

## CHAPTER 3

### METHODOLOGY

#### Design

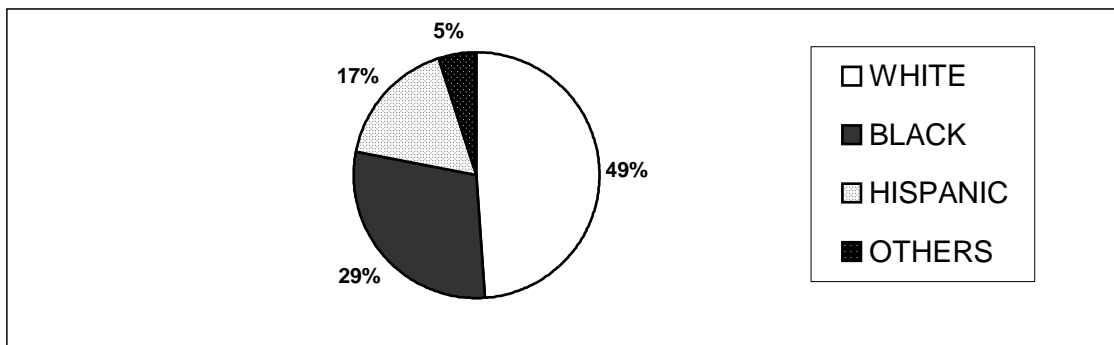
This phenomenological study used multiple techniques of data collection to answer the overarching research question: What does the A+ Plan, Florida's new school accountability system, mean to tenth grade mathematics teachers? This method of inquiry was an attempt to identify and to understand the perceptions of tenth grade mathematics teachers who taught at schools that differed in school performance grade level; by teachers who differed in their teaching assignment course level; and by teachers who differed in race or ethnic composition. This study also examined how school administrators who worked at schools that differed in performance grade level perceived this school reform plan. This research process was implemented through interviews and document analysis. This inquiry was conducted during the spring of 2001 in the midst of, and immediately after, the FCAT's third year of administration.

#### Setting

This study was conducted in the state of Florida, at an urban school district whose mission stated that: "The School Board is committed to excellence in education and the preparation of all our students with the knowledge, skills and ethics required for responsible citizenship." The district school board's fundamental beliefs included: (a) education excellence, (b) equitable outcomes, (c) promotion of diversity as a social strength, (d) lifelong learning, and (e) ethical foundations of behavior (Florida's Urban School District, 2000, p.1).

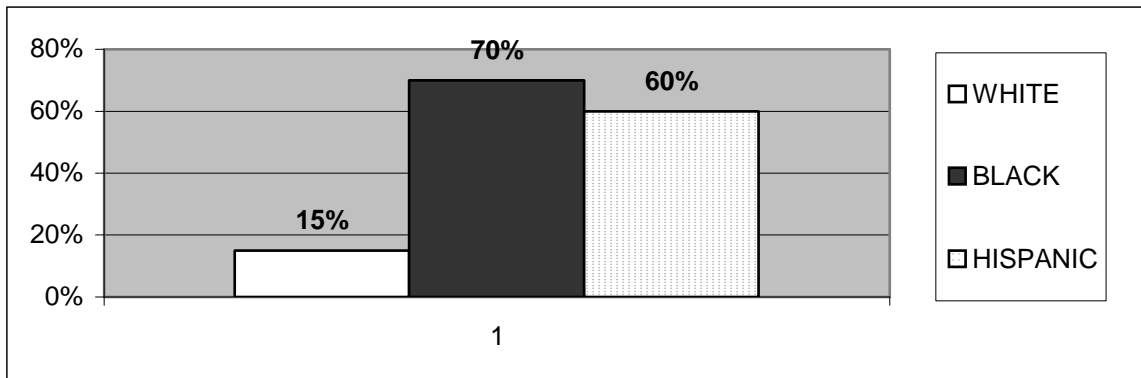
This urban school district is one of the largest in Florida and one of the top 20<sup>th</sup> in the nation with more than 160,000 students. According to the school district's demographics report (2001), more than 18,000 of these students were Limited English Proficient (LEP) enrolled in the English for Speakers of Other Languages (ESOL) program and 25,926 were enrolled in the Exceptional Student Education (ESE) program. The student population was extremely culturally diverse. Besides English, more than 80 other languages were spoken throughout the district. While White students represented 49% of the student population, Black, Hispanic, and Others represented 29% and 17%, and 5% respectively, of the overall enrollment. At that time of the study, there were more than 160 schools in operation with more in the process of construction. The following pie graph figure represents the year 2001 school's district's racial distribution.

Figure 1: The School District's Racial Distribution



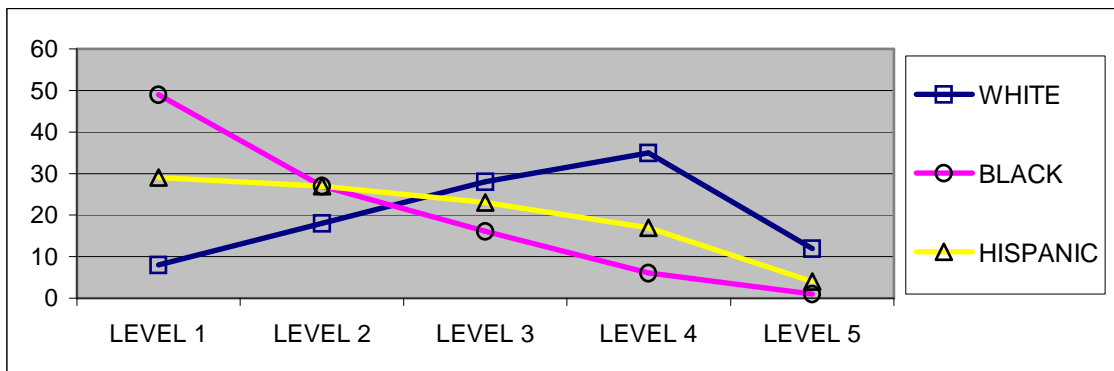
Thirty-eight percent of the district's student population was at the poverty level. Fifteen percent of White students, 70% of Blacks, and 60% of the Hispanics fell into this category. The following bar graph figure displays the school district's free/reduced lunch racial distribution.

Figure 2: The School District's Free/Reduced Lunch Racial Distribution



The following line graph Figure shows year 2000 percentages of White, Black, and Hispanic tenth grade students who on the mathematics portion of the Sunshine State Standards (SSS) Florida Comprehensive Assessment Test (FCAT) scored at levels 1 through 5.

Figure 3: Mathematics SSS FCAT Levels 1 Through 5



Sample

The teacher participants of this study were selected from the population of teachers of one of Florida's urban school districts, who taught mathematics at the high school level, had either a middle or the K-12 mathematics certification, had

been teaching in the field and in the same school site since 1997-1998 school year, and during the 2000-2001 school year, were teaching at least one class of tenth graders.

Because there was only one head of the mathematics department, one assistant principal in charge of curriculum, and one principal per school site, their selection as participants in this study was by de facto.

The sample included 27 participants from three different school sites (9 per school site), including 18 teachers (6 per school site), 3 heads of mathematics departments (1 per school site), 3 curriculum assistant principals (1 per school site), and 3 principals (1 per school site).

### Sampling Plan

The teacher participants for this study were selected based on the following three criteria. The first criterion was performance grade of the school in which they were teaching. The second criterion was the level of mathematics that they were teaching, and the third criterion was their race or ethnic composition. When there was more than one teacher participant who met a certain criteria, the investigator selected the teacher who taught the largest number of tenth graders.

#### First Criteria: School Performance Grade Level

By the time this study was conducted in the state of Florida, school performance was acknowledged by the grade it received by the state. The grade, which varied from A to F, was based on the student performance on the FCAT, test participation percentage, and the school dropout rate. Based on this grade, schools were publicly known as high, average or low performing. To choose the

school sites where the investigation was going to be conducted, the researcher first developed a 5x5 matrix that represented all the possible school performance grade combinations for 1998-1999 and 1999-2000 school years. For example, the first element of this matrix was an AA, which meant an A for both 1998-1999 and 1999-2000 school years. The investigator then identified, out of these 25 possibilities, the ones that actually happened, which were CC, BB, AC, CD, DD, and FD. Out of these six school grade combinations, the three that were representative of high, average, and low performing schools were BB for high performance (the combinations AB or BA were not present), CC for average performance (there was more than one high school CC), and FD for low performance (the combinations FF or DF were not present). In order to protect the confidentiality of the school and of the participants, and for the purpose of this study, the school with the BB combination was named the high performing school; the school with the CC combination was named the average performing school; and the school with the FD combination was named the low performing school. On May of 2001, at the same period of time that the data collection process for this study was completed, the high performing school was graded A, the average performing school was graded C for the third time, and the low performing school remained as a D.

#### Second Criteria: Teacher Assignment Course Level

At the high school level, mathematics teachers do not teach “grade levels” per se, but mathematics courses. This meant that teachers who taught Algebra I could have had ninth, tenth, eleventh or twelfth graders sitting in the same class.

On the other hand, students who were at the tenth grade level could have been enrolled in mathematics courses that range from Explorations in Mathematics to Integrated Mathematics, and possibly higher. It is for this reason, and for the purpose of this study, that the mathematics courses that a tenth grader could have been enrolled were divided in three categories or levels. Explorations in Mathematics, Intensive Mathematics, ESOL Mathematics, and Algebra 1a or 1b constituted Level 1; Regular or Honors Algebra 1 or Geometry constituted Level 2; and Regular or Honors Algebra 2, Integrated Mathematics or higher constituted Level 3. This meant that a mathematics teacher could have been teaching one, two, or three different levels during the same school year. The reason for categorizing teachers based on their mathematics course level of teaching assignment was because the curriculum, teacher expectations, student expectations, classroom climate, student population, and challenges varied from slightly to immensely across mathematics course levels. Therefore, the mathematics course level that the mathematics teacher was teaching was the first criteria.

### Third Criteria: Teacher's Race or Ethnic Composition

This study also pre-selected its participants by their race or ethnicity. The two subcategories were White and non-White. The reasons for categorizing mathematics teachers based on their race or ethnic composition were:

1. Black and Hispanics students were over-represented in low performing mathematics classes, such as Explorations in Mathematics and Algebra 1a. The lower the level of mathematics, the higher the number of minorities enrolled. The

higher the level of mathematics, the higher the number of White students enrolled.

2. Teachers were aware of the stubborn gap in mathematics achievement between Whites and non-White students, reflected not only in the mathematics course level enrollment but also in students' performance on tests such as the FCAT, Norm Reference Test (NRT), and the like.

3. The cultural background of teachers, their past life experiences, values and beliefs related to their own race or ethnicity should have influenced their views, expectations, and teaching performance at the mathematics level that they were teaching. Therefore, the teacher's race or ethnic composition was the third criteria.

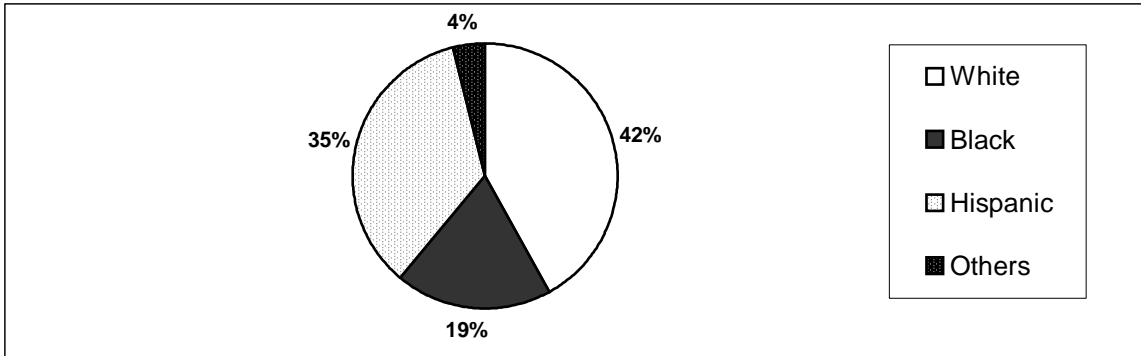
#### The Average Performing School

The average performing school was a high school with a performance grade combination of C (1999), C (2000), and C again in 2001. According to the school district's demographics report (2001), this school had approximately 2,849 students, of which 42% were White, 19% were Black, 35% were Hispanic, and 4% Others. The percentage of students who either had free or reduced lunch totaled 39%. During the spring of 2000, the percentages of White, Black and Hispanic ninth graders whose stanines were 1-3 on the mathematics portion of the FCAT NRT were 10%, 47%, and 31%; stanines 4-6 were 53%, 49%, and 55%; and stanines 7-9 were 37%, 4%, and 15%. At the time this study was conducted, this group of ninth graders became the first tenth grade class required to pass the FCAT for graduation purposes. The percentages of LEP,

ESE, and gifted students were 11%, 12% and 0%, respectively. The average absentee rate was 6%.

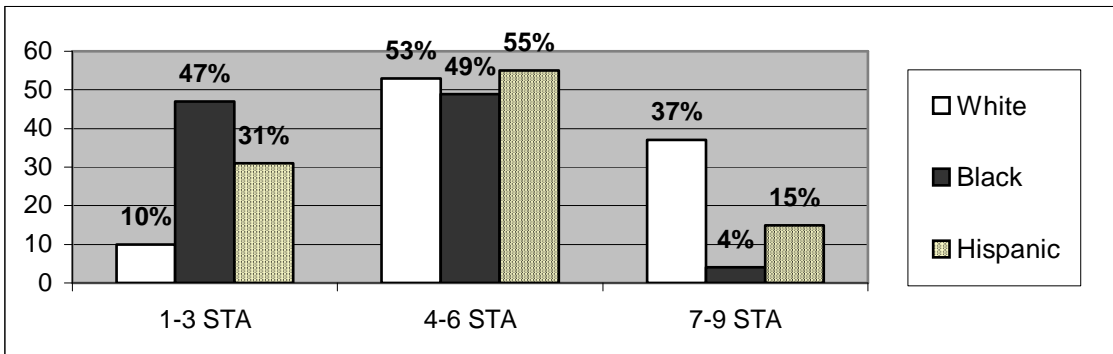
The following pie graph figure shows the racial distribution for the average performing school.

Figure 4: The Average Performing School Racial Distribution



The following bar graph figure shows the year 2000 average performing school percentages of White, Black and Hispanics ninth grade students that on the FCAT NRT mathematics portion of the test were at 1 through 3, 4 through 6, and 7 through 9 stanine levels.

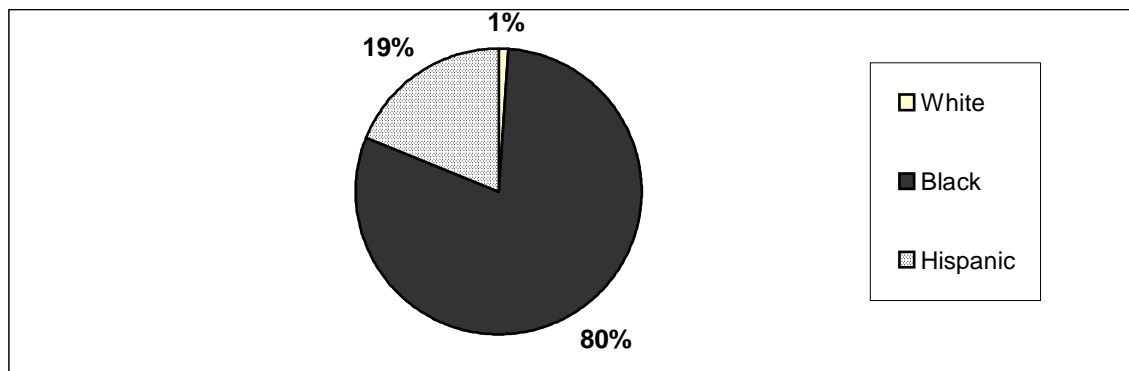
Figure 5: The Average Performing School Math NRT FCAT Stanines



## Low Performing School

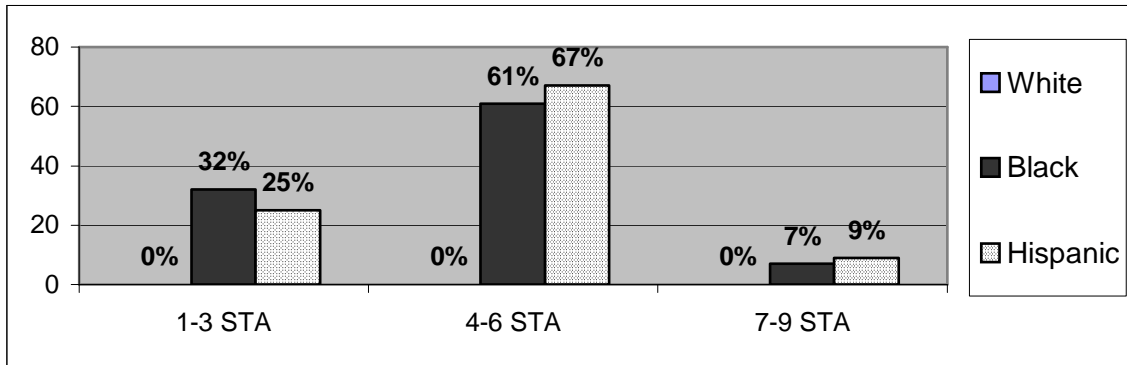
The low performing school was a high school with a performance grade combination of F (1999), D (2000), and D again in 2001. According to the school district's demographics report (2001), this school had approximately 1,333 students, of which 1% was White, 80% were Black, and 19% were Hispanic. The percentage of students who either had free or reduced lunch was 75%. During the Spring of 2000 the percentages of White, Black, and Hispanic ninth graders whose stanines on the mathematics portion of the FCAT NRT were 1-3 level were 0%, 32%, and 25%; stanines 4-6 were 0%, 61%, and 67%; and stanines 7-9 were 0%, 7%, and 9%. The percentages for LEP, ESE, and gifted students are 12%, 17% and 1%, respectively. The average absentee rate was 4%. The following pie graph figure shows the school's 2001 racial distribution.

Figure 6: The Low Performing School Racial Distribution



The following bar graph figure shows the year 2000 low performing school percentages of White, Black and Hispanics ninth grade students that on the FCAT NRT mathematics portion of the test were at 1 through 3, 4 through 6, and 7 through 9 stanine levels.

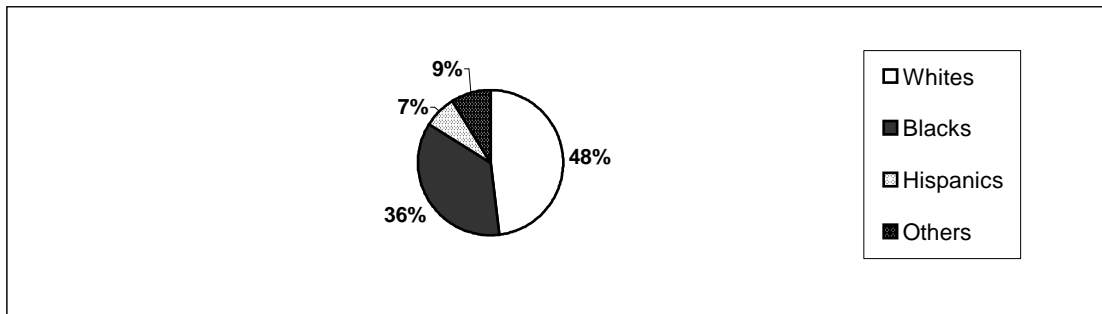
Figure 7: The Low Performing School Math NRT FCAT Stanines:



### The High Performing School

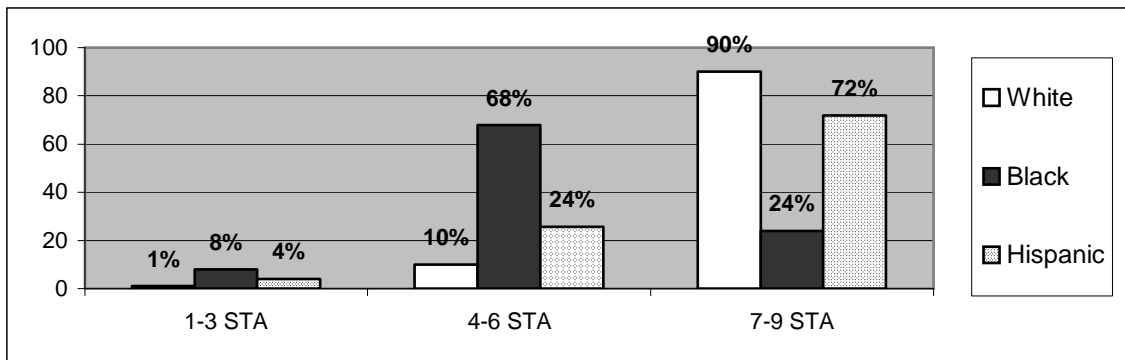
The high performing school was a high school with a performance grade combination of B (1999), B (2000), and A in year 2001. According to the district's demographics report (2001), this school had approximately 1,275 students of which 48% were White; 36% were Black; 7% were Hispanic, and 9% Others. The percentage of students who either had free or reduced lunch is 18%. During the Spring of 2000 the percentages of White, Black, and Hispanics ninth graders whose stanines on the mathematics portion of the FCAT NRT were 1-3 were 1%, 8%, and 4%; stanines 4-6 were 10%, 68%, and 24%; and stanines 7-9 were 90%, 24%, and 72%. The percentages for LEP, ESE, and gifted students were 1%, 1%, and 0, respectively. The average absentee rate was 1%. The following pie Figure shows the school year 2001 racial distribution.

Figure 8: The High Performing School Racial Distribution



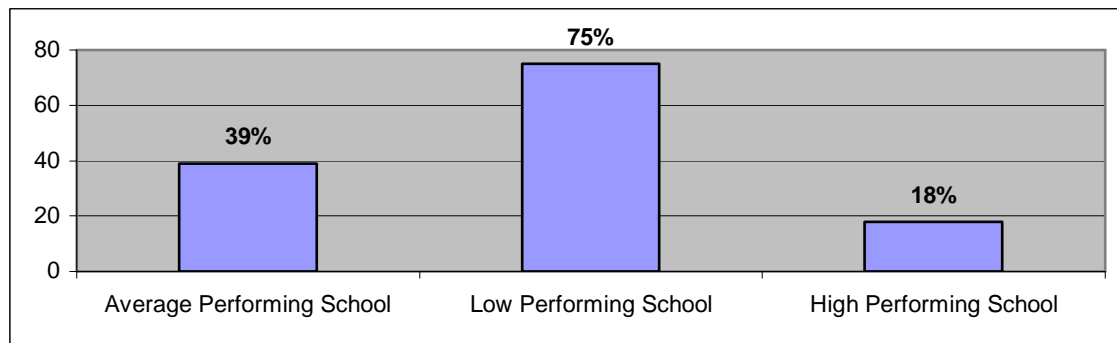
The following bar graph figure shows the year 2000 high performing school percentages of White, Black, and Hispanic ninth grade students that on the FCAT NRT mathematics portion of the test were at 1 through 3, 4 through 6, and 7 through 9 stanines levels.

Figure 9: The High Performing School Math NRT FCAT Stanines



The following graph shows the percentages of students who either had free or reduced lunch in each of these three schools. The percentage of students who had free or reduced lunch was the criteria used to identify students who were at the poverty level.

Figure 10: Three Schools' Free/Reduced Lunch Percentages



### Methods

This study employed two different data collection techniques: open-ended question interviews and document analysis. In order to have a better understanding of the teachers' perceptions, the investigator also conducted another set of interviews with the heads of the mathematics departments, assistant principals in charge of curriculum, and the principals of each of the three school sites.

Via telephone, the investigator first contacted the Research, Evaluation, and Measurement Department Director, who was the person authorized to provide permission for this study to be conducted. The investigator met with this person, presented her self, explained the study and its purpose, and requested a letter of approval. The researcher also informed this person about the confidentiality promised to the district and to each of the study participants. After the investigator obtained the letter of approval, she sent letters to each of the selected school sites' principals to first inform them about the study and its purpose; second, to request their permission to proceed with the study at their

school site; and third, to ask for their involvement as participants. The letter was then followed by a telephone call. After getting the principals' approval, the investigator sent a letter to each of the sites' assistant principals and heads of mathematics departments to inform them about the study and its purpose, and to ask for their participation. These letters were followed by a telephone call. After getting the assistant principal's and the head of the mathematics department's consent to participate, the investigator visited each of the school sites in search for teacher participants who met the criteria. If there was more than one teacher who met a certain criteria, the one who taught a greater number of tenth graders was asked to participate.

Because there were only one principal, one the assistant principal in charge of curriculum, and one head of the mathematics department at each school site, these participants were selected as participants by de facto.

### Teachers' Interviews

The investigator presented the study and its purpose to each of the teacher participant candidates and informed them about the confidentiality promised to the district and to everyone who participated in the study. The investigator worked on establishing a relationship with each of the candidates and the necessary comfort level that later facilitated the collection of data during the interviewing process. Because the necessary comfort level was always reached at a reasonable time, the investigator did not need to make any necessary arrangements to substitute a candidate for another who met the criteria. The investigator then requested the teacher participant 's consent to participate and

set up a date and time for the interview to be conducted. These interviews lasted approximately an hour and were tape-recorded for later transcription.

The following open-ended questions guided the interviewing process.

1. One of the beliefs that the A+ Plan is based on is that every child can learn, and that no child should be left behind. In what ways do you agree or disagree with this belief?
2. One of the most important principles of the A+ Plan is that schools and educators should be held accountable for their students' performance on the FCAT. In what ways do you agree or disagree with this principle?
3. Given by the State, your school's grade is basically based on how your students' perform on the FCAT. In what ways do you agree or disagree with this measure?
4. Under the A+ Plan school grades are publicized. What has been your reaction to this?
5. What has been the effect of this publicity on your teaching performance?
6. What has been the effect of this publicity on your students' performance?
7. What training and materials, if any, have you received that you feel it has helped you improve your teaching performance?
8. What has been the effect of the A+ Plan on your daily curricular classroom activities?
9. Do you have any other views about the A+ Plan that you wish to share?

### Administrators' Interviews

The investigator, after presenting the study and its purpose to each of the principals, assistant principals, and heads of mathematics departments, requested their consent to participate in the study. In the principal's case, their permission to conduct the study at their school site was requested before their consent to participate. The investigator also informed them about the confidentiality promised to the district and to everyone who participated in the study.

The purpose of interviewing the heads of the mathematics departments, the assistant principals in charge of curriculum, and the principals at each of the three school sites was to better understand the phenomenon under study, which was the tenth grade mathematics teachers' perceptions, by investigating through a different angle, that is, the administrative. For example, a teacher could have expressed dissatisfaction with the instructional materials and training received to prepare his or her students for the FCAT while, at the same time, the assistant principal in charge of those duties could have had expressed satisfaction for those same FCAT-preparation instructional materials and training. On the other hand, it was possible that teachers, heads of the mathematics departments, and curriculum assistant-principals could have all agreed with many or all of the questions asked during the interviewing process.

The following open-ended questions guided the interviewing process.

1. One of the beliefs that the A+ Plan is based on is that every child can learn, and that no child should be left behind. In what ways do you agree or disagree with this belief?
2. In what ways do you believe mathematics teachers agree or disagree with this belief?
3. One of the most important principles of the A+ Plan is that schools and educators should be held accountable for their students' performance on the FCAT. In what ways do you agree or disagree with this principle?
4. In what ways do you believe mathematics teachers agree or disagree with this principle?
5. Given by the State, your school's grade is basically based on how your students' perform on the FCAT. In what ways do you agree or disagree with this measure?
6. In what ways do believe mathematics teachers agree or disagree with this measure?
7. Under the A+ Plan school grades are publicized. What has been your reaction to this?
8. What do you believe has been mathematics teachers' reaction?
9. What has been the effect of this publicity on your performance?
10. What do you believe has been the effect of this publicity on mathematics teachers' performance?
11. What has been the effect of this publicity on your students' performance?

12. What training and materials, if any, have you provided mathematics teachers that you feel it have helped them improve their teaching performance?
13. What has been the effect of the A+ Plan on your mathematics teachers' classroom curricular daily activities?
14. Do you have any other views about the A+ Plan that you wish to share?

### Document Analysis

The second technique, document analysis, allowed the investigator to search for documents that brought into context what the state was doing to implement and maintain the A + Plan strategies, especially those related to changes in the criteria for school performance evaluation. Statistical data, documents that showed past FCAT results, absenteeism, dropout rates, and the school sites and district demographics were also examined. The type and quality of materials teachers received to help their students pass the FCAT and the description of workshops they attended for this purpose were also examined.

### Data Analysis

Data analysis was done simultaneously with the data collection process. The investigator collected data at one school at a time. First, she interviewed the participants at the low performing school, second the participants at the average performing school, and third, the participants at the high performing school. This allowed her to be at each school site for a concentrated and focused period of time. In order to reduce interfering variables such as expectancy, anxiety,

schedule conflicts, specific school site circumstances, and the like, the investigator varied the interviewing order process at each of the school sites. For example, she started with one of the mathematics teachers at the low performing school, but started with the head of the mathematics department at high performing school. Each interview was transcribed immediately; that is, she did not wait until all the interviews at a site were completed to start the transcription process. The field notes were reviewed on the same day the interviews were conducted. Each interview transcription and its corresponding field notes were summarized in one document, the contact summary. There were a total of 9 contact summaries per school site, a total of 27 at the end of the entire interviewing process time (18 teacher participants, 3 heads of mathematics departments, and 3 curriculum assistant principals, and 3 principals). Documents were also collected, reviewed, and summarized. The data was organized, analyzed, synthesized, and categorized in the search for themes and interpretation. The steps followed in the process of analysis were:

#### Step 1: Creating Codes

Once fieldwork commenced, the investigator created a provisional “start list” of codes that served as a template for analysis. At the same time, the investigator kept an open mind for other codes that emerged during the whole data collection process.

#### Step 2: Data Collection

The information (raw data) was gathered in the form of tape-recorded interviews, handwritten field notes, and document collection. The field notes

included things that could not be taped during the interview process, such as gestures, tone of voice, and the like.

### Step 3: Write-ups

Each of the interview tapes was transcribed into smooth and straightforward ideas presented by the speaker (not the “uhs” pauses or incomplete sentences). The information gathered after the investigator reviewed the field notes was added to the tape transcriptions to form “write-ups.” There was a write-up for each participant contact.

### Step 4: Summaries

A summary for each contact write-up and documents collected was done. These summaries included a précis of the responses to the interview-guide questions, the main issues identified by the investigator during the contact, and anything else that the investigator considered relevant, illuminating, or important.

Returning to the school site, the investigator presented the interview summary to the each participant. The participant then confirmed, added, or delete, whatever she/he deemed (member checking process).

The document summaries put the documents into context and explained their significance. Both contact and document summaries contained the investigator’s reflective commentaries.

### Step 5: Pattern Coding

Information was organized into meaningful and prudent units of analysis. The investigator summarized segments of data in order to explain and identify emergent themes.

### Step # 6: Memoing

The investigator moved from the experiential data to a conceptual level, refined, and expanded the codes to develop key themes, showing their relationship in order to construct a more integrated understanding of the phenomenon and to be able to explain the findings, conclusions, and recommendations.