

**ACTION RESEARCH PROJECT (QUANTITATIVE RESEARCH)****AREA OF FOCUS STATEMENT**

My school has a population of 832 students. There are 299 sixth graders, 273 seventh graders and 260 eighth graders. According to the 2004 Florida Comprehensive Assessment Test (FCAT), my school earned a grade of a "D". This grade is based on the percent of students meeting high standards, percent of students making learning gains and the quartile of students making learning gains (adequate yearly progress) in Reading, Mathematics and Writing. My area of focus will be the 6<sup>th</sup>, 7<sup>th</sup> and 8<sup>th</sup> grade mathematics section of the FCAT. Looking closer at the data, 30 % of the sixth and seventh grade students met high standards while 53% of the eighth grade students met high standards. The percent of students making learning gains showed an increased in all levels, 41%, 58% and 86%. Fifty-five percent of all the 6<sup>th</sup> graders, forty-six percent of all 7<sup>th</sup> graders and fifty-eight percent of all the 8<sup>th</sup> grade students showed learning gains in the lowest 25% quartile. The FCAT is broken down into different levels. The levels are broken down on a scale score of 100-500. A Level 3 or better is desired in any area of the FCAT. The percent of students scoring a Level 2 or below are 71%, 47% and 52% respectfully. Below is a table showing the FCAT Achievement Levels for Mathematics in Grades 6-8:

**(Figure 1)****FCAT Achievement Levels for Mathematics in Grades 6-8**

| <b>Grade</b> | <b>Level 1</b> | <b>Level 2</b> | <b>Level 3</b> | <b>Level 4</b> | <b>Level 5</b> |
|--------------|----------------|----------------|----------------|----------------|----------------|
| 6            | 100-282        | 283-314        | 315-353        | 354-390        | 391-500        |
| 7            | 100-274        | 275-305        | 306-343        | 344-378        | 379-500        |
| 8            | 100-279        | 280-309        | 310-346        | 347-370        | 371-500        |

The district has added the Intensive Mathematics (IM) course to the curriculum for students scoring Level 1 or 2 on the FCAT mathematics. Intensive Mathematics is an elective second mathematics class that meets on alternate days (A/B Day Schedule) of other elective courses such as P.E., Art or Health.

**THE VARIABLES ON WHICH I WILL FOCUS**

- Mathematics achievement in the Intensive Mathematics Class
- Mathematics achievement in the general education class
- Additional second mathematics class taken at the same time as the general mathematics class

**ACTION RESEARCH PROJECT (QUANTITATIVE RESEARCH)****THE RESEARCH QUESTION I AM WORKING TO ANSWER**

What impact does the Intensive Mathematics Classroom Experience have on Level 1 and Level 2 students' academic achievement/attitude toward mathematics?

**A DESCRIPTION OF THE INTERVENTION/INNOVATIONS TO BE USED**

There will be many interventions/innovations used in this research. I will use a standards-based curriculum provided by the Supervisor of Mathematics. The College Preparatory Mathematics Program (CPM) Foundations for Algebra text will be used. CPM recommends a varied instructional program. The students will be working in a variety of settings. The CPM curriculum introduces the study team with strategies for creating positive interdependence: *Goal*-set a group goal; *Outside Enemy*- Set a group goal to compete with other teams; *Reward and Recognition*- Everyone is rewarded or no one is; *Resource*- Provide each group with the proper materials needed for each activity; *Role*- Assign or ask group members to assign group roles, for example: reader, recorder, time keeper, reporter, etc...*Face-To-Face Interaction*-Cooperative learning requires face-to-face interaction among students so that they can promote each other's learning and success. *Individual Accountability*- Cooperative learning groups are successful only when every member has learned the material or has helped with and understood the assignment. It is important to emphasize and evaluate individual learning so group members can appropriately support and help one another. *Social Skills*- are the skills necessary for successful cooperative work. All students need to develop skill in communicating, building and maintaining trust, providing leadership, making decisions, and managing conflict. *Group Processing*-Giving students both the time and the procedures for analyzing their group work.

The classroom size will be limited to no more than twenty students. The students will be given a bi-weekly progress report in addition to the school-wide progress report which is issued every 4-5 weeks. Scholarship warnings and parent contact will be used when students' grades are D or F. To enhance organizational skills, the students will keep a classroom binder which will be collected on alternate weeks of the progress reports. The students will work collaboratively/cooperatively in teams or small groups. The students will be able to work individually or with a partner on the assessments. Three types of conferences will be held for individual students when deemed necessary. The different conferences are Student-Teacher, Teacher-Parent and Student-Teacher-Parent.

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### THE NUMBER AND TYPE OF STUDENTS WHO ARE THE TARGET OF MY RESEARCH

There will be a total of seventy-eight students participating in this study. These students are in grades sixth thru eighth and have either scored a Level 1 or 2 on the 2004 FCAT.

### NEGOTIATIONS THAT NEED TO BE UNDERTAKEN

I will need permission from my principal to conduct this research. The students will participate in a survey and a parent survey will be sent home by the students. The general education mathematics teacher will complete a survey and periodically conference with the Intensive Math teacher. (See Survey Section of Notebook)

### THE PLANNING STEPS AND PEOPLE OTHER THAN STUDENTS THAT WILL BE INVOLVED

- **August** – Students take the SSS Mathematics Benchmarks. Identify students scoring Level 1 and 2 on the 2004 FCAT Mathematics to be placed in the Intensive Mathematics Class.
- **August- September-** Work with students to develop classroom rituals and routines. Administer the first SSS Benchmarks. Review the data results of the SSS Benchmarks and address the students' deficits.
- **September-November-** Work with students on weak areas of the SSS Benchmarks.
- **December-** Students take the SSS Benchmarks for the second time. Review the SSS results and continue to work on areas of weaknesses.
- **January-February-** Prepare students and administer the Norm Reference Test (NRT).
- **February- March-** Prepare students and administer the 2005 FCAT.
- **March-May-** Continue working with students to improve mathematical skills.

#### ***The people other than students involved in this research project:***

- The general mathematics teacher
- The guidance counselors
- The parents/guardian of the students
- The principal and administrators
- The faculty and staff

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### STATEMENT OF RESOURCES

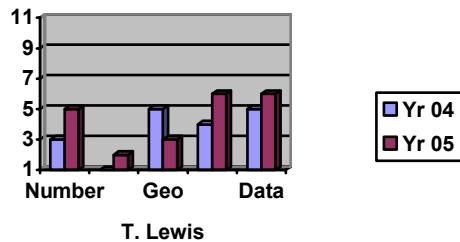
This program uses a lot of hands-on manipulatives. These manipulatives are in the Teacher's Edition of the CPM Book. Copies will be needed for the various lessons being taught. The school will provide the textbook and copy all materials needed for this program.

### DATA COLLECTION

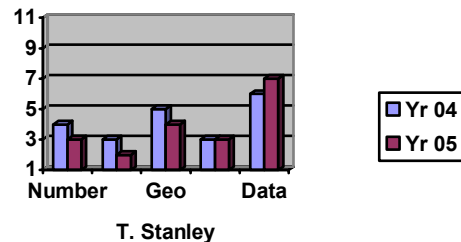
The data to be used in this research are scores from 2004 FCAT Mathematics to select participants for this program (See 2004 FCAT Mathematics in Notebook). August and December SSS Mathematics Benchmarks and NRT Mathematics will be used to focus on areas of weakness in mathematics (See the SSS Benchmarks section of the Notebook). The 2004 FCAT Mathematics results will be compared to this year's FCAT Mathematics to study the outcome of the students' performance (See 2005 FCAT Mathematics and Figure 2-students' individual graphs comparing the data). \*\*\*

**Figure 2 (Samples of individual graphs)**

**FCAT MATH COMPARISON 04/05**



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A copy of the report card grades for the Intensive Mathematics class and the general mathematics class will also be provided. Student-Teacher Conferences will be held periodically during this course. Students, parents and teachers will also participate in surveys (See respective section of notebook).

### DATA ANALYSIS AND INTERPRETATION

At the beginning of the school year, the students participated in a survey. The students were very open and honest. The students were then taught the classroom rituals and routines. It was very hard getting the notebooks started. The students were either rebelling or just did not understand what was expected of them. After the first nine weeks of school, the students started doing very well with keeping their notebooks current.

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The students' grades during the first nine weeks did not reflect a full nine weeks in the Intensive Mathematics Class. Most students were placed in the other elective classes due to the computer generated class rolls. The students who were eligible for this course due to the 2004 Mathematics results were manually selected and placed in IM. During the second nine weeks, many of the students experienced a drop in grades in both IM and the general education class. I feel grade the Intensive Mathematics dropped due to the fact that the students were not taking the course seriously. The student started a rumor that this class does not count because it is an elective and were not doing their best. As we continued working and conferencing about the importance of the course and its purpose to help them earn a better score on the FCAT, the students began to show how concern they were about improving their scores and not wanting to be in the IM course next year. (See Final Grade in 2005 Data Section of notebook)

The surveys done later by the students were an eye-opener. The students were told they did not have to identify themselves on the survey but, some did not mind identifying themselves and were honest. They gave their honest opinion about their attitude toward the IM class. The vast majority said that they had learned a lot of new material in this course, but did not like the course. Because they felt that this was taking away from their P.E. The parent's surveys were favorable with the exception of a few. All of the teachers favored the IM Class. On all the surveys, there were discussions regarding the block math classes. (See survey section of notebook)

During this course, assessments were developed to be similar to the FCAT. The students immediately shut down because they did not want to read the questions in the format of FCAT. The fact that they were allowed to work in pairs/teams on assessments enhanced their testing skills. The daily warm-up was a great asset in preparing the students for the FCAT. The basic skills and deficits missed by the students in previous math classes were the focus of the warm-ups.

### THE FINDINGS

Based on my data analyses and interpretation, I will present the following findings of my study of the impact the Intensive Mathematics Classroom Experience have on Level 1 and Level 2 students' academic achievement/attitude toward mathematics.

- **All** students participating in this study showed gain individual developmental gain of at least 19 to 619 points on the 2005 SSS Mathematics FCAT
- Fifty-six percent of the students scored a Level 2 or Better
- Forty-four percent of the students showed gain but remained at Level 1
- Thirty-eight percent of the students showed gain and moved from a Level 1 to Level 2

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- Best of all, 18% of the students scored at the desired Level 3. This represents nine students moving from a Level 1 to a Level 3.
- The attitudes of the students were impressive. Over 80% of the students rated the IM Class 3 or better out of 5. The students openly shared their comments regarding their likes and dislikes of the IM class.
- The course was highly favored by students, parents and teachers. The comment given by most adults were to continue the program to benefit the students scoring less than the desired Level 3.
- A breakdown of the students final grades earned during this course are listed below:

| Final Grade Earned | Number of Students | Percent of Students |
|--------------------|--------------------|---------------------|
| A                  | 10                 | 13%                 |
| B                  | 26                 | 33%                 |
| C                  | 31                 | 40%                 |
| D                  | 7                  | 9%                  |
| F                  | 4                  | 5%                  |

\*\*\* **Figure 2** -The data-base showing the individual graphs is so large that I will not send it with this paper but a hard copy has been placed in the notebook.