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What are the Effects of Goal-Setting on Motivation and Academic Achievement in a Fourth Grade Classroom?

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in fulfillment of final requirements for the MAED degree

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Abstract

The purpose of this action research was to study the effects of goal-setting as a strategy on student motivation and academic achievement in a fourth-grade classroom. The study was performed at a rural public elementary school in South Carolina, consisting of eighteen students in a general education classroom. This study used a pre-assessment/post-assessment set-up in order to collect data for math achievement and reading comprehension. An attitude survey was used to collect data on student’s motivation towards academic work. The data shows that the goal-setting strategy had a positive effect on math achievement and motivation towards academic work and may have an effect on reading comprehension.

*Keywords:* goal-setting, motivation, pre-assessment, post-assessment, math achievement, reading comprehension
According to Mayse (2016), “a major factor in establishing motivation for students is to ensure that they take ownership in their learning and goals” (p. 39). Goal-setting can allow students to focus more on their math and reading comprehension because they have the opportunity to self-motivate to meet their goals based on a review of previous academic performance or previous set goals. If goal-setting procedures are implemented, students can set measurable and meaningful goals and take substantial ownership over their learning. However, many elementary students fail to set goals to improve motivation or academic achievement because non-academics, such as goal-setting, is not addressed in the classroom (Rowe, et. al., 2017). Rowe et. al. (2017) states that these non-academic skills can help advance and could boost student’s academic skills. Goals that are set by students allow them to grow in their goal-setting abilities, as they become more comfortable with goal-setting procedures, to improve academic proficiency because they can make better choices to focus on specific skills to improve their academics. According to other studies done by Lee in 2010, Mayse in 2016 and Morisano et. al. in 2010, when students can take more ownership over their learning, through goal-setting, they can focus on their motivation towards their math and English Language Arts (ELA) work.

Students also struggle to set goals because they are unaware of what specific standards need to be mastered in each content area to meet state mandated proficiency. Standardized testing was initiated in accordance with the legislation No Child Left Behind, which was meant to help students become more successful. (Dee, 2017) However, students still struggle to maintain a positive attitude involving academics because substantial growth is not present according to the results of standardized testing.
Dee and Jacob (2011) found that since the No Child Left Behind legislation was implemented, student growth has been minimal due to the new and higher academic expectations.

The current study focused on determining if there was a correlation between goal-setting and academic achievement in math and reading comprehension based on state standards. The objective of this study was to assess whether teaching goal-setting procedures and having students set weekly goals, had any effects on students’ math achievement, reading comprehension abilities and motivation to complete academic work.

**Review of Literature**

In this literature review, three major areas of research were studied: motivation, achievement in math and achievement in reading comprehension. When students enter the elementary classroom, they often lack the motivation to complete their math and reading work, and to improve their academic achievement (Murray, 2011). There are many reasons that students come to the classroom with a negative demeanor towards academics in school. Standardized assessments, and the focus solely on tested subjects, could cause students to feel less motivated to learn (Dee, 2011). Students feel the pressure from the legislation No Child Left Behind, even without knowing the definition of this federal legislation. “Districts use test results as the basis for accreditation, and nearly every state has recently “raised the bar” for students’ achievement. The pressures associated with these actions are enormous” (McCullough, Laura, et al. Pg. 1). The stress that is related to the “raising of the bar” has caused the motivation in students to decrease because students do not feel as if they can complete challenging work or demonstrate
Goal-setting in a Fourth-Grade Classroom

proficiency on the standardized assessments used for accreditation. The motivation theory and the goal-setting theory, mentioned below, help to describe how goals help in motivation to aid in the education of children.

**Motivation Theory**

Motivation theory is highly linked with learning in a classroom. The motivation theory states that people can be more motivated if their needs are met (Acevedo, 2018). This theory can be linked to academics in the classroom by investigating how and why students lack the motivation to complete academic tasks. Motivation is described as starting and maintaining a desired behavior for a positive outcome (Schunk, 2012). According to Schunk (2012), motivation and learning can affect one another in a way that improves student achievement in the classroom. Unlike academic achievement, motivation is not directly observed in the classroom, however, it can be inferred by verbal exchanges or surveys given to students. Almost all of the achievement made by students should be motivated, in order to create higher achievement. Motivation can also be linked with self-regulation. According to Ervin, Wash, and Mecca (2010), self-regulation can be defined as the ability to sustain concentration on academic work and to give a constant effort to challenging work. Self-regulation is a key skill that can help students become more successful in goal-setting and in turn, increase their motivation to complete academic work and increasing their academic achievement in the classroom.

**Goal-Setting Theory**

Goal-setting theory addresses the task of setting goals to improve performance. Locke and Latham (2002) define a goal as “the object or aim of an action” (pg 1). Garavalia and Gredler (2002) concluded that setting an effective and rigorous goal leads
to higher achievement levels for academics (pg.1). According to Locke and Latham (2006), rigorous and specific goals lead to a great effort towards a task, in contrast to simple and vague goals. When goals are set, students direct their attention towards specific tasks and keep their attention on that task for a longer period of time. This study determined the stamina, from trying to meet their goal, helps students complete more complex academic work and will lead to higher academic achievement because of the more complex tasks students have completed. Part of goal-setting theory addresses learning goals. These learning goals are meant to focus on learning specific content and are based on state standards. However, a student could, unintentionally create “tunnel vision or a focus on reaching the goals instead of acquiring the skills required to meet the goal” (Locke and Latham, 2006. pg. 2), when they set their learning goals. To avoid this, teachers can help students create their goals until students feel comfortable doing it independently. When students set a specific academic achievement goal, they can become motivated to complete their work and have higher academic achievement.

**No Child Left Behind and High-Stakes Assessments**

No Child Left Behind was implemented in 2002 to identify the schools that were not making adequate yearly progress, based on high-stakes, standardized assessments at the conclusion of each school year. This legislation has caused many unintended, harmful effects on teachers as well as students. It states that students need to have higher academic achievement in the classroom; however, that is only assessed with standardized testing, and many students struggle to meet proficiency benchmarks.

According to Susanne Lee (2010), because of this legislation, students feel the increase in pressure put upon them by educators. Teachers and administration feel the
pressure of this legislation more in a financial manner. Both Lee (2010) and McCullough (2003), stated that states use these standardized test scores to provide funding to schools. This means that if the students do not meet proficiency levels, then schools do not get funding. This loss of funding, due to low achievement on the standardized assessments, has teachers searching for new and better ways to motivate students to want to do well (Lee, 2010). Some states use test results as the basis for accreditation, and states have recently increased the standards for students’ achievement (McCullough, Laura et al., 2003. p1). Goal-setting skills are meant to help increase the academic achievement of students by using motivational strategies to complete their daily academic work.

Motivating students in a classroom has become increasingly difficult because of the academic stress placed upon both the teachers and the students due to the legislation No Child Left Behind and standardized assessments. With the implementation of standardized testing each year, schools and teachers are constantly searching for new ways in which they can help students feel less stressed about their academics, as well as teaching their students non-academic skills, such as goal-setting.

**Effects of Goal-Setting on Motivation**

Setting goals is a non-academic skill that teachers have turned to in order to help students become more motivated during the school day. When teachers help their students set goals, they also help them with activities such as independent learning, achieving goals and resiliency (Alderman, 2004). Self-regulation and goal-setting are closely aligned with motivation. According to Ervin, Wash, and Mecca (2010), students become more self-regulated because they take the needed steps to create a goal, plan strategies to meet that goal and correct their own mistakes while trying to meet their goal.
Mayse (2016) stated that “a major factor in establishing motivation for students is to ensure that they take ownership in their learning and goals” (p. 39). When students can take ownership over their learning, they have the opportunity to increase their motivation to meet the goals they have set. Students who learn to use the non-academic skill of goal-setting can build their motivation for the academics in the classroom, which could improve both skill instruction and non-academic skills. The goal-setting process could help elementary age children become more aware of their abilities and can motivate them to continue making and achieving their goals. When students are able to set their individual goals, this helps them become more self-aware of the work they are completing, independently, instead of focusing on what other students are completing.

Students should be mindful of what outcome they would like to accomplish when thinking about setting their goals. With academic goal-setting as a strategy, it is essential to remember what is considered mastery in order to be successful in a specific task. Mastery is measured based on state standards and are assessed using standardized testing at the end of each school year. Garavalia and Gredler (2002) said that setting goals has a positive effect on achievement for students and it helped students move more towards mastery. Morisano, Hirsh, Peterson, Pihl, and Shore (2010) stated that when students create a goal to improve achievement, it helps provide the energy to master a concept. When students set an academic goal and strive to meet that goal, academic achievement could be improved. Rowe, et al. (2017) concluded that goal-setting instruction “is effective in improving the academic performance of students” (p. 33). Students who continually make goals that are based on their academics have the opportunity to improve their academic achievement at any level in school.
Research has shown that when students create goals, it could increase their motivation to learn because they are able to take ownership over their learning. Zachary Mayse (2016) concluded that creating individual goals helps students focus on their needs, as well as what they want to accomplish for themselves. Rowe, Mazzotti, Ingram and Lee (2017) concluded that when students are provided time to set individual goals, they demonstrated higher academic achievement and engagement in the classroom. Tapola and Niemivirta (2008) found that students who possessed the motivation to learn, focused more on their abilities and were more motivated to complete their academic work. They also found that students who had a goal-setting mindset had a higher self-efficacy when they came to school, versus those students who did not set goals. Ronnie Dotson (2016) stated that setting goals not only provides a clear direction for what academic work needs to be mastered, but it also helps students keep focused on the desired outcome. Dotson (2016) also stated that the keys to establishing goals are to make them as specific as possible, make them measurable and attainable, and while also making them time sensitive.

Amy Snyder (2016) used graphs and visual aids, while conferring with students, to help them see how they have progressed through goal-setting to improve their motivation. The use of visual aids, in her study, enabled more motivation for students because they were able to visualize growth and continued making meaningful goals. When teachers confer using visual aids, as Snyder did, and had conversations about their goals, students felt motivated because they knew that the teacher would help them overcome obstacles that were encountered. Kleinert, Silva, Codding, Feinberg and St. James (2017) claimed that when teachers acknowledge students who are meeting their
goals, the students are more likely to increase the amount of time spent doing desired behaviors because of the interest of the teacher. Also, teachers who confer with students generally make more positive comments to students; therefore, increasing students’ motivation to continue to grow and increase the amount of time spent working on academic work.

**Positive Effects of Goal-Setting on Academic Achievement**

As students improve their ability to set and attain goals, they become more aware of their accomplishments, which encourages them to continue setting goals and reaching higher academic achievement. In a study done by Morisano et al. (2010), it was concluded that goal-setting helped students grow their grade point average (GPA) from a 2.2 to a 3.0. Those that did not set goals increased their GPA, from a 2.2 to a 2.4. Ronnie Dotson (2016) found the same trend when looking at goal-setting with students. In his study, 69 percent of the students made academic growth after goal-setting procedures were implemented, compared to 60 percent of students who had not participated in the goal-setting procedures. These studies, Morisano et al. (2010) and Dotson (2016), show a correlation between goal-setting and academic achievement. Ervin et al. (2010) also found that students performed better on the measure of academic progress assessment, or MAP testing, after setting goals for themselves based on previous assessments. On average, the Montessori students in this study scored 10 percent higher than students who were not in a Montessori classroom and were not taught the same goal-setting strategy. The previous studies, Ervin, et al. (2010) and Dotson (2016), were both done by comparing one student’s success to that of another. Goal-setting is a positive, non-
academic skill that can provide the opportunity to increase students' individual academic achievement.

**Effects of Goal-Setting on Math Achievement**

Zachary Mayse (2016) based his academic achievement study for math on a course, or group goal. This type of goal is when every student has the same achievement goal. Overall, the math course goal in his study was not met. However, there was an increase in the achievement made by his subjects. Snyder (2016) found that when her subjects set math goals, they grew from an average of 58 percent on their assessment to an average of 84 percent. She concluded that fourth graders who were following the goal-setting strategy were motivated to meet their goals and that helped to produce higher math achievement. So, while students may not always meet their individual math goals, progress was made, and students improved in their abilities in their math achievement.

**Effects of Goal Setting on ELA Achievement**

Susanne Lee (2010) focused on goal-setting, specifically, with students’ reading abilities. She noted 12 of the 16 students in her study exceeded their goals based on their MAP assessment. All the students, in her study, made gains in their reading, however, not every student met their goals. One student from the sample, who exceeded the self-defined goal, grew 24 points in reading during a five-month period of data collection. Mayse (2016) found the same growth as in his study on goal-setting effects on academic achievement. In English Language Arts, or ELA, his students who set individual goals, grew an average of 81 points. Snyder (2016) discovered that the students in her study did not grow as much in ELA as they did in math. This discrepancy was due to high baseline
data leaving little room for large amounts of growth. She found that students made
growth from a 98.8 percent accuracy to a 99.3 percent accuracy. (Snyder, 2016).

Teachers and researchers have tried to determine if goal-setting can increase
students’ academic achievement, as well as assist the students in becoming more
autonomous in their abilities to set goals. As the research indicates, goal-setting had a
positive impact on the motivation of students and academic achievement in the
classroom. Even when students did not meet their goal(s), academic achievement and
individual motivation improved and students became more confident in their abilities.
Teachers are always looking for new and better ways to help their students feel less
stressed about academics and help them be motivated to overcome obstacles. Elementary
aged children could use the goal-setting strategy to help boost their motivation towards
school work and academic achievement as they continue their academic journey.

Methodology

This study’s population consisted of seventeen fourth-grade students out of
approximately two-hundred fifty fourth-graders in a rural elementary school in South
Carolina. A consent form was sent home to the guardian of every student, requesting
consent to use the data collected through the study. The consent form was sent home
Wednesday, September 4th, 2019, and was to be returned, by September 11th, 2019 if the
guardian did not want their student’s data to be included. All the baseline data was taken
before the consent forms were due back because the consent form was only to determine
if each student’s data could be used in the survey, not whether they could participate in
the goal-setting procedures. Of the students involved in the study, ten students were
white, three were African American, and four were Hispanic, who are not classified as
Native English speakers. Eleven students were girls, and six were boys. Two students were receiving special education services in the resource setting for thirty minutes, daily, in the areas of reading and math.

This study was designed to examine the effects of goal-setting on math, reading comprehension and motivation. The independent variable in this study is goal setting. Math achievement, reading comprehension and student motivation are the dependent variables. At the end of the six-week study, students were asked how setting a weekly goal affected their daily work and how setting an academic goal helped them focus throughout the week. These questions were asked to see what effect that goal-setting had on their motivation. Students’ answers were recorded in their goal-setting journals, which also held their weekly goal-setting sheet. This sheet, as seen in Appendix A, included areas for students to set goals, to state how they planned on meeting their goals, and to reflect on their weekly goals.

Students took the attitude pre-survey (see Appendix B) on to determine their attitude toward their academics prior to learning how to set, monitor and evaluate goals. This survey was given Monday, September 9th, 2019. Using emojis, students answered four questions, which asked them to rank the degree they enjoyed math, ELA, the library, and school in general. The second part of the survey had students rate a statement from one to five by coloring in stars, based on their effort and motivation towards completing their work in class. Each statement was worth five points and each star was worth one point. For example, if a student answered the question of “I always turn in my work” with 3 stars, they would get three points. The maximum amount of points a student could earn was forty-five.
A teacher-made math pre-assessment (see Appendix C) was administered on Wednesday, September 4th, 2019, and the same teacher-made assessment was used as a post-assessment on Monday, October 28th, 2019. Each student took the same assessment, which was based on the fourth-grade state standards. The assessment included skills such as: place value concepts, addition, basic multiplication and simple word problems. The post-assessment had the same math problems as the pre-assessment in order to determine if students showed growth on specific math concepts.

A pre-assessment for reading comprehension, the Fountas and Pinnell leveled reading system, was started on September 18th, 2019 and ended September 26th, 2019. The reason the completion of the reading comprehension assessments took longer was due to the extent of information gathered. Each student read a portion of a leveled book aloud and finished independently. Once finished, students answered comprehension questions, based on the book, which identified the beginning level of each student. This reading system consists of twenty-six reading levels, from A-Z, where a level A is a beginning reading level and a level Z is considered an eighth-grade reading level; level Q is considered a fourth-grade reading level. For the post-assessment, the students were given the assessment on the level higher to determine the amount of growth during the goal-setting procedures. The Fountas and Pinnell reading level post-assessment was started on October 21st, 2019 and ended October 25th, 2019.

Students set their goals for the week every Monday, using a goal-setting sheet, as seen in Appendix A. Learning targets were created by the researcher to aid students in making academic goals. These targets were based on the fourth-grade state standards for learning. Students made one goal for math and one goal for reading comprehension. After
writing their goal for the week, students wrote what steps would be taken to try to meet their goal. Once students set their goals, they glued their sheet into their goal-setting notebook to be used throughout the week as a reminder. Each Wednesday, students had the opportunity to check-in with the researcher (see Appendix D for check-in questions) to assess whether they would meet their weekly goal. Students then had the chance to discuss with the researcher what they could change in the classroom that would help them succeed in meeting their goals. An example of a change that was suggested by a student was to lower the noise level in the classroom to increase concentration on academic work. These check-ins also served as a time for students to focus on their goals and be reminded of what they wanted to accomplish for the week. Each Friday, students reflected on the success of their weekly goals. They then reflected on what change could be made for the following week. Even if they met their goals, students planned changes for the next week by stating what could improve in their motivation and academic achievement.

The researcher was able to determine if the students progressed in their math and reading comprehension through the results of each post-assessment. The researcher was then able to determine the effect of goal-setting on motivation, based on the results of the motivation post-assessment, the attitude survey, and students’ responses to the question, “how did setting goals each week effect how you worked each day?” Students responded to the prompt after reviewing their goals from the past six weeks and determined for themselves if goal-setting affected them motivationally, academically or assisted in both areas. Each assessment was used to help determine if goal-setting is an effective strategy
to aid in the motivation of students and academic achievement in the elementary school classroom.

Analysis of Data

This study used three assessments to collect data about students’ motivation, math achievement and reading comprehension. Each assessment was given to every student twice, once before goal-setting procedures were implemented, as well as once after. The researcher used the same survey and assessments for both data collections to show the maximum amount of change for each variable measured.

A teacher-made pre-survey, “How I feel about Fourth-Grade” (see Appendix B), was used to collect data about students’ motivation in school and their effort toward their work before goal-setting procedures were implemented. Using emojis, students answered four questions, which asked them to rank the degree they enjoyed math, ELA, the library, and school in general. The second part of the survey had students rate a statement, from one to five by coloring in stars, based on their effort and motivation towards completing their work in class. For analysis, each star was worth one point with a total of five stars per statement. For example, if a student answered the question “I always turn in my work” with 3 stars, the response would get three points. The maximum amount of points possible for this survey was forty-five. The researcher used the baseline survey data to put the students into groups based on the scores. The groups were labeled as: “not motivated at all” (score of 1-10), “mostly never motivated at school” (scores 11-20), “sometimes motivated at school” (scores of 21-30), “motivated most of the time” (scores of 31-40), and “always motivated” (scores of 41-45). This survey helped the researcher collect data about students’ motivation regarding completing school work.
When students took the post-survey at the end of the six-week data collection period, the researcher was able to conclude if the intervention of goal-setting had any effect on motivation. The researcher analyzed the amount of change reported by students based on the number of stars colored from the pre-survey compared to the post-survey. The post-survey was scored in the same manner as the pre-survey, with the maximum score totaled at 45 points. Growth for motivation in the classroom was determined by the change from pre-survey to post-survey. To analyze individual motivation data, the researcher calculated the difference in the number of stars shaded by each student from the pre-survey to the post-survey. The researcher also analyzed whole group data by comparing the difference in the number of total students in each group from pre- to post-survey.

A math pre- and post-assessments were given in order to track students’ achievement on math concepts based on state standards. The math problems on the assessments were the same to accurately show if students demonstrated growth during the goal-setting procedures. The teacher-made assessments consisted of ten questions. The researcher chose ten points per question to better correlate with the letter-based grading system (described below). On questions that consisted of a part A and a part B, the students earned five points for each part that was answered correctly. Every student was given a grade based on the number of questions correct out of the total number of questions. These assessments were graded on a ten-point scale based on the state-wide grading system. Each letter grade (A, B, C, D and F) is based on a ten-point scale. For example, a score between 80 and 89, would be a B and a grade from a 70 and 79, would be a C. The scoring of these assessments follows the same state-wide grading system.
The assessment to determine reading comprehension was the Fountas and Pinnell leveled reading system. Each student read half of a leveled book out loud and half independently. When they finished the entire leveled book, students answered a series of comprehension questions based on the book. The comprehension scores are based on a four-point scale, ranging from zero through three. Students who are unable to answer basic level comprehension questions would receive a zero. Students who could answer most of the comprehension questions correctly, and add addition details about the story, would receive a three. Students who receive a score of two or higher, are considered to be reading independently on that level. This process is laid out precisely in the Fountas and Pinnell assessment system (Fountas and Pinnell, 2012).

The pre-assessment was given to students independently to determine their beginning reading level. Once each student’s beginning reading level was found, the researcher put students into groups based on the beginning reading level of each student. These student groups consisted of levels E through M, levels N through Q, and levels R through W. The E-M level group consisted of students reading at an ending kindergarten through a second-grade level. The N-Q level group consisted of students reading on a beginning third grade level through a beginning fourth grade level. The R-W level group consisted of students reading at a mid-fourth grade level through a beginning sixth-grade level (Fountas, et. al., 2012). The letter levels do not equally align with the numerical grade level. Some grade levels consist of a higher, or lower, amount of Fountas and Pinnell letter levels (See Appendix E). Due to the varying levels present in the class that was studied, students were grouped, for small-group instruction, with students who were reading closest to their current level. During the post-assessment, the researcher assessed
students using the level higher than their beginning level in order to determine growth in reading comprehension.

Overall, there was an increase seen in all three assessments given. An increase in motivation was seen based on the survey given at the end of the data collection period. The researcher used the same process to analyze the post-survey as the pre-survey, finding the difference in the number of stars colored by each student. Math growth was made, based on the grades of the post-assessment when compared to the pre-assessment. Reading levels, overall, grew at least one level, according to the post-assessment data analysis. Students’ abilities to create, analyze and modify weekly goals produced overall growth in the areas of academic achievement and motivation.

**Results of Study**

The purpose of this study was to use goal-setting to determine if this strategy would improve academic achievement and motivation in a fourth-grade classroom. The research design was qualitative, and data was collected with a pre-survey/post-survey and a pre-assessment/post-assessment system. The survey consisted of nine statements which had students rate themselves on motivational task, such as “I can work with a purpose.” The teacher-made math assessment had students solve problems based on the standards that were being taught during the data collection period. The reading comprehension assessment was used to track reading comprehension through the Fountas and Pinnell leveled reading system.

**Data and Academic Subjects**

The data collected for this study was from a fourth-grade classroom in rural South Carolina. A population of seventeen fourth-graders, out of approximately two-hundred
fifty fourth-graders at the school, took all three assessments; however, one student withdrew from the class during the study and as a result, that data was not collected for the post-assessment. The two academic subjects in question for the current study were math, reading comprehension. Data for the non-academic subject of motivation was also collected in relation to completing academic work in the classroom.

**Motivation in the Classroom**

What is the effect of goal-setting on student motivation in a fourth-grade classroom? The purpose of this question was to research how setting a weekly goal affected student motivation to complete academic work. This question was addressed using a teacher-made survey. This survey consisted of nine questions that asked students to rate their motivation toward different aspects of their educational and social experiences. On each question, students rated themselves from one to five, with one being “not motivated” and five being “motivated all the time.” The results of the pre- and post-assessment for motivation are shown below.

<table>
<thead>
<tr>
<th>Chart 1: Motivation Data</th>
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<tbody>
<tr>
<td><strong>Pre-Assessment Motivation Breakdown</strong></td>
</tr>
<tr>
<td>1-10 – “Not motivated” – 4/18</td>
</tr>
<tr>
<td>11-20 – “Mostly never motivated” – 2/18</td>
</tr>
<tr>
<td>31-40 – “Motivated most of the time” – 7/18</td>
</tr>
</tbody>
</table>
Figure 1 and Chart 1: Data comparing Motivation responses on Pre- and Post-Survey

Chart 1: Motivation Data and Figure 1, Comparison of Pre-Survey and Post-Survey Motivation scores, include the results of each survey done to assess student motivation to complete academic work. In the post-assessment data, there were no students who responded that they were “not motivated” at the end of this study. In the pre-assessment, four students answered that they were “not motivated,” which shows that these four students increased in their motivation. One student said they were “mostly never motivated” at school, which is one student below the baseline data. Students who were “sometimes motivated” at school went up by one student. Students who were “motivated most of the time” while at school increased by one student. Students who reported that they were “always motivated” at school, increased by two students. Overall, based on the survey results, there was an increase in motivation based on the post-assessment survey results.
**Math Achievement**

What are the effects of goal-setting on math achievement in a fourth-grade classroom? The purpose of this question was to determine if the setting of a weekly math goal influenced students’ achievement pertaining to their math work. Students set a weekly goal based on learning targets presented by the researcher. This question was addressed by using a teacher-made pre- and post-assessment based on the state standards being taught. This assessment consisted of ten questions. Each question was worth ten points, and for questions with two parts, each part was worth five points. Students took the same assessment for both data collection periods to show growth that happened during the study. Chart 2: Math Data and Figure 2: Comparison of Pre-Assessment and Post-Assessment Math Scores, both show the breakdown of the pre-and post-assessment data collected.

<table>
<thead>
<tr>
<th>Chart 2: Math Data</th>
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<tbody>
<tr>
<td>Math Pre-Assessment Grade Breakdown by Percentage</td>
</tr>
<tr>
<td>0-20 - 2/18 students</td>
</tr>
<tr>
<td>21-40 – 1/18 students</td>
</tr>
<tr>
<td>41-60 – 5/18 students</td>
</tr>
<tr>
<td>61-80 – 4/18 students</td>
</tr>
<tr>
<td>81-99 - 2/18 students</td>
</tr>
<tr>
<td>100- 4/18 students</td>
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Figure 2 and Chart 2: Comparison of Math Achievement Scores on Pre- and Post-Assessments

This chart and figure are a breakdown of the math achievement by students. The chart’s first column shows the student data for the pre-assessment. Each group contains the number of students who scored in that grade range. For example, five students scored within the range of 41 to 60 percent. The second column gives information for the grades for the post-assessment results. The total number of students assessed decreased by two because one student withdrew from the class; therefore, that data was not taken. Another student was absent during the post-assessment collection period; therefore, that math data is not included in the post-assessment. The highest growth occurred in the groups that scored a 100 percent and the students who scored between 81 and 99 percent. Each of those groups grew by three students and almost half of the students scored a 100 percent on the post-assessment.

Reading Comprehension

What are the effects of goal-setting on reading comprehension? The purpose of this question was to analyze if setting a weekly goal affected students’ abilities to
increase their reading comprehension skills. Students set a weekly reading comprehension goal based on learning targets set by the researcher.

This third and final research question addressed the reading comprehension of fourth grade students. This question was assessed, and data was collected using the Fountas and Pinnell leveled reading system. Each student’s reading level was found based on their comprehension and fluency abilities. For this study, only the comprehension was assessed. When students took the post-assessment, they were assessed at a level higher than their baseline to determine if growth was achieved. Students were assessed on a higher level during the post-assessment because this assessment requires students do a cold read, which means the student was required to read a text for the first time. The results of the pre- and post-assessments are presented in Chart 3 and Figure 3 Below.

<table>
<thead>
<tr>
<th>Chart 3: Reading Comprehension Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student</td>
</tr>
<tr>
<td>---------</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
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<tr>
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<td>15</td>
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<tr>
<td>16</td>
</tr>
<tr>
<td>17</td>
</tr>
</tbody>
</table>
Figure 3 and Chart 3: Breakdown of Individual Comprehension Scores on the Pre- and Post-Assessment for Reading Comprehension

Chart 3: Reading Comprehension Data and Figure 3: Comparison of Beginning Reading Levels and Ending Reading Levels based on Fountas and Pinnell Reading System, show the data for each individual student’s reading comprehension abilities. The student’s number associated with the study is in the first column. The second and third column are the baseline data for reading comprehension. This data shows the level, from A-Z, with A being the lowest reading level and Z being the highest, that each student was reading at during the baseline data collection period. The fourth and fifth column are the post-assessment reading comprehension data for each student. Each student was assessed on the level above their pre-assessment due to the nature of the assessment. As seen in the third and fifth column, a student is rated on their comprehension out of three points. If a student scores a two, they correctly answered two-thirds of the comprehension questions. If a student scores a three, they answered every question correctly during their assessment. As seen in the chart and table, each student showed growth in their reading
comprehension. Two students struggled on the comprehension of a higher level, which means that they were not ready for that level when the post-assessment data was taken. This table and graph show that six students scored a point higher on the comprehension portion of the higher-level text, which means that they grew more than one reading level. Eight students also had a 100 percent on their comprehension for both levels, which means they grew a whole reading level during the study.

The data collected during this study can also be broken down to analyze, not only reading levels, but also comprehension within those levels. For example, two students grew from a level three comprehension on their beginning assessment to a level two on their post-assessment. This demonstrates that these two students grew in their comprehension; however, they did not grow an entire reading level. Eight students from the study scored the same level of comprehension on their pre-assessment and their post-assessment. Although their comprehension score did not increase, the reading level of text for the post-assessment was higher, due to the nature of the assessment. This shows that the students grew exactly one reading level during the study. The final group of students went from a two to a three in their comprehension levels. This data proves that these students grew, substantially, and not only improved in one reading level, but also improved in their comprehension skills. In Figure 4, below, students are grouped by range of assessments administered. For example, a student who started on Level E would fall in the range labeled E-F, due to having to read the Level F text in the post-assessment. Along with being grouped by range of pre- and post-assessment, the figure breaks each level into three categories: “little growth,” “some growth” and “high growth.” “Little growth” refers to students who scored lower on their comprehension in
the post-assessment. For example, a student who scored a 3 on Level E but a 2 on Level F showed growth, but not enough to be considered growing a full level. The second group, “some growth”, refers to students who maintained the same comprehension score on both assessments, which means these students grew one entire level throughout the study. “High growth,” the final group, is the group that scored higher on the post-assessment, which shows that these students grew more than one level throughout the study.

![Figure 4: Breakdown of Total Growth in Each Fountas and Pinnell Level Group](image)

**Figure 4: Comparison of Growth in Each Fountas and Pinnell Reading Level Based on Post-Assessment Comprehension Score**

Figure 4: Breakdown of Total Growth in Each Fountas and Pinnell Level Group

Based on Post-Assessment Comprehension Score, shows the breakdown of the overall growth in each of the reading level ranges for reading comprehension pre- and post-assessments. The data is broken down into three groups per level range. The first group consists of students that decreased in their comprehension score between the pre- and post-assessments. These students are labeled as having “little growth” because they were
still adequately able to comprehend the higher text, but at a lower comprehension level. The second group, labeled as “some growth,” were the students who scored the same comprehension score on each assessment. These students are considered to have grown exactly one level throughout the study. The third group is composed of students who scored higher comprehension scores on their post-assessment. This group is labeled as “high growth” because their comprehension score increased, even on a higher-level text.

**Discussion**

The purpose of this study was to analyze the effects of goal-setting on three major attributes of a classroom: motivation, math achievement and reading comprehension. Data analysis showed improvement in all three categories. This follows what was seen in the review of literature that there was a pattern of improvement in various forms due to goal-setting. Zach Mayse (2016) states that “a major factor in establishing motivation for students is to ensure that they take ownership in their learning and goals” (p. 39). Other studies showed when giving students an opportunity to set goals for themselves, they improved in motivation and academics. Rowe et al. (2017) concluded that when students are provided the time to set goals, they demonstrated a higher academic achievement and engagement in the classroom. Ervin (2010) found that students performed better on the MAP (Measure of Academic Progress) assessment when they set goals for themselves prior to taking the assessment.

This new study followed the pattern of improvement in motivation, math achievement and reading comprehension. Each student was able to score higher on the final assessment for each subject and in their motivation. When students took the attitude survey, they stated that their motivation increased. One student wrote that making the
goals “helped me focus on the work I needed to complete each week.” Another student said, “I enjoyed making my goals because I was focused on meeting those goals and doing my best.” The findings of this study showed that the process of making weekly goals positively correlates with student motivation to complete their academic work.

**Limitations**

The limitations present in this study were related to the assessments. First, this study was written during one school year and implemented the next school year. The math pre- and post-assessments were written in a manner that was relevant to both third- and fourth-graders because the researcher was not aware of which grade would be present in the classroom. Second, the use of the Fountas and Pinnell level reading system is generally used to measure yearly progress, not monthly progress, like in this study. Another limitation to this study was the absence of a control group. The entire class was used as data subjects; therefore, no control group was used to compare data with those that set goals versus those that did not set goals. Further research could include a control group to compare those who made goals to those who did not.

**Recommendations**

Future researchers would benefit from studying each variable separately, instead of all three in one study. This research study showed that goal-setting had a positive effect on students’ motivation, math achievement and reading comprehension. Studies need to collect the data in the same way in order to effectively show motivation growth. In using only one assessment in this study, it is difficult to measure the effect of the motivation of the students.
Rather than using a teacher-made attitude survey, as in this study, further research could use a more standardized assessment tool to assess the motivation of students in the classroom. The term standardized assessment means all students in a population answer the same questions and the assessment is administered in a large-scale capacity. This attitude survey was not administered to the entire fourth-grade population at a rural elementary school; therefore, it cannot be considered a standardized assessment. Although studies show a positive correlation between goal-setting and motivation, using a more standardized assessment would provide better results. The same process could apply to the teacher-made math pre-and post-assessments found in this study. Further research could benefit from the use of a standardized tool to assess students’ math achievement in the classroom. This math assessment is also not considered to be standardized because it was only administered to seventeen fourth-graders. Using a more standardized, common assessment could help researchers better correlate the results of goal-setting on motivation and math achievement.

A standardized assessment was used to collect reading comprehension data; however, it was an assessment that is better used to assess yearly progress, instead of short-term progress. This data collection tool would better benefit a study that occurs over a longer period of time. Similar to math achievement, the entire class was used as data subjects, therefore, there was no control group used to compare data with those that set goals versus those that did not, which could benefit future studies in determining if setting goals positively affected academic achievement and motivation.
References


Appendix A  
Goal-Setting Sheet

<table>
<thead>
<tr>
<th>Subject</th>
<th>What is my weekly goal?</th>
<th>How will I meet my weekly goal?</th>
<th>Did I meet my goal? How could I improve next week?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math</td>
<td>_______________________</td>
<td>_______________________________</td>
<td>___________________________________________</td>
</tr>
<tr>
<td></td>
<td>_______________________</td>
<td>_______________________________</td>
<td>___________________________________________</td>
</tr>
<tr>
<td>Comprehension</td>
<td>_______________________</td>
<td>_______________________________</td>
<td>___________________________________________</td>
</tr>
<tr>
<td></td>
<td>_______________________</td>
<td>_______________________________</td>
<td>___________________________________________</td>
</tr>
</tbody>
</table>
Appendix B

Motivation “Attitude Survey”

How I Feel About Grade 4
My name:___________________

<table>
<thead>
<tr>
<th>How much do I like <strong>math</strong>?</th>
<th>How much do I like <strong>school</strong>?</th>
</tr>
</thead>
<tbody>
<tr>
<td>YUCK!</td>
<td>MEH</td>
</tr>
<tr>
<td>YUCK!</td>
<td>MEH</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How much do I like <strong>ELA</strong>?</th>
<th>How much do I like <strong>library</strong>?</th>
</tr>
</thead>
<tbody>
<tr>
<td>YUCK!</td>
<td>MEH</td>
</tr>
<tr>
<td>YUCK!</td>
<td>MEH</td>
</tr>
</tbody>
</table>
## Stars Rating System

<table>
<thead>
<tr>
<th>Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Always</td>
<td></td>
</tr>
<tr>
<td>Most of the time</td>
<td></td>
</tr>
<tr>
<td>Sometimes</td>
<td></td>
</tr>
<tr>
<td>Not lots</td>
<td></td>
</tr>
<tr>
<td>Almost never</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Statement</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>I try my best in all subjects.</td>
<td>5</td>
</tr>
<tr>
<td>I get along with my classmates.</td>
<td>5</td>
</tr>
<tr>
<td>I try to help out others.</td>
<td>5</td>
</tr>
<tr>
<td>I hand in my work on time.</td>
<td>5</td>
</tr>
<tr>
<td>I study for my tests.</td>
<td>5</td>
</tr>
<tr>
<td>I try my hardest at math.</td>
<td>5</td>
</tr>
<tr>
<td>I like to read.</td>
<td>5</td>
</tr>
<tr>
<td>I try my best on my reading.</td>
<td>5</td>
</tr>
<tr>
<td>I can work on my own with purpose.</td>
<td>5</td>
</tr>
</tbody>
</table>
Math Pre- and Post-Assessment

Name: _____________   Number: _________
Date: _____________

1. What is the number represented by the place value blocks below?
   Answer: __________

2. What digit is in the thousands place in the number 4,987?
   __________

3. What digit is in the hundreds place in the number 480?
   __________

4. Which of the following is the correct expanded form for the number 678?
   a. 60 + 700 + 8
   b. 600 + 70 + 8
   c. 6 + 7 + 8
   d. 600 + 70 + 80

5. Write the number 456 in expanded and word form.
   a. Expanded form: _______ + _______ + _______
   b. Word form: __________

6. Add.
   a. 3,123 + 1,233
   b. 456 + 715
7. Show the following multiplication sentences using repeated addition.
   a. \(3 \times 5 = \) ________________
   b. \(4 \times 5 = \) ________________

8. What time is shown on the clock?
   a. ________________
   b. ________________

9. Bob planted a garden of carrots. He planted 3 rows of carrots. Each row has 4 carrot plants. How many carrot plants does he have?
10. Sally has 27 apples. Her brother has 48 apples. How many apples do they have altogether?
## Check-In Questions

**Weekly Check-In with Teacher**

<table>
<thead>
<tr>
<th>Student Name:</th>
<th>Week of:</th>
</tr>
</thead>
</table>

1. **What are your goals for the week?**
   - [ ]
   - [ ]
   - [ ]

2. **What are you doing to meet your goals?**
   - [ ]
   - [ ]
   - [ ]
   - [ ]

3. **Do you feel like you are on track to meet your goals this week?**
   - Yes
   - No

4. **Is there anything that I can help with?**
   - No
   - Yes: [ ]

5. **Complement from this week:**
   - [ ]
   - [ ]
Appendix E

Fountas and Pinnell Grade Level Alignment

F&P TEXT LEVEL GRADIENT™

FOUNTAS & PINNELL LEVELS | GRADE-LEVEL GOALS
--------------------------|-----------------------
A                         | Kindergarten
B                         |
C                         | Grade One
D                         | Grade Two
E                         | Grade Three
F                         | Grade Four
G                         | Grade Five
H                         | Grade Six
I                         | Grade Seven—Eight
J                         | High School/Adult
K                         |
L                         |
M                         |
N                         |
O                         |
P                         |
Q                         |
R                         |
S                         |
T                         |
U                         |
V                         |
W                         |
X                         |
Y                         |
Z                         |
Z+                        |

The grade level goals on the F&P Text Level Gradient™ are intended to provide general guidelines, which should be adjusted based on school district requirements and professional teacher judgment.

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