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Developing Self-regulation

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Developing Self-regulation

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Abstract

This research seeks to determine if children can develop self-regulation through games and activities in early childhood. This research was completed over six weeks in a classroom of three- to six-year-old students in a Montessori school. The researcher presented weekly games to the students to develop self-regulation skills such as listening, following directions, and body awareness. The researcher completed student surveys using qualitative and quantitative data from teacher observations to support their findings. The research found that games and activities can develop self-regulation skills in young children, lead to positive self-regulation behavior, decrease negative regulation skills, and increase self-awareness.

Keywords: Montessori, self-regulation, executive function, games, activities

Introduction

In my early childhood classroom, I have noticed that many students struggle to develop self-regulation. This current group of students was very young during the COVID shutdowns in 2020 and, as a result, may have needed more social interaction in their first few years of life. These shutdowns may have affected their social-emotional development upon entering school. The typical balance of a Montessori Early Childhood classroom has an equal number of three-year-olds, four-year-olds, and five-year-olds, as well as a balance of male and female students in each age group. This current class has a different ratio, with the older third of the students predominantly male and young five-year-olds. In addition to the age and sex of the students, a Montessori environment is very intentional and structured in a way that supports the development of self-regulation. Considering the three-year age span of the classroom, it is essential to establish the classroom culture with grace, courtesy, body awareness, and impulse control. Self-regulation is managing thoughts, behavior, emotions, and motivation that are planned and continually adjusted to achieve personal goals (Panadero & Tapia, 2014). Various factors, such as the setting, social interactions, and schedule, can support self-regulation.

Throughout this project, the goal is to support the development of self-regulation skills. Children in a Montessori classroom can select materials and tasks that align with their interests and developmental needs. This freedom encourages children to take ownership of their learning and make daily decisions, improving their self-regulating ability. The structure and organization of a Montessori environment provide clear boundaries and guidelines, helping children understand the expectations and responsibilities. The materials in a Montessori classroom are designed with built-in control of error, allowing a child to identify and correct mistakes. This

self-correction process encourages self-monitoring and self-regulation as children learn to recognize and rectify errors independently.

Montessori classrooms include children of different ages, spanning a three-year age range. Older children often serve as role models, demonstrating how to use materials, engage in tasks, and exhibit appropriate behavior. Observing and emulating these behaviors contribute to the development of self-regulation. Montessori classrooms prioritize uninterrupted work periods, allowing children opportunities to engage in activities for extended periods without unnecessary disruptions. This uninterrupted time encourages sustained attention and concentration, promoting self-regulation as children learn to manage their time and focus.

Many classroom activities require careful attention and control of movement, fostering self-regulation by encouraging children to complete tasks with precision and care. Montessori classrooms are calm and peaceful atmospheres that support emotional self-regulation as children develop social skills and conflict-resolution strategies. Guides create a nurturing and respectful environment where children learn to interact harmoniously with their peers. The Montessori environment cultivates self-regulation in children through a combination of freedom, structure, self-correcting materials, peer modeling, and a focus on independence and responsibility. These elements empower children to manage their actions, emotions, and learning experiences. With all these naturally occurring in our classroom environment, there continues to be a struggle with dysregulated children. Dysregulation is observed throughout the day and in all classroom areas, especially during transitions. The children begin running through the room, bodies moving out of control, not recognizing a need to go around an obstacle but choosing to push through. The children frequently get up from work to look for peers to talk to or work with. The frequent getting up to interact with others often disturbs working students. Various grace and courtesy

lessons in large groups and individually support appropriate behavior in these situations. We also use opportunities to act out or roleplay day-to-day circumstances and scenarios such as walking around works, carrying materials through the room with two strong hands, waiting in line, walking around a person instead of pushing through, and taking turns talking instead of interrupting others.

To complement these Montessori norms, this project is helping students develop impulse control and self-regulation. Looking at the research, the Head-Toes-Shoulders-Knees (HTSK) tasks of self-regulation is a valid and reliable measure of self-regulation used worldwide and, in many studies, and research (Oregon State University, 2023). Researchers consistently used this measure to determine self-regulation in children ages four to eight. This measure gave the researcher the idea of using games and activities to practice the skills of listening and impulse control in a fun, interactive manner. Each day, the class spent four- or five-minutes playing games such as Red Light, Green Light, Simon Says, and Freeze Dance over six weeks to increase the student's self-regulation skills and awareness. This research incorporated the entire class in the games but only tracked the development of self-regulation skills with the nine six-year-old students.

Theoretical Framework

Throughout this project, I use Dr. Albert Bandura's Social Cognitive Theory, formerly Social Learning Theory, from the 1960s. Bandura's theory is critical to this research for several reasons. This theory emphasizes the role of cognitive processes, such as perception, interpretation, and self-reflection, in shaping human behavior. It also emphasizes the importance of the social cognitive processes in behavior, including attention perception, memory, and problem-solving skills, which influence how individuals interpret and respond to their experiences. A third reason is that it highlights the importance of observational learning and feedback, where the students learn from the actions and behavior of others.

Bandura's learning model includes three interconnected elements: the biological and psychological characteristics of the person, the person's behavior, and the environment (Miller, 2016). The self-system, or a set of cognitive structures and perceptions that regulate behavior, is at the center of this triad (Bandura, 1997, 2000). These cognitive structures can influence thoughts, behaviors, and feelings: self-awareness, self-inducements, and self-reinforcement (Sharf, 2016). This emphasizes the importance of self-beliefs and the ability to regulate one's behavior in achieving personal goals and adapting to different situations.

Self-efficacy is a concept related to the self-system. It is one's perception of how well one can overcome challenging tasks in life (Sharf, 2016). A strong sense of self-efficacy is associated with an ability to accomplish essential tasks, learn from observations, believe that one can succeed, and have low levels of anxiety (Sharf, 2016). Self-efficacy plays a crucial role in supporting self-regulation. High self-efficacy leads to a greater likelihood of taking on challenging tasks and persisting in the face of difficulties.

Self-regulation is managing thoughts, behavior, emotions, and motivation that are planned and continually adjusted to achieve personal goals (Panadero & Tapia, 2014). It is crucial for social development and academic achievement. It supports children transitioning from home to a more formal school setting and can be an early indicator of academic success (McClelland & Cameron, 2012). We are not born with self-regulation, however, everyone is born with the capacity to develop. These skills develop in early childhood and support the learner in every stage of life.

Dr. Bandura outlined three critical aspects of self-regulation as a self-governing mechanism. The initial aspect involves observing one's performance, allowing individuals to gain essential information to set performance standards and assess their progress in achieving them. The individuals then evaluate their behavior against their ideals, situational circumstances, and the value of the activities. Finally, self-reactions to one's judged performances serve as a guide to motivate behavior and affect personal satisfaction (Bandura, 2023). When students discover they can learn to manage their actions and responses, this can strongly impact their behavior.

An essential aspect of Bandura's Theory that fits beautifully in the Montessori classroom is that individuals learn by observing others. Montessori classrooms combine a three-year age span, where the older students model lessons and behavior, giving the learners ample opportunities to observe and learn from their peers. Bandura's research shows that observational learning is a general information acquisition process. Modeling is a foundational element of Montessori philosophy between students, their peers, and the guide. Observation may lead to imitation when there is a model to imitate (Miller, 2016). Observation supports children's learning, especially in a Montessori classroom where the younger students observe the older

children's behavior, activities, and work. As children observe other children successful at tasks, they develop self-confidence. This self-confidence can develop self-efficacy (Reeve, 2018). Kinesthetic is a learning style in which individuals learn through physical activities, movement, and hands-on experiences. The Montessori method emphasizes hands-on, self-directed learning and encourages children to explore their environment through physical interaction and movement.

The integration of kinesthetic learning, with the power of observational learning and self-correcting materials, enriches the development of self-regulation skills in the Montessori classroom. Self-regulation, the cornerstone of effective personal management, is pivotal in academic achievement and social development. This project examines the effect of using fun, motivating, non-competitive games and activities to allow students to develop and practice impulse control and self-regulation skills.

Literature Review

The field of early childhood education has abundant research that answers the question, "What impact do games and activities have on self-regulation?" The development, importance, and assessment of self-regulation in children were continuing themes in this research. Another essential topic within the research involves the Montessori early childhood environment and how self-regulation was developed and supported in these environments. Self-regulation is a crucial topic in the field of education. It is essential for students' growth and development throughout life. Dr. Montessori tells us:

The Child's development follows a path of successive stages of independence, and our knowledge of this must guide us in our behavior towards him. We must help the Child

act, will, and think for himself. This is the art of serving the spirit, an art which can be practiced to perfection only when working among children. (Montessori, 1959, p. 257)

Specific games focusing on listening, following directions, and controlling one's body can positively impact the development of self-regulation.

Definitions

Familiarizing the reader with several standard definitions related to self-regulation in the field of education will be helpful as they are essential to this study. *Executive function* is a term often used with self-regulation that refers to a set of cognitive skills essential for goal-directed behaviors and self-regulation. Executive functions are skills comprised of working memory, inhibitory control, and cognitive flexibility (Castelo et al., 2022). Self-regulation is an essential component of executive function. Self-regulation is a highly intricate concept involving various components across different levels of function, such as motor skills, physiological responses, emotional and social aspects, cognitive abilities, behavioral patterns, and motivation (Montroy et al., 2016). This concept, broken down, refers to the capability of controlling or directing one's attention, thoughts, emotions, and actions (McClelland & Cameron, 2012). Emotional regulation is a domain of self-regulation related explicitly to changes in emotional expression, understanding, and regulation (Carlson & Wang, 2007). These domains control and affect other areas of development (Florez, 2011). This literature review will use these three terms: executive function, self-regulation, and emotional regulation.

Importance of Self-Regulation

There is consensus among researchers that self-regulation supports a student's success and learning in school settings and into adulthood. As children move from a child-care-based program into a more structured school environment, the demands placed upon their emotional

and self-regulation skills increase in addition to their literacy, numeracy, and writing skills (McClelland & Cameron, 2012). There are many expectations and transitions upon entering a school setting, and a robust regulatory system is vital to their ease and success. Children who enter school with low self-regulation skills are at high risk of difficulties, including peer rejection and low academic achievement (Blair, 2002). Executive functions support a child's understanding, monitor and control their reactions, and allow them to problem-solve desired behavior and outcomes. Coordinating these skills provides a foundation for the child to adapt to various expectations in the classroom (Montroy et al., 2016). There is a significant difference in the self-regulation abilities that children demonstrate during early childhood. This variation consistently foreshadows various outcomes in the short and long term, such as readiness for school, academic achievements throughout primary school, higher self-esteem, improved ability to handle stress, and reduced instances of substance abuse and law-breaking, even for those who might be at risk of facing challenges (Montroy et al., 2016). This research states the importance of self-regulation in early childhood and its role throughout one's lifetime.

Development of Self-Regulation

Many children are entering classrooms with low emotions and self-regulation. Cognitive and emotional self-regulation affect each other and are not separate skills (Florez, 2011). Classroom time is required to teach children to identify when their bodies and emotions are out of control, support them when they become unregulated, and provide opportunities to practice these skills during non-emotional times. Thinking affects emotions and cognitive development because self-regulation involves different domains, and each affects other areas of development (Florez, 2011). Dysregulated children often need to be more mentally present to learn academic skills. They need more time and space to become regulated to attend to the lesson; therefore, they

often miss essential educational content, leading to poor academic success. This dysregulation also affects students socially, as peers do not know how to respond to these students' emotional outbursts. They can be challenging to work with and often are "in trouble," which can lead to future behavior problems.

Some aspects of self-regulation develop, while others require intentional practice and modeling. Most regulatory functions become automatic after a period of intentional use. Riding a bike, solving a math problem, back-and-forth communication, and sharing toys *all become* automatic only after intentional practice *and* a process called internalization (Florez, 2011). Research suggests that children who engage in intentional self-regulation learn more and go further in their education (Florez, 2011). Children learn and develop these skills when parents and teachers model and scaffold self-regulation during everyday experiences (Florez, 2011). Research indicates that children between ages 3 and 7 typically progress from reactive or co-regulated behavior to a more advanced, cognitive-behavioral form of self-regulation requiring the integration of skills such as executive function and language skills (Montroy et al., 2016). The research shows that specific executive function components, cognitive flexibility, working memory, and inhibitory control contribute to successful self-regulation (McClelland & Cameron, 2012). Attentional or cognitive flexibility is focusing on a specific task, ignoring distractions, and shifting to a new activity when needed. Working memory consists of retaining information while processing it, such as remembering class rules while participating in activities. Inhibitory control is the ability to stop an impulsive response, replacing it with an appropriate one, such as using walking feet in the classroom instead of running. These aspects of executive function rapidly develop in early childhood, supporting the development of self-regulation (McClelland &

Cameron, 2012). Children develop skills at different times and through different experiences; like any skill, the more it is modeled and practiced, the more it is internalized.

The Montessori Classroom Environment

The Montessori classroom supports the development of self-regulation in a variety of ways. One of the ways is the prepared environment. The environment is set up with one of each material on the shelf, providing choices and boundaries (Preschlack, 2023). The child is free to choose any available work on which they have had a lesson. That means the child must wait their turn, use the material carefully, and return it to the correct shelf place. Many of the materials themselves have a control of error that allows a child to get direct feedback from the material; for example, if a child is not carrying a tray with a glass vessel on it properly and the tray spills, the glass will break, providing feedback to the child to move more carefully. The Montessori classroom also supports self-regulation through the development of concentration, which can lead to normalization in the child, allowing the child to follow their inner guides in choosing what they need for their development (Lillard, 2005). Lillard (2005) tells us that "concentration in Montessori classrooms is thought to facilitate children's access to inner guides that direct children to make constructive choices" (p. 107). There are three main ways that the Montessori environment supports concentration: engaging materials, three-hour work cycles, and minimizing disruptions. These will also have a positive impact on the development of self-regulation. The Montessori method also helps students build positive relationships, self-confidence, and academic performance by nurturing social-emotional development and sustained relationships.

Games and Activities

According to the research, one task designed to assess integrative self-regulation is Head-Toes-Knees-Shoulders (HTKS). This consistent assessment strongly predicts child outcomes in preschool and early elementary school (Gonzales, C. et al. 2021). The HTKS is a measure of behavioral self-regulation that captures aspects of executive function manifested in behaviors similar to what children need to do in the classroom, such as paying attention, remembering instructions, or stopping one action and doing another. Research on the HTKS suggests it is a reliable and valid measure of behavioral self-regulation for children between 4 and 8 years of age. (Gonzales, C. et al. 2021). During the task, the teacher has the students follow commands in which they do the opposite of what the command says; "when I say touch your head, touch your toes." First, follow two commands and then increase in difficulty, i.e., remember two pairs of commands and then switch the pairs around. This task has been valuable in the research of self-regulation. Several studies have shown that the intervention's primary goal was to help children practice integrating working memory, attentional flexibility, and inhibitory control using games and group activities (Schmitt et al., 2015). The intent was that by facilitating growth in self-regulation, children would be better able to benefit from academic instruction during everyday classroom activities (Schmitt et al., 2015). Some studies have shown that cooperative activities and games can promote cooperative and prosocial behaviors in children, sometimes in ways that generalize to other activities (Eriksson et al., 2021). Kinesthetic learning links learning to physical activity, where the learner must feel or move to learn more effectively (Bay Atlantic University, 2022). Montessori education aligns well with kinesthetic learning by providing a rich and dynamic learning environment that encourages children to learn through physical movement, hands-on exploration, and sensory experiences.

The field of early childhood education has extensive research on self-regulation's development, assessment, and importance for children's growth. The Montessori approach plays a significant role in nurturing self-regulation. This multifaceted concept, spanning emotions, cognition, and behavior, is crucial for lifelong progress. Linked to executive function, which aids goal-oriented behavior, self-regulation is vital for adaptability and achievement, especially during school transitions. It impacts social interactions, emotions, and long-term outcomes like self-esteem. Practical classroom strategies involve emotion management, cognitive growth, and intentional practice. Educators help children internalize self-regulation through modeling and scaffolding. With its prepared environment, the Montessori method cultivates self-regulation through choices and concentration, fostering academic engagement and informed decision-making.

In summary, research highlights self-regulation's integral role in early childhood education and its enduring impact on holistic development. The Montessori classroom consists of various activities and approaches to support the development of these skills. In looking at the research, the researcher was interested to see if there was a consistent approach to teaching self-regulation skills. The researcher used games and activities to engage the students to determine if these crucial skills could increase with exposure and practice.

Methodology

This research aimed to develop self-regulation skills through games and activities in a Montessori early childhood classroom. This classroom is in a private accredited Montessori school in the south-central United States. This study included data from nine five- and six-year-old students in this classroom during the 2023-2024 school year. The classroom consisted of twenty-one students ages three to six and two co-guides. Seven of these nine oldest students have been in this classroom for the past two years; two are new to the school, and one is new to Montessori. Seven of the students are boys, and two are girls.

This predominately male group of students displays immature and dysregulated behaviors such as withdrawal, hyperactivity, impulsivity, refusal to follow directions, and difficulty transitioning during classroom activities. The researcher's objective is to use games and activities to strengthen students' ability to follow directions and control impulses.

In August, a hard copy of the parent-implied consent form was sent out to all parents. Four data tools were used in this research project to collect both qualitative and quantitative data. The students involved were assigned a numeric code to protect anonymity. The researcher locked up all data and documentation, deleting group time videos after recording the information on the spreadsheet. The implementation of the data tools to track progress was consistent each week.

Student Self-Assessment Pre- and Post-Survey

This project began in September by administering the pre-survey to the nine students. The survey consisted of five statements: I can stand in line safely; I listen during group time; I keep my hands to myself; I carry and use work safely; I work without disturbing my friends who are working. Practice questions helped to familiarize the students with this type of survey. The practice questions consisted of general questions such as: I have a dog; I like playing at the park;

I eat snack at school. The students used green cards to note yes, yellow to note sometimes, and red to respond no. The researcher administered the survey individually. The same survey was also administered during week six of the project, following the exact directions and guidelines. (Appendix A)

Work-Cycle Observations of Nine Targeted Students

There were two daily observations of the nine individual students during the morning work cycle throughout the six weeks of the research project. These eight-minute observations around 8:45 a.m. and 10:15 a.m. tallied specific behaviors related to self-regulation: disturbing the work of others, staying on task, being able to self-regulate, and not being able to self-regulate. Multiple tallies were given throughout the observation time if the situation or behavior changed. (Appendix B)

Presentation of the Games

The group time activities were recorded on an iPad to enable the researcher to observe during the group activities, noting the level of participation and accuracy of following directions. This information determined how to adapt and adjust the games and activities for the following week. In weeks two through five, a different game was presented each week. The first game was Simon Says. "Simon Says" is a children's game that promotes listening skills and following directions. The researcher played the role of "Simon," giving instructions to the class to follow, preceded by the phrase "Simon says." For example, "Simon says touch your toes" or "Simon says jump up three times." The students must only follow the instructions that begin with the phrase "Simon says." If Simon instructs without saying "Simon says," and a player still follows it, they are out of the game. Simon may trick players by instructing without saying "Simon says" or by instructing by saying "Simon says" without acting themselves. With the ages in the class

being three to six years old, the researcher did not play the traditional game where the children were "out." All players continued to play. The children did begin to point out when they or their classmates followed the directions incorrectly. They enjoyed seeing if someone was "tricked" by Simon.

The next game was Red Light, Green Light. Red Light, Green Light is a fun and active game that encourages listening skills, self-control, and quick reflexes. When the researcher said, "Green Light," all players started moving forward. When the researcher said, "Red Light," all players must immediately stop moving. They can freeze in their current position. If a player is caught still moving after "Red Light" is called, they return to the starting line. The game continues with the leader alternating between "Green Light" and "Red Light." Due to stormy weather, the students played this game inside and moved around the classroom. The students noted that no official penalty occurred when they or others moved at inappropriate times.

The next game introduced was Freeze Dance. Freeze Dance is a lively and interactive musical game that combines music, movement, creative expression, and impulse control. When the music starts, the students dance and move to the beat. When the music stops, they must immediately "freeze" in whatever position. They should hold that position until the music starts again. The researcher observed which students demonstrate impulse control to stop their bodies when the music stops.

The last game introduced was the Bubble game. During this game, the researcher blew soap bubbles around the children; in the first round, the students were instructed to pop the bubbles as they approached them. The children enjoyed popping the bubbles. In the next round, the students were instructed to sit still, letting the bubbles float freely without disturbing them.

This task took a great deal of impulse control. In the final round, the students were allowed to pop the bubbles again. Qualitative data was collected. (Appendix C)

Daily Observations of Individual Behavior

I documented any positive and negative behavior during the school day on the individual student's ability to self-regulate as observed by the research guide or the co-guide. The observations included lunchtime, playscape time, and transition times. The behaviors included walking to the playscape without pushing and waiting in line to wash hands without shoving others. I recorded general and specific events and details. (Appendix D)

Daily Reflections on Self-Regulation Collectively

I recorded daily reflections at the end of the school day on the collective classroom culture and the development of self-regulation skills among the student body. Some of the reflections answered these questions: How is self-regulation demonstrated? What are some examples of self-regulated behavior in the classroom? How does individual student regulation affect the classroom as a whole? Which Grace and Courtesy lessons need to be presented or re-presented? (Appendix E)

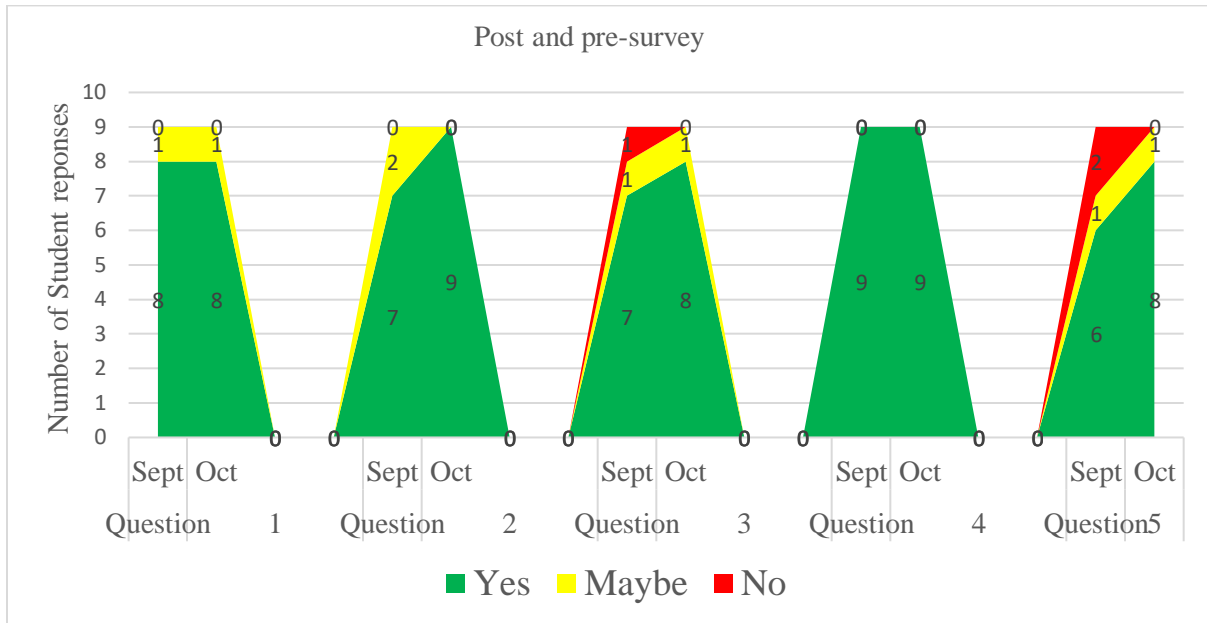
In weeks two through six, I presented the intervention games and activities daily during the class group time. The games aimed to develop and practice listening skills, impulse control, working memory, following directions, and turn-taking. Each week, the researcher presented a different game to the students. They played the game daily, giving them multiple opportunities to practice it. These games were Simon Says, Red-Light Green Light, Freeze Dance, and Bubble Game. During the sixth week, the researcher administered the student post-survey.

Data Analysis

During the project, the researcher presented a student survey, two daily observations of regulated or dysregulated behavior during the morning work cycle, overall daily observations of the nine students, and daily reflections on developing classroom regulation skills. This information was used to identify how the older students felt about their individual regulation skills, get a week one baseline of regulated behavior during morning work time, and track behavior over the time of the project. The students were presented with a self-survey during the first week of the study and again at the end of the research study. The data in Figure 1 shows the view of their self-regulation skills. Most students viewed their self-regulation skills positively in both surveys. The post-survey showed an increase in the students' yes or maybe answers from the pre-survey. This could indicate an increase in self-regulation or self-awareness. It could also indicate more confidence in answering the survey questions. These surveys were presented individually to each of the nine students.

Figure 1

Student Survey



I completed two eight-minute observations each morning during the morning work cycle. During the observations, I tracked four components of self-regulation of the nine targeted students: the child is on-task, can self-regulate behavior, disturbs others, and needs support to self-regulate. The first week of the research project was the baseline for behavior. The intervention games and activities began in week two. Figure 1 shows the weekly totals of the four categories for all nine students included in the survey.

Figure 2
Self-regulation Observed During the Morning Work Cycle

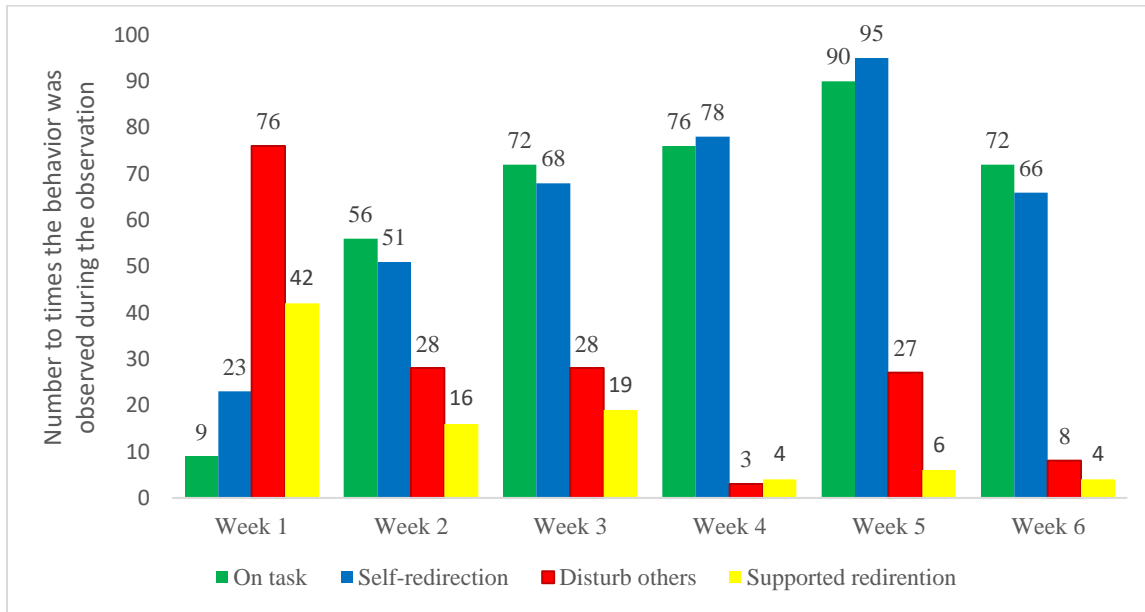
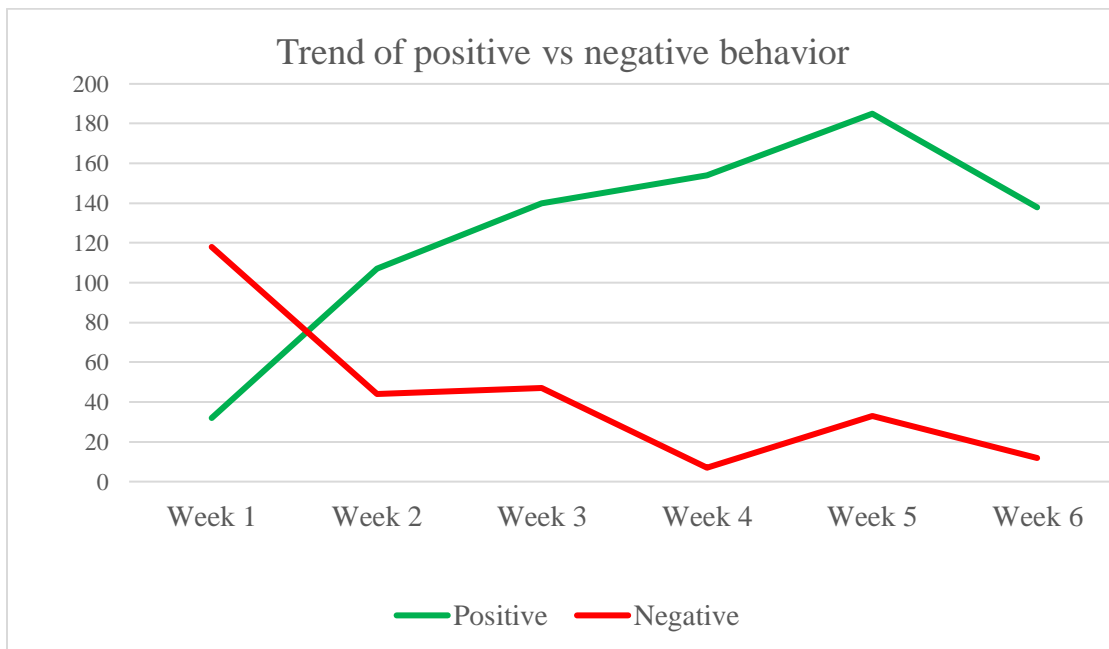


Figure 3
Positive and Negative Trend Line Throughout the Study



The negative behaviors decreased, and positive behaviors increased. It is indicated in Figure 2 that the total negative behaviors; disturbs others and needs supported redirection

decreased while the positive behaviors; on task and self-regulated behaviors increased during the six weeks of the research. The data also supports the positive trend of each of the nine individual students. During the observation, I tallied the individual behaviors; some behaviors were seen and recorded multiple times per observation period. Figure 3 shows the trend of the negative behavior decreasing throughout the study and the positive behavior increasing. Week five shows a high increase of positive behavior and a decrease in negative behavior, and then it goes back up in week 6.

Figure 4a
Daily Reflection Notes of Dysregulated Behavior

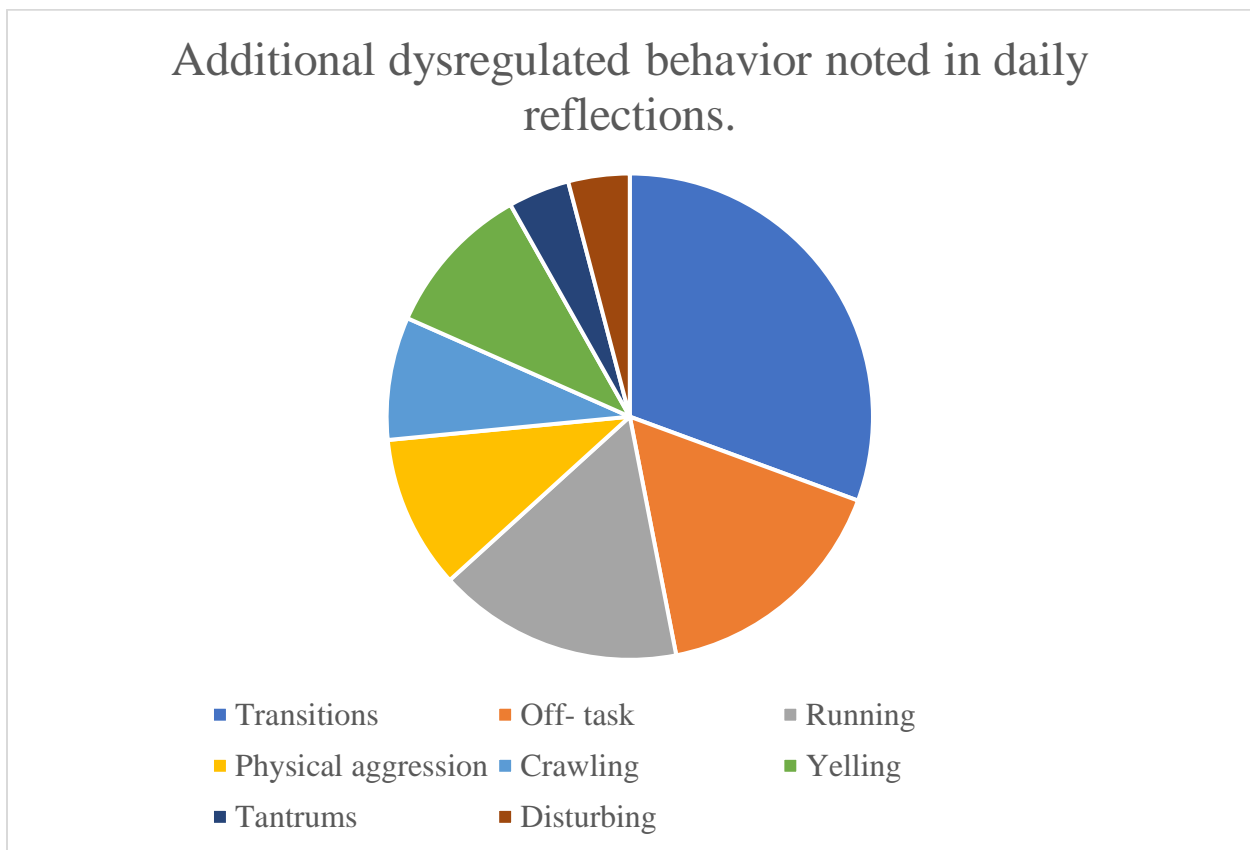
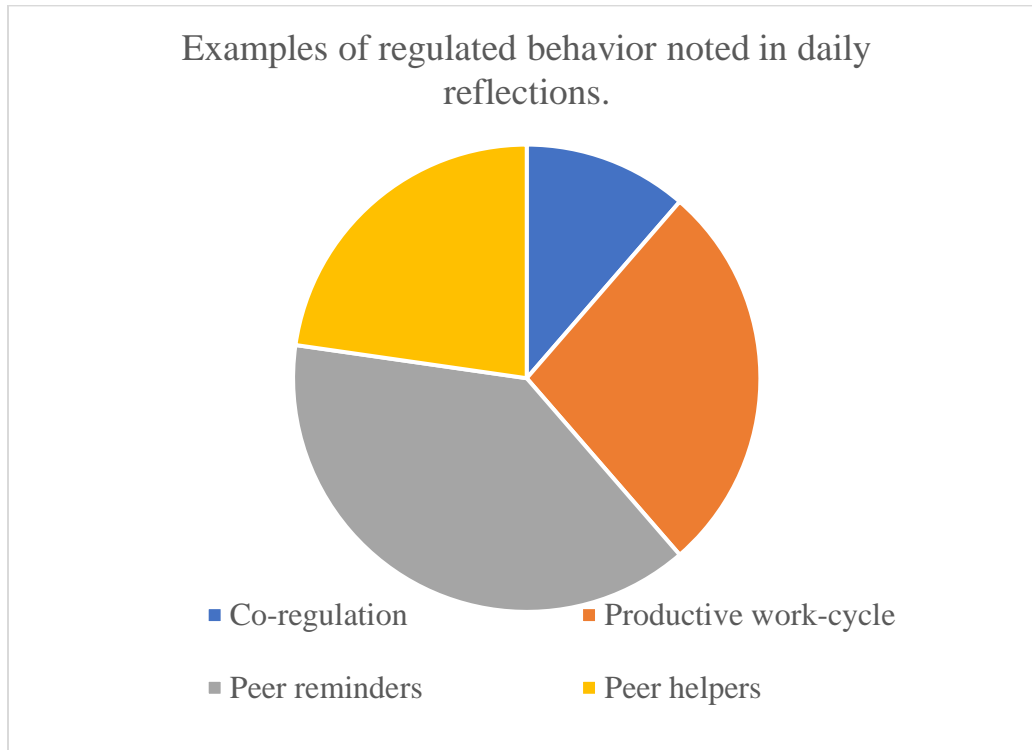


Figure 4b
Daily Reflection Notes of Regulated Behavior



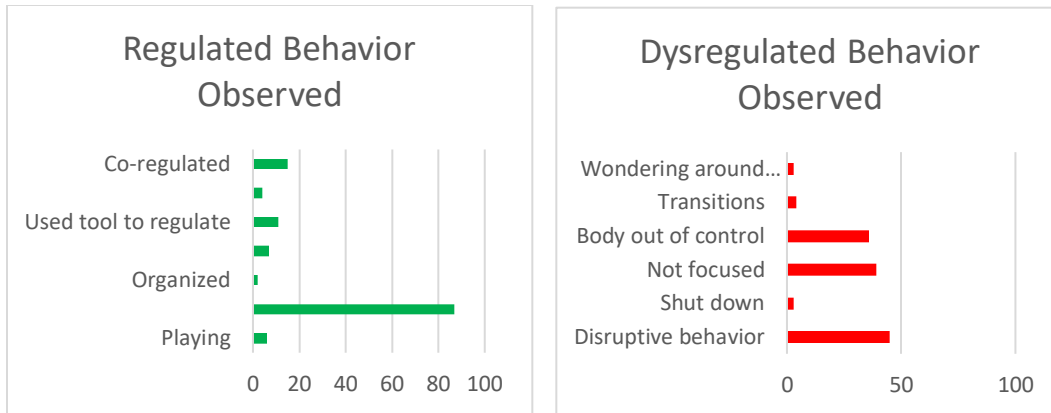
Each day, I recorded daily reflections. During the end-of-day reflections, I wrote three sentences summarizing how self-regulation or dysregulation affected the classroom. These were negative and positive examples of re-occurring themes from the researcher's daily notes. Figures 4a and 4b correlate with the number of times the behavior was noted in the daily notes. The researcher also observed the nine individual students during transitions, group time, lunchtime, and morning and afternoon work cycles, noting various components of self-regulation. Many of the same vital themes were re-occurring in the observational notes. There were, however, some new themes to develop when looking at the researcher's observation notes.

At various times, I noted that two students working together supported each other in the regulation process. It was observed that the students matched behavior, energy levels, or focus to

keep themselves regulated. Interestingly, this happens organically with different pairs of students and work materials. I note that one student gave a new lesson or showed a student how to do a new work. Both students were observed as focused and engaged with the material, both together and individually. They were often seen working together, taking breaks, and returning to work together.

Another observation that came up in the notes frequently was focus and engagement in the materials or work at hand. The more the engagement, the more the student's behavior was regulated. This often supported the student's organization. When the student's work was organized either by the student or a classroom guide, and when the student's body was regulated, the student was better able to focus and attend to the task. The more unregulated the body, the more the organization and focus on the work would suffer, creating a vicious cycle. The observations noted that when students felt they had worked hard and focused on their work, they would say things like, "I am proud of myself." "I stayed focused." "I worked hard on that work." With increased focus, concentration, and purposeful work, the students were kinder, willing to help others, and proud of their accomplishments. Figure 5 shows the regulated and dysregulated behavior observed throughout the classroom study.

Figure 5
Observations of Regulated and Dysregulated Behavior



The goal to support the development of self-regulation skills in these nine classroom students was successful in this research project. The dysregulated behaviors decreased, and the self-regulated behaviors increased collectively for each student. This is important in the classroom community where the older students are the role models and leaders of the classroom, modeling behavior and expectations for their peers and younger students.

Action Plan

This research project answered the question: “Can games and activities develop self-regulation in children?” The project improved the self-regulation of each student in the study in the areas measured and improved the overall functionality of the class by increasing time on task and self-awareness of the students. The students became aware of their bodies while dysregulated, disturbing others, or not working. This awareness resulted in a decrease of adult redirection and reminders of these students during the work cycle. These students recognized this regulation in others and learned to give gentle reminders and support to classmates. Even though the focus was on the nine older students in the classroom, all the students reaped the benefits.

The activities gave the students practice with various executive function skills. These are everyday activities that were implemented in the classroom environment. Certain children found some of the games more difficult than others, making the variety important. Since the project's conclusion, the students continued to ask to play the games. Interestingly, during the bubble game, students pretended to be statues during the non-popping portion. This adaption gave them a focus other than just popping or not popping the bubbles. It, in essence, became a game of "Who can be a statue?". This variation was something the students created and organically emerged from the game. It also showed the behavior as developmental. Across the board, the youngest students, the three-year-olds to four-and-a-half-year old, could not stop their bodies from popping the bubbles. They seemed to be trying, and their words indicated they understood the objective, but their bodies could not stop the impulse.

The normalization process through which children develop self-discipline, inner peace, and a love of learning would develop along the same timeline as this research: the first six weeks of the school year. It is a state of being where a child can concentrate, work independently, and

exhibit a sense of order and self-control. This process is supported in the Montessori classroom: the prepared environment, choice of work, supported concentration and focus, order and structure, and grace and courtesy. This process could also contribute to increasing self-regulation in this early childhood classroom, especially during the beginning of the school year when the students are learning the classroom expectations. It would be interesting to repeat this research later in the school year to determine how normalization affects self-regulation.

Self-regulation during transition times continues to be difficult for these students. It would be advantageous to develop ways to support these children during line-up time or when traveling from place to place in a group. The biggest challenge was putting hands on each other and standing near each other without bodies bumping or touching. When doing this project again, I would create a train and move through the space without the "cars," their bodies colliding. Perhaps creating a path that they have to work together to move through. The other obstacle that transitions cause is having to wait. Waiting is difficult, but we have multiple opportunities to practice in the Montessori classrooms. A game with a waiting component would also be practical to implement. Research indicates variety and repetition are essential in learning and retaining information, and they can be beneficial in developing these regulation skills.

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Cengage.

Appendix A

Student Survey

	Pre Name:	Date:	 yes	 maybe	 no
1.	I can stand in line safely.				
2.	I listen during group time.				
3.	I keep my hands to myself.				
4.	I carry and use my work safely.				
5.	I work without disturbing my friends who are working.				

	Post Name:	Date:	 yes	 maybe	 no
1.	I can stand in line safely.				
2.	I listen during group time.				
3.	I keep my hands to myself.				
4.	I carry and use my work safely.				
5.	I work without disturbing my friends who are working.				

Appendix B

Daily Tally Sheet

Date:

Observations are to be done for two 8-minute period in the morning work time.

Children	Disturb the work of others	On task behavior	Able to self-regulate- able to gain control of body and emotions independently	Not able to self-regulate- needs support to gain control of body and emotions
C1				
C2				
C3				
C4				
C5				
C6				
C7				
C8				
C9				

Appendix C

Weekly Observations of group games and activities.

*Participation, accuracy, and ability to control body. Choosing 2 students per day complete observation of each student per week.

Week _____

1.	2.	3.
4.	5.	6.
7.	8.	9.

Appendix D

Daily Observations on disruptive behavior and students' ability to self-regulate.

Date _____

1.	2.	3.
4.	5.	6.
7.	8.	9.

Appendix E**Daily Reflection-** 3 sentences to describe events that effect the classroom culture.

Week _____

Monday-
Tuesday-
Wednesday-
Thursday-
Friday-