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## The Effect of Goal Setting and Student Self-Reflection on Motivation and On Task Behavior in the Upper Elementary Public Montessori Environment

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The Effect of Goal Setting and Student Self-Reflection on Motivation and On Task Behavior in  
the Upper Elementary Public Montessori Environment

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**Abstract**

The purpose of this action research project was to study the effects of goal-setting and self-reflection on the intrinsic motivation and on task behavior of students in an upper level (ages 9-12) public Montessori classroom. The project used multiple data sources to better understand the impact of goal-setting and self-reflection on student academic achievement, prosocial behavior, and emotional wellbeing. Teacher-made rating scales and self-reflection prompts were used to determine student outlook on completion of their goals while semi-structured student interviews, given at the beginning, middle, and end of the project, gave insight into student perceptions of goal-setting benefits. After analyzing the results of the data, it was found that weekly short term and long range goal-setting can have a positive impact on student achievement, prosocial behavior, and emotional wellbeing.

*Keywords: goal setting, self-reflection, intrinsic motivation, self-determination theory,*

*Montessori*

It has been long established in Montessori philosophy that the upper elementary years, or the years from 9-12, are part of the social plane of development. Pedagogically, students' ability to find works, build skills, and use grace and courtesy reliably and independently is paramount to success within this upper-level classroom, also known as the Montessori prepared environment. As it happens, however, this stage of social development coincides with a loss of order once so loved in the early childhood and early elementary years. The paradigm shift from world order to social order, we have observed, often creates barriers to the necessary independence required of the upper elementary student. These barriers include, but are not limited to, a lack of motivation to start, continue, and sometimes even to finish work.

The students in our environment rely too much on teacher support and guidance to choose works before the morning work cycle begins and they often require consistent teacher redirection once the work cycle has started in order to maintain good workflow. During the upper elementary level in a Montessori environment, these abilities should be well established and allow the students to more fully explore and develop their social and academic skills.

Along with this, we both notice that the morning work cycle – a 3-hour uninterrupted work time - is not appropriately utilized, meaning that works are not completed in a timely fashion, or at all, and the children are often not focused enough to attain a deep understanding of the material. We would like our classroom to run as if we did not exist, like Dr. Montessori says is the true measure of success (Montessori, 1964). In order to reach this level of student autonomy, our students seem to need more motivation to take control of their education.

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Utilizing the uninterrupted morning work cycle is crucial to the success of a child in a Montessori classroom. If the students are unable to engage and stay motivated to work, then immense valuable learning time is lost. In the *Glossary of Montessori Terms* (2018) it states:

“through years of observation around the world, Montessori came to understand that children, when left in freedom, displayed a distinct work cycle which was so predictable it could even be graphed. This cycle, with two peaks and one valley, lasted approximately three hours. In Montessori school children have three hours of open, uninterrupted time to choose independent work, become deeply engaged, and repeat to their own satisfaction.”

Dr. Montessori observed this work cycle rhythm in children from the ages of 3 to 6, when their desire for order is the strongest and their curiosity and natural learning drive is at its peak. With a continuation of the Montessori environment into the elementary years, it would make sense that this drive would continue, given freedom, responsibility, and choice. However, we have observed a decline in motivation in our environment, possibly due to this loss of desire for order and other factors. Regardless of cause, the problem persists.

We want to see our students utilize their morning work cycles to their full potential. If they are not demonstrating a sufficient amount of intrinsic motivation to sustain themselves through the work cycle, then constant redirections by the teacher and/or assistant become necessary. This makes it incredibly difficult for the guide, or teacher, to engage in deeper work and lessons with the students and to keep them moving forward at the desired pace to cover all necessary curriculum.

The study of goal setting and self-reflection has become a necessary and crucial next step in determining how our upper elementary students can best be guided and stay motivated in the

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Montessori environment. To date, the students require continuous teacher direction to get started and continue working. In particular, we desire for the children to become deeply engaged in work more quickly in the morning at the beginning of the work cycle. Therefore, the purpose of this action research is to explore goal setting and student reflection techniques that can be implemented in the Montessori environment to increase motivation in the upper elementary classroom.

Our research question is: Will systematized goal setting and student reflection effect the intrinsic motivation and work habits of students in an upper elementary, Montessori environment?

### **Review of Literature**

This action research study is greatly influenced by two theories: Goal Setting Theory and Self-Determination Theory. These two theories are defined below and are interwoven throughout literature review and our personal research.

#### **What is Goal Setting Theory?**

Locke and Latham (2002) conducted an empirical study spanning four decades that produced Goal Setting Theory. This theory roots its foundation largely in the work of Ryan (1974) regarding industrial psychology. From this foundation, two key factors were determined regarding goals: 1) “conscious goals effect action” 2) “A goal is the object or aim of an action.” They concluded that the more difficult the goal, the higher the performance. In comparison, they found that “do your best” goals or goals that were too easily attained, lowered performance. Goal Setting Theory is supported by four goal mechanisms. First, goals have a directive function. Second, goals have an energizing function. Third, goals affect persistence. Fourth, “goals affect

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action indirectly by leading to the arousal, discovery, and/or use of task-relevant knowledge and strategies” (Wood & Locke, 1990).

Furthermore, the authors Locke and Latham (2006) have expanded their goal-setting theory since 1990, including adding ideas about goal choice, learning goals, framing, affect, group goals, goals and traits, macro-level goals, and goals and subconscious priming. The most relevant of these expansions to this research project are learning goals and framing. Learning goals, according to the literature, are most effective when they are about obtaining needed task knowledge or skills. It was found that students could suffer from “tunnel vision” when goals were merely based on performance, meaning that achieving the goal became the most important task rather than learning a new skill. Framing involves risk v reward when setting challenging goals. It was discovered that individuals who thought of challenging goals as threats did not experience positive effects of goal setting (2006).

### **What is Self-Determination Theory?**

Deci and Ryan are responsible for coining Self-Determination Theory (SDT). This theory is based on the work started by Deci in the 1970's on intrinsic motivation. His findings did not support conventional accepted wisdom on motivation suggested by earlier work on Behaviorist Theory. Since the 70's, Deci has continued his work to expand understanding of intrinsic motivation and his theory has gone through several revisions. Much of the foundation of the theory, however, was established in Deci and Ryan's book from 1985 *Intrinsic Motivation and Self Determination in Human Behavior*. Deci has continued his work since the 80's, updating his definitions in the 90's and again in the 2000's, stating the theory “maintains that an understanding of human motivation requires a consideration of innate psychological needs for

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competence, autonomy, and relatedness”(2000). More recent descriptions of Deci’s work come from the article *Self Determination Theory* (2018), it states that SDT,

“represents a broad framework for the study of human motivation and personality. SDT articulates a meta-theory for framing motivational studies, a formal theory that defines intrinsic and varied extrinsic sources of motivation, and a description of the respective roles of intrinsic and types of extrinsic motivation in cognitive and social development and in individual differences. Perhaps more importantly, SDT propositions also focus on how social and cultural factors facilitate or undermine people’s sense of volition and initiative, in addition to their well-being and the quality of their performance.”

### **What is Intrinsic Motivation?**

Motivation is a multi-faceted subject which has been researched extensively by psychologists and educators in the 20th century. The most formative studies, conducted by Deci in 1975 and Deci and Ryan in 1985, are highlighted again and again in research studies on the subject. According to Deci and Ryan (2000), intrinsic motivation is defined as, “activities that individuals would do in the absence of operationally separable consequences” (pg. 228) meaning, activities that someone chooses to do out of desire to do them. Deci continued this definition by suggesting, in accordance with contemporary research, a person needs to feel like a “causal agent” in the choices of their activities, and so, “intrinsically motivated behaviors were based on people’s need to feel competent and self-determined.”

In conjunction with intrinsic motivation it is important to note two other types of motivations discussed by the authors Deci and Ryan. The counterparts to intrinsic motivation are extrinsic motivation and amotivation. In an article written in 2000, Deci and Ryan explain extrinsic motivation as doing something because it leads to separate outcomes. The authors go on



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to write that extrinsically motivated actions can vary greatly in the level of autonomy it can provide an individual from totally external to totally internal. In contrast to both extrinsic and intrinsic motivation, amotivation is described by the authors as the absence of motivation. It is further described as the result of not valuing an activity, not feeling competent to do it, or not believing it will give a desired outcome (Deci and Ryan, 2000). It is relevant to add here that Deci and Ryan do not speak of these types of motivations as static but rather as existing on a continuum, ranging from the impersonal, as in amotivation, to the entirely internal, like in intrinsic motivation (2000).

To broaden the definition further, Vellerand et al. (1992) cited Deci's work when creating an academic motivation rating scale, stating intrinsic motivation may not be about the need for competence and self-determination, but may derive itself from the need to know, accomplish things, or experience stimulation. White, as cited by Docan (2006), says that intrinsic motivation is, "a pervasive need to seek out challenging tasks that provide feelings of competency and mastery," (p. 22). This need for competency and mastery is a common thread in the literature.

Considering motivation in the realm of education, Williams and Stockdale (2004) explain that academic motivation, which they relate to motivation in general, is, "sustained task engagement leading to improvement in academic skills," (p.214) Loosely, Butler and Nisan (1986) defined intrinsic motivation simply as, "interest." In summation, intrinsic motivation is the internal force that compels us learn, achieve, and create.

### **Why is Intrinsic Motivation Important?**

Williams and Stockdale (2004) mention that student motivation is a primary concern for educators in America today. The reasons behind this are varied, ranging from high-stakes testing to achievement based teacher compensation, but regardless of the reason, teachers are concerned

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with seemingly increasing student disinterest in academic achievement or motivation to learn.

Spinath and Steinmayr (2012) comment that intrinsic motivations importance stems from it being a prerequisite for learning. Moreover, the literature suggests the importance of assessing motivation in students. Research for creating motivation scales for use in education is ongoing and continues to be refined (Vallerand et al, 1992). Given the definition of intrinsic motivation, the importance of this human drive seems obvious. Montessori observed that freedom and independence were necessary for the child to reach his full potential, and that from the moment of birth, the child was subconsciously driven to grow and development himself (Montessori, 1936).

According to Pink (2009) without this innate desire a person does not live a full life or achieve to his ability, and likewise is never truly independent, but rather controlled by forces outside himself rather than by his internal nature. Avoiding a dependence on the need for external gratification is a major reason why increasing intrinsic motivation is important.

### **Motivation in Traditional Education**

The vast majority of traditional school systems use some form of grading system to rate student achievement and performance, and there are multitudinous studies (Zhao and Redifer, 2016; Corcoran, Dershimer, and Tichenor, 2004; Clinton, 2018; Butler and Nisan, 1986; Docan, 2006; Travers, Morisano and Locke, 2015; Pulfrey, Buchs, and Butera, 2011) that show the negative effects that these grading systems have on motivation. Notable literature on the subject of traditional schools use of grades and rewards offers theoretical insights into why grades, stickers, and treats all serve to demotivate rather than motivate students (Kohn, 1993). These negative effects on motivation include the inability to set effective goals (Spinath and Steinmayr, 2012), a decrease in work quality and performance (Butler and Nisas, 1986; Zhao and Redifer,

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2016), a decrease in self-sustaining behaviors (Williams and Stockdale, 2004; Kohn, 2009) and a shift of focus away from learning (Pedersen and Williams, 2004). Due to these negative factors, many teachers have attempted to employ alternative assessment methods (Corcoran, Dershimier, and Tichenor, 2004; Pedersen and Williams, 2004; Williams and Stockdale, 2004; Krawczyk, 2017; Clinton, 2018) that help alleviate the problems associated with grading systems.

### **Motivation in Montessori Education**

Montessori philosophy has a dramatically different approach to student motivation than traditional education. Schwartz (2017) used goal setting in a work journal (record) and student led conferences to foster intrinsic motivation. Summarizing the outcomes of his intervention in the Montessori environment, he claims the record of work worked in conjunction with the goal-setting conferences to serve as the scaffold for aiding student development of organizational skills, confidence, and independence. Each of these being key components to the Montessori environment. Brown (2016) spoke of how Maria Montessori viewed humanity in general and our innate desire to be lifelong learners.

What a marvelous characteristic in this creative spirit of humanity which springs forth independently of every form of education or instruction; this great spirit which transforms the environment like a god, which pierces the mountains, conquers the air and eradicates distance, this creative spirit of humans which enables them to perform such marvels independently of human teachers, which creates civilization as the pearl oyster creates the pearl, the Madre pearl, the coral, the bees, the honey and wax, this, this is the genius of humanity. (2013, p. 12)

Montessori believed that the child created the man, and thus, the development, retention, and facilitation of the innate intrinsic desire was the ultimate goal of her philosophy.

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Dodge (2017) believes that as the child gets older, this innate desire to work that Montessori so eloquently speaks of above, needs to be more structured in the second plane of development than it was in the first plane of development. In regard to her study on work journals, much like Schwartz above, and motivating the student in the Montessori classroom, she writes,

“The skill of goal setting and helping students set a plan of action, according to research, will motivate children to be active in their learning. Goal setting is used as a means to get students choosing work that is challenging and age appropriate. Children can gain intrinsic motivation by learning to set goals and working toward them.” (p. 4)

Krawczyk (2017) conducted a study on what happens to students whom have only experienced the Montessori classroom and when they became adolescents and entered an environment with grades for motivation. In regard to their Montessori upbringing she reflects that,

“students get narrative feedback from teachers and are encouraged to self-assess their growth, but their work is not marked in any kind of ranking system. These students typically show a high level of interest in their learning and are driven largely by internal motivation to increase their knowledge and understanding.” (p.3)

### **How Have others Tried to Solve a Lack of Motivation?**

The literature reveals many different strategies for helping to alleviate lack of motivation in the classroom. These strategies include reflection (Clinton, 2018; Martin, Andrews, and Travers et al, 2015) non-immediate grades (Brilleslyper, et al 2012; Pederson & Williams, 2004; Butler & Nisan, 1986; Zhao & Redifer), and summative measures such as rubrics, portfolios, and checklists (Brown; 2016).

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According to Lock & Latham (2002) and their work on motivation and goal setting, goal setting is a crucial skill found in effective individuals whom are intrinsically motivated. The researchers go on to say that when looking at performance and an individual writing out their goals beforehand there is a “direct relationship” between the two. The fact that written goals and performance are inextricably linked ties in beautifully with Dodge (2017), who states that, “goals provide standards with which to compare work and provide feedback regarding competence and continued motivation for learning.” Travers, Morisano, and Locke synthesize multiple studies concluding there is “evidence for personal-goal striving as an alternate and positively focused pathway for transformation. Strong links have been found between personal-growth goals and well-being.” In their personal research study their data reflected, “About 20% of students’ self-set growth goals directly related to academic growth and performance; students reported that these had a strong impact on their achievement both during and following the reflective programme” (2014).

When determining the accomplishment of a goal, the process of examining one’s successes and areas of challenge can be done through the process of introspection. One way to self-reflect is by keeping a diary or journal. This practice can provide practitioners with a valuable form of alternative assessment. “Diaries are being increasingly employed to investigate social, psychological, and physiological processes within everyday situations in work, education, and vocational training” (Kacewicz, Slatcher, & Pennebaker, 2007; Poppleton, Briner, & Kiefer, 2008). Concurrently, diary keeping reduces the likelihood of false retrospection due to the minimum amount of time elapsing between an experience and the account of this experience. (Travers, Morisano, and Locke, 2014). All the while, Clinton (2018) concluded that, “because

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reflection is most effective when regular and ongoing throughout the semester” (Bringle & Hatcher, 1999).

### **Best Practices for Increasing Motivation**

The literature suggests the best strategies to help increase intrinsic motivation in students are ones that give students the most choice and independence, and those that make the student part of the process of their education. Goal-setting and self-reflection, by definition, fit these criteria.

Goal-setting has been shown to increase students’ intrinsic motivation, sense of direction and success in the classroom. (Schwartz (2017); Brown (2016); Dodge (2017); Krawczyk (2017)). Self-reflection has been shown to trigger key psychological mechanisms (Bandura, 1997), which then had an effect on academic outcomes. Psychological growth (e.g., heightened self-esteem, or self-confidence) appears to affect students’ beliefs in their own abilities, and thus increases their successes in an academic setting (Travers, Morisano, & Locke, 2017).

Based on our literature review we will create an intervention to increase motivation that involves student goal setting and self-reflection. We will record our teacher observations in a journal throughout the 6-week action research study, as well as execute objective data sourcing two times: before, and after the research study.

### **Methodology**

The project has a quasi-experimental research design. Methods to gather information will include interviews, work samples, teacher made rating scales, student reflections, and teacher observation. Work samples and pre-interviews will be acquired prior to beginning the experiment in order to get baseline data for each participant, then interviews will be given again each week to assess progress, and a final post-interview will be given at the conclusion of the

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experiment. Teacher observations will be recorded throughout the experiment and a final work sample will be taken at the conclusion of the experiment.

The population for this action research project is 4th, 5th, and 6th graders in a self-contained classroom in a public Montessori magnet program. The sample participating in the study is ten students typical of the population. Three of these ten are in the fourth grade, three are in the fifth grade, and the remaining four are sixth graders. These students were chosen from a random classroom lottery. Eight of the students are female, and two are male.

The tools used in this project are primarily focused on gathering information on students' perceptions of goal setting and attempting to determine their intrinsic motivation levels. The semi-structured pre- and post-interview questions were designed to gain insight on students' thoughts about the benefits of goal setting, to determine whether their goals were met and to help them structure their academic, social, and emotional lives (see Appendix A). Questions will ask specifically about the students' thoughts on the importance of goal setting, which area of their life they believe is the most important skill area to set goals in, and whether or not they met their intended goals. The interviews are given weekly and also are used to help students create new short-term goals and remind students of their long-term academic, social, and emotional goals.

The next tool used is the teacher observation (see Appendix B). This tool is designed to be a short checklist, completed at five hourly intervals, starting at the beginning of the work cycle and finishing at the end of the day with the purpose of observing on and off task behaviors. The checklist contains activities such as work, socializing, picking up work, reading, and off-task behavior. The data collected from this tool will help us determine if there is a behavioral shift in students from the beginning of the research.

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The student rating scale was designed specifically for this study (see Appendices C, D and E). Each form utilized pictorial representations of three possible levels of student feelings. The weekly form (see Appendix C), allowed students to self-assess how they felt about their progress towards their goal. At the end of the week, the students choose a reflection prompt from a select list and then answered the prompt about the week as a whole (see Appendix C). The next form (see Appendix D) was used for students to self-asses if they achieved their weekly goals, and then allowed them to reflect on whether they felt they achieve their long term goals (see Appendix E). This data was collected in conjunction with the interview data.

In order to grade the student work samples taken at the beginning of the end of the project, we used a work sample rubric (see Appendix F). The rubric assesses neatness, completion, understanding, and any illustrations included in the work. The rubric was borrowed from a previous action research project conducted on choice and growth mindset (Matt, 2017). Finally, we utilized a goal-setting form where students could record their short and long term goals (see Appendices G and H).

Implementation of the research study will commence with the initial interviews, the creation of the first short-term and long-term goals and a student selected work sample. During the initial interview, students will answer questions, and then be informed of the procedure for the upcoming weeks. Students will not be informed that they are being observed specifically for the purpose of the study because teacher observation typically occurs daily in the Montessori environment and noting it may skew initial research data. During the course of the day, the teacher observation checklist will be recorded every hour for at least five minutes and no more than ten minutes. At the close of each day, students will complete their self-assessment sheet for their short-term goals. At the end of the week, students will be interviewed again and asked to



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make their weekly reflections. This cycle of interview and reflection will continue for six weeks until the final day of the project where students will write their final reflections, answer the final interview questions, and then turn in another sample piece of work of their choosing.

### **Analysis of Data**

The purpose of this research project was to determine the effects of goal-setting and self-reflection on work habits and intrinsic motivation in an upper elementary Montessori environment. The research design was quasi-experimental with multiple data sources used including interviews, work samples, observations, and teacher-made rating scales to ensure triangulation. Semi-structured interviews, observations, and student self-assessments were used to gather data about students' perceptions of goal-setting and its benefits in their social, academic, and emotional lives. Work samples were taken to determine if goal-setting and reflection had an effect on their work. The participants in the study were ten randomly selected students from an upper elementary classroom in a public Montessori magnet program.

### **Interviews**

Interview data was collected at the beginning and the end of the research. The purpose was to collect data on students' initial and final perceptions about goal-setting and its importance. The data received from the initial interview of all ten participants indicated that eight (8) out of ten (10) students believed that goal-setting was important. When asked to elaborate, students cited various reasons why they believed goal-setting was important. Five (5) students reported that achieving goals in and of itself was important, with one participant responding, "you have to accomplish things to move on." Two (2) students mentioned the feelings of pride or accomplishment that came along with meeting goals made goal-setting

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important and worthwhile. Two (2) students responded neutrally, saying they thought it was “kind of” important and gave similar reasons as those who responded in the affirmative.

Students were also asked if they believed goal-setting could help make them a better student, friend, or person. This time, all ten (10) participants responded in the affirmative. Responses focused on how goal-setting could help them become a better student, reporting that goal-setting could keep them “focused” or could help “remind them of what to work on.” Of the ten (10) participants, six (6) responded about academic betterment and discussed motivation in one way or another. Two (2) students made remarks about social betterment, and one (1) student responded with how goal-setting could benefit her socially, saying, “if you always work alone you could set a goal to work with more people.” Two (2) students, in addition to academic or social benefits, spoke of emotional betterment and one of these students offered an example of how goal-setting was beneficial emotionally, stating, “it makes you feel better about yourself.”

Finally, students were asked in which area they believed goal-setting was most important, academic, social, or emotional. Four (4) students responded that academic goals were most important, four (4) students responded that social goals were the more important, and two (2) students stated that emotional goals were the most important. They were not asked to elaborate on this question, however three (3) students offered a reason without prompting. One student said academic goal-setting was the most important, “because you have to do well at school to do well in life” while another student commented that academic goal-setting, “gets you into college.” The final unprompted response explained that social goal-setting was the most important because, “it’s important to be brave.”

In the final interview, the first question, “is goal-setting important and why?” from the initial interview was repeated. During the exit interview, all ten (10) of the students responded in

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the affirmative. Examples students gave for why goal-setting was important were either the same as or very similar to the responses given in the initial interview. However, one of the students who responded neutrally in the initial interview reported during the exit interview that goal-setting, “gives you something to achieve.” Participants were then asked if they found the weekly goal-setting and daily reflections to be beneficial to them. All ten (10) participants responded positively and cited evidence like, “when I said I would get something done, I did it,” and “I haven’t been getting into as much trouble or getting as much of an attitude.”

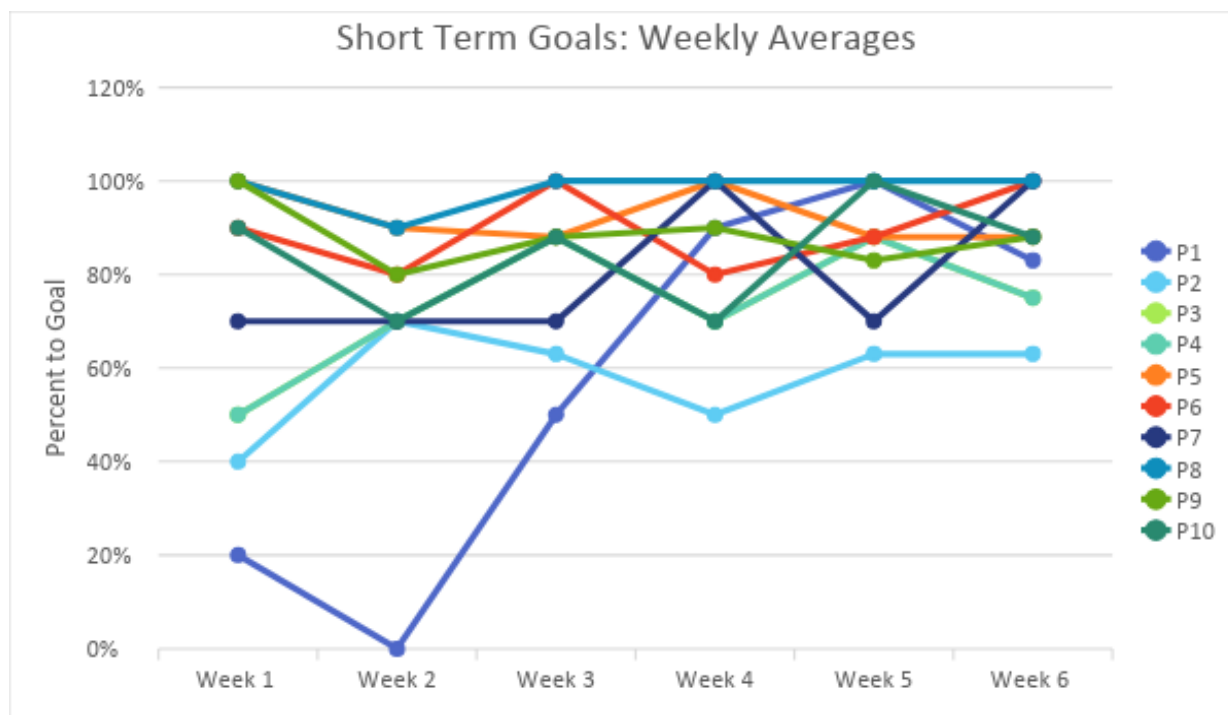
### **Short Term Goals**

Figure 1 represents the percentage of goals each participant reported each week. To find percentages points were attributed to each reflection choice. 10 points for achieved goal (A); 5 points for Goal Partially Achieved (/); 0 points for Did Not Achieve Goal (X) with a possible total of 30 points for all three goals achieved. For each participant, each week’s reflections were totaled and then divided by 30 to calculate their percentage for that particular week.

As indicated in Figure 1, participants P4 through P10 began the intervention with a high rate of goal achievement and ended the intervention with a similarly high rate of goal achievement. Students who began the intervention with low goal achievement gained the most by the end of the intervention. The effects of goal-setting were pronounced in these students, particularly P1, P2, and P3. P1, for example, went from achieving none of her weekly goals in week two to achieving 100% of her goals in week five and maintaining that achievement in the concurrent week (see Figure 1).

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Figure 1 Student weekly goal achievement averages



When reflecting on their weekly goals, students were given prompts to use. Each day participants reflected via the rating scale and at the end of each week they were prompted to report if they met, partially met, or did not meet their goals. Students chose a prompt column (great, okay, poor) they believed matched their daily ratings for the week and selected a sentence starter of their choice to write a reflection. Two (2) students elected to use both sentence starters each week.

Generally, while reflecting, students considered the week good or bad depending on the amount of work they accomplished or whether they felt they were able to accomplish work. The major focus of reflections was academic and often generalized. For example, participants stated, “something that would have been helpful this week is help with my work” and, “this week went well because I focused.” One participant, during week three, spoke of struggles, citing, “something that would have been helpful this week is focus. I felt really unfocused but I know I

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can improve.” However, some participants were more specific in their reflections, mentioning particular projects they were proud of finishing when they reflected on successful weeks. For instance, one student cited, “I felt successful this week when I got the African Database done.”

Another student who cited specific works she accomplished reflected about growth she had seen in herself between two different reflection weeks. This participant reflected on a change to be highlighted from the fifth week of the intervention to the sixth. In week five she commented, “something that would have been helpful this week is a presentation on Rules of Divisibility [because] I forgot.” Then in week six she stated, “I felt successful this week when I got rules of divisibility.”

Two (2) of the participants only had positive reflections, stating each week that they felt successful and everything went well. One particular participant reported, “this week went well because I had so much fun and I got all my work done. I just love being at school except getting up early.” Another participant remained generally neutral, reflecting that most weeks were just “okay” and then gave ideas for how it could have been better. For example, the participant wrote, “something that would of been helpful would of been some quiet time.”

There was one participant, P1, whose data stuck out during the intervention. The student changed her opinion about the benefits of goal-setting from a neutral response in the initial interview to a positive response in the final interview. She also had a noteworthy change in goal achievement (see Figure 1) and reflection attitudes from week one to week six. In week one, the student cited, “this week was bad because my teacher picking on me and everyone is saying I'm not supposed to be at this school.” By the final reflection in week six she wrote, “my week was great because I'm doing [much] better than what I used to be doing and I'm getting a lot of work done and keeping a positive attitude.”

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Broadly, the reflections show that students were aware of how their behavior affected their work production. Because the reflections, in general, focused on academic accomplishments, it is clear that students had an understanding of the connection between their actions and their work, or in the case of the student mentioned above, their actions and others perceptions of them. Reflections included things the students felt they needed to succeed, like help with their work, being more attentive to their work, or environmental changes like volume of the classroom and peer interactions. These reflections helped the students plan for the next week's goals.

### **Long Term Goals**

Each participant set long term academic, emotional, and social goals at the beginning of the project. At the end of the project participants reflected on whether their goal in each category was achieved, partially achieved, or not achieved and why.

In creating academic goals, participants followed two trends setting goals related to acquiring skills, such as “master long division,” or “master [least common multiples]” or setting goals related to getting good grades, such as “get straight A’s on quarter grades.” Six (6) of the participants reported achieving their goals (see Figure 2) and gave reflections such as, “I mastered LCM concretely and am really proud of myself” or “I am very proud of myself when I got all A's on my report card.” Only one (1) student reported not achieving her goal, reflecting, “I think I did not do good on my grades because I got all C's.”

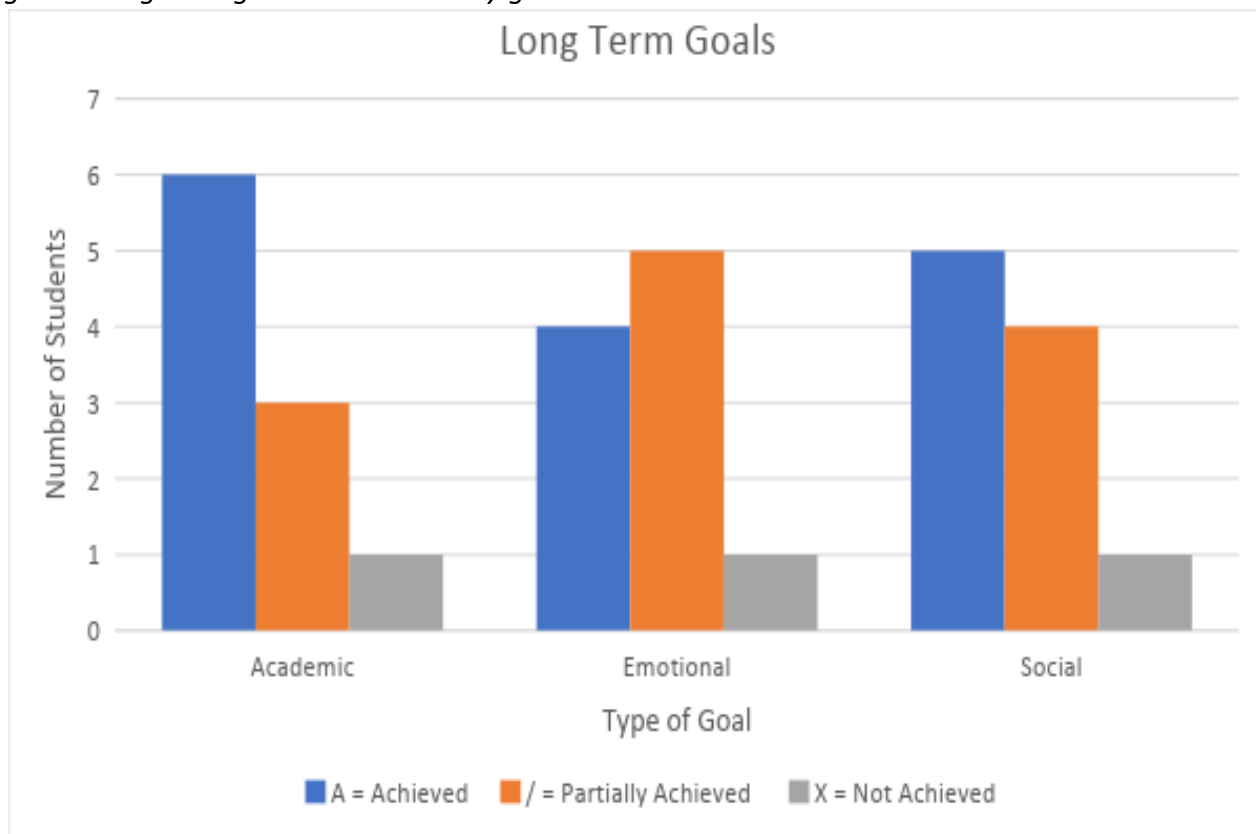
Regarding data collected about students' reflections on their emotional goals, common themes were participants hoping to “stay focused,” or “stay positive,” and “not get frustrated.” Five (5) students selected that they partially achieved their goal. Their reflections included comments to the tune of “I did ok” or “Kind of got frustrated at times with work.” Four (4)

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students reported achieving their goal. For example, one student wrote, “I completed my emotional goal. I put less pressure on myself and that helped me focus more.”

When we analyzed the data concerning social goals, “making new friends” was the goal of three (3) students, along with one (1) student who desired to work on knowing “...when to work independently and when to work with friends.” Five (5) students reported achieving their social goal (see Figure 2). Examples of reflections were, “I completed my social goal. I made new friends and they are all really nice,” and, “I am very happy that my socializing is better than last year.” Only one student reported not achieving their social goal, stating simply, “I did terrible.”

*Figure 2 Long term goal achievement by goal area*



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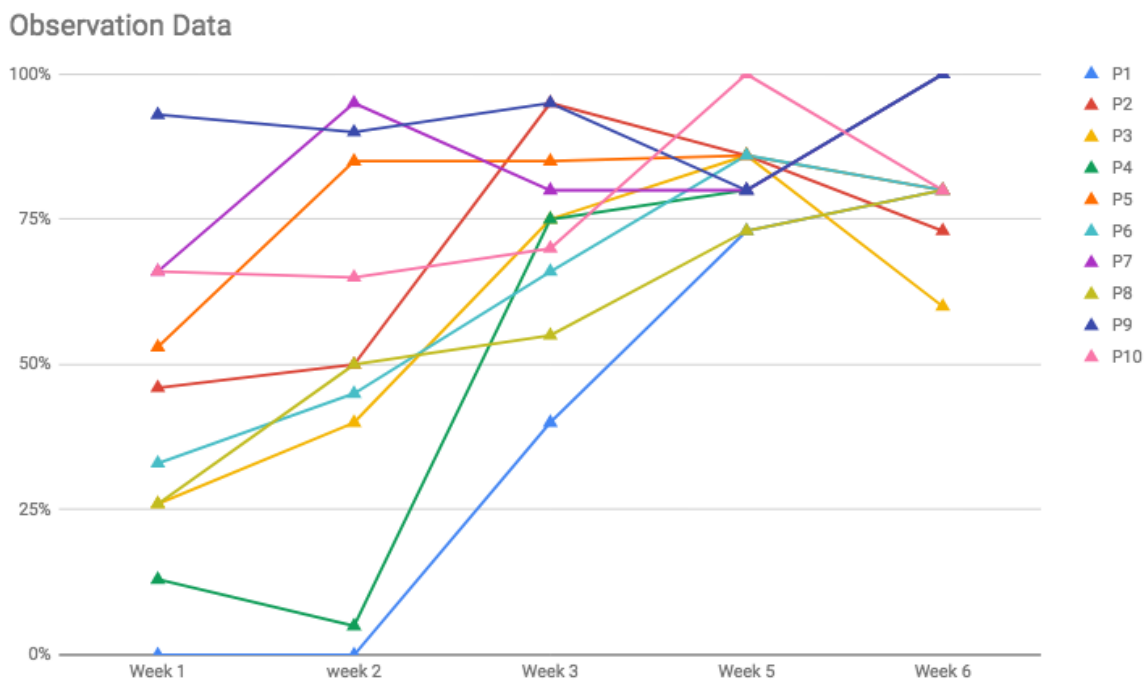
To summarize results regarding the participants' long term goals, 60% of participants achieved their academic goal, 40% of participants achieved their emotional goal, and 50% of participants achieved their social goal.

### Observational Data

Observations were completed at least 3 days a week for the duration of the six-week project. Week four was skipped due to unforeseen circumstances which made observations impossible. Behaviors observed were coded as either on task or off task. All marks from the observation forms were calculated into a percentage of the week spent on task and then graphed to determine if there was an increase in on task behaviors.

The observational data is noteworthy in several respects. For specific students, like P1, observable on task behaviors rose from 0% in week one to over 70% by week six as shown in Figure 3.

*Figure 3 Average observed on task behaviors per week*





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Most noteworthy is that each participant with the lowest observable on task behaviors in week one gained an average of 48% more observable behaviors by week six. In contrast, the participants who showed the most observable on task behaviors in week one showed little or no growth in observable on task behavior by week six. Several factors could account for the upward trend in on task behavior, including settling down of the classroom, midterm grades being released, and parent-teacher conferences being conducted in the time frame of the project.

### Work Samples

Work samples were collected prior to beginning the experiment and then at the conclusion of the experiment. These were graded using a rubric. Table 1 shows the rubric scores out of twelve (12) possible points for each participant from the beginning of the experiment and the final work sample. All work samples were chosen by students as representing their best work.

Table 1: *Work Sample Rubric Grades*

| Participant | Work Sample 1 | Work Sample 2 |
|-------------|---------------|---------------|
| P1          | 0             | 9             |
| P2          | 8             | 11            |
| P3          | 7             | 11            |
| P4          | 5             | 8             |
| P5          | 8             | 9             |
| P6          | 8             | 8             |
| P7          | 11            | 12            |
| P8          | 9             | 7             |
| P9          | 9             | 11            |

The work samples reveal a general rise in student achievement and regard for their work.

The most notable increase in student work was the use of illustrations to show their

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understanding of the material or to improve the overall quality of their work. This attention to detail and desire to create aesthetically pleasing work is one indication participants were taking more pride in the work they were accomplishing.

### **Action Plan**

The goal of this study was to determine the effects of goal-setting and self-reflection on work habits and intrinsic motivation within an upper level elementary Montessori environment. The research question posed was: Will systemized goal-setting and self-reflection effect the intrinsic motivation and on task behaviors of students in an upper elementary Montessori environment. Given the analysis of our data we can draw several conclusions in regard to the research question. One conclusion being that students with low motivation receive more benefit from goal-setting and reflection than do their more highly motivated counterparts. In other words, students with high observable on task behaviors that consistently reflect more positively about their work, social standing, and emotional wellbeing, have more natural intrinsic motivation.

Other conclusions include that the longer a goal-setting and reflection cycle is implemented, the more benefit students will gain from the intervention. This trend became very apparent in weeks 3 to 6 in both the student's self-reflections and the teacher's observations (see Figure 1 and 3). Concurrently, we noticed setting goals in the classroom environment gives students an external structure for accomplishing internal and external goals. Given the analysis of data from the teacher interviews, students who were not accustomed to setting goals prior to the experiment already had a high opinion of how goal-setting could benefit their life, academically, socially, and emotionally, which implies that goal-setting is an innate part of the learning process and implicitly understood by students as a beneficial endeavor.

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One unexpected finding from the conclusion of this study is that goal-setting and reflection gave we, the teachers, an unusually clear insight into the thought process of our students and their needs. This information was then able to be used by us to help guide the students more effectively in their daily work, which in turn bolstered their desire to meet goals, specifically of the academic variety, and helped forge better teacher-student relationships. This unintended consequence of the intervention supports the literature that good relationships can improve student motivation.

Beyond these stated conclusions, both looked for and unlooked for, the findings of this research had several implications for the classroom. One implication is that there is too much emphasis being placed on academics and not enough on the emotional and social health of the students. Given the notable focus of the students' reflections on work production and understanding of work, it appears that there is a gap in our supposedly holistic Montessori approach. This implication is cause for reflection, and recommends more effort to be made to ensure all areas of the students' lives are being treated with equal importance in the classroom.

In conjunction with the over emphasis on academic goal-setting and unintentional prioritizing of academics, it was clear in the data analysis that students regarded achieving their academic goals as more manageable. The implications of this are two-fold. First, it suggests that the academic goals may have been more supported or scaffolded than the social or emotional goals. Second, it suggests that because of the bias towards academic achievement, more focus was given to actually achieving these goals over others. It should be noted here, that it is possible that it was more difficult to judge whether a social or emotional goal had been met because these factors are not quantifiable the same way as grades or math skill acquisition.

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In accordance with our findings and recommendations, we plan to continue goal-setting and self-reflection with the students in our respective classrooms. Implementing these practices with all students will serve as an external framework to foster continued success for students that are highly motivated and increase on-task behavior and achievement for students that are less motivated. This will promote inclusivity and, we believe, teach goal-setting and self-reflection skills will positively benefit all students at some point in their academic career. A place for setting goals will be added to the student work plans and time will be made at the end of each week to reflect on the completion of goals. Given all the findings, implications, and conclusions of the study, we feel it would be beneficial to all students to continue goal-setting and self-reflection in the classroom. One addition to be made to the intervention that might ensure even emphasis on all three goal areas would be to have not only time for self-reflection, but for specific feedback from the teacher to be given. The literature is clear that specific feedback on goals can help increase motivation, but because giving feedback was not the purpose of the study, it was not used during the experiment, however could be easily added to increase the impact of the intervention. Furthermore, adding a structure to ensure that the goals set are specific, attainable, and measurable, would be a great benefit to students. Through the literature we understand that setting specific, measurable goals, with just the right amount of challenge, has the greatest positive effects for individuals. With this in mind, it is clear that adding a structure to goal-setting in the classroom would boost the impact for students.

Other areas of further study, given the findings and also the limitations of our research, might include the effects of goal-setting and self-reflection based on gender. Our research was heavily skewed female due to the nature of the random lottery system so it would be pertinent to do a gendered study to compare the results.

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Furthermore, we have several recommendations for educators interested in increasing good work habits and intrinsic motivation in their classrooms based on our own actions for our classrooms. Our first recommendation is to add individual academic, social, and emotional goal-setting in the classroom environment. Second, allow time in the school day for students to review, evaluate, and self-reflect on those goals. Third, we recommend that goals be both short term and long term and that short term goals may be reused at the students' disposal if they felt the goal was not satisfactorily met based on their self-reflections. Last, we recommend that students be given a variety of methods to express their reflections, including verbal, written, and multiple choice rating scales.

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## APPENDIX A

**Initial Conference: Week 1**

*Do you think goal-setting is important? Why?*

*Do you think goal-setting can help you be a better student, friend, or person?*

*What skill area is the most important to you? Academic, emotional, or social?*

**Follow up Conference questions: Weeks 2-5**

*Did you meet your goals for this week? How many?*

*How did you determine success with your goals?*

**Final Conference Questions: Week 6**

*Did you meet your long term goals?*

*Is goal-setting important? Why?*

*Do you feel that setting goals and daily reflections have been beneficial to you? How?*

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APPENDIX B

Teacher Observation Form

| Name | Date | W | CW | P | T | R | OT |
|------|------|---|----|---|---|---|----|
|      |      |   |    |   |   |   |    |
|      |      |   |    |   |   |   |    |
|      |      |   |    |   |   |   |    |
|      |      |   |    |   |   |   |    |
|      |      |   |    |   |   |   |    |
|      |      |   |    |   |   |   |    |
|      |      |   |    |   |   |   |    |
|      |      |   |    |   |   |   |    |
|      |      |   |    |   |   |   |    |
|      |      |   |    |   |   |   |    |

Anecdotal Notes:

| Name | Date | W | CW | P | T | R | OT |
|------|------|---|----|---|---|---|----|
|      |      |   |    |   |   |   |    |
|      |      |   |    |   |   |   |    |
|      |      |   |    |   |   |   |    |
|      |      |   |    |   |   |   |    |
|      |      |   |    |   |   |   |    |
|      |      |   |    |   |   |   |    |
|      |      |   |    |   |   |   |    |
|      |      |   |    |   |   |   |    |
|      |      |   |    |   |   |   |    |
|      |      |   |    |   |   |   |    |
|      |      |   |    |   |   |   |    |

| Name | Date | W | CW | P | T | R | OT |
|------|------|---|----|---|---|---|----|
|      |      |   |    |   |   |   |    |
|      |      |   |    |   |   |   |    |
|      |      |   |    |   |   |   |    |
|      |      |   |    |   |   |   |    |
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|      |      |   |    |   |   |   |    |
|      |      |   |    |   |   |   |    |
|      |      |   |    |   |   |   |    |
|      |      |   |    |   |   |   |    |
|      |      |   |    |   |   |   |    |
|      |      |   |    |   |   |   |    |

Anecdotal Notes:
















Anecdotal Notes:

**Key:** **W**=Working **CW**=Choosing Work  
**P**=Putting Work Away **T**=Talking  
**R**=Reading **OT**=Off Task

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## APPENDIX C

Weekly Self Reflection Prompts: Circle the image that best fits your feelings about how well you worked today. Be honest – there are no wrong answers!

|                  |   |   |   |
|------------------|---|---|---|
| <b>Monday</b>    |    |    |    |
| <b>Tuesday</b>   |    |    |    |
| <b>Wednesday</b> |    |    |    |
| <b>Thursday</b>  |  |  |  |
| <b>Friday</b>    |  |  |  |

Choose which column best fits how you feel about the work cycle and then select one prompt to answer from that column.

| Great  | Okay   | Poor   |
|--|--|--|
| <i>I felt successful this week when I...</i><br><i>This week went well because....</i> | <i>Something that would have been helpful this week is...</i><br><i>Something important that happened this week was...</i> | <i>I struggled this week because...</i><br><i>I felt unsuccessful this week because I...</i> |

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APPENDIX D

**Self-Reflection Form:** Be honest – there are no right or wrong answers!

Key:



= Achieved my goal



= Achieved part of my goal



= Did not achieve my goal

Circle the image that best fits whether or not you achieved your goals for the week.

|            | Academic | Social | Emotional |
|------------|----------|--------|-----------|
| Week One   |          |        |           |
| Week Two   |          |        |           |
| Week Three |          |        |           |
| Week Four  |          |        |           |
| Week Five  |          |        |           |
| Week Six   |          |        |           |

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APPENDIX E

Have you achieved your Long-Term Goals? (Write a response and circle image)

Academic: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



Social: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



Emotional: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



## APPENDIX F

| <b>Student Work Rubric</b> |   |  |  |
|----------------------------|---|--|--|
|                            | <b>3</b>  | <b>2</b>   | <b>1</b>   |
| <b>Handwriting</b>         | Handwriting shows attention to letter size, formation and spacing           | Handwriting is legible   | Unreadable work  |
| <b>Illustrations</b>       | Illustrations show great effort and care                                    | Illustrations show some effort and care                          | Produces few illustrations or those that show little effort or care  |
| <b>Completion</b>          | Includes additions that are beyond the required elements of the assignments | Includes all required elements of the assignment                 | Needs reminders to include all required elements of the assignments  |
| <b>Understanding</b>       | Shows a deep understanding of content – has mastered the topic              | Shows adequate understanding of the topic – more practice needed | Shows a lack of understanding of the topic – future lessons required |

APPENDIX G  
**Goal Setting Form**

**Key Terms:**

*Goal:* an aim or desired result.

*Academic:* pertaining to courses of study.

*Social:* interdependent relationships with others.

*Emotional:* a state of feeling.

**Short Term Goals:**

|            | Academic | Social | Emotional |
|------------|----------|--------|-----------|
| Week One   |          |        |           |
| Week Two   |          |        |           |
| Week Three |          |        |           |
| Week Four  |          |        |           |
| Week Five  |          |        |           |
| Week Six   |          |        |           |



APPENDIX H

**Long Term Goal:**

By the end of the six weeks, I will have...

Academic: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Emotional: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Social: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_