

THE EFFECTS OF MOTIVATIONAL GRAPHING
ON STUDENTS REACHING EDUCATIONAL GOALS

by

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ABSTRACT

The purpose of this research project was to conclude if motivational graphing strategies, when used in Math Response to Intervention (RTI) classes, could increase the students' ability to reach their goals. To complete this investigation the researcher assessed the Math RTI students' ability to count orally within one minute on a biweekly basis. The students had oral counting goals that they were to meet in order to graduate from Math RTI. In the first six weeks of the classes, the students were taught using the Math RTI program. At the midway point, the students were then taught how to graph their scores and how to read the graphs in order to help motivate the students to reach their goals. The students were given a survey after the project to assess how they felt about graphing their scores. The results of this study concluded that there was an increase of students meeting their goals with the motivational graphing strategy in place. The study was successful in proving that students can be motivated to meet educational goals when the goals are clear and by using this motivation graphing technique.

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CHAPTER 1: INTRODUCTION

Introduction

In the Greenville County School District, the Response to Intervention program has become a staple in many elementary schools and will be implemented in all elementary schools within the district for the 2010-2011 school year. The program uses trained interventionists to pull out students from the regular classroom setting to an intervention classroom for 30 minutes of intense instruction in the students' area of weakness, either math or reading. Recently the program has evolved to include classroom interventionists, who are classroom teachers who have been trained to intervene with students from their grade level. With the evolution of the program, the amount of students who receive intervention services has expanded greatly and we would like to see program continue to grow successfully. While the amount of students receiving services has continued to grow and the students continue to make progress, the researcher would like to examine the effects of using motivational tools to assist the intervention students in reaching their intervention goals, and doing so at a faster rate of growth.

Justification for Project

Chandler Creek Elementary started its Response to Intervention program in 2005. At that time we had one fulltime reading interventionist and served about 40 Kindergarten students. Since that time, our program has expanded to include, one fulltime Intervention Specialist, math intervention for 1st grade, reading intervention for 1st, 2nd, and 3rd grades, 18 classroom interventionists and the program serves over 175 students. The researcher would like to find a motivational tool that each interventionist

could easily use in their classroom to visually stimulate and encourage the students to reach their goals, and in turn accelerate the rate of growth for the program.

Statement of the Problem

The purpose of this study is to evaluate graphing data scores as a tool that can be used within the reading intervention program to help to motivate students. The researcher will begin the school year without plotting data points as a visual motivator. Then after six weeks of the program, the researcher will have the reading students plot their Progress Monitoring scores in their personal data folders for an additional six weeks. The researcher will next analyze the AIMSweb Progress Monitoring data from the two periods of time to evaluate whether the graphing was a motivator which helped to accelerate the growth rate of the students' scores.

The Research Questions

Will there be a noticeable difference in the growth of scores when they are plotted on a graph in each child's personal data folder?

At the end of the project, will the students believe that graphing their scores in their personal data was, or was not a motivator?

Will the classroom teachers notice change in their RTI students' attitude towards reading?

Will the theory of plotting scores in personal data folders as a motivational tool, also work in the regular classroom with MAP goals or other testing goals?

The Hypotheses

The researcher's hypotheses are that the students will meet their goals at noticeably higher rate when graphing their data scores. Also, the researcher believes that

students may initially be apprehensive about plotting their scores, but they will grow to appreciate and be motivated by the graphs at conclusion of the research period. The researcher also believes that this method will work in the regular classroom as a motivational tool for reaching classroom goals.

Definitions and Abbreviations

Chandler Creek Elementary School (CCES): This is the school where the research will be conducted in the 2010-2011 school year.

Response to Intervention (RTI): The Tier 2 program used in the Greenville County School District.

Progress Monitoring (PM): Tests given to intervention students to measure their progress.

AIMSweb (AW): Computerized database for testing and analysis. AIMSweb probes are used to test the entire population at the beginning, middle and end of the school year, and are used Progress Monitor intervention students biweekly. The scores of these probes determine the students as Established, Emerging or Deficient in the area of testing, either math or reading for Greenville County.

Greenville County School District (GCSD): The school district that governs Chandler Creek Elementary.

Curriculum Based Measures (CBM): The term used for universal measures that are based on the average level where a student should be performing for their grade level.

Summary

The researcher is hopeful that plotting data points will be a helpful motivational tool in the RTI program in the Greenville County School District. If so, the practice of

using graphs to plot student scores in the classroom may be able to be adapted to use in the regular education classroom as a motivational tool.

CHAPTER 2: REVIEW OF RELATED LITERATURE

Introduction

While most Americans have little or no knowledge of Response to Intervention, families of school aged children, as well as the community at large will soon use the acronym RTI in regular conversations about education. Response to Intervention programs will be implemented across the nation within the next few years (Bender, Shores, 2007). RTI has already been implemented within the Greenville County School District for the last five years. During the upcoming school year all elementary schools within the district will have RTI procedures in place. RTI was introduced in 2004 when the Individuals with Disabilities Education Act allowed and invited schools to use 15% of their special education money for regular education interventions (Johnston, 2010). RTI became a way to help to identify students with learning disabilities, while also serving regular education students who may be below level, but do not have a learning disability. In Greenville County RTI is implemented by screening all students at certain grade levels, using AW probes that are CBM. CBM can be used to find and “set growth standards for both general education and special education students” (Deno, Fuchs, Marston & Shin, 2001). The students who score well below the established zone for their grade level are served through RTI. The students are instructed using a research-based program for 30 minutes daily and five days per week, by trained professionals. The students are PM every ten days of instruction. The PM scores are used to determine if they are making steady or minimal progress towards their grade level goals. If students do not make progress or make minimal progress, they are referred for testing for a learning disability. The scores are plotted for the teachers to see and analyze using AW,

but are not currently plotted for the students to view. This study will allow and encourage the students to see their goals and to plot their scores over a 6 week time period. The researcher believes that knowing one's goal and having a point to strive to reach can be motivational. Goal setting is "an efficient strategy for improving performance on tasks" (Heimerdinger & Hinsz, 2008, p. 384) and the researcher believes that graphing data will indeed improve the students' scores. Locke and Latham (2002) demonstrated that the productivity of workers can be increased by setting goals, therefore the researcher assumes that premise of this project may work on students of all ages.

While RTI and its effects have been thoroughly researched, the researcher would like to examine the tools that could be used as motivators to help the program succeed. The motivational tool in particular that will be researched within the project is the act of graphing one's own RTI scores. The hopes of the researcher is to prove that when students have "clear criteria" (Schmoker, 1999, pg. 13) as their goals and are able to graph their scores, the students will be motivated by their own progress towards the goal. Swain (2005) explains that having goals set can be beneficial for students because they have understanding of their progress and academic goals. The students should clearly be informed of the assessments, the expectations and the goals that they are trying to reach (Brookhart, 1994). Objectives as a form of management has long been used in the workplace to enhance performance (Cheung, 2004). With those ideas in mind, the researcher proposes that not only are goals set and explained, but that the students are continually checking their own progress. Students will not only better understand their goals, but have ownership of graphing their data. Students should be taught to "self graph...their weekly assessments" (Sutherland & Snyder, 2007, p. 107) in order to have

that ownership in the process and be visually motivated by their progress. Even if a goal has not been met, the student will see the progress that has been made over the course of the program and see that they have indeed improved.

The Study of Motivation

Motivation has been studied for many years and in many settings. Edwin A. Locke has been the front runner in the research on goal setting. He introduced his goal setting theory in 1968 and it applied mainly to work circumstances and conditions (Locke, 1968). Over time, his work has included motivational studies in many areas of life, including education. After all, what is school to a student, but their life's work? Szente (2007) reports that it is commonplace to use motivational strategies to help increase efficiency within companies. Shouldn't it be routine to provide motivation at the educational level for academics? Not merely stickers for behavior or a simple grade at the end of a term, but to actually allow the students to be a part of the process by seeing and seeking their end goal.

"Motivation is a very important determinant of our behavior" (Heimerdinger & Hinsz, 2008, p. 383). These researchers also maintain that achievements are related to motivation, in the school or work settings. Therefore, if the students are motivated, the researcher believes they can achieve their goals or at least improve their scores at a much higher rate than without this motivation. Alkharusi (2008) makes this point clear in his work on achievement goals. He states that the students' perceptions of the assessment can influence their motivation. For that reason, if their perception of the assessment is negative, they perform negatively. Or if they are fully informed of the goals and are part

of the data graphing, they will more likely be motivated to work harder and reach their goals.

According to Locke and Latham (2002), research reveals that performance can be increased dramatically by setting goals. They also contend that, nonspecific goals or less difficult tasks do not seem to improve performance (Locke, 1991). Therefore, student goals should be set with endpoints that educators really believe the students should be able to attain. These standards should not be easy goals set merely to lift their spirits, but goals that can help motivate them to succeed and achieve their potential. According to Harris and Tetrick, (1993) “motivational interventions can interact with cognitive ability”(Harris & Tetrick, 1993, p. 57). If a student is motivated, their ability can change and hopefully change for the better. The theory of this research is that by setting realistic CBM goals and allowing students to visually see their progress, educators will in turn help the students meet those goals.

Summary

RTI students need extra motivations to assist them in meeting their CBM goals. They are below average for a reason and need additional support to achieve at the average rate. The RTI program is set up to help separate the students who can catch up and perform at a grade level norm, from the students who have learning disabilities and may need more intensive interventions. In order to assist the many students who do not have learning disabilities, as well as the students who move into special education resources, the RTI program needs to focus not only on the research for instruction given, but examine students’ motivation and enable the teachers to tap into that motivation to help the students succeed. Kanfer and Ackerman (1989) argued that motivational

interventions may be more beneficial for students who are performing below level or are low achieving. The researcher believes that hypothesis should give us the inspiration to find and give motivation to these struggling students. It is the belief of the researcher that graphing the students' data points and making them a true part of the process towards reaching their goals will be that motivation. And while low performing students may benefit more from motivational interventions (Kanfer & Ackerman ,1989), one might also believe that this process will work with students of all ages and performance levels. In the next chapter, the research will explain the methodology of the research project in great detail.

CHAPTER 3: RESEARCH METHODOLOGY

General Methodology

This research project is being conducted in order to evaluate the use of motivation as an academic tool for RTI students in an elementary school setting. This will be measured by analyzing the participating students' AIMSweb reading data during the program's duration from the Fall to Winter of the 2010 school year. The research will examine the students' AW reading pretest scores prior to the motivational intervention, their AW reading posttest scores after the controlled six weeks of instruction and their AW reading posttest scores after the six weeks treatment period.. The researcher will analyze the AW data from the two periods of time to evaluate whether self-graphing was successful as a motivational technique which helped to accelerate the growth rate of the students' scores.

The researcher will also create and distribute surveys to the students and their classroom teachers, with the aim of revealing the students attitudes toward reading, their reading ability in the classroom and their motivational change, if any. The researcher has elected to choose this research subject matter with the intention of uncovering a simple way to help motivate RTI students.

Research Design

The design of this research study is quantitative, as well qualitative. The researcher will be examining the AW pre and posttest data as quantitative measures and the surveys distributed to the students and classroom teachers as the qualitative data. Within the study the independent variable will be the technique of the students self-graphing their scores as a motivational tool. The dependent variable will be the AW data

and the surveys for the students and their classroom teachers. One controlled variable of the research will be Reading RTI students that will be participating in the program from the Fall to Winter of 2010-2011. An additional controlled variable will be the AW CBM probes which are grade level appropriate to for the students. The constant will be the teacher providing the reading instruction and the motivational self-graphing intervention.

Population Being Studied

The population used in this research study is the 1st, 2nd and 3rd grade Reading RTI students at CCES. There are five classes total: one 3rd grade class, two 2nd grade classes and two 1st grade classes. The researcher will be evaluating the scores of all of the students who participate in the Reading RTI Program from the Fall to Winter of 2010.

Assumptions and Limitations

While the population is a mixture of different grade levels, the assumption is that the students are equivalent because they are all being taught by the same reading instructor, using the same *Soar to Success Reading Intervention* program and are being measured using grade level appropriate AW CBM probes.

The main limitation in this study is the small amount of students in the population. While there are five classes participating, each class only has five to seven students. This will yield a total of 25 to 35 students in the population.

Treatment of Data

The researcher will analyze the AW reading data to see if there is a noticeable difference in the growth of scores when they are self-plotted on a graph in each child's personal data folder. At the end of the project, the researcher will survey the students to evaluate if they believe that graphing their scores helped to motivate them to read and

improve their reading scores. The researcher will also survey the classroom teachers at the conclusion of the project to see if they noticed any changes in their RTI students' attitudes towards reading and/or their classroom reading scores. The researcher will take into account the qualitative and quantitative data and attempt to make a conclusion about whether this self-graphing motivational technique will in fact work in regular education classrooms for various goals.

Data Needed

The data needed for the quantitative portion of the research design will be obtained by using AW Reading CBM probes. The students will be given a pretest by reading a CBM selection on their grade level and their score will be the amount of words read correctly per minute. The student and the teacher will then set the goal according to grade level norms. The researcher will also gather data by giving a posttest after the controlled six weeks of instruction and again after the six weeks with the self-graphing motivational technique in place.

For the qualitative data, the researcher will create a survey that will be distributed at the end of the research project. This survey will be given to the Reading RTI students and their classroom teachers. These surveys will collect the attitudes of the students towards reading, as well as their improvement in reading in their regular classroom.

Location of Data

The quantitative data will be located in the RTI Leadership Team Manual for CCES. The manual is located in the RTI Coordinator/Intervention Specialist's classroom. The data will also be plotted by each student in their personal data folders. These folders will be located in the RTI Coordinator/Intervention Specialist's classroom. The

qualitative data, or the surveys, will also be located in the RTI Coordinator/Intervention Specialist's classroom.

Means of Obtaining Data

The baseline quantitative data will be obtained by giving the Reading RTI students a pretest. The pretest consists of an AW grade level appropriate CBM probe. Their score will be the amount of words that were read correctly per minute. After six weeks of regular Reading RTI instruction without the self-graphing motivational technique, the students will be given an AW grade level appropriate CBM posttest. This posttest will serve as the posttest for the time period without the motivational technique. The researcher will evaluate the gain scores of the students without the technique. This posttest will also serve as a pretest for the second six week portion of the project. During this time period the students will self-graph their Reading RTI PM scores in personal data folders. These data folders and the self-graphing will be the independent variable and the motivator to reach their goal by visually seeing their progress. After six weeks of Reading RTI using the self-graphing technique, the students will take a second AW grade level appropriate CBM posttest. The researcher will then analyze the data to evaluate the success of the self-graphing motivational technique.

The qualitative data will be obtained by distributing surveys to the Reading RTI students' and their classroom teachers. The researcher will then compile the data from the surveys to analyze the attitudes about the self-graphing, as well as the students' ability level changes in the regular classroom.

CHAPTER 4: RESULTS

Summary of Research Project

This research project was conducted in order to evaluate the use of motivational graphing as an academic tool for RTI students in an elementary school setting. This was measured by analyzing the participating students' AIMSweb data during the program's duration from the Fall to Winter of the 2010 school year. The researcher examined the students' AW pretest scores prior to any intervention taking place, the students' AW midpoint scores after the six weeks of intervention instruction and their AW posttest scores after the six week motivational graphing treatment period. This data was analyzed with reference to the students having met or not met their intervention goal. Classroom teachers and the students participating in the study were given surveys to complete noting changes in motivation. The researcher analyzed the AW data from the research period and the survey results to evaluate whether self-graphing was successful as a motivational technique which helped to accelerate the growth rate of the students' scores and in turn helped the students to reach their goals.

Changes in Methodology

Due to changes in the school wide RTI program, the researcher had to make some changes to the methodology of the research project. Because the needs of the student population at CCES showed that more math interventions were needed for the current school year, the researcher was only able to complete the project with math intervention data, and not reading data as originally planned. The overall methodology of the research project remained the same, but the specifics of the intervention classes actually taught changed from reading to math. Therefore, the research quantitative data

also changed. The AW probes used to assess the students changed from Oral Reading to Oral Counting. The population also changed due to the school wide needs of RTI program. The population used in this research study was Kindergarten and 1st Grade Math RTI students at CCES. There were five classes total: three Kindergarten classes and two 1st Grade classes, with a total of 28 students who participated in the study. All other aspects of the research project were conducted as originally planned.

Results

The design of this research study was quantitative and qualitative. The researcher examined the AW pre, mid and posttest data as quantitative measures and the surveys distributed to the students and classroom teachers as the qualitative data. Within the study the independent variable was the technique of the students self-graphing their scores as a motivational tool. The dependent variable was the AW data and the surveys for the students and their classroom teachers. One constant of the research was the Math RTI students that participated in the program from the Fall to Winter of 2010-2011. A controlled variable was the AW Oral Counting probe. Another constant was the teacher that provided the math instruction and the motivational self-graphing intervention. Twenty-eight Kindergarten and 1st Grade students participated in this research.

The quantitative data is based on the students' rate of oral counting in one minute and if they were able to meet their goals with or without the motivational graphing tool in place. The results will help the researcher to distinguish if the graphing tool helped to motivate the students to reach their goals. The students' scores were collected at the beginning of the intervention program, at the mid way point of the treatment period and again at the end.

Student Goals: Prior to Motivational Graphing

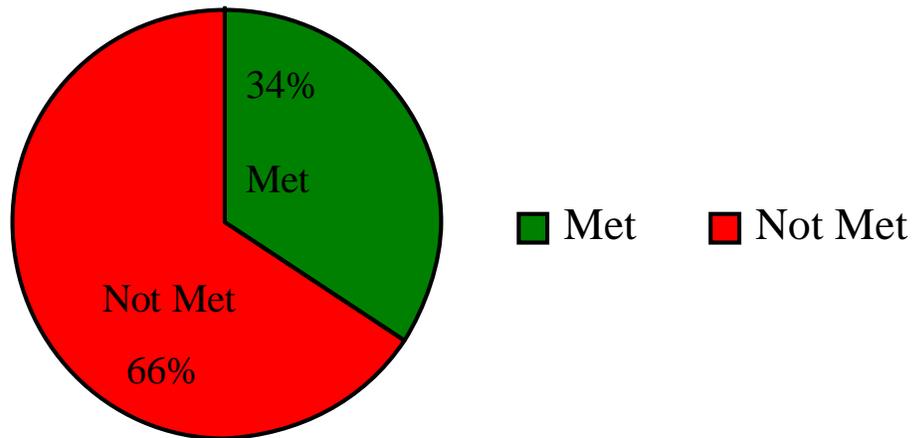


Figure 1. Student Goals: Prior to Motivational Graphing

Figure 1 shows that at the midway point 34% of students had met their goal and 66% of students had not met their goal. The scores were collected again at the end of the research period to observe if the students' were in fact motivated to meet their goal.

Student Goals: After to Motivational Graphing

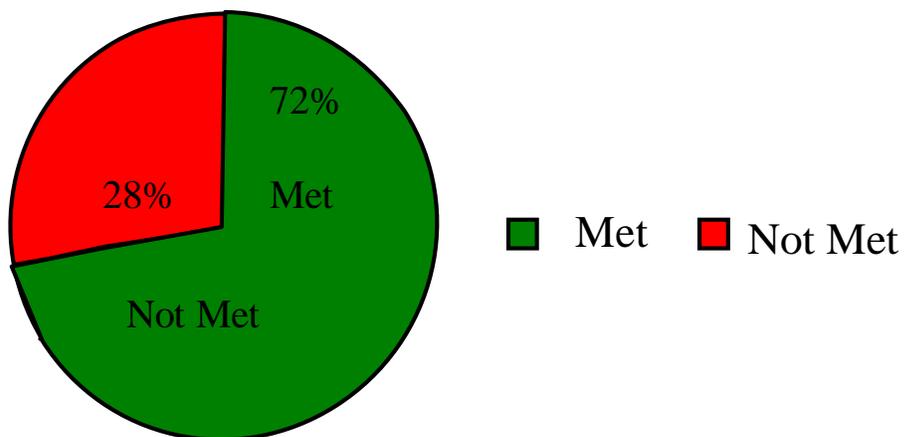


Figure 2. Student Goals: After Motivational Graphing

As noted in Figure 2, seventy-two percent of students had met their goal and 28% of students had not met their goal by the end of the year. Based on that data the researcher rejects the null hypothesis. The initial hypothesis was that *the students will meet their goals at noticeably higher rate when graphing their data scores* and this is deemed valid based on the percentage of goals that were met or not met during the two periods in the study.

The qualitative data for the research project is based on the results of a survey given to the students in the intervention classes with the motivational graphing and their classroom teachers. At the end of the research period, the students and their classroom teachers were given a survey to determine their attitudes toward intervention, the motivational graphing technique and their ability levels during the project. The students and teachers could rate the statements on the survey using “agree”, “no change” and “disagree”. On the student survey, they were able to color in their choices: ☺ for agree, ☹ for no change and ☹ for disagree. The teachers simply checked agree, no change or disagree.

Table 1

Student Survey Ratings After the Use of Motivational Graphing in Math Intervention

		☺	☹	☹
1	Math Intervention has helped me with math.	25	2	1
2	I know how to count.	23	4	1
3	I can count higher and faster now.	22	4	2
4	I like graphing my scores.	22	1	5
5	Graphing my scores has helped me to reach my goal.	26	2	0

While the majority of the students’ answers show that they felt they were learning in Math Intervention, 93% stated that they agreed that graphing their scores was in fact helping them to reach their goal. Seventy-nine percent of the students also noted that they enjoyed graphing their data. This result confirms the researcher’s original hypothesis that *the students may initially be apprehensive about plotting their scores, but they will grow to appreciate and be motivated by the graphs at conclusion of the research period.*

Table 2

Teacher Survey Ratings After the Use of Motivational Graphing in Math Intervention

		Agree	No change	Disagree
1	Math Intervention has helped my students with basic math.	8	1	0
2	Motivational graphing in Math Intervention has helped my student(s) to be more confident in math.	6	3	0
3	I noticed a difference in my student(s) motivation after they began graphing their data.	6	3	0
4	Graphing data scores has helped my intervention students to reach their goals.	6	3	0

While the majority if teachers felt that the intervention program has helped, a few teachers did not seem to see a change in the students’ motivation. Because 66% of the teachers did see a noticeable change in their students’ motivation and ability the researcher confirms the hypothesis that *this method will work in the regular classroom as a motivational tool for reaching classroom goals.*

The purpose of this chapter was to present the data gathered during the twelve week research project. The quantitative data was gathered by the means of using AW probes and the qualitative data was collected using surveys. Within the next chapter, the researcher will discuss the original research questions for the project and the findings of

the data in reference to the research questions, as well as recommendations for further studies.

CHAPTER 5: DISCUSSION

Summary

The purpose of this research project was to conclude if motivational graphing strategies, when used in Math RTI classes, could increase the students' ability to reach their goals. To complete this investigation the researcher collected data biweekly assessing the Math RTI students' ability to count orally within one minute. The students had oral counting goals that they were to meet in order to graduate from Math RTI. In the first six weeks of the classes, the students were taught with fidelity using the Math RTI program. At the midway point, the students were then taught how to graph their scores and how to read the graphs in order to help motivate the students to reach their goals. The students were given a survey after the project to assess how they felt about graphing their scores. The results of this study concluded that there was an increase of students meeting their goals with the motivational graphing strategy in place. The students who were able to meet their Math RTI goals went from 34% without the graphing, to 72% with the graphing. Ninety-three percent of the students surveyed agreed that graphing their scores motivated them to meet their goals.

Conclusions and Implications

The researcher would like to revisit the research questions and make conclusions for each question. Will there be a noticeable difference in the growth of scores when they are plotted on a graph in each child's personal data folder? Yes, the amount of students who met their goals increased by 38 percentile points with the use of motivational graphing.

At the end of the project, will the students believe that graphing their scores in their personal data was, or was not a motivator? When surveyed at the end of the project, 93% of the students agreed that they felt graphing their scores helped to motivate them to reach their goal. Will the classroom teachers notice change in their RTI students' attitude? At the end of project survey, 66% of the teachers agreed that they saw a noticeable difference of the motivation of their students. This data does not give the researcher an overwhelmingly definitive answer to the research question, but it does imply that the data graphing can lead to meeting goals, which can help to change the students' attitudes towards the subject matter.

Will the theory of plotting scores in personal data folders as a motivational tool, also work in the regular classroom with MAP goals or other testing goals? Because the motivational data graphing was so successful with the RTI program, the researcher concludes that it could possibly be successful using MAP goals or any other goals, as long as the graphing was done regularly, with fidelity and confidentiality.

The researcher concludes that the project produced data to support the hypotheses. The motivational graphing helped to motivate students to reach their goal. Seventy-two percent of the students were able to reach their goals while using the motivational graphing strategy which was a large increase from the 34% of students who met their goal without using the data graphing. Because goal setting is "an efficient strategy for improving performance on tasks" (Heimerdinger & Hinsz, 2008, p. 384), the researcher concludes that graphing their progress towards their goal did help to improve the students' scores.

The results of this research project also aligned with the Locke and Latham (2002) idea that the productivity of workers can be increased by setting their goals. By setting their goals and having a visual reference of their progress toward the goal, the students were able to reach their goal more quickly. In the survey given at the end of the project, the majority of students agreed that the graphing helped to motivate them to succeed. After analyzing all of these results, the researcher concluded that the motivational graphing strategy improved the students' motivation to meet their goals, improved the students' abilities to meet their goals, improved the students' attitudes towards the subject and has potential to work in a variety of classrooms.

Recommendations

This research project indicated that students were more motivated to meet a goal when they could visually see and physically graph their scores with their end goal clearly noted. Seventy-nine percent of kids said they enjoyed graphing their data and the large majority believed that this process helped them to reach their goal. These results confirm the hypotheses, but the researcher would like to be able to study this theory in more depth to see if in fact it would work across the grade levels and subjects. Based on the findings of the study, the researcher believes the following recommendations for further research should be made:

1. The project should be extended to other subject areas, in both the regular education classroom and the special education classroom.
2. The project should be extended to students of different ages.
3. The project should be extended to students from different areas of the country.
4. The project should be conducted for an entire school year.

5. The project should be extended to include the effects of using motivational graphing with students from different socio-economic backgrounds.
6. The project should be extended to include the effects of gender.
7. The project should be extended to include the effects of using motivational graphing with students with different learning styles.

The results of this study concluded that there was an increase of students meeting their goals with the motivational graphing strategy in place. The study was successful in proving that students can be motivated to meet educational goals when the goals are clear and by using the motivation graphing technique.

REFEERENCES

- Harris, M., & Tetrick, L. (1993). Cognitive ability and motivational interventions: Their effects on performance outcomes. *Current Psychology, 12*(1), 57.
- Sutherland, K., & Snyder, A. (2007). Effects of reciprocal peer tutoring and self-graphing on reading fluency and classroom behavior of middle school students with emotional or behavioral disorders. *Journal of Emotional & Behavioral Disorders, 15*(2), 103-118.
- Szente, J. (2007). Empowering young children for success in school and in life. *Early Childhood Education Journal, 34*(6), 449-453.
- Heimerdinger, S., & Hinsz, V. (2008). Failure avoidance motivation in a goal-setting situation. *Human Performance, 21*(4), 383-395.
- Cheung, E. (2004). Goal setting as motivational tool in student's self-regulated learning. *Educational Research Quarterly, 27*(3), 3-9.
- Lee, D., & Gavine, D. (2003). Goal-setting and self-assessment in year 7 students. *Educational Research, 45*(1), 49.
- Reeve, J. (1989). Intrinsic motivation and the acquisition and maintenance of four experiential states. *Journal of Social Psychology, 129*(6), 841.
- Wicker, F., Turner, J., Reed, J., McCann, E., & Seung Lee, D. (2004). Motivation when optimism declines: Data on temporal dynamics. *Journal of Psychology, 138*(5), 421-432.
- Jinyan, F., Hui, M., Billings, R., Litchfield, R., & Kaplan, I. (2008). On the role of goal orientation traits and self-efficacy in the goal-setting process: Distinctions that make a difference. *Human Performance, 21*(4), 354-382.

Jagacinski, C., & Strickland, O. (2000). Task and ego orientation: The role of goal orientations in anticipated affective reactions to achievement outcomes. *Learning & Individual Differences, 12*(2), 189.

Lasane, T., & Jones, J. (1999). Temporal orientation and academic goal-setting: The mediating properties of a motivational self. *Journal of Social Behavior & Personality, 14*(1), 31-44.

De Grez, L., Valcke, M., & Roozen, I. (2009). The impact of goal orientation, self-reflection and personal characteristics on the acquisition of oral presentation skills. *European Journal of Psychology of Education - EJPE (Instituto Superior de Psicologia Aplicada), 24*(3), 293-306.

Bender, W.N., & Shores, C. (2007). *Response to intervention*. Thousand Oaks, CA: Corwin Press.

Appendix A

Request to Complete Project

May 25, 2010

Katherine Bayne
Chandler Creek Elementary
301 Chandler Rd.
Greer, SC 29651

Dear Mrs. Bayne,

As part of a graduate degree program at Southern Wesleyan University, I am requesting to do a research project at Chandler Creek. Listed below is the initial information regarding my project.

- a) **Problem:** A study of the effects on the achievement of students when using data graphs as a motivation tool for intervention students.
- b) **Purpose Statement:** I would like to test the theory that motivating students by graphing their scores in a visual location within the classroom will indeed help them to reach their goals more quickly than not using this technique.
- c) **Need for the Project:** When I began showing the intervention students their scores biweekly, and showing them how many points higher they scored, I noticed an improvement in the scores. I would like to test this theory to see if motivation can in fact be an efficient tool when trying to intervene with struggling students.
- d) **Research Questions:**
 - i) Will there be a noticeable difference in the growth of scores when they are plotted on a graph as a visual motivator?
 - ii) How do the students feel about the idea of plotting their scores?
 - iii) Will the theory of plotting scores as a motivational tool also work in the regular classroom with MAP goals or other testing goals?
 - iv) How will parents feel about students' scores being posted in the classroom?
- e) **Hypothesis:** The students will show a higher rate of growth when graphing their data scores.
- f) **Targeted Participants:** 2010-2011 Intervention Students
- g) **Research Process:** I will begin the year without plotting data points as a visual motivator. Then after 6 weeks of the program, I will have the students plot their Progress Monitoring scores in a central location in the classroom for 6 weeks. Next I will, analyze the data from the two periods of time to evaluate whether the visual motivators helped to accelerate the growth rate of the students' scores. **I will not use their actual scores in my data report, only their growth rates.**

I assure you that I have been instructed in regard to research ethics and behavior and will adhere to standards of honesty, confidentiality and accuracy. I look forward to completing the project and sharing my results with you.

Sincerely,

Loren Graves

Please Return to the Student

___ Yes, I am aware that Loren Graves is working on a Southern Wesleyan University research project at Chandler Creek Elementary. I approve of the research and look forward to seeing the results.

Signature/Position

Date

Appendix B

Motivational Research Student Survey

Directions: As your teacher reads the sentence, color the face that shows what you think.

Example:	I ride a school bus to school.			
1.	Math Intervention has helped me with math.			
2.	I know how to count.			
3.	I can count higher and faster now.			
4.	I like graphing my scores.			
5.	Graphing my scores has helped me to reach my goal.			

Appendix C

Motivational Research Teacher Survey

Directions: Please check the appropriate box that corresponds with your opinion.

		Agree	No change	Disagree
1.	Math Intervention has helped my students with basic math.			
2.	Motivational graphing in Math Intervention has helped my student(s) to be more confident in math.			
3.	I noticed a difference in my student(s) motivation after they began graphing their data.			
4.	Graphing data scores has helped my intervention students to reach their goals.			

Appendix D

Oral Counting Raw Data With and Without Motivational Graphs

Student	Baseline Data	Week 2	Week 4	Week 6	* Week 8	* Week 10	* Week 12	Change 1	Change 2
1	51	54	59	59	64	68	69	8	10
2	54	57	57	58	68	69	76	4	18
3	51	57	60	69	69	68	70	18	1
4	73	75	75	80	93	98	98	7	18
5	47	63	68	75	68	75	88	28	13
6	53	62	67	67	62	67	67	14	0
7	61	56	57	79	79	69	69	18	-10
8	54	55	58	57	59	63	63	3	6
9	37	46	47	49	49	49	50	12	1
10	20	32	35	39	35	52	69	19	30
11	6	25	32	45	63	89	107	39	62
12	3	23	32	33	38	43	43	30	10
13	12	16	25	39	39	47	47	27	8
14	10	34	47	55	65	64	65	45	10
15	16	33	47	39	55	48	55	23	16
16	13	17	16	19	28	43	43	6	24
17	17	17	23	36	50	72	72	19	36
18	16	23	28	48	51	58	59	32	11
19	49	65	70	70	62	62	70	21	0
20	49	57	58	58	57	72	86	9	28
21	39	44	53	49	48	64	69	10	20
22	33	49	60	63	79	78	80	30	17
23	40	68	68	60	70	69	70	20	10
24	35	44	45	38	43	44	44	3	6
25	10	23	23	24	29	34	38	14	14
26	16	15	21	26	28	35	38	10	12
27	0	18	27	24	41	41	41	24	17
28	22	25	28	49	49	48	49	27	0
	* Denotes the weeks with motivational graphing								

Appendix E

Kindergarten Oral Counting Motivational Graphs

_____’s Math Graph

How many numbers can I count in one minute?

50				
49				
48				
47				
46				
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4				
3				
2				
1				
0				
	Week 6	Week 8	Week 10	Week 12

Appendix F

1st Grade Oral Counting Motivational Graphs

_____’s Math Graph

How many numbers can I count in one minute?

100				
99				
98				
97				
96				
95				
94				
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91				
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7				
6				
5				
4				
3				
2				
1				
0				
	Week 6	Week 8	Week 10	Week 12