

# A Study to Determine the Effect of Teacher Attitude Toward Student Achievement

Is Analytic teaching teacher-proof? In order to help answer this question, a simple study was conducted at a Fort Worth elementary school. 1982-'83 was the first year of mandatory involvement in the Analytic Teaching Program on the part of all regular classroom teachers at David K. Sellars Elementary. Many of the teachers welcomed the program into their curriculum with great enthusiasm while others were less than pleased with the prospect of teaching two philosophy sessions per week. Since each of the fourth and fifth grade teachers had completed Wesleyan's Analytic Teaching course and since each of their classes would be studying Harry Stottlemeier's Discovery, this group was selected for the study. Assessing attitudes is no easy task. An anonymous survey (admittedly, a less than perfect tool) was devised for this purpose. This study is based on the assumption that positive teacher attitudes toward subject matter can enhance student performance. It proceeded as follows:

## THE PROBLEM AND ITS SETTING

### The Statement of the Problem

The purpose of this study is to examine the relationship that exists between the attitude of the teacher toward a specific content area of curriculum and the achievement of students in that content area. The study will include a survey which will be used to assess teacher attitudes toward the Analytic Teaching Program and the comparison of test scores of students of those teachers whose attitudes are found to be extremely positive or negative.

### The Hypothesis

There will be a significant positive difference in the posttest mean score of students taught by positive attitude teachers when compared to the posttest mean score of students taught by negative attitude teachers.

### The Definition of Terms

Analytic Teaching - A program sponsored by Texas Wesleyan College which makes use of philosophy and logic in an attempt to improve children's reasoning skills, increase their interest in academics, and improve standardized test scores. Analytic Teaching utilizes the principles which were set up by Matthew Lipman in his Philosophy for Children Program.

Positive Attitude Teacher - The fourth or fifth grade teacher at Sellars Elementary who scores the most points on the attitudinal survey scale.

Negative Attitude Teacher - The fourth or fifth grade teacher at Sellars Elementary who scores the least points on the attitudinal survey scale.

### The Delimitations

This study will include only those fourth and fifth grade teachers who are involved in the Analytic Teaching Program at David K. Sellars Elementary, Ft. Worth Independent School District.

### The Assumptions

1. That the self-made attitudinal survey will produce an accurate assessment of teacher attitudes.
2. That the anonymity of the survey will assure that the teachers answer the questions honestly.
3. That the attitude of each teacher will remain constant throughout the school year.

### The Importance of the Study

The attitude of the teacher concerning various aspects of the educational process and its effect on student achievement has been the subject of much interest on the part of educators in recent years. The assumption that attitude is transmitted into overt behavior leads many theorists in the field of education to believe that positive attitudes on the part of teachers can result in classroom climates which are conducive to high levels of student achievement. Those same theorists contend that teachers who display negative attitudes can severely inhibit student motivation and achievement. This study attempts to identify teachers with positive and negative attitudes and to assess their impact on student performance.

### The Review of Related Literature

Teachers' attitudes often manifest themselves in classroom behaviors which have direct effects on student learning. Positive or negative attitudes on the part of the teacher toward certain areas of curriculum are sometimes adopted by students. Though teachers have been found to be less than accurate judges of students' real capabilities, a teacher's perception of a student's level of ability can profoundly influence his performance. Many educational theorists contend that teacher behavior is a paramount factor in the promotion of student achievement.

A study conducted by Robert Rosenthal and Lenore Jacobson in 1969 tested the hypothesis that 'a person's expectations of another's behavior could serve as a self-fulfilling prophecy'. The major presumption of this experiment was based on an underlying theme of the famous George Bernard Shaw play and was labeled the 'Pygmalion Theory'. A public elementary school with many transient minority students was selected for the study. Pre and post I.Q. tests were given schoolwide. Each of the school's eighteen teachers were then given the names of students from whom they could expect high achievement. In reality, the only difference in those students who were expected to be intellectually superior and those who were perceived to be of ordinary intelligence was in the mind of the teacher. At the end of a year of instruction, each child was retested and promoted into a class in which teachers were given no expectations. As a result of the Rosenthal and Jacobson experiment, the self-fulfilling prophecy hypothesis was proven. After one year of instruction, a significant expectancy advantage was found. Following the second year of instruction, the younger students lost their expectancy advantage while the older students maintained some carryover effect. This experiment

showed that favorable expectations can lead to an increase in academic competence.<sup>9</sup>

Although some theorists minimize the significance of the Pygmalion effect, other researchers also contend that expectations on the part of the teacher can have a positive effect on the student's potential for success. Studies have shown that those students who are perceived to be underachievers are treated differently by teachers than high level achievers. The student who is considered below average is less likely to be called upon in class and more likely to "tune out" class discussions. High level students are given three to four times more response opportunity than their lower level peers. A 1969 study by Thomas L. Good and Jere L. Brophy devised an experimental "equal opportunity" classroom. In the experimental group, the underachievers were given their fair share of responding time. After three years the low achievers in the equal opportunity classroom showed significant academic gains over the low achievers in the control groups.<sup>6</sup>

Several other recent studies have explored the relationship that exists between the teacher's attitude as it manifests itself in classroom behavior and the achievement of the student. A 1975 Bloomington, Indiana experiment conducted by Beverly Armento studied the relationships between instructional intent, teacher behaviors, and student achievement. One conclusion which resulted from this study of elementary students in the social studies content area was that teacher interest and enthusiasm for subject matter plays an important role in student achievement.<sup>1</sup> A 1976 experiment by Gilbert Stefanides in Kent County, Maryland reached a similar conclusion. Students of teachers who displayed enthusiasm toward a new spelling program produced higher levels of achievement in spelling than their peers in traditional classes in which teacher's and student's attitudes were less positive toward the subject.<sup>10</sup>

A 1975 experiment was conducted by Cantrell, Stenner, and Katzenmeyer to study the relationship between teacher knowledge and attitude and student achievement. The experiment utilized low and middle range I.Q. first graders and their teachers. The teachers were given two tests in order to categorize them into various knowledge and attitude clusters. One of these tests, the Alternative Classroom Strategies Inventory determines knowledge of behavioral principles and their classroom manifestations. Based on the results of this test, teachers were classified in one of five behavioral categories ranging from those who were found to be traditionally authoritarian to those who made use of naturally occurring situations to produce behavioral changes. The second test administered to the teachers, the Minnesota Teacher Attitude Survey, measured the teachers' attitudes toward their pupils and toward the teaching profession. Based on the results of this test, teachers were distinguished in some of the following ways: either authoritarian or supportive of their pupils, being either positive or negative toward their students, and being generally satisfied or dissatisfied with students and teaching. The students' preachievement and I.Q. test scores were examined prior to the experiment. At the end of the study, student test scores on the Metropolitan Achievement Test were compared. The results of this experiment indicate a correlation between student achievement and teacher attitude and knowledge of behavioral principles. Teachers with positive attitudes and high knowledge of behavioral principles on the ACSI and MTAI

displayed positive classroom behaviors which resulted in gains in student achievement that were greater than those produced by students whose teachers were classified as directive or authoritarian by the same tests.<sup>3</sup> Similar studies confirm the conclusion that personality styles on the part of the teacher affect student learning.

A problem that educators face in determining precisely what effect teacher attitude and behavior has on student performance is in the area of measuring teacher behaviors. Measures in teacher behavior can be in error due to problems in observation time, problems of interpretation on the part of the observer, or problems with subject matter. No process has yet been devised to effectively consider all three of these areas simultaneously. Shavelson, Dempsey, and Atwood list over 140 variables in 13 categories ranging from presentation to feedback which should be measured when assessing teacher behavior.<sup>4</sup>

The Berliner study in 1975 confirms the idea that problems in assessing the relationship between teacher behavior and student achievement are caused by several factors. The factors recognized by Berliner include inadequacy of tests and their unknown predictive ability, problems in measurement of appropriate teacher behavior, lack of stability in teacher behaviors, student background as it relates to measures of teacher effectiveness, and the fact that frequently students monitor and interpret teacher behaviors in ways that are quite different from those of educational theorists.<sup>2</sup>

Researchers who are less rigid in their interpretation of teacher behaviors cite several specific strategies which are effective in producing student learning in all areas of curriculum. These include:

1. Focusing on academic goals
2. Promoting content coverage
3. Carefully selecting goals and materials
4. Actively monitoring progress
5. Promoting student involvement
6. Structuring learning activities
7. Giving immediate feedback
8. Creating a relaxed, task-oriented environment
9. Providing individualized instruction
10. Avoiding vagueness
11. Making use of high-order solicitations
12. Allowing generous time on task
13. Providing positive verbal behaviors
14. Teaching to smaller groups
15. Providing a wide variety of materials and variability
16. Believing in students' abilities to master specific objectives
17. Holding high expectations with regard to educational accomplishments
18. Properly diagnosing student characteristics
19. Alternating instructional strategies

In recent years, many school administrators nationwide have recognized the need for a systematic approach for the integration of thinking skills into the curriculum. Analytic Teaching, a program which utilizes tools of philosophy and logic in order to help students develop solid reasoning skills, has become widely used to meet this need. 1981 testing showed that children who were in the Fort Worth Independent School District Analytic Teaching Program significantly improved their reasoning skills. Similar studies

across the nation have shown that the Program significantly improves reading and standardized test scores.

Matthew Lipman, founder of the Philosophy for Children Program contends that certain attitudes and behaviors are important for teachers to adopt when implementing the program. Teachers should become sensitive to philosophical speculations and to the insights of children. Further, they need to communicate the importance of excellence in thinking, in creating, and in conduct.<sup>8</sup> A certain degree of neutrality is important on the part of the philosophy teacher, however, in bringing students to care about truth and rationality, the teacher cannot be neutral in these areas.<sup>7</sup>

The inquiry method, which is an essential part of philosophical discussions in the classroom requires a high degree of self confidence on the part of the teacher. The instructor must not only be able to allow his students to disagree with him, but he must also recognize the fact that inquiry can change student's attitudes toward knowledge. When inquiry is utilized in the classroom, knowledge becomes more tentative and less absolute.

Methodologies which are particularly suited for instructors of Analytic Teaching have been identified in several studies. Stephen Johnson and Robert Pines consider certain teaching strategies to be essential to the development of an effective Analytic Teaching Program. These include clarity, variability, enthusiasm, task orientation, and the use of structuring comments and high order questioning. Johnson and Pines contend that teachers must be able to avoid indoctrination, respect children's opinions, and evoke children's trust.<sup>5</sup> Mary Yeazell identifies the characteristics of a good philosophy teacher as being those of Abraham Maslow's 'self-actualized person'. The philosophy teacher should be fully functioning, able to develop his own capabilities, free of inhibitions, autonomous, able to critically assimilate, and able to give self confidence.<sup>11</sup>

The purpose of this study is to judge the impact that the teacher's attitude has on student success in Analytic Teaching. Programs in Analytic Teaching which are conducted by teachers who display certain positive attitudes and behaviors are known to improve students' reasoning skills. One critical component of the Program seems to lie in the determination of who should utilize the Analytic Teaching materials. This study will help to determine whether teachers' attitudes toward Analytic Teaching manifest themselves in classroom behaviors which significantly alter students' acquirement of reasoning skills. If teachers' attitudes are found to influence student performance in Analytic Teaching, perhaps this should become a consideration in determining who is qualified to implement Analytic Teaching Programs.

**Procedures:**

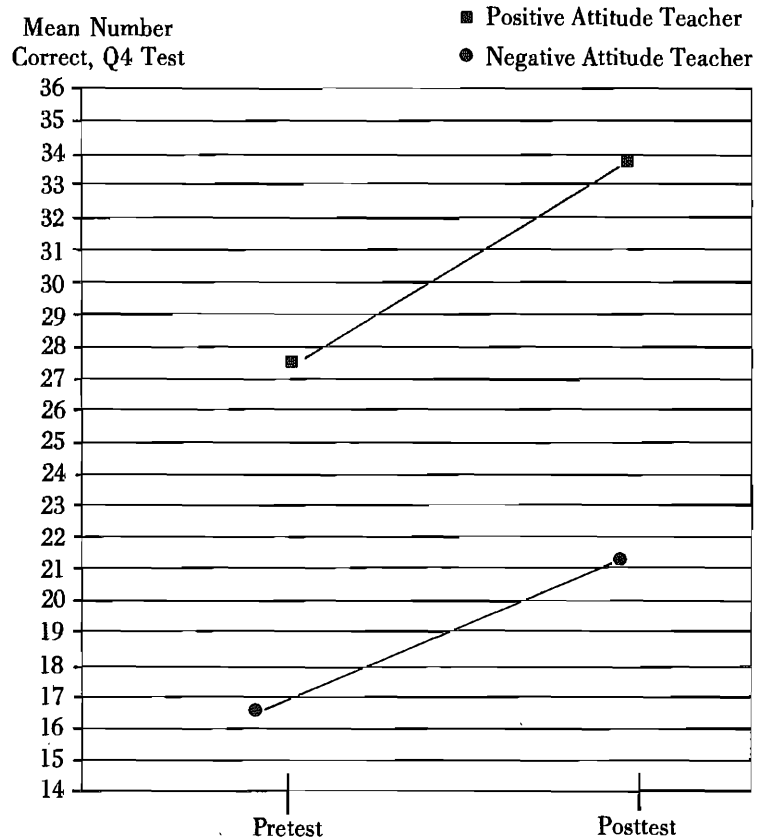
1. All of seven fourth and fifth grade classes at David K. Sellars Elementary will be tested in September prior to any Analytic Teaching instruction, and again in May following two semesters of involvement in the Program. The Questioning Task #4 (Q4 Test on reasoning skills) by Virginia Shipman and Matthew Lipman will be used for both pre and posttests. The 55 question test will be administered in two, one hour sessions by each fourth and fifth grade teacher.
2. A self-made survey will be administered at mid-semester to each of the seven fourth and fifth grade teachers for the

purpose of assessing their attitudes toward the Analytic Teaching Program. In order to protect the anonymity of the teachers who are being surveyed, the instructional specialist will personally collect the surveys in a sealed envelope and assign each envelope a number. She will then keep a record of the numbers which have been assigned to each of the teachers and will place those numbers on the pre and posttests of their classes. Teacher names will not appear on the survey or the tests.

3. Each attitudinal survey will be rated according to the scale which appears in the appendix. The teacher who receives the greatest number of points on the survey will be identified as the positive attitude teacher. The teacher who receives the lowest number of points on the survey will be considered the negative attitude teacher.
4. The posttest mean scores of students taught by the positive attitude teacher will be compared to the posttest mean scores of students taught by the negative attitude teacher.
5. A T-Test will be used to determine the significance of difference of the mean scores of the two groups. Probability level will be set at .05.

**Conclusion:**

In order to determine whether or not the attitudes of the teachers affected the student's performance in the Q-4 Test, test scores of students of high and low attitude teachers were analyzed. The results of the study indicated that the positive attitude teacher yielded significantly higher test scores with her students than did the negative attitude teacher. The following figure displays the mean scores of both teachers.



As the graph indicates, the positive attitude teacher not only produced greater improvement ( $M=7.485$ ) than the negative attitude teacher, ( $M=5.11$ ) her class also produced higher pretest scores. A close examination of the data shows that the positive attitude teacher taught two sections of Analytic Teaching, one of which was an academically accelerated class. The positive attitude teacher's mean scores were obtained from both of these sections, the average class, and the accelerated one. Higher pretest scores on the part of the positive attitude teacher can be attributed to the academically accelerated classes who normally score high on standardized tests and who were included in this study. The negative attitude teacher taught only one section of Analytic Teaching. Her class was not an accelerated one.

A T-Test was performed to determine the significance of difference between the mean scores of the two groups. The null hypothesis ( $H_0$ ): the attitude of the teacher does not affect test score improvement of students and the alternate hypothesis ( $H_a$ ): the attitude of the teacher affects test score improvements of students were used in analyzing the results of the study. Given the probability of the event ( $p$ )<sup>5</sup>.05 degrees of freedom ( $df$ )<sup>5</sup>58 and the sample size ( $N_1$ ) of the positive attitude teacher<sup>5</sup>42, and the sample size ( $N_2$ ) of the negative attitude teacher<sup>5</sup>18, the following results were obtained.

Sample mean  $x_1$ <sup>5</sup>7.485 (positive teacher)  
 Sample mean  $x_2$ <sup>5</sup>5.11 (negative teacher)  
 $t$ <sup>5</sup>10.02 with  $df$ <sup>5</sup>58 at the  $p$ % level of .05

Thus, the significant level of  $t$  at  $p=0.05$  equals 2.00. Anything less than  $-2.00$  or greater than 2.00 is needed to reject the null hypothesis ( $H_0$ ) at the 0.05 level of significance. In conclusion, the null hypothesis is rejected and the alternate hypothesis is accepted. In other words, this study shows that the positive teacher's attitude yielded significantly higher test scores with her students than did the negative attitude teacher.

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## Bibliography

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<sup>8</sup>Lipman, Matthew and Sharp, Ann Margaret. Philosophy in the classroom. Philadelphia: Temple University Press, 1980: 84.

<sup>9</sup>Rosenthal, Robert, and Jacobson, Lenore. Pygmalion in the Classroom. New York: Holt, Rinehart and Winston, Inc., 1968

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## ANALYTIC TEACHING SURVEY

1. Have you completed six hours of credit in Analytic Teaching?
  - a . yes
  - b .No
2. How many years of teaching experience have you had with Analytic Teaching?
  - a . 0-1
  - b .1-2
  - c . 2 or more
3. Analytic Teaching is a mandatory part of the Spiral Program at Sellars this year. Given a choice, would you have participated in the program?
  - a . yes
  - b .uncertain
  - c . no
4. Do you enjoy your Analytic Teaching sessions?
  - a . most of the time
  - b .sometimes
  - c . seldom
5. Do your students seem to enjoy the sessions?
  - a . most of the time
  - b .sometimes
  - c . seldom
6. Rate Analytic Teaching in terms of preparation time.
  - a .I spend more time than for other subjects.
  - b .I spend about the same amount of time as for other subjects.
  - c .I spend less time than for other subjects.
7. Rate the Analytic Teaching materials.
  - a . usually relevant to my students' needs
  - b .sometimes relevant to my students' needs
  - c . seldom relevant to my students' needs
8. Rate the effectiveness of the program in improving your students' reasoning skills.
  - a . very effective
  - b .somewhat effective
  - c . ineffective
9. In your view, has the Analytic Teaching program improved your students' attitudes towards school?
  - a . yes
  - b .uncertain
  - c . no

10. If you were given the choice of using Analytic Teaching or not using Analytic Teaching next year what would you do?
  - a . I would use the program.
  - b .I am uncertain.
  - c . I would not use the program.

### Rating Scale for Questionnaire

1. Not applicable to attitude
2. Not applicable to attitude
3. A — 5  
B — 3  
C — 1
4. A — 3  
B — 2  
C — 1
5. A — 3  
B — 2  
C — 1
6. Not applicable to attitude
7. A — 3  
B — 2  
C — 1
8. A — 3  
B — 2  
C — 1
9. A — 3  
B — 2  
C — 1
10. A — 5  
B — 3  
C — 1

\*Note: The Positive Attitude Teacher scored 25 of 25 possible points. The Negative Attitude Teacher scored 11 of 25.