Provoking Questions

Read on Monday

Asking thought-provoking questions is one way of showing a student that you have high expectations of him/her. Select 5 students you would like to concentrate on and make a special effort to ask thought-provoking questions of these students during the upcoming week.

Please list the names here.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

Fill out on Friday

1. Would you say you were successful in remembering to ask thought questions of the students you selected?
2. Please comment on any effects you noticed in these students because of your concentrated effort.

#3 Subject: Socio-emotional climate

Read on Monday

Research shows that when a teacher has positive expectations of a student, the teacher frequently has a warmer personal relationship with the student. Conversely, you all know that when you have a good relationship with a student, that student will frequently "try harder" for you. A student who feels cared about has more incentive to work.

Go down the list of students in your room. Even though you know you care about each one, the students don't always know. Select the 5 students who might be least clear about your relationship with them, and for the next week find ways to let these students know you care about them and whether or not they learn.

The five students are: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Fill out on Friday

Please list a few of the things you did this week to let the above students know that you care about them and whether or not they learn.

#4 Subject: Feedback

Read on Monday

It has been shown that after bright students answer questions they usually get more feedback from the teacher. The feedback might be positive or it might be negative, but they get more of it.



Telling a student more about why his/her answer is wrong or right increases your interaction with the student around substantive issues and can do a great deal to increase the student's impression of your expectations of him/her.

Push yourself this week to give all of your students more feedback.

Fill out on Friday

Spend 5 - 10 minutes writing about your efforts to do this and about any effects you noticed in your students.

#5 Subject: General expectations re: reading

Read on Monday

On Friday you will be asked to answer one question regarding each student: "Do you think you are expecting enough of this kid in reading?" That is, are your standards for this kid sufficiently high in reading? Could he/she be doing more? Are you letting him/her slide in any way in reading?

Fill out on Friday

Please answer "yes" next to each student's name if you think your standards are sufficiently high for that student. Put a "no" if you think your standards are not sufficiently high for that student in reading, if you are letting him/her slip in any way.

#6 Subject: General expectations re: writing

Read on Monday; answer on Friday

Consider the kids who are the best writers in your room. Do you think their work would compare favorably with the writings of kids in a comparable group in some suburban school?

My best writers are: Would they compare favorably?

_____	_____
_____	_____
_____	_____
_____	_____

Comments:

#7 Subject: Socio-emotional climate

DON'T SMILE UNTIL AFTER CHRISTMAS!

But it's after Christmas. Sooooo.....

You remember that originally one of the behaviors you were observed for was "number of smiles". I explained to you that smiling was just one of the behaviors that indicated a warm climate and that a warm climate, in conjunction with other behaviors, such as thought-provoking questions, could convey higher expectations to students. Of course, as some of you indicated, there are times when you don't want to smile at kids, for one reason or another.

On the other hand, when the time is right, think of how nice a smile can be. Are there kids who haven't gotten a smile from you all year? Or maybe one or two? This week try letting a few kids know that you care about them and about whether they learn by finding a time and way to smile at them.

#8 Subject: Thought-provoking Questions

Read on Monday; fill out on Friday

Attached to this paper is a list of your students. Check the names of those students you are sure you asked thought-provoking questions of this week. Put a "?" next to the names of the students you probably didn't ask any thought-provoking questions of this week.

#9 Subject: Thought-provoking Questions

Read on Monday

Asking thought-provoking questions is one way of showing a student that you have high expectations of him/her. Select 5 students you would like to concentrate on and make a special effort to ask thought-provoking questions of these students during the upcoming week.

Please list the names here. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Fill out on Friday.

1. Would you say you were successful in remembering to ask thought questions of the students you selected?
2. Please comment on any effects you noticed in these students because of your concentrated effort.

## #10 Subject: Wait-time

Read on Monday

It's time to check on your wait-time again. By waiting longer you show students that

YOU EXPECT THEM TO ANSWER

YOU EXPECT THEM TO BE ABLE TO ANSWER

YOU EXPECT THEM TO ANSWER IN GREATER DEPTH.

Check this week to see if you are giving students adequate time for answering. Select one time of day when you are consistently going to work on increasing your wait-time and try to wait a minimum of 5 seconds during that period.

The time you are selecting is \_\_\_\_\_

Suggestion -- Teach one or two students to count wait-time (one one-thousand, two one-thousand, etc.) and have them give you feedback during that period.

Fill out on Friday

Were you successful in your efforts to increase wait time? Explain.

What effects did you notice?

## #11 Subject: Thought-provoking questions

Read on Monday

Asking thought-provoking questions is much easier if you have a repertoire of beginnings for such questions. In our original training on thought-provoking questions you teachers suggest many appropriate ones. Those beginnings are on the accompanying paper. This week I would like you to choose one or two that are your favorites and one or two that you seldom use and try to work them into your lessons more frequently. You may want to re-work them in a way that makes them more intelligible for your grade level. If you want to use ones that are not on this list, feel free.

The beginnings I am going to try to use more often this week are:

---



---



---



---

Fill out on Friday

Please list some examples of thought-provoking questions you remember asking this week.

(Accompanying list of "beginnings")

---

Some beginnings which can frequently be used to formulate thought-provoking questions:

Examples

- |                                     |   |
|-------------------------------------|---|
| 1. Under what circumstances...?     | "Under what circumstances do you think (character in story) would have behaved differently?"  |
| 2. What are the possible values...? | "What are the possible values in being stubborn?"   |
| 3. How can you tell...?             | "How can you tell Tonya was happy about starting school?"                                     |
| 4. Why...?                          | "Why did Jesse get lost?"   |
| 5. What might happen if...?         | "What might happen if Tanya's father finds out about her ditching school?"                    |
| 6. How would you summarize...?      | "How would you summarize the major events in the story?"                                      |
| 7. What evidence can you find...?   | "What evidence can you find for thinking that Cinderella was treated unfairly by her family?" |
| 8. What are the possible causes...? | "What are the possible causes for Jimmy's feeling bad?"                                       |
| 9. What are the effects of...?      | "What are the effects of Peter's finally learning to whistle?"                                |
| 10. Where else...?                  | "Where else might you find elephants other than in a circus?"                                 |
| 11. When else might...?             | "When else might you feel like this character felt?"  |



12. Give another example of...? "Give another example of how fairy tales seem to have happy endings?"
13. How do you think...? "How do you think Pinocchio should have been punished for lying?"
14. What do you think...? "What do you think Little Red Ridinghood said to herself when she realized that was a wolf in that bed?"
15. How can you tell...? "How can you tell Robbie wasn't too happy about getting a baby brother?"

#12 Subject: Thought-provoking questions

Read on Monday

Please work this week on asking more thought-provoking questions in general. In particular, select certain "handles" you'd like to use more frequently with your students and write those "handles" here. Find some way to help yourself remember to use them during the week.

The "handles" I selected were:

#13 Subject: Wait-time

Read on Monday

"Five" is the magic number! According to the research, waiting five seconds at least is what makes it all happen -- more answers, longer answers, more answers based on proof, etc. Choose some kids you think could be giving you better answers and, when you ask them thought-provoking questions, wait at least five seconds before you intervene again in any way. If they answer with a short, or superficial, answer, WAIT five more seconds.

The kids you think could be giving better answers are:

Fill out on Friday

Did you notice any magic? Explain.



#14 Subject: Equal distribution of teacher attention

Read on Monday

Earlier in the year you all worked very hard on making sure that your "woodwork kids" started getting more attention from you. This week I would like you to consider that potential problem again. Read down your class list. Are there any kids who are getting more attention from you as a disciplinarian than as a teacher? Are there kids you're just not calling on or helping very often? If so, list their names below and try to compensate in whatever way you think is appropriate this week.

Fill out on Friday

What happened? What did you do, and what effects did you notice?

#15 Subject: General review

Read on Monday

For the past several months you have been working on several specific behaviors that convey your expectations to students, that let students know whether or not you expect students to learn and how much you expect them to learn.

The specific behaviors were:

1. Smiling at kids, relating to them, letting them know you care about them, and whether or not they learn.
2. Asking thought-provoking questions.
3. Increasing your wait-time, letting kids know by your silence that you expect them to answer and/or you expect them to answer more fully, in greater depth, etc.
4. Distributing your input and attention as a teacher more evenly among all your students.

This is it! The last self-monitoring device! Sooo..... this week choose the area you think would be most fruitful for you to work on still, and figure out how you're going to work on it.

The area you've chosen is:

The way you're going to work on it is:

Fill out on Friday

Well, how did it go?

What did you actually end up doing?

What effects did you notice?

### Description of the Feedback Sessions

The training sessions were designed to establish the importance of teacher expectations as a variable in learning and to begin the process of helping teachers recognize the role of this variable in their classrooms. To further this recognition process and increase the teachers' motivation for working on the behaviors relevant to this study, teachers received individual feedback on the results of the initial observations in their classrooms. The researcher met with each teacher to point out 1) the behaviors in which she was observed to be weak, and 2) the students who were being discriminated against through the quality and/or quantity of the teacher's interactions.

During the course of the feedback sessions, the researcher came to realize that the fact that the observations had been done by someone other than the researcher giving feedback increased the objectivity of the data in the teachers' eyes. Teachers knew that the researcher's feedback was based entirely on the observer's data and the feedback, therefore, would not reflect any negative impressions the observer might have formed about other aspects of her teaching, classroom management, or organization.

To minimize further the resistance and defensiveness such feedback might provoke, the researcher took several precautions.

She began with a statement which gave the teacher a possible "out" if she needed one. "We both know that the data from this observation represents only one hour-and-a-half period. I'm certainly not claiming, therefore, that it paints an infallible or representative picture necessarily. However, it is an accurate description of that one segment. You are the only one in a position to decide whether it is typical of you or just unique to this hour-and-a-half. And, after you've seen the data, I'll ask you if you think it is typical or not."

The researcher pointed out strengths indicated by the data. For example, if the teacher showed at least two longer wait-time scores, especially with students classified as "slow", the researcher suggested that this showed an ability on the part of the teacher to "hang-in-there" some of the time. Or, when the teacher remarked that one of the students has received a high number of teacher interactions is frequently a discipline problem, the researcher pointed out that discipline issues do not show up in this data. The teacher, therefore, must be channeling some of the student's energies into substantive issues.

The researcher allowed the data to speak for itself; she kept interpretive and evaluative statements to a minimum. For example, the researcher would say, "Henry and Tyrone show up three times at the lower end of the ranges indicated on the third page. Tell me about these students."

She would not say, "Henry and Tyrone show up three times at the lower end of the ranges; you must be neglecting them."

The researcher based probing questions on the statistics or on information supplied by the teacher during the feedback session: e.g. "You mentioned that four of the students who received a high number of substantive interactions are very smart and very verbal. Is this a coincidence, or do you think there is any kind of a pattern indicated here?"

To fulfill the objectives of the feedback session and make the data as meaningful as possible for the teachers, the written feedback contained four components:

1. A review of the behaviors that were being observed and an explanation of the schedule. The researcher explained these orally to supplement the written explanation given to the teachers.

---

Name \_\_\_\_\_ Grade \_\_\_\_\_ Level \_\_\_\_\_ Room \_\_\_\_\_

Dear

The behaviors you were observed for have been shown to be important conveyors of positive expectations of a student on the part of a teacher. The purpose of the self-monitoring devices is to help you to be more aware of these behaviors, so that you can convey higher expectations to students where appropriate and, in so doing, help your students to learn more.

Hopefully, by the end of the year two things will happen:

- 1) You will increase the overall number of these behaviors.
- 2) Any discrepancies among students will decrease.

It's all up to you now!

*Earline*



Earline Sloan  
Expectation Study

## CONTENT OF THE OBSERVATIONS

The observer was watching for four behaviors:

- 1) The number of substantive interactions you had with each student. "Substantive interactions" refers to any interaction around the content of a lesson. This would include instructing a student or asking the student a question related to the lesson. It would not include giving directions, praising a student, or correcting his/her behavior.
- 2) Your wait-time, i.e. the amount of time you waited between asking a student a question and intervening again in any way.
- 3) The number of times you smiled at each child.
- 4) The number of rote questions you asked each student; the number of thought-provoking questions you asked each student.

You were observed for a total of 84 minutes (six 14-minute segments). The observation schedule was as follows:

- 1) For 7 minutes the observer recorded substantive interaction and wait-time.
- 2) For the next 7 minutes she recorded smiling and type of question.
- 3) For 1 minute she rested.
- 4) Then she began the 7 minute intervals again.

2. Both a tabulation of the number and type of relevant interactions with each student and class totals indicated at the bottom of the sheet. As teachers examined this sheet, they were encouraged to notice the totals for each student, to look for patterns or any other potentially useful information, to note the students they were willing to wait for the longest, and the students whose totals were consistently low for each variable. Most of the feedback session was devoted to scrutinizing this sheet. Teachers



were encouraged to talk about what they noticed, to describe various students and so on. An exemplary class list and data display follows.

Rene Garrison		Grade <u>2</u>	Level <u>Top of 7</u>		
	Substantive Interaction	Wait Time	Smiles	Rote Questions	Thought Questions
1. Charles B. (1)	1	1( $\frac{1}{2}$ )	0	4	0
2. Robert C. (1)	3	1( $\frac{1}{2}$ )	0	4	0
3. Bede D. (2)	19	8( $\frac{1}{2}$ )	1	11	0
4. James E. (1)	2	1( $\frac{1}{2}$ )	0	1	0
5. James F. (2)	11	3( $\frac{1}{2}$ )	0	10	0
6. Kenneth G. (2)	5	3( $\frac{1}{2}$ )	0	1	0
7. Mark J. (1)	1	1( $\frac{1}{2}$ )	0	3	0
8. Roger J. (1)	1	0	0	4	0
9. Rogene J. (1)	3	1(1) 2( $\frac{1}{2}$ )	0	0	0
10. Brian M. (1)	2	1( $\frac{1}{2}$ )	0	7	0
11. Clifford M. (3)	0	0	0	1	0
12. Marlene A. (2)	1	0	0	2	0
13. Yolanda B. (2)	6	2( $\frac{1}{2}$ )	0	5	0
14. Permelia B. (1)	0		0	0	0
15. Leslie C. (2)	16	8( $\frac{1}{2}$ )	2	14	2
16. Veronica G. (1)	2	1(1) 1( $\frac{1}{2}$ )	0	2	0
17. Sabrina G. (2)	0	0	0	2	0
18. Caprice H. (2)	18	9( $\frac{1}{2}$ )	1	9	1
19. Althea J. (1)	6	0	0	5	1

	Substantive Interaction	Wait Time	Smiles	Rote Questions	Thought Questions
20. Tara J. (1)	0	0	0	2	0
21. Felicia J. (2)	1	1( $\frac{1}{2}$ )	0	2	0
22. Christine M. (3)	0	0	0	2	0
23. Marjorie M. (2)	1	1( $\frac{1}{2}$ )	0	1	0
24. Dawn M. (1)	1	0	0	3	0
25. Tiffany W. (2)	1	0	0	2	0
26. Adrienne B. (1)	1	1( $\frac{1}{2}$ )	0	8	0
27. Jaquelyne J. (1)	1	1( $\frac{1}{2}$ )	0	2	0
28. Denise S. (1)	0		0	0	0
29. Lawrence W. (2)	0	0	0	1	0
TOTAL	103		4	106	4

3. A breakdown of totals for the ability groups identified by the teacher. At this point the researcher tried to point out relevant ratios, etc.: e.g. "I notice that for the average students the ratio of substantive interactions was approximately 6/1; whereas it was only  $1\frac{1}{2}/1$  for the fast students and 0/1 for the slow students."

Results

You were asked to classify each student in your room as either a fast, an average, or a slow learner (relatively speaking, according to your class). The total number of behaviors recorded during the observations are indicated below, according to these groupings.

	<u>Slow</u> (2 students)	<u>Average</u> (12 students)	<u>Fast</u> (15 students)	<u>Total</u>
Substantive Interaction	0	79 ..... 3 got 0 4 got 1	24 ..... 1 got 0 6 got 1	103
Wait-time	0	35( $\frac{1}{2}$ )	9( $\frac{1}{2}$ ) 2(1)	
Smiles	0	4	0	4
Rote Questions	3	58 ..... 2 got 0	45 ..... 1 got 0 1 got 1	106
Thought Questions	0	3 ..... 10 got 0	1	4

4. Both an indication of the range in number of teacher interactions with each student for each behavior observed and the names of students who fell at either end of the range. When numerous students fell at one end, their names were not listed.

The contents of this page helped to highlight students who were consistently receiving very little or a great deal of attention from the teacher and offered another stimulus for helping the teacher gain insights into the reasons for differential treatment of students.

Rene Garrison

The data on this page points out the range in the number of interactions you had with each student around the behaviors observed. e.g. If under "substantive interaction" your indicated range was 0-10, that would mean that you had 0 substantive interactions with some students (at least one) and as many as 10 substantive interactions with other students. Following the range number are the names of students who fell at one end or the other of the range.

- #1 Substantive Interaction: Your range was 0 - 19.  
 At the "0" end were: Clef  
 Stephen  
 Parmelia  
 Sabrina  
 Tara  
 Chris  
 Denise  
 At the "19" end were: Bede (19)  
 James (11)  
 Leslie (16)  
 Caprice (18)
- #2 Wait-Time: Your range was  $\frac{1}{2}$  sec. to 1 sec.
- #3 Smiling: Your range was 0 - 2.  
 At the "2" end were: Leslie (2)  
 Caprice (1)  
 Bede (1)
- #4 A) Rote Questions: Your range was 0 - 14.  
 At the "0" end were: James  
 Rogene  
 Felicia  
 Denise  
 Ken (1)  
 Clef (1)  
 Margorie (1)  
 Lawrence (1)  
 At the "14" end were: Leslie (16)  
 Bede (11)  
 James (10)  
 Caprice (9)  
 Adrienne (8)
- B) Thought-Provoking Questions: Your range was 0 - 2.  
 At the "2" end were: Leslie (2)  
 Caprice (1)



### Summary

In this study, four interventions were developed to effect conscious change on the part of teachers in the behaviors that convey expectations: simulations and didactic presentations, self-monitoring devices, and feedback on the initial observations.

Two of the interventions, the simulations and didactic presentations, were presented during a total of eight hours of training, including one 6-hour session, and one 2-hour after-school session. During one simulation, "Expectation Poker", participants were treated according to some assigned expectation, such as "You think I'm a slow learner". Most participants reported strong emotional reactions to being treated according to these predetermined expectations, and some actually began changing their behaviors -- becoming lazier, talking more slowly, or more confidently, according to the nature of the expectation they were assigned. In the "Holiday Bazaar" simulation, participants experienced some of the emotional and behavioral dynamics that result from various grouping practices. Participants were grouped according to their paper-folding abilities, determined during a pre-test situation. The "teacher" in the simulation replicated the practices Ray Rist noted in the teachers he observed. In particular, the simulation demonstrated to participants how differential input at an



early age can greatly increase any inherent ability gap that may exist initially in ability-grouped students. The socio-economic and racial origins of many teacher expectations and the consequences that follow, as these expectations become institutionalized through tracking systems, were presented in a lecture that followed the simulation.

Over half of the training time was devoted to 1) familiarizing participants with specific teacher behaviors that have been shown to correlate with positive expectations regarding student achievement, and 2) having participants explore the nature and dynamics of their own expectations toward the students they teach. In the two-hour follow-up sessions, participants practiced two of the most important and appropriate teacher behaviors related to teacher expectations, i.e. asking thought-provoking questions and waiting for student responses (wait-time).

Following the training sessions, teachers began to use self-monitoring devices, the third intervention developed for this study. The purposes of the self-monitoring devices were to keep alive awarenesses and resolutions from the training sessions and to help teachers practice certain behaviors long enough to incorporate them permanently into their natural repertoires. Each week, for 15 weeks, teachers were asked 1) on Monday to concentrate on one behavior in some delimited and prescribed fashion, such as selecting 5 students to whom to direct more specific and descriptive

feedback that week, or selecting a 45-minute period during which to concentrate on increasing wait-time; and 2) on Friday to write about the results of their efforts for 5 to 10 minutes.

The fourth intervention involved feedback to teachers about the results of the initial observations. The researcher met with each teacher individually to point out 1) the behaviors in which she was observed to be weak, and 2) the students who were being discriminated against through the quality and/or quantity of the teacher's interactions. During these sessions the researcher took specific measures to avoid making the teachers defensive about the results of the observations.

The statistical results demonstrating the effectiveness of the interventions described in this chapter are presented in Chapter V.

C H A P T E R V  
RESULTS, DISCUSSION AND CONCLUSIONS

Results

Pre and post observations were performed on each of ten experimental and ten control teachers for each of four behaviors: substantive interaction, smiling, wait-time, and thought-provoking questions. These four behaviors were chosen to represent the classes of behavior Rosenthal identified as conveyors of teacher expectations to students. For each behavior teachers received two scores: the total frequency of those behaviors observed during the one-and-one-half hour observation periods, both pre and post, and 2) the number of different student recipients of each of the four behaviors during the same observation periods. In the instance of wait-time, the length of wait-time and the number of students receiving wait-times of three seconds or more were recorded.

An analysis of variance with F tests was used first of all to determine the pre-post changes in teacher smiles, wait-time, and thought-provoking questions. It was expected that all three, not just one of these behaviors would increase among experimental group teachers as a result of the treatment, since it is the cluster of behaviors that conveys expectations. Change in one behavior alone would not necessarily convey higher expectations of student



learning. This is especially true in regard to teacher smiles. Socio-emotional climate factors alone do not convey higher expectations unless linked to an increase in qualitative input and output factors. (Leacock, 1969)

Overall increases in substantive interaction were not predicted for the experimental group because of the logical interaction of quality of interactions (as indicated by wait-time and thought-provoking questions) with quantity of interactions. That is, teachers who, on pre-observations, show a substantial number of substantive interactions (over 60) but then, as a result of the treatment, come to wait longer for students to respond and ask them more thought-provoking, in contrast to rote, questions would not be likely at the same time to increase the total number of short, individual substantive interactions with students. As quality of interactions increases, the quantity might remain the same or even decrease. For the other three behaviors, however, overall increases among teachers in the experimental group were expected as a result of the interventions.

It was also expected that, as a result of the interventions, teachers in the experimental group would convey higher expectations to MORE students, not just to those already perceived as most capable. To determine this, the number of different student recipients of each observed teacher behavior was tallied during the pre and later the

post observation periods. Then, an analysis of variance with F tests was performed to determine the effect of the interventions on the number of students to whom teachers addressed the behaviors identified as conveyors of high expectations.

To verify the equality of the experimental and control groups, an analysis of variance was conducted on prescores for each of the four behaviors. The mean frequency of each behavior and the mean number of student recipients for experimental vs. control teachers were compared. Significant differences were found in only one variable, the number of student recipients of wait-times of three seconds or more.

	Pre			
	Exp.	Control	F	P
Mean # of Substantive Interaction Recipients	16.7	18.7	0.95694	0.6574
Recipients of wait-times of 3 sec or more	4.1	8.0	4.34709	0.0491 *
Mean wait-time	1.3	1.8	3.48124	0.0754 *
# of recipients of smiles	6.0	6.8	0.15094	0.7034
Mean # of smiles	9.9	12.0	0.22187	0.6476
# of recipients of thought-provoking questions	6.5	7.8	0.33202	0.5778
Mean # of thought-provoking questions	11.7	13.7	0.23650	0.6373

Finally, to adjust for the fact that on one variable (the number of students receiving wait-time of three seconds or more) experimentals and controls were not equivalent, the final ANOVA was performed on gain scores for all seven dependent variables.



	Post			
	Exp	Control	F	P
Mean # of substantive interaction recipients	22.20	18.6	17.56627	0.0008 *
Recipients of wait-times of 3 sec or more	16.8	13.05	14.81563	0.0015 *
Mean wait-time	3.624	2.87	35.83745	0.0001 *
# of recipients of smiles	11.9	8.95	9.70238	0.0060 *
Mean # of smiles	21.1	15.85	6.22764	0.0214 *
# of recipients of thought-provoking questions	16.8	11.60	32.23311	0.0001 *
Mean # of thought-provoking questions	32.0	20.75	43.12589	0.0001 *

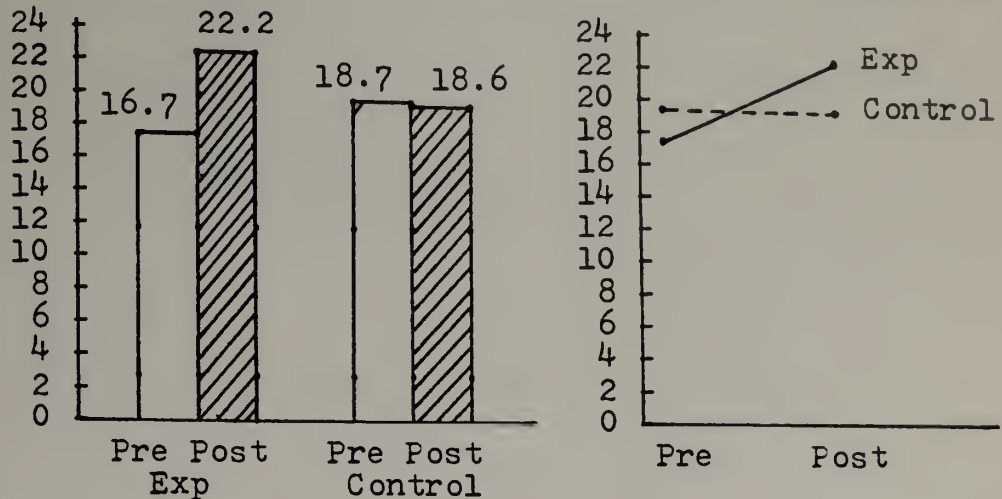
	Pre-Post Gains			
	Exp	Control	F	P
Mean # of substantive interaction recipients	5.50	-3.7	14.19605	0.0017 *
Recipients of wait-times of 3 sec or more	12.70	1.3	17.66294	0.0008 *
Mean wait-time	2.301	0.337	33.36665	0.0001 *
# of recipients of smiles	5.9	-.8	9.988	0.005 *
Mean # of smiles	11.20	-1.4	7.757	0.0118 *
# of recipients of thought-provoking questions	10.3	-1.4	17.84229	0.0008 *
Mean # of thought-provoking questions	20.3	-4.2	22.38161	0.0003 *

The number of students in the experimental and control classes was not significantly different on either the pre or post measures.

	Exp	Control	F	P
Pre	28.40	27.2	0.85263	0.6290
Post	26.1	27.8	1.25956	0.2761

The seven specific hypotheses were confirmed beyond the .01 level.

1) The Experimental teachers showed significantly greater increases in the number of individual students receiving substantive interactions than did control teachers.



Eighty-five percent of students with experimental group teachers, in contrast to fifty-five percent of students with control group teachers, were recipients of substantive interactions on the post measures.

As mentioned earlier, teachers were not expected to show an increase in the total number of substantive interactions with students because of the researcher's belief that as quality factors (such as wait-time and thought-provoking questions) increase, quantity of interactions may stay the same or even decrease. This was verified by the fact that an ANOVA on the overall increase in substantive interactions proved to be nonsignificant.

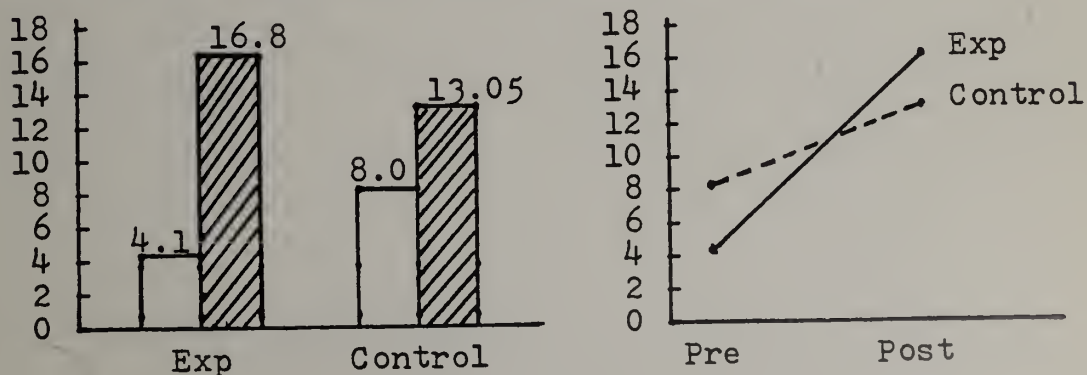
Mean # of Substantive Interactions				
	Exp	Control	F	P
pre	70.8	94.3	3.232	0.858
post	93.1	72.5	2.7919	0.1088

However, it was expected that experimental group teachers who exhibited a low number of substantive interactions (below 60) on the pre-observations would increase their total number of substantive interactions on post-observations when compared with control group teachers. To examine this, a pre-post comparison was made of experimental and control teachers who scored fewer than 60 substantive interactions on the pre-measure. The results follow:

	Experimental		Control	
	Pre	Post	Pre	Post
Teacher 1	54	140	57	62
Teacher 2	53	80	54	64
Teacher 3	39	70	41	48

Experimental group teachers who showed fewer than 60 substantive interactions on the pre-observations showed markedly greater increases than control teachers.

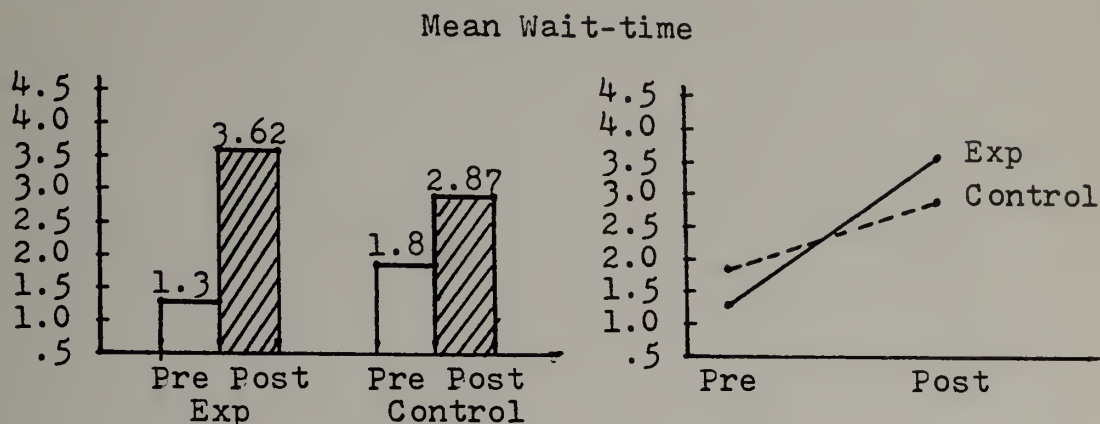
2) Experimental teachers showed significantly greater increases in the number of students receiving wait-times of three seconds or more than did control teachers.



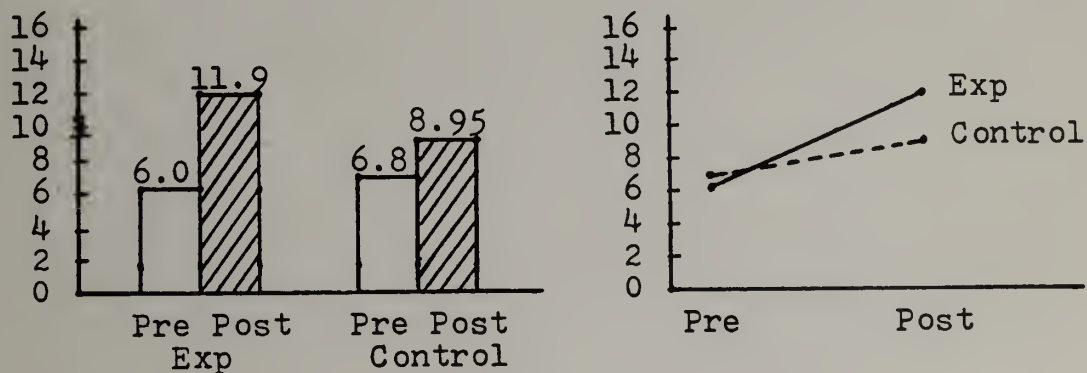
On post measures, 64% of the students with experimental group teachers, in contrast to 33% of the students with

control group teachers were recipients of wait-times of three seconds or more.

3) Experimental teachers showed a significantly greater increase in the average wait-time than did control teachers.



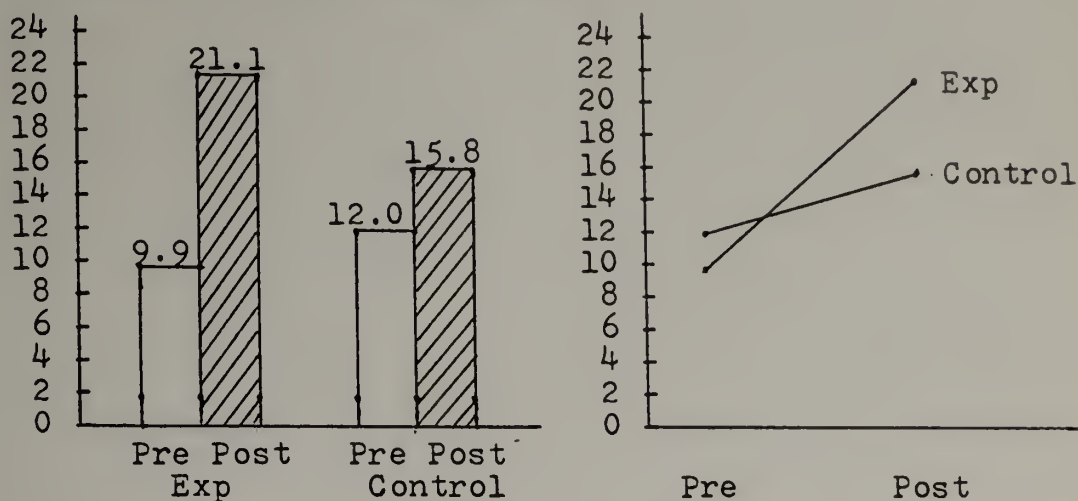
4) Experimental teachers showed a significantly greater increase in the number of students receiving smiles than did control teachers.



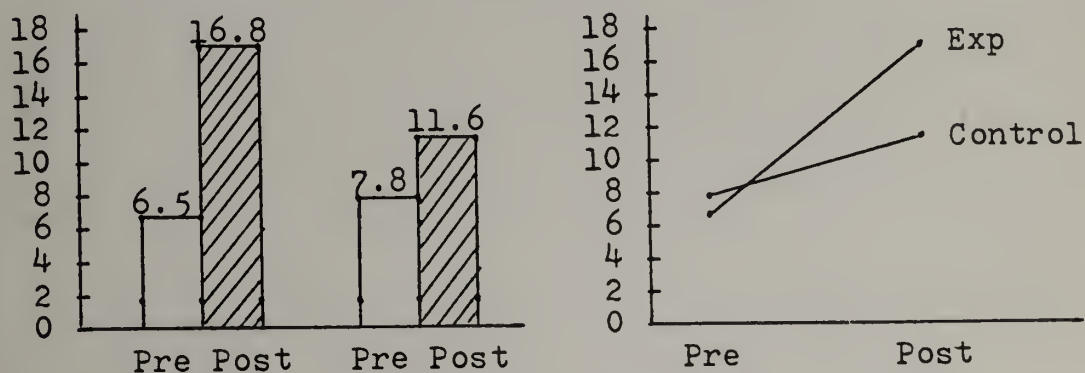
On post measures, 46% of the students with experimental group teachers, in contrast to 24% of the students with control group teachers were recipients of teacher smiles.



5) Experimental teachers showed a significantly greater increase in smiles directed toward individual students than did control teachers.

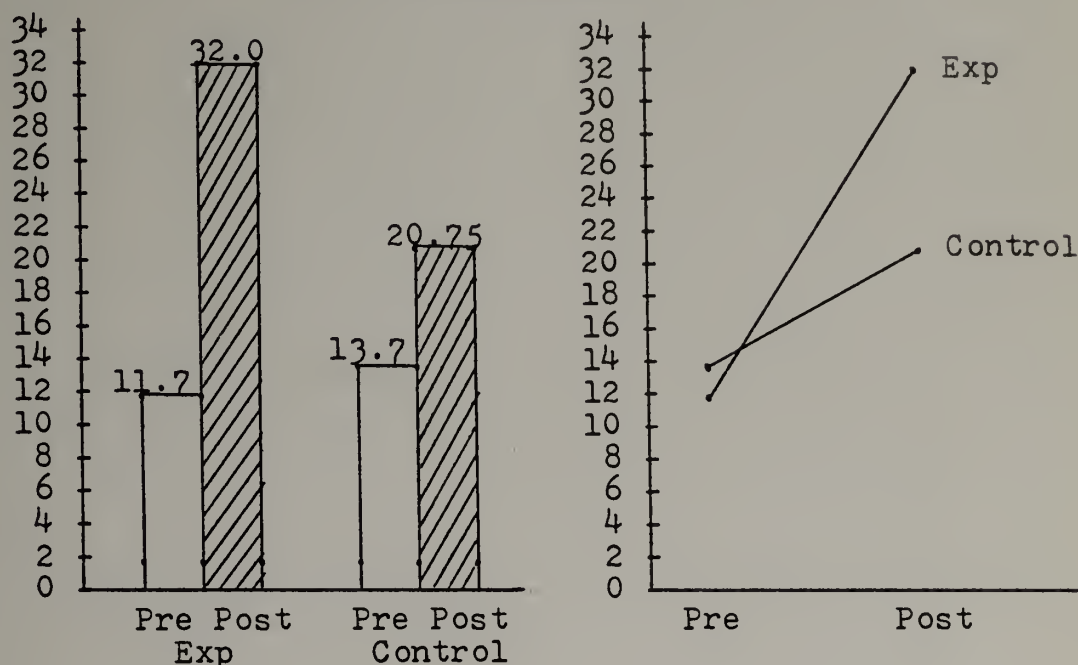


6) Experimental teachers showed a significantly greater increase in the number of students of whom they asked thought-provoking questions than did control teachers.



In post measures, 69% of the students with experimental group teachers in contrast to 25% of the students with control group teachers were recipients of thought-provoking questions.

7) Experimental teachers showed a significantly greater increase in the number of thought-provoking questions asked than did control teachers.



### Discussions and Conclusions

The ultimate value of educational interventions can be measured, first of all, by their effectiveness with the group for whom they are initially designed and, secondly, by their applicability and adaptability to other groups with similar needs. This final section will, first of all, discuss the results of this study and, secondly, explore the implications of the interventions used in this study for other educational efforts. Suggestions for further research efforts are integrated into these discussions. Each proposed variation or extension of this study is, in itself,

worthy of further research. However, for many, descriptive and analytical research is needed prior to the development or adaptation of the interventions for other groups, contexts and objectives. Thus, as interventions are proposed, prerequisite research questions will be mentioned.

This section concludes with a discussion of a totally different approach that could be used to counter the potentially negative outcomes of the teacher expectancy effect.

1) Results of the study. The problem that gave rise to this study stems from the disturbing fact that schools are not making an impact on children independent of their background and general social context. One well-documented reason schools fail in this regard is that teacher expectations regarding pupil performance are heavily influenced by racial and socioeconomic characteristics of the child and the child's family. Teacher expectations, in turn, influence student achievement. This study has shown that it is possible to alter significantly those important behavioral expressions of teacher expectations that students experience directly. It has also shown that teachers can learn to exhibit more appropriate behaviors to a wider range of students in the classroom. By so doing, the study has, in effect, helped to diminish unconscious, discriminatory practices by teachers that perpetuate privilege and opportunity for some students while limiting the growth of others.

The emphasis of the study on behavioral expressions of expectations serves several important functions. First of all, it insures that the training will directly affect students' lives in the classroom in important, measurable ways. Secondly, it seems to reduce teacher defensiveness. Frequently teachers' first reactions to the notion of the expectancy effect are defensive. The realization that teachers can, at times, exert that much power over students is frightening. It leaves teachers open to blame, as well as to praise. The focus on behavior, however, reduces self-consciousness on the part of teachers and, consequently, their defensiveness by raising questions related to their actions rather than their worth. "What am I doing?", rather than "What kind of a terrible person am I?"

While the overall approach and thrust of the interventions seem powerful, particular components of the intervention can also be identified as contributing in specific ways to the success of the study. The "Expectation Poker" and "Holiday Bazaar" simulations proved to be highly motivating to teachers. These simulations are dramatic and involving and tend to produce numerous insights regarding the power of expectations. The didactic presentations were important and, in retrospect, essential because of the powerful and even haunting information contained within. These presentations also examined the specific behaviors that convey expectations -- a clear knowledge of which was key



to deliberate, conscious behavior change on the part of the teachers involved. The feedback teachers received after pre-observations helped each teacher to own the problem of differential treatment of students and to define the specific areas in which she/he needed to improve. The self-monitoring devices kept alive learnings and awareness gained during training and feedback sessions long enough to allow teachers to practice and incorporate more appropriate behaviors into their natural repertoires. Finally, the post-observations provided teachers with information that allowed them to examine the results of their own behavior change effort. Given the substantial improvements teachers made, the post-observations reinforced teacher efforts by increasing teacher confidence and hopefulness about the degree to which they can gain control over their own behavior with students. The latter intervention, however, while helpful, seemed least necessary because teachers already appeared to be aware of the concrete progress they were making via use of the self-monitoring devices. Overall, the short, compact sequence of interventions demonstrated the intended impact on teachers.

One additional type of intervention could beneficially be added to the model tested. While it proved to be relatively simple to show teachers how they might be discriminating among children within their own classrooms, it is more difficult to show teachers with generally low expecta-

tions that they are inhibiting the learning of the whole class. An intervention, didactic or otherwise, is needed in order to expose teachers to specific information that would help them to make inter-class or inter-school comparisons. To develop such an intervention, specific information not currently available about the profile of teachers with generally high expectations would be needed. The profile should include not only the specific behavior patterns of high expectation teachers, but optimal amounts of time such teachers engage in each behavior as well. Statistical information or samples of teachers' work around these issues would provide invaluable baseline data that could be used in numerous ways to encourage teachers with generally low expectations to behave more appropriately toward their own student groups. For example, the data could be incorporated into self-monitoring devices such as those that follow:

- #1 Research has shown that teachers at your grade level with generally high expectations of their students ask at least 30 thought-provoking questions a day. (This statistic is fictional.) For three days running, record the number of thought-provoking questions you ask and then calculate your average. If your average is lower than 30, plan to increase it to at least that level on the fourth and fifth days by concentrating on asking thought-provoking questions and by preparing many of the questions ahead of time, in writing.
- #2 (Teacher is supplied with a set of papers corrected by another teacher.)  
The teacher who corrected this set of papers is considered a high-expectation teacher. Note the number of specific, descriptive feedback sugges-

tions that this teacher made to students on the enclosed papers. After you have corrected a set of compositions this week, count the number of specific descriptive comments you made. Afterwards, answer these two questions: 1) How would you compare your written comments with the comments of the teacher whose work you received? 2) Do your comments convey to your students that you have high expectations of them as writers?

2. Applicability of this study to other audiences.

The phenomenon of "expectations" operates in all interpersonal relationships and contexts. No doubt families, salespersons, labor negotiators and others could benefit by a serious exploration of the expectations theme. (Today, school; tomorrow, the world!) This discussion will be limited, however, to the applicability and adaptability of interventions on expectations to educational audiences, in particular, as: a) basic training for pre-service and in-service teachers, b) specific training for classroom management and discipline, c) a school-wide intervention, and d) training for educators involved in desegregation efforts.

A. Basic training for pre-service and in-service teachers:

All teachers could potentially benefit from sensitization to the dynamics of the teacher expectancy effect. Any teacher, whether she/he teaches a graduate class at Harvard or students in a rural one-room schoolhouse, is capable of displaying inappropriate behaviors toward those students of whom she/he expects little. It seems especially important that teachers

who deal with students during their most formative years, and who differ in race and/or socioeconomic background from their students, be particularly alerted to the expectancy phenomenon. Training regarding teacher expectations should be standard fare for pre-service and in-service teachers, especially those who are or will be working in schools that draw students from minority and/or poor populations.

B. Specific training for classroom management and discipline:

While this study dealt only with teacher expectations related to students' academic potential, it could easily be modified to help teachers fraught with discipline problems to explore the influence of their expectations on student behavior.

C. A school-wide intervention:

If an entire school staff as a group would agree to be involved in expectation training, the designs used in this study could be expanded to include exciting new dimensions. Teachers and administrators together could look at all facets of school life that contribute to the expectation phenomenon -- those that contribute to the formation of teacher expectations and those that mediate the expectation effect with students.



One important facet that deserves serious scrutiny involved labelling systems, placement policies, and tracking procedures. Although this researcher has not conducted a formal study on the subject, her experiences verify that practices in Philadelphia schools tend to typify the research findings summarized in this study. For example, it is not uncommon for students in Philadelphia elementary schools, (like students in the schools Mackler examined), to be placed automatically in the "low first grade" if they did not attend kindergarten. Most elementary school students are tracked from first grade on.

Junior high students are placed in academic or non-academic tracks according to their California Achievement Test scores from a test administered in February of their sixth grade. The destructiveness of such tracking for students is exemplified in this story of one fifth grade teacher who works in a low-socioeconomic Philadelphia school. In the seventh grade, an ex-student of hers was assigned to a non-academic track at the nearby junior high school. The student appeared to be very smart and achieved well during the fifth grade. In the sixth grade, however, she clashed with the teacher and eventually reacted by insistent refusals to comply with any of that teacher's demands. Her standardized test scores

dropped. The girl's parents, for whatever reason, did not go to the junior high principal to demand that their daughter be placed in an academic track. Consequently, because of a negative experience in the sixth grade, the girl's whole academic future and, possibly, her career and economic prospects had been determined. As evidence of the rigidity of tracking systems, this fifth grade teacher did not even entertain the possibility that teachers at the junior high school might notice that this student was tracked inaccurately and modify her placement. Schoolwide tracking policies are in desperate need of re-examination and change.

Another urgently needed total school intervention involves the examination of existing school norms and the creation of new ones that discourage teacher and administrator use of both stereotyped, generalized language about students and the formal and informal information systems that convey expectations of individual students from year to year. Phrases which perpetuate stereotypes and contribute to generalizations about students could be outlawed, such as: "These kids' parents don't care"; "These kids will never amount to anything"; "They don't care about learning"; "I've got the low class" (said with disgust and resignation). Faculty room stories and informal reports

regarding individual students could be screened for low expectation statements and for their potential to create low expectations in other teachers.

When involving administrators, expectation interventions could focus on both the administrators' roles in communicating positive and negative expectations to students and on administrator-faculty expectations of one another.

No doubt, many aspects of school life contribute overall to student growth and achievement. However, if school personnel focused only on expectations -- examining and appropriately altering their transmission of expectations to students through formal and informal channels -- this one intervention alone could significantly alter the climate and eventual effectiveness of the entire school.

D. Training for educators involved in desegregation efforts:

Whether one considers teacher expectations of student academic potential or of student behavior, one of the most obvious and blatantly needy audiences for expectations training is teachers involved in desegregation efforts. Such efforts are doomed to failure if teachers act inappropriately toward certain groups of students involved or if teacher behaviors aggravate

differences that might exist at the outset among student achievement levels.

The interventions tested in the present study seem, therefore, ideally suited to teacher education for desegregation and integration, with one addition. Past research indicates that objectively high potential Black students frequently receive the most negative attention from teachers. They speculate that teachers react negatively to students who violate their low expectations. In desegregation settings, experiential exercises and didactic presentations need to be conducted to label and help teachers to gain control over the degree to which they resent students who violate their expectations and the degree to which they communicate this to students.

To this end, it would probably be very helpful to know more about the cues teachers are using to formulate their expectations. Theoretically, understanding the process by which one forms expectations should help one gain more control over that process.

3. Variations in the delivery system. Delivery system refers to the vehicles through which a program is carried out. For people or institutions interested in training teachers, having a realistic, flexible, and still impactful delivery system is as important as having valuable content, particularly when dealing with teachers already in the field. Many a fine training idea never reaches



fruition because the system designed to deliver it provides inadequate access to teachers or fails to take into account their time constraints and learning rhythms.

The delivery system developed for this study was designed to be both efficient and appropriate to teacher and system constraints. It produced important behavior changes among teachers, while consuming little actual training time. The delivery system operated as follows: teachers were observed during school time before the actual training sessions; they were then released from school for the six-hour training session and two weeks later attended a two-hour after-school meeting without remuneration. During one of their free periods, they received individualized feedback on the results of the pre-observations. Finally, they employed self-monitoring devices weekly.

Given the recognized importance of expectations in the educational effort and given the ability of most systems to generate some training time for their teachers, it seems realistic and practical to elicit a commitment from school systems for the six-hour and two-hour time blocks needed for the interventions studied. Thus, many school systems and teacher training institutions could replicate this program exactly as it was designed. However, in order to increase the likelihood that the training program will be adopted by diverse teacher education agencies, one has to

consider variations in delivery systems that would still produce the desired results.

The simplest variation in the delivery of the actual training involves scheduling. The six-hour training session could be divided into two three-hour modules, or even expanded to three two-and-one-half hour modules. Training would then consist of three or four shorter sessions which could be incorporated into many on-going pre-service and/or in-service classes and workshop series.

Personnel who conduct the training in a given district or agency might not, themselves, have the additional time needed to conduct the pre-observation and feedback session with each individual teacher, especially if large numbers of teachers are involved. If not, the implementer has several desirable alternatives that allow these important components of the interventions to be accomplished nonetheless. People not involved in expectations training can easily be taught to do the observation and feedback sessions. For example, supervisory personnel in a particular district could each observe a specified number of teachers. In a large school district like Philadelphia, this has proven feasible in that there tend to be approximately six reading supervisors in each of eight sub-districts. If each supervisor observes five teachers, pre-observations and feedback for a group of thirty teachers could easily be accomplished. Another possibility is that teachers who

already experienced the training could be taught to perform pre-observations, with the actual training personnel then conducting the feedback with individual teachers.

In pre-service programs, a number of other options are available. Master teachers could be trained to do the observations, as could teaching assistants who tend to have a manageable number of people to monitor. Or, perhaps a real class or micro-teaching experience could be video-taped, with the student teacher then coding his or her own behavior as seen on the videotape.

While the above alternatives preserve the integrity and power of the interventions studied, it might be possible, if these alternatives proved impossible, to invent self-diagnostic tools that would achieve similar results.

While many variations in the delivery system can no doubt be developed, people who attempt variations should be careful to keep intact those aspects of the training that contribute to its impact and long-term effectiveness with teachers.

#### A Totally Different Approach to Countering the Teacher Expectancy Effect

This study includes a description of the problematic effects of negative teacher expectancies. Such expectancies trigger a self-fulfilling, self-perpetuating cycle detrimental to student learning and self-worth. The ap-

proach inherent in this study and variations and extensions proposed has been to help educators behave in ways that will interrupt the self-perpetuating, destructive cycle, since inappropriate teacher behaviors help to keep the cycle going. Another critical dynamic contributing to the negative outcomes of low teacher expectations involves student susceptibility and consequently their internalization of their teachers' expectations of them. Students come to have low expectations of themselves and behave accordingly. Preliminary research has shown that not all students are as susceptible to teacher expectations as others. An exciting approach to reducing the power of teacher expectations, therefore, would involve helping students to establish and live up to their own internal standards and thus be less dependent on and less responsive to the expectations of others.

One section of the film Black History: Lost, Stolen or Strayed? shows a Black teacher in a private pre-school in Philadelphia working with very young students in a way that could be described as steeling those children against the low teacher expectations that will confront them when they enter school. While the following dialogue is not a direct quotation from the film, it does reflect the approach this teacher used.

Teacher: (Teacher speaks always with great intensity)  
"Jeffrey!"



- Jeffrey: (Student approximately five-years-old stands erect.)  
"Yes, Sir."
- Teacher: "What if some teacher tells you some day that you are dumb, that you are not smart? Are you going to believe that teacher?"
- Jeffrey: (Said like a recruit answering a drill sergeant)  
"No, Sir!"
- Teacher: "What are you going to say to that teacher?"
- Jeffrey: (Said in a moderately loud voice, with a little stumbling over words)  
"I am not dumb. I am an intelligent person! I am a genius!"
- Teacher: "What did you say?"
- Jeffrey: (Speaking louder and faster)  
"I am an intelligent person! I am a genius!"
- Teacher: "You are dumb!"
- Jeffrey: (Almost screaming)  
"I am not dumb! I am an intelligent person! I am a genius!"
- Teacher: (Speaking more softly but with equal intensity)  
"Don't you ever let anybody tell you otherwise, you hear?"
- Jeffrey: "Yes, Sir."
- Teacher: "Good boy. You can sit down."

This teacher seemed to be seeding the students with self-statements that would pre-empt the students' internalization of whatever negative messages teachers might convey to them in the future. Undoubtedly the process by which one comes to develop and internalize expectations of self is not as simple as the above vignette might imply;

nor do teachers and schools usually or solely transmit their expectations of students in such a direct manner. The approach of seeding self-statements in students might, however, be a sufficiently powerful inoculation against teachers and oppressive systems. At any rate, it certainly merits a careful research investigation.

Other approaches might also be generated for use with older students capable of both higher degrees of self-awareness and greater perspective on their teachers. For instance, the information already known about the powerful dynamics of teacher expectations could be examined with students directly. It is likely, especially in inner-city schools, that sheer awareness of this information by students could raise their consciousness to the extent that they develop new coping strategies that help them resist detrimental expectations, build in constructive self-expectations and even generate new demands or pressures on their teachers.

Combating the negative effects of teacher expectations by working with students directly has tantalizing features. So many aspects of public school education build an external locus of control in students, undermining the development of internal standards and a sense of control over their own destinies. Interventions are needed that raise students' consciousness about the powers teachers have over them and help students to develop internal belief systems

and supports that defy negative teacher expectations and, in the process, enable students to direct the course of their own learning and development of self-worth.

### A Personal Statement

Many ventures in one's life feel like maintenance activities -- things to do in order to get by, obligations to meet, means to enact that are only important because of the ends they serve. For some, a doctoral dissertation may be a "maintenance activity." For this researcher, it was much more. It was a venture that was both meaningful and exciting, for reasons I would like to explain in hopes that my experience will serve as a catalyst for other researchers.

The first factor that made the dissertation process meaningful for me was that I knew from my reading, my experience, and my intuition that I was addressing an important educational problem. Secondly, the enthusiasm and expressed insights of the experimental teachers after the initial training was both heartening and confirming. In addition, long before the statistics were in, I could tell from teachers' responses to the self-monitoring devices that the program was having its desired impact. I also knew from events in which I was involved concurrently that many people in the educational community shared my belief in the importance of teacher expectations and were ready

to address the problem. The timing for developing a usable intervention in this area was right.

Most importantly, my experience in educational systems, large and small, led me to believe that vast numbers of teachers could potentially receive this training. The design of the delivery system was such that it is well within the realm of possibility that almost any institution responsible for teacher education could implement the program. Its dissemination, in fact, did begin to occur even while I was writing the results. The program has already been replicated in Philadelphia and in several rural districts in Pennsylvania. In addition, in December, 1976, the Pennsylvania Diffusion Panel awarded the "Expectations Project" state validation "as having demonstrated evidence of effectiveness. It is now recommended to other school districts for adoption or adaptation." Essentially, this means that eligible districts who wish to implement this program may receive financial assistance to do so. My most fervent hope is that this dissemination will continue so that the program will continue to impact willing teachers and, through them, their students.

My final hope is that this study will serve as an encouragement and a model for future doctoral candidates. This dissertation was conceived as an educational intervention, a contribution to an aspect of educational research that I consider extremely underdeveloped. This is not to



derogate theoretical, descriptive, and analytic research efforts. The findings of such efforts provide the foundations and materials on which, and with which, interventions must be built. It does seem, however, that such efforts have out-distanced their applied-science counterpart. The educational community has more descriptions of problems than solutions, and more knowledge than has ever been applied or used in schools. There is a great and growing need for researchers to use the knowledge that we already have to impact teachers, students, and school systems in significant and practical ways. The challenge today is to put what we already know to work where it counts.

I am grateful to the University of Massachusetts for recognizing the legitimacy and need for educational interventions and allowing me to do my research in this underdeveloped and, what was to me, personally rewarding area.

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A P P E N D I X  
READINGS GIVEN TO THE TEACHERS AT  
THE TRAINING SESSIONS



THE PYGMALION EFFECT LIVES

by Robert Rosenthal

(From Psychology Today, September 1973, 56-63)

Almost five years ago, the author proposed that students live up, or down, to their teachers' expectations of them. He said teachers express their opinions consciously and unconsciously, in word, grimace and gesture, and that teachers who think their students are bright teach harder. The Pygmalion theory caused consternation and quarrels among teachers and researchers. Now comes the author again, with a larger sheaf of evidence to show that he was right.

Pygmalion created Galatea out of ivory and desire. In Ovid's account, Pygmalion fell in love with his own sculpture of the perfect woman, and Venus, who spent a lot of time granting requests in those days, gave life to Galatea. In George Bernard Shaw's version 19 centuries later, Henry Higgins turns a Cockney flower girl into an elegant lady, relying on language rather than love.

Most of us do not have Pygmalion's power to manufacture the ideal mate, nor do we all share Higgins' fondness for phonetics. But we may have an extraordinary influence, of which we are often oblivious, on others. Psychologists have not yet learned how to produce Galatea or her male equivalent in the laboratory, but they have demonstrated that the power of expectation alone can influence the behavior of others. The phenomenon has come to be called self-fulfilling prophecy: people sometimes become what we prophesy for them.

This point has long been argued on an intuitive basis. It is obvious, for example, that ghetto children, whose academic performance worsens the longer they remain in school, tend to have teachers who are convinced that the children cannot learn. However, one could argue that teachers expected little because the students behaved poorly, rather than the other way around. To see which comes first, the expectation or the performance, we turned to the laboratory.

In the first study of this problem, over a decade ago, Kermit Fode and I asked 10 students to be "experimenters." We gave each experimenter, in turn, about 20 subjects. The

experimenter showed each of his subjects a series of faces, which the subject rated on "degree of success or failure" from +10 to -10. We had previously selected photos that most people consider quite neutral.

We gave our experimenters identical instructions on how to administer the test, with one exception. We told half of them that the "well-established" finding was that the subjects would rate the photos positively; we told the rest that subjects would probably rate the photos negatively.

Expectant Voices. In spite of the fact that all experimenters read the same instructions to their subjects, we found that they still managed to convey their expectations. Experimenters who anticipated positive photo ratings got them, while those who expected negative ratings got them too. How did the experimenters silently let their subjects know what they wanted? John Adair and Joyce Epstein repeated this experiment and tape-recorded the experimenters reading the instructions. They got the same results we did, and then repeated their experiment, this time using only the tape recordings of their experimenters to instruct their new sample of subjects. They found that subjects exposed only to these tape recordings were just as much influenced by their experimenter's expectations as were those subjects who had experienced "live" experimenters. Apparently, tone of voice alone did the trick.

Such results generated a spate of studies. Larry Larrabee and L. Dennis Kleinsasser found that experimenters could raise the I.Q. scores of children, especially on the verbal and information subtests, merely by expecting them to do well. Samuel Marwit found that patients will interpret Rorschach inkblots as animals or human beings, depending on what the examiner has been led to expect. And Ronald Johnson, in an ingenious and carefully controlled study, found that experimenters could improve their subjects' performance on a task requiring subjects to drop as many marbles as possible through one of several holes in the table top by expecting them to do well.

Self-fulfilling prophecies even work for animals. Bertrand Russell, who had something to say about nearly everything, noticed that rats display the "national characteristics of the observer. Animals studied by Americans rush about frantically, with an incredible display of hustle and pep, and at last achieve the desired result by chance. Animals observed by Germans sit still and think, and at last evolve the solution out of their inner consciousness."

Fondling Smart Rats. Russell was not far off. Fode and I told a class of 12 students that one could produce a strain of intelligent rats by inbreeding them to increase their ability to run mazes quickly. To demonstrate, we gave each student five rats, which had to learn to run to the darker of two arms of a T-maze. We told half of our student-experimenters that they had the "maze-bright," intelligent rats; we told the rest that they had the stupid rats. Naturally, there was no real difference among any of the animals.

But they certainly differed in their performance. The rats believed to be bright improved daily in running the maze -- they ran faster and more accurately -- while the supposedly dull animals did poorly. The "dumb" rats refused to budge from the starting point 29 percent of the time, while the "smart" rats were recalcitrant only 11 percent of the time.

Then we asked our students to rate the rats and to describe their own attitudes toward them. Those who believed they were working with intelligent animals liked them better and found them more pleasant. Such students said they felt more relaxed with the animals; they treated them more gently and were more enthusiastic about the experiment than students who thought they had dull rats to work with. Curiously, the students with "bright" rats said that they handled them more but talked to them less. One wonders what students with "dull" rats were saying to those poor creatures.

If rats act smarter because their experimenters think they are smarter, we reasoned, perhaps the same phenomenon was at work in the classroom. So in the mid-1960s Lenore Jacobson and I launched what was to become a most controversial study.

Intellectual Bloomers. We selected an elementary school in a lower-class neighborhood and gave all the children a non-verbal I.Q. test at the beginning of the school year. We disguised the test as one that would predict "intellectual blooming." There were 18 classrooms in the school, three at each of the six grade levels. The three rooms for each grade consisted of children with above-average ability, average ability, and below-average ability.

After the test, we randomly chose 20 percent of the children in each room, and labeled them "intellectual bloomers." We then gave each teacher the names of those children, who, we explained, could be expected to show remarkable gains during the coming year on the basis of their



test scores. In fact, the difference between these experimental children and the control group was solely in the teacher's mind.

Our I.Q. measure required no speaking, reading, or writing. One part of it, a picture vocabulary, did require a greater comprehension of English, so we call it the verbal subtest. The second part required less ability to understand language but more ability to reason abstractly, so we call it the reasoning subtest.

We retested all the children eight months later. For the school as a whole, we found that the experimental children, those whose teachers had been led to expect "bloomings," showed an excess in overall I.Q. gain of four points over the I.Q. gain of the control children. Their excess in gain was smaller in verbal ability, two points only, but substantially greater in reasoning, where they gained seven points more than the controls. Moreover, it made no difference whether the child was in a high-ability or low-ability classroom. The teachers' expectations benefited children at all levels. The supposed bloomers blossomed, at least modestly.

This experiment, and the book we wrote based on it, met with vigorous criticism. Professor Arthur Jensen of UC, Berkeley, for example, offered three basic arguments.

First, said Jensen, we should have compared classrooms rather than individual children, and this would have produced only negligible I.Q. changes. But Jensen ignored the fact that we had done that analysis, and that it led to even larger effects than the per-child comparisons.

Second, Jensen objected to the fact that we used the same I.Q. test twice. The children were familiar with the test when they took it again, he said, so their scores might have improved for that reason. However, Jensen must then explain why the experimental children showed more of their "practice effects" than the control children, who also took the test twice.

Finally, Jensen did not think that the teachers themselves should have given the tests. However, we had already accounted for this problem by having people who knew nothing of the experiment retest the children. The effects of the teachers' expectations actually increased.

R. L. Thorndike added another objection, namely that our I.Q. test was an unreliable measure, especially for the youngest children, and that any inference based on such a



test would be invalid. I do not think that our test was as worthless as Thorndike implies, but even if it was seriously unreliable we are still left with the basic question. Why did the experimental children improve significantly? An unreliable measure would make it harder to find differences between the two groups, not easier.

The most ambitious critique of our Pygmalion in the classroom work was a book by Janet Elashoff and Richard Snow, who completely reanalyzed our original data. They could not disprove the fact that the experimental children did gain more I.Q. points than control children, even though they transformed our original I.Q. measure into eight different forms, some of which were biased statistically to minimize any effects of teachers' expectations.

The debate continued, and so did the research. Others sought to discover the Pygmalion effect, and not everyone was successful, which contributed to the controversy. By now 242 studies have been done, with all sorts of subjects and situations. Of these, 84 found that prophecies, i.e. the experimenters' or teachers' expectations, made a significant difference.

But we must not reject the theory because "only" 84 studies support it; on the contrary. According to the rules of statistical significance, we could expect five percent of those 242 studies (about 12) to have come out as predicted just by chance. The fact that we have 84, seven times more than chance would dictate, means that the Pygmalion effect does exist in certain circumstances. Moreover, it is not limited to young children and rats; adolescents and adults are affected too.

Outside the Lab. And the Pygmalion effect is as likely to occur in the real world as in the experimenter's tower. Of the 242 studies that have been done to date, 57 took place outside the laboratory -- in a classroom, a factory, an office, and the like. The proportion of significant results is about the same for experiments conducted in the field as in the laboratory, some 37 percent for the field and 34 percent for the laboratory.

For example, Randy Burnham and Donald Hartsough found Pygmalion in the swimming pool. Their subjects were boys and girls, ages seven to 14, who were learning to swim at a summer camp. Half of the instructors were led to think that they were dealing with a "high-potential" group, and their students became better swimmers, by the end of their two-week camping period, than the regular group. And another team of researchers found that it took only two weeks

for teen-age girls, who were institutionalized for various offenses, to show a marked improvement in their classroom behavior when they had been labeled "potential bloomers."

Even the United States Air Force Academy Preparatory School succumbed. W. R. Schrank randomly assigned 100 enlisted airmen to one of five math classes, and he told the teachers that each class contained students selected for different levels of ability. The boys in the supposed high ability classes improved their math scores substantially.

J. Michael Palardy tested the popular assumption that boys have a tougher time learning to read than girls. First-grade teachers are well aware of this folk belief, and thus have clear expectations when they give reading lessons. Palardy surveyed 63 teachers and found five who believed that boys could learn to read as well as girls in the first grade. He matched these five on a number of factors -- background, teaching methods, etc. -- with five who believed in the stereotype. Indeed, teachers who expected to discover sex differences in reading ability found them. But the boys did just as well as the girls when their teachers thought they would. (As a footnote to this study, the "well-known" sex difference in learning to read also tends to disappear when the children learn from teaching machines rather than from teachers.)

Albert King moved the Pygmalion paradigm into the work world with an ingenious set of five experiments. King was interested in the effects of supervisor expectations on the job performance of disadvantaged workers (unemployed or underemployed, mostly black and members of other minorities). In three of his studies the workers were women in training to become nurses' aides, presser-machine operators, or assemblers of electronic equipment. In the other two studies, the workers were men who were learning to become auto mechanics or welders.

In each experiment, King randomly picked the names of some of the trainees, and told the supervisors that these workers showed a special potential for their particular job. King collected several measures of the workers' performances: objective tests, peer ratings, absences and so on. (King ignored the supervisors' ratings of trainees, since these might reflect only their perception and not actual changes in their performance.) The Pygmalion effect worked in four of the five experiments -- for every group of trainees but the nurses' aides. Trainees whose supervisors had expected high job performance of them did much better than the control groups. However, the effect was especially marked among male workers, the welders and

mechanics, and less so among female workers, the pressers and assemblers. Perhaps the supervisors found it harder to accept the idea that women could have "special potential" for their work.

AVERAGE PERFORMANCE RANKS (Lower Ranks Indicate Superior Performance):

Study	Control Group	Experimental Group
1 welders	9.9	3.6
2 mechanics	10.7	4.3
3 pressers	9.2	5.3
4 assemblers	11.3	7.8
5 nurses' aides	9.2	8.3

All of this research supported our feeling that self-fulfilling prophecy is a real phenomenon, that it occurs both in and out of the classroom and the laboratory. The next step was to figure out what subtle forces are going on in the exchange between teacher and learner. What makes average kids increase their I.Q., neophytes swim better, and trainees learn faster? How does A communicate his or her expectations to B, especially when both A and B probably are unaware of the process?

Explaining the Pygmalion Effect. The current evidence leads me to propose a four-factor "theory" of the influences that produce the Pygmalion effect. People who have been led to expect good things from their students, children, clients, or what-have-you appear to:

-- create a warmer social-emotional mood around their "special" students (climate);

-- give more feedback to these students about their performance (feedback);

-- teach more material and more difficult material to their special students (input); and

-- give their special students more opportunities to respond and question (output).

There is nothing magical or definitive about the choice of these four, and in fact, none of them is independent of the others. My criterion for including each



as a factor is that there be at least five studies that support it and that no more than 20 percent of the studies bearing on each factor contradict it.

The Climate Factor. "Climate" apparently has to do with warmth, attention, and emotional support. Fourteen studies have investigated this factor, 12 of which came out as predicted. Not all of them dealt with the teacher-student relationship; some took place in industrial and clinical contexts as well.

For example, Geri Alpert told a group of psychiatrists that some of their patients had been specially selected for them on the basis of "therapeutic compatibility." She gave them no expectations about the rest of their patients. Later Alpert asked the patients to describe their therapists and their sessions together. From a patient's eye view, psychiatrists behave more warmly toward people with whom they expect to be compatible and who are likely to get well.

Alan Chaikin, Edward Sigler, and Valerian Derlega asked male and female college undergraduates to teach a short unit on home and family safety to a 12-year-old boy. One third of the "teachers" thought that the boy had an I.Q. of 130 and did very well in school; one third thought that the child had an I.Q. of 85 and did poorly in school; and the last third had no information about the boy's I.Q. Then the experimenters videotaped the exchange between teachers and student to see what nonverbal cues were going on.

Teachers who thought they were dealing with a bright student were more likely to smile at the boy, nod their heads approvingly, lean toward the boy, and look him in the eye for longer periods. A variety of analogous studies have found that "special-potential" subjects report their teachers or counselors as being more positive, accepting, perceptive, friendly, fond of them, and supportive.

The Feedback Factor. The difference between this factor and the previous one (for both involve warmth and attention) is that feedback depends on a response from the student. A teacher can be generally warm, but still react critically or indifferently to a child's answers or comments. Feedback refers specifically to how much active teaching occurs: often the teacher rewards a desired response, corrects a wrong answer, asks for the student's further thoughts, and so on. Ten studies explored this factor, of which eight supported it.



Jere Brophy and Tom Good asked first-grade teachers to name their high and low achievers. The researchers then watched the teachers work with the children. The teachers ignored only three percent of the high achievers' answers but they ignored 15 percent of the low achievers' answers. The good students, then, get more feedback, whether their responses are right or wrong.

Teachers give more feedback to apt undergraduates as well as to apt first-graders. John Lanzetta and T. E. Hannah offered college students the chance to play teacher, and gave them the choice of five kinds of feedback for use in teaching a concept task: a strong electric shock, a mild shock, a neutral light, a small amount of money, and a larger amount of money. The "learner," who was a confederate of the experimenters, gave 36 correct and 84 incorrect answers in all cases.

When the student teachers thought the learner had a "high potential," they rewarded him with the larger sum of money when he was right, and shocked him more severely when he was wrong. When they thought that the learner had a "low learning potential," however, they gave him the lesser reward or punishment. In other words, teachers send clearer, stronger evaluations to students for whom they have greater expectations.

But another experiment found that children believed to be bright got more praise, but not more criticism; criticism was reserved for children believed to be dull. Yet a third study found that supposedly "gifted" children get more praise from their teachers, but found no difference between "gifted" and "regular" children in the criticism they got. The matter is complicated. Perhaps criticism for a wrong answer needs to be accompanied by enough praise and support on other occasions; otherwise the student may see the teacher as overly critical and cold. We can say with modest certainty that praise is a factor in achieving the Pygmalion effect, but the role of criticism is less clear.

The Input Factor. There are only five studies that directly deal with this factor, but all five find that teachers literally teach more to children of whom they expect more.

The most dramatic case in point is W. Victor Beez's work with 60 preschoolers and 60 teachers in a Headstart program. Beez told half of the teachers that they could expect poor performance from their supposedly "below-average" children; the rest expected exceptional performance from their "bright" children. Observers, who had not

been told what the teachers' expectations were, noted the exchanges between teacher and child. The teachers worked much harder when they believed they had a bright child. In a unit on word learning for example, 87 percent of the teachers of "bright" children taught eight or more words, but only 13 percent of the teachers of the "dull" children tried to teach them that many. Not surprisingly, 77 percent of the "bright" children learned five or more words, but only 13 percent of the "dull" children learned that many.

Number of words taught:	Teachers' expectation:	
	dull children	bright children
11 or more	0	14
9 or 10	1	10
7 or 8	7	3
5 or 6	15	1
4 or less	<u>7</u>	<u>2</u>
	30	30

Such results tell us that a teacher's expectations about a student's performance are not simply transmitted in subtle voice nuances and a casual facial expression. The expectations may be translated into explicit, overt alterations in teaching style and substance.

The Output Factor. Eleven studies out of 12 done support this factor, indicating that teachers encourage greater responsiveness from students of whom they expect more. They call on such students more often, ask them harder questions, give them more time to answer, and prompt them toward the correct answer. Output is therefore closely related to feedback.

Mary Budd Rowe gives us a good example. She was interested in how long teachers wait for an answer to their question before going on to the next child. She found that many experienced teachers wait only one second before they ask the question again, often of someone else. However, Rowe found that teachers wait longer for the students whom they believe to be bright. When Rowe pointed this out to the teachers involved, they reacted with surprise and insight. "I guess we don't expect an answer (of the poor students)," said one, "so we go on to someone else." When these same teachers then deliberately increased their waiting time for their "slower" students, they got increased responsiveness.



Jeffrey Hersh's work illustrates another facet of the output factor. He asked graduate students to administer the Stanford-Binet I.Q. Test to children in a Headstart program. Examiners who had been told the children had high intellectual ability immediately began with more difficult questions. They demanded more of the children, and got more.

An Unexpected Galatea. We knew from our original Pygmalion experiment in the classroom that favorable expectations could have a beneficial effect. At the end of the year the teachers had all sorts of good things to say about the "intellectual bloomers": they had a better chance of being successful in the future, said the teachers; they were more appealing, better adjusted, more affectionate and autonomous. So the teachers perceived them, in any case.

We thought that perhaps it was because the experimental children gained more in I.Q. that the teachers rated their behavior and aptitudes more highly. So we looked at the control-group children who had also gained in I.Q. that year, to see whether the teachers liked them as much as the bloomers. Such was not the case. To our astonishment, the more the control students increased in I.Q., the less well adjusted, interesting and affectionate the teachers thought them.

It seems, then, that when a child who is not expected to do well does so, his teacher looks upon his behavior and personality as undesirable. This was especially true, we discovered, for children in low-ability classrooms. Teachers may have a difficult time thinking that a child who has a low-ability label can show an intellectual spurt. They may interpret this change as "maladjustment" or "trouble-making." Perhaps the child doesn't know his place. Several subsequent experiments confirmed this finding, so the hazards of unpredicted success are likely to be real rather than a freak of one study. Alfred Shore, for example, asked teachers to predict their students' intellectual achievement and to describe their students' classroom behavior. A month later, Shore gave the teachers the students' real I.Q. scores and asked for a reappraisal. Again, teachers downgraded those students in personality and adjustment who had done "too well" -- i.e., contrary to their expectations.

Eleanor Leacock studied four schools in four neighborhoods, two poor and two middle-income. Within each income level one school was essentially all black and the other essentially white. Leacock interviewed the fifth-grade teachers about their feelings for the children, and scored

their comments for positive, neutral, or negative feelings and attitudes.

Double Handicap. Leacock found that the teachers were much less favorable to the lower-class children than they were to the middle-class children; 40 percent of their comments about the poorer children were negative, compared to 20 percent of their comments about the middle-class children. And the teachers were even more likely to talk negatively about black children than white children, 43 percent to 17 percent.

Leacock then went on to relate the children's I.Q. scores to the teachers' feelings toward them. I.Q. scores of the middle-income children, both black and white, were clearly related to the positive attitudes of their teachers. This relationship did not hold for the low-income children; in fact, it was reversed. That is, lower-income children who had higher I.Q.s tended to have teachers who viewed them negatively and this was especially true for lower-income children who were black. The children who surpassed their teachers' expectations got resentment and complaints for their pains.

Thus children who are both black and lower-income have a double handicap. And this result cannot be attributed to white teachers' bias; both of the teachers of the black children were themselves black. The prejudice of stunted expectations knows no race barrier.

We still not not know exactly how the Pygmalion effect works. But we know that often it does work, and that it has powers that can hinder as well as help the development of others. Field and experimental studies are beginning to isolate the factors that will give some insight into the process. Such awareness may help some to create their Galateas, but it will also give the Galateas a chance to fight back.



A Summary of  
STUDENT SOCIAL CLASS AND TEACHER EXPECTATIONS:  
THE SELF-FULFILLING PROPHECY IN GHETTO EDUCATION

by Ray C. Rist

(From Harvard Educational Review,  
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Rist deals with expectations in a broader way than Rosenthal does. He shows the effects of cultural expectations (societal-wide racism) and the effects of various structures such as tracking and grouping in this whole realm of expectations. He shows how "the kindergarten teacher placed the children in reading groups which reflected the social class composition of the class," and how "these groups persisted throughout the first several years of elementary school."

"The basic position to be presented in this paper is that the development of expectations by the kindergarted teacher as to the differential academic potential and capability of any student was significantly determined by a series of subjectively interpreted attributes and characteristics of that student. The argument may be succinctly stated in five propositions."

"First, the kindergarten teacher posed a roughly constructed 'ideal type' as to what characteristics were necessary for any given student to achieve 'success' both in the public school and in the larger society. These characteristics appeared to be, in significant part, related to social class criteria."

Secondly, upon first meeting her students at the beginning of the school year, subjective evaluations were made of the students as to possession or absence of the desired traits necessary for anticipated "success." On the

basis of the evaluation, class was divided into groups expected to succeed (termed by the teacher "fast learners") and those anticipated to fail (termed "slow learners").

"Third, differential treatment was accorded to the two groups in the classroom, with the group designated as 'fast learners' receiving the majority of the teaching time, reward-directed behavior, and attention from the teacher. Those designated as 'slow-learners' were taught infrequently, subjected to more frequent control-oriented behavior, and received little if any supportive behavior from the teacher."

"Fourth, the interactional patterns between the teacher and the various groups in her class became regidified, taking on caste-like characteristics, during the course of the school year, with the gap in completion of academic material between the two groups widening as the school year progressed."

"Fifth, a similar process occurred in later years of schooling, but the teachers no longer relied on subjectively interpreted data as the basis for ascertaining differences in students. Rather, they were able to utilize a variety of informational sources related to past performance as the basis for classroom grouping."

The following excerpts expand or explain the above points: Kindergarten teacher had several sources of information available to her before the kids ever came to school.

"...not one...was related directly to the academic potential of the incoming kindergarten child. Rather, they concerned various types of social information revealing such facts as the financial status of certain families, medical care of the child, presence or absence of a telephone in the home, as well as the structure of the family in which the child lived, i.e., number of siblings, whether the child lived with both, one, or neither of his natural parents." (p. 418)

p. 419 "Within a few days (of starting school), only a certain group of children were continually being called on to lead the class in the Pledge of Allegiance, read the weather calendar each day, come to the front for 'show and

tell' periods.... This one group of children, that continually were physically close to the teacher and had a high degree of verbal interaction with her, she placed at Table 1."

p. 419 "As one progressed from Table 1 to Table 2 and Table 3, there was an increasing dissimilarity between each group of children at the different tables on at least four major criteria. The first criterion appeared to be the physical appearance of the child." (Body odor being part of that) ...

"A second major criteria.....was their interactional behavior, both among themselves and with the teacher...." (Leaders among kids and ease of interaction with teacher)

"The use of language within the classroom appeared to be the third major differentiation among the children...." (First table more verbal and used Standard American English)

"The final apparent criterion by which the children at the first table were quite noticeably different from those at the other tables consisted of a series of social factors which were known to the teacher prior to her seating the children." (See table p.421)

p. 422 "Certain criteria (for the teacher) became indicative of expected success and others became indicative of expected failure. Those children who closely fit the teacher's 'ideal type' of the successful child were chosen for seats at Table 1. ....The criteria upon which a teacher would construct her ideal type of the successful student would rest in her perception of certain attributes in the child that she believed would make for success. To understand what the teacher considered as 'success,' one would have to examine her perception of the larger society and whom in that larger society she perceived as successful....." (Normative reference group)

"I believe that the reference group utilized by Mrs. Caplow to determine what constituted success was a mixed black-white, well-educated middle class. Those attributes most desired by educated members of the middle class became the basis for her evaluation of the children." (Interaction among adults, high degree of verbalization in Standard American English, the ability to become a leader, a neat and clean appearance, coming from a family that is educated, employed, living together, and interested in the child, and the ability to participate well as a member of a group)

p. 423 "Her resultant preferential treatment of a select group of children appeared to be derived from her belief that certain behavioral and cultural characteristics are more crucial to learning in school than are others."

p. 423 "The organization of the kindergarten classroom according to the expectation of success or failure after the eighth day of school became the basis for the differential treatment of the children for the remainder of the school year..... The fundamental division of the class into those expected to learn and those expected not to permeate the teacher's orientation to the class."



SCIENCE, SILENCE, AND SANCTIONS

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When you ask a child a question, how long do you think you wait for an answer before you repeat the question, ask him another question, or call on another child? If you are like many experienced teachers, you allow an average of one second for a child to start an answer. After a child makes a response, you apparently are still in a hurry because you generally wait slightly less than a second to repeat what he said or to rephrase it or ask another question.

In service training classes for experienced teachers, we have been studying such questioning-teaching techniques to discover what techniques are most effective for teaching science when utilizing some of the national experimental science programs for the elementary school, e.g., Science Curriculum Improvement Study (SICS), Science -- A Process Approach (AAAS), Elementary Science Study (ESS). We have found that when teachers change certain verbal patterns students change their verbal patterns too. We began to experiment to test the effect of the following factors on the verbal behavior of children.

1. Increasing the period of time that a teacher waits for students to construct a response to a question.
2. Increasing the period of time that a teacher waits before replying to a student move.
3. Decreasing the pattern of reward and punishment delivered to students.

"Wait-Time"

While a fast pace in questioning may be suited for instruction in some subjects, it presents some special problems for teachers who are trying to conduct inquiry-oriented science lessons. In most of the new science programs that actually give children access to materials and information, ideas that develop come largely from what children

do with the materials. In any collection of objects there may be more than one possible arrangement, more than one kind of result. The basic notion that underlies all new science programs is the belief that in inquiry the information or relevant cues lie hidden in the materials and not in the head of the teacher. Since that is the case, children need to monitor their materials more carefully than they monitor the teacher's face. Ideas can be modified or even discarded if the evidence requires. No particular point of view in the class is more sacred than another. What counts is what happens in the system of materials. Authority rests with the idea that "works." That point of view means that you and the children need time to think and to evaluate. One second may not be long enough.

What happens in science if you increase the time you wait before you ask another question or call on another child? And what happens if you increase the amount of time you wait to speak after a child speaks? It turns out that all kinds of surprising and sometimes puzzling things result.

If you can prolong your average "wait-time" to five seconds, or preferably longer, the length of student responses increases. When wait-time is very short, students tend to give very short answers or they are more prone to say, "I don't know." In addition, their answers often come with a question mark in the tone, as if to say, "Is that what you want?" But if you increase the wait-time, especially the period after a child has made a response, you are more likely to get whole sentences, and the confidence as expressed by tone is higher. Another bonus that results from increased wait-times is the appearance of speculative thinking (e.g., "It might be the water...but it could be too many plants.") and the use of arguments based on evidence.

If the wait-time is prolonged an average of five seconds, or more, young children shift from teacher-centered show-and-tell kinds of behavior to child-child comparing of differences. Why this happens is not clear. It may be the longer wait-time allows children to trust the materials so that they shift from the teacher's face to the objects they are studying.

It is the teacher who gets the most practice asking questions in the classroom. Children rarely ask questions in class even when they have materials in front of them, yet we know they are usually curious. As you increase the wait-time, the number of questions children ask and the number of experiments they need to answer, the questions multiply.

Suppose you do learn to control wait-time, what are the advantages? First, by increasing the wait-time, you buy for yourself an opportunity to hear and to think. As an example, examine a learning experience with a teaching machine. Suppose the machine begins to instruct a student by showing him some objects and saying, "Tell me how these are arranged. What does the arrangement look like?" The student might answer, "A xylophone." Now if the machine is programmed to expect the student to say steps, there is a problem. The machine either goes on with whatever is next in its program or it cycles back and asks the question again and again until the student gives the "right" answer. Teachers often behave the same way. When the wait-times are very short, teachers exhibit little flexibility in the responses they allow. Contests for control of the metaphors (e.g., steps vs. xylophone) are common, and the teacher usually prevails. A machine could do as well. Errors of this kind become less frequent as wait-time increases.

Second, wait-time can change your expectations about what some children can do. Teachers who have learned to use silence, report that children who do not ordinarily say much start talking and usually have exciting ideas. In one inservice experiment each of fifty teachers taught science to two first grade children. The teachers knew the children had been grouped in combinations of two high verbal children or two low verbal children, or one high and one low verbal child. At the end of each lesson, each teacher tried to decide which combination she had. To the delight of everyone in the experiment, the teachers usually misjudged the combination. Most often they classified the low verbal youngsters as high verbal. The interaction of children with materials plus the protracted silences of the teachers apparently "turned on" children who usually "tuned out." When these teachers returned to their classrooms and experimented with wait-times, they reported that children who did not ordinarily contribute, began to take a more active part in doing and talking about science.

Expectations teachers hold for children can have a deadly effect in terms of opportunities in which children get to practice speculative thinking. For example, on request, twelve inservice teachers each identified their five best and five poorest students. After sampling the teachers' wait-times, in three lessons each of science and mathematics, it was found that the twelve teachers waited significantly less time in both subjects for poor students to reply to questions. That is, students rated as slow or less apt by teachers had to try to answer questions more rapidly than students rated as slow or fast. The result



apparently surprised the teachers. As one of them said, "I guess we just don't expect an answer, so we go on to someone else." This group of twelve teachers then began to experiment deliberately with increasing wait-times for poorer students. Response by "slow" students increased, gradually at first, and then rapidly.

Questioning behavior also varies with wait-time. As wait-time increases teachers begin to show much more variability in the kinds of questions they ask. Students get more opportunity to respond to thought rather than straight memory questions. When the pacing is fast, teachers often ask and answer their own questions. ("What color was it? It was green, wasn't it?") For some reason when teachers gain control of wait-time, questioning becomes less barrage-like and more flexible in form.

### Rewards and Punishments

There is another factor besides silence that seems to have something to do with how children learn science and whether or not they learn to trust evidence as a basis for making judgments.

Usually, teachers use sanctions (positive and negative rewards) in the classroom somewhat indiscriminately. Sometimes teachers seem to be rewarding effort because they commend answers or work that is incorrect. At other times they reward correct responses. In fact, sanctions constitute as much as one quarter of teacher talk in many classrooms. Since evaluative comments constitute a large part of teacher talk, it is useful to know how they influence science instruction.

Modern science programs for the elementary school seek to develop self-confidence in children by allowing them to find out how good their ideas are by the results. When predictions no longer work out or when new information makes a point of view untenable, then pupils are free to change their views. The point is that the authority for changing comes from the results of their experiments rather than from the teacher.

It appears that when teachers measurably reduce the amount of overt verbal rewarding they do, children seem to demand less of their time for showing what happens. Instead they do more comparing and arguing which leads to more experiments. When silence on the part of the teacher increases, and/or when sanctions decrease, the incidence of speculative thought on the part of the children increases. It is doubtful whether children can distinguish when they



are being rewarded for effort and when for appropriate responses. When rewards are high, children tend to stop experimenting sooner than when the number of rewards is relatively lower. There is some reason to suspect that when children work on a complex task, rewards given by the teacher may interfere with logical thought processes. When children start attending to the reward rather than to the task, the incidence of error or the necessity of repeating steps increases.

### Try It Yourself

Tape record a science lesson as you would normally teach it. Listen to what children say and how they say it. Now teach another lesson, but this time experiment with the wait-times or the rewards, but not both at once. If you try to change both factors at once, you will find it more difficult to discover the effect each has by itself. Find out whether the following statements are supported by your experiments.

1. Very short wait-times combined with high teacher rewards produce short student responses, high likelihood of inflected answers reflecting low student confidence, virtually no child-child exchanges of ideas, and a high incidence of answers unsupported by evidence.
2. Long wait-times (not less than 5 seconds) combined with low teacher rewards produce longer responses, more confidence, more exchanges between children, and more speculation supported by evidence.

The children may be inquiring about natural phenomena, but inquiry into teaching is the business of the professional teacher. Run your experiments on silence and sanctions in science enough times to be sure of how the factors act in your class. Let me know what kind of results you get.

