The Influence of Autonomy-Supporting Teaching Strategies on Intrinsic

Motivation in Relation to Pro-Social Behaviors in a Montessori Primary Classroom

By

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ABSTRACT When students behave pro-socially for extrinsic reasons, the results tend to be short-term and likely in need of constant reinforcement. However, teachers struggle with developing practical alternative strategies to effectively intrinsically motivate students. In this study, autonomy-supporting interventions such as acknowledging feelings, giving intrinsic rationales, using a peace table, conducting class meetings, and practicing teacher mindfulness were implemented in a Montessori primary classroom to observe how they can promote intrinsically motivated pro-social behaviors. Measures were taken before and after interventions in order to detect changes in interest, independence, and intrinsic motivation with these behaviors: rug/art mat use, clean up, self-control, and problem solving. These changes were analyzed using parent and teacher surveys, child interviews, observational checklists, a teacher journal, and observations. The results showed general increases in interest and independence, however not all were significant. Self-control and intrinsic motivation had the most significant improvements. The results suggest that the interventions could potentially provide teachers with ways to intrinsically motivate behaviors. It is concluded that more time, experience, strategies, and teacher internalization may be needed.

Introduction

Developing intrinsic motivation is an important goal in the Montessori classroom. Many of the strategies built into the Montessori Method support the child's inner drive for learning. These include: discreet assessment built into the materials and lessons, freedom to repeat activities, a balance of freedom and responsibility, and access to resources provided by mixed-aged peers. However, children may sometimes need additional strategies to develop an inner motivation, especially when it comes to pro-social behaviors and interpersonal conflicts. My research has been set up to explore how intrinsic motivation is developed in children ages 3-6 with a focus on how to encourage pro-social behaviors for intrinsic reasons.

Intrinsic and Extrinsic Motivation Defined

Intrinsic motivation can be defined as "acting volitionally to satisfy one's own needs while being attuned to and concerned about the social surround" (Deci, Vallerand, Pelletier, & Ryan, 1991, p. 326). An intrinsically motivated person engages in activities that interest them, and they do so freely, without the need for material rewards or constraints (Deci et al., 1991). Intrinsic motivation is the yearning to partake in an activity simply for the pleasure of that activity (Carlton & Winsler, 1998).

In contrast to intrinsic motivation, extrinsically motivated behaviors are performed for external reasons, such as praise or reward (Carlton & Winsler, 1998). There are different degrees of extrinsic behaviors (Deci et al., 1991). This means that we can identify progress towards intrinsic motivation, while at the same time, further expand and verify what qualifies for extrinsic motivation. The four different levels are described below:

- *External Regulation*. This is what usually comes to mind when someone thinks about extrinsic motivation. This is making changes to oneself based on obvious external controls. For example, someone not motivated to learn a certain concept might do it because he or she will get a sticker.

- *Introjected Regulation*. The different types get more and more discreet from here. This type is about changing a behavior, but not doing it on one's own. An example is going to class because if you did not, you would feel like a bad person.

- *Identified regulation*. This means the person has come to value the change and accept it even though it did not come from within. Doing extra credit for a class because he or she wanted to continue to succeed at school is an example. The person is not doing the extra credit because he or she actually wants to or finds it engaging, but it is something useful in working towards a goal.

- *Integrated regulation*. This is the most advanced type of external motivation. Here a person assimilates the behaviors with his or her values, needs and identities. For example, getting good grades because you consider yourself "a good student". It is similar to when adults tell a child he or she should do something because he or she is a "good boy/girl" (Deci et al., 1991).

How Intrinsic Motivation is Measured

How can one tell if another is intrinsically motivated? This is a difficult question to answer since intrinsic motivation is, by its nature, an internal process (Deci et al., 1991). One common way that studies have measured it is by recording how long a person chooses to

engage in an activity during a free choice period (Deci, Eghrari, Patrick, & Leone, 1994;

Koestner, Ryan, Bernieri, & Holt, 1994). The idea is that if someone chooses the activity over

others when there are no other pressuring circumstances involved, the person is internally

motivated to do the activity (Deci et al., 1994). Another way intrinsic motivation is measured is

by asking the participants about their attitudes towards an activity (Deci et al., 1994; Koestner

et al., 1994; Reeve, Nix & Hamm, 2003). Participants might answer that he or she enjoyed an

activity and may indicate why he or she chose to do it. However, it has been shown that

measuring interest and excitement is a more accurate assessment than enjoyment of an activity

(Koestner et al., 1994). This is because if a person enjoys something, they may not be

intrinsically motivated (Koestner et al., 1994). It was fun to do, but they don't really want to do

it again.

Assessing young children's intrinsic motivation is even more difficult because it may not

be easy for them to answer how much they were really interested in something. One solution is

an emotion scale measure (Koestner et al., 1994). This is a scale of faces displaying different

emotions on a continuum (Koestner et al., 1994). Young children can choose a face to represent

a feeling in answer to a question.

In another study, the researchers looked for behaviors that could be observed while a

person is doing an activity in order to indicate whether he or she is intrinsically motivated

(Reeve & Nix, 1997). They made hypotheses' about what behaviors might be indicators and

then recorded how many times or how long that behavior happened. These observations were

then aligned with the results on a participant questionnaire as well as a free choice period. The

study concluded that how long the participant looked at what he or she was working on, how

many pieces of the activity were engaged, how many different manipulations of the pieces were attempted, and how fast the participants' hands were moving correlated to intrinsic motivation.

Effects of Rewards

In the 1970's, there was a surge in research on intrinsic motivation. The first studies looked at how the traditional view of behaviorism—that behaviors need to either be reinforced or not reinforced to create changes—might be creating unintended effects (Eisenberger & Cameron, 1996). One of the effects was how rewards might be detrimental to intrinsic motivation. Researchers concluded that tangible rewards, such as money, had negative effects on internal motivation (Deci, 1971).

From a meta-analysis written later, detrimental effects were also found for rewards when they were expected, given for an activity that was already of interest, given in a controlling manner, and contingent on performance (Deci, Koestner & Ryan, 1999). Several studies were done in response to these findings in order to defend rewards. These studies agreed that rewards used to coerce are not effective, but there are proper ways to apply them (Eisenberger & Cameron, 1996). However, many of these findings come from a behaviorist perspective and argue that understanding the philosophy of behaviorism is required to support these findings (Eisenberger & Cameron, 1996).

Self-Determination Theory

An alternative philosophy presented by those that saw rewards as harmful is self-determination theory. Actions are self-determined when they are engaged in "wholly volitionally and endorsed by one's sense of self" (Deci et al., 1991, p. 326). The theory also presents three inherent needs of human beings: competence, relatedness, and autonomy (Deci et al., 1991). The outcome of self-determined behaviors is choice; the outcome of externally controlled behaviors is compliance (Deci et al., 1991).

Autonomy

While self-determination theory covers the three needs of relatedness, competency, and autonomy, for my research I narrowed my focus on autonomy. It is important to realize that strategies that meet one need usually also increase the likelihood of another need being met (Deci et al., 1991). Furthermore, these needs are interwoven and sometimes in order to see improvements two or more of the needs are required to be met together (Reeve et al., 2003).

Autonomy relates to actions that are freely self-originating and self-regulating (Deci et al., 1991). An autonomous person prefers to have control over what is going on in the environment and personal responses (Carlton & Winsler, 1998). These actions exude a sense of ownership from the individual (Reeve & Jang, 2006). Other aspects of autonomy are: possessing independent problem solving skills, taking initiative, and demonstrating the ability to make decisions (Deci et al., 1994).

When one thinks of promoting autonomy, choice also usually comes into mind. Possessing perceived choice is closely tied to what is considered autonomous action (Reeve & Jang, 2006). However in one study, researchers concluded that possessing an internal locus and volition indicated self-determination, while perceived choice did not (Reeve et al., 2003). In the experiment, college students were set-up to teach each other how to solve a puzzle. Three different experiments were set up to test the individual effects of internal locus, volition, and perceived choice. After the experiments, a questionnaire was administered to identify the level of self-determination and intrinsic motivation of both the student and the teacher roles. Measures were also taken of displays of autonomy-supportive behavior by the designated teacher. It was found that intrinsic motivation is best supported by providing action choices (e.g., work methods, pace, and effort), not by simply choosing among options.

Examining the role that structure plays in an autonomy-supported setting is also important. Structure in the classroom is different than control. Structure is defined as giving clear directions, instructive feedback, and strong guidance during lessons (Jang, Reeve, & Deci, 2010). Structure needs to be well-timed and given when it is most needed (Jang et al., 2010). It is shown that teachers that use autonomy along with structure, rather than autonomy by itself, are able to better engage students (Jang et al., 2010). Providing structure within autonomy supports students' independence and perceived control. Additionally, teachers who just provided structure without autonomy support did not engage the students as much as they could.

How Autonomy is Supported

Rather than viewing autonomy through the narrow scope of providing choice, there is a multitude of ways in which to encourage autonomous actions. One could look at how one approaches a situation from either a controlling or informational style (Deci et al., 1991; Koestner et al., 1994). When someone feels controlled, it weakens his or her feeling of autonomy (Deci et al., 1991). When one is being controlling, he or she is pressuring the other to "think, act, feel, or behave in a specific way" as opposed to cultivating inner motivational resources (Reeve, 2009, p. 160). There are many reasons why teachers use controlling methods and these reasons can be broken down into 3 categories: pressures from above (e.g., administrators), below (e.g., students), and within (e.g., teacher beliefs) (Reeve, 2009).

This idea of pressures from within relates to an important way that teachers can support autonomy. When a teacher is able to empower him or herself, the teacher is less likely to exhibit controlling behaviors on her students (Doppler-Bourassa, Harkins, & Mehta, 2008). The teacher is encouraged to be mindful of what causes controlling behaviors and how beneficial it is to become less controlling (Reeve, 2009). He or she should also find ways to develop their own inner peace and become less reactive, more patient (Janke & Peterson, 1999; Reeve, 2009). Finally, the teacher needs to be aware of what skills he or she needs to develop in order to create less stressful relationships and to be a model for students to follow (Grusec, 1991; Greene, Ablon, & Goring, 2003).

Another strategy that can increase autonomy is encouragement (Reeve & Jang, 2006). This is contrasted with the idea of praise to produce wanted behaviors. Encouragement is "statements that boost or sustain the student's engagement, such as 'Almost,' 'You're close,'

and 'You can do it.'" (p. 211) Praise is usually offered as a contingent reward and is used when a

student complies with a teacher's request. Examples are "You're smart" and "You are really

good at playing with blocks." (p. 211)

Adult inference also plays a role in autonomy. To influence behaviors, the teacher needs

to let the child make the change, the teacher cannot make them. If a child is feeling pressured

and not trusted that he or she is capable of making a change, pro-social behaviors are less likely

to happen (Doppler-Bourassa et al., 2008). In one study, researchers studied how different

parents encouraged pro-social behaviors in the home (Grusec, 1991). Surprisingly, the children

whose parents had no response to pro-social behaviors were the most pro-social (Grusec,

1991). It was thought that low key responses received the best results because they were

"independent of the child's actions" (Grusec, 1991, p. 342). In another study, the greater the

amount that the student spent talking was closely correlated to measures of autonomy (Reeve

& Jang, 2006). The researchers interpreted this as a way that teachers can identify what

motivates the students by giving them opportunities to voice their thoughts and feelings (Reeve

& Jang, 2006).

One may also wonder how intrinsic motivation can be maintained when there is a

conflict or a limit needs to be set. First, a teacher can acknowledge the feelings of the student

(Deci et al., 1994; Reeve et al., 2003; Koh & Frick, 2010). Second, the teacher can provide a

meaningful rationale for why he or she is requesting a certain behavior (Deci et al., 1994; Reeve

et al., 2003; Koh & Frick, 2010). A rationale is made meaningful when it is tied to intrinsic

reasons, specifically what inner motivational resources the student possesses (Reeve, 2009).

Conflict Resolution

Another significant way that teachers support autonomy during conflicts is using conflict resolution strategies. These are strategies that help students respectfully come to solutions to problems and to see alternatives to their current behaviors (Vestal & Jones, 2004). These techniques help students view mistakes made in the classroom as learning opportunities to improve skills (Koh & Frick, 2010). The strategies are also intrinsically motivating to students because such exercises give them a voice and meet their need to make decisions about what affects them (Koh & Frick, 2010). Ideally, conflict resolution is also taught in a way to support independence and encourage communication between students, without the need for a teacher (Bailey, 2000; Doppler-Bourassa et al., 2008).

There are several effective ways to approach conflict resolution. One way is to start out with calming practices (Janke & Peterson, 1999). This puts the brain in a clear place for problem solving. These practices include breathing exercises or a secluded place to provide time and space (Janke & Peterson, 1999; Gartrell, 2012). Then it is important for the participants to express their feelings and define what the problem is (Grusec, 1991; Janke & Peterson, 1999; Greene, 2011). Seeing the other person's viewpoint and taking this into account helps develop empathy (Greene, 2011). Adopting a view from another perspective is important for both teacher AND students to do (Greene, 2011). Then the children generate possible solutions to the problem (Janke & Peterson, 1999; Greene, 2011). These solutions need to come from the children in order for them to take ownership (Vestal & Jones, 2004). The participants then choose a solution and carry it out (Janke & Peterson, 1999). They should also follow up on decisions and celebrate progress (Janke & Peterson, 1999).

Class Meetings

Another technique for conflict resolution is implementing class meetings. Class meetings help children develop problem solving skills and build community (Potter & Davis, 2003). Class meetings are similar to conflict resolution between individual students; however, in this case, the entire class is involved. Class meetings are used when a problem is widespread in the environment or if a student needs help finding a solution to a problem (Nelsen, Erwin, & Duffy, 2007).

Steps of a class meeting can include: compliments and appreciations, problem solving, and planning activities (Nelsen et al., 2007). Students and teachers need to be taught skills in how to use assertive communication such as "I" statements and also how to show respect for different viewpoints (Janke & Peterson, 1999; Potter & Davis, 2003). An "I" statement usually follows this format: "I feel _____when you _____, and I wish _____" (Potter & Davis, 2003). Having a talking piece to signify who is currently talking is helpful (Janke & Peterson, 1999; Nelsen et al., 2007). These meetings should be non-confrontational by introducing problems as things you notice or wonder about (Janke & Peterson, 1999).

Mindfulness

Mindfulness is defined as "paying attention in a particular way; on purpose, in the present moment, and nonjudgmentally" (Roeser et al., 2012, p. 169). This can be related to the idea of teacher presence which means "being yourself while teaching" and making connections between personal strengths and the needs of the children (Meijer et al., 2008, p. 297). The goal

is to create effective teacher responses while obtaining personal fulfillment (Meijer et al.,

2008).

There are many reasons why including mindfulness and presence in teaching is

beneficial. Studies have shown that mindfulness practices lead to greater mindfulness and self

compassion with less stress, depression, and burnout (Gold et al., 2010; Roeser et al., 2012;

Roeser et al., 2013). Furthermore, mindfulness can help teachers make progress towards stated

goals (Gold et al., 2010). From these effects, it is expected that greater teacher well-being will

create better teacher-student relationships (Roeser et al., 2012). In turn, these relationships will

lead to an increase in student engagement and motivation (Roeser et al., 2012).

Several strategies can be used to reach greater mindfulness and presence. These

include: yoga, journals, and meditation (Roeser et al., 2012; Roeser et al., 2013). A teacher can

aspire to breathe and take a moment before reacting, acknowledge his or her own feelings as

well as the feelings of the students, and model to the students mindful practices (Bailey, 2000;

Roeser et al., 2013). The teacher can also develop by becoming aware of his or her qualities as

well as underlying beliefs, feelings, and wants (Meijer, 2009). This allows the teacher to identify

obstacles in the way of becoming his or her true self while teaching (Meijer, 2009).

Montessori Perspective

One of the main goals of the Montessori Method is to create an environment that

fosters intrinsic motivation for learning in the classroom. Montessori observed that when her

students' needs were met and their development supported, rewards were rejected

(Montessori, 1966). Furthermore, autonomy plays a central role. Independence of the child is a

signal of a normalized child, which is the highest goal of a Montessori teacher (Grebennikov,

2005).

The Montessori classroom supports independence in several ways. First, a main part of

the Montessori curriculum is practical life. Here students learn to complete self-help activities

and to problem solve; they are also encouraged to try new things on their own (Woods, 2000).

The idea of autonomy as a need to control is also expressed in the Montessori classroom. Many

exercises in the Montessori environment provide opportunities for the children to practice

control of their own movements as well as take responsibility for their environment by keeping

it orderly (Woods, 2000).

The attitude of learning from one's mistakes is manifested in the Montessori

philosophy. Students are encouraged to keep practicing until it is sufficient (Montessori, 1966).

Mistakes are made obvious and natural so that students can self-correct (Polk Lillard, 1972).

The teacher also serves as model for growth. It is part of his or her role to be reflective and

evaluate his or her own actions as being productive or not (Huxel, 2013).

Another aspect of the Montessori philosophy supported by the research is freedom

within limits. Like the characteristics of an autonomy-supportive teacher, students are given

freedom to choose their own activities, when they would like to do them, for how long and

with whom (Montessori, 1966). The limits of their activity are the social norms (Montessori,

1964). This choice may also be taken away when it is not used responsibly (Koh & Frick, 2010).

Teacher interference is also reflected in the Montessori Method. In general, the teacher

is as hands-off as possible and gives the children space and time to master things on their own.

This quote by Maria Montessori sums up this attitude: "Make prudent observations and assist a

child by going up to or withdrawing from and by speaking or keeping silence in accordance with

his needs" (1967, p. 150).

The use of conflict resolution is also found in the Montessori philosophy. Peace tables

are included in many Montessori classrooms. The students use a talking piece, such as a flower,

to regulate who is talking and who is listening (Burnett, 2012). Students share their feelings and

viewpoints until an agreement is reached (Burnett, 2012).

Finally, the use of mindfulness practices is present in the Montessori Method.

Montessori teachers are expected to be reflective. Teachers are trained to be aware of his or

her qualities and what needs to be worked on (Montessori, 1966). The teacher spends time

objectively observing the children in order to notice details and what the true needs of the

children are (Standing, 1957).

Presence is achieved in Montessori environments through the allowance of

spontaneous activity and to keep in check the desire to over-control the activities (Standing,

1957; Montessori, 1966). The teacher is asked to be nonjudgmental by not becoming occupied

with his or her own and the children's mistakes and by freeing him or herself from prejudices

(Montessori, 1966). The teacher also practices mindfulness and Montessori pedagogy when he

or she is being calm, patient, humble, and restrains his or her impulses (Montessori, 1967). Not

letting emotions like anger and pride control you is a goal of the Montessori teacher

(Montessori, 1967).

Aims of the Study

Intrinsic motivation is participation in an activity that is freely chosen for reasons that are innately part of the activity. Extrinsic motivation is done for an external reason and can be manifested to different degrees. Intrinsic motivation can be measured through interviewing children (with adaptations for young children such as a visual scale), recording amount of free time participating in an activity, and observing behaviors.

Rewards are generally shown to be detrimental to intrinsic motivation and come from a behaviorism standpoint. An alternative is self-determination theory which views intrinsic motivation as meeting innate needs such as competence, relatedness, and autonomy. My research will focus on autonomy.

Autonomy is practiced when one is engaging in an activity one controls. Structure is correlated with improved benefits of autonomy-supportive environments. Choice is commonly associated with autonomy; however, just providing choices does not fully meet this need. Some other ways this can be done is: using an informational versus controlling approach, empowering teachers, providing encouragement, reducing teacher interference, acknowledging feelings, providing rationales, practicing conflict resolution, conducting class meetings, and honing mindfulness practices. The Montessori philosophy inherently incorporates many of these strategies.

As mentioned in the introduction, sometimes additional strategies are needed to access the full benefits of intrinsic motivation and autonomy. When I observed my class, I saw many behaviors that could be improved; however, I wanted students to make these improvements

based on intrinsic, not extrinsic reasons. I believe this will create longer lasting results that
promote internalization.

Overall, my research will aim to answer "How can I promote intrinsic motivation in the
Montessori primary classroom?" Specifically, using the results of previous research performed
on intrinsic motivation and autonomy, my research will explore:

- How can I help children to display pro-social behaviors/self-control based on intrinsic
  rather than extrinsic reasons?

- How can I help children to engage in learning and problem solving independently?

- How can I meet these goals for each individual student?

- How can one tell if a child is intrinsically motivated?

Methodology

Participants and Setting

Participants were twenty students (eight girls and twelve boys) from a private, primary
Montessori classroom in the Midwest. Of the twenty students, there were eight 3-year-olds,
nine 4-year-olds, and three 5-year-olds. Five of the students attended the school the previous
year while fifteen are first-time Montessori students. Three students left the class during the
study. Data was collected as long as possible for these students.

Six students from the class were examined in depth as part of a case study. These
included: one four-year-old boy who is in his first year of Montessori (Child 1), one four-year-
old girl who is in her second year (Child 2), one five-year-old girl in her first year (Child 3), one

three-year-old boy in his first year (Child 4), one five-year-old girl in her third year (Child 5), and one four-year-old boy in his second year (Child 6).

These case study students were chosen to create a balance among ages and genders. Students were also selected based on their need to work on their intrinsic motivation and independence. Finally, some students were chosen who were in the "lunch bunch" or full day Montessori program so there would be extra time to observe and discuss with them. A permission slip was signed by the parents to allow the child to participate (see Appendix A).

The classroom is part of the local school district's PreK program. Four-year-olds have the option of being part of this public program while being a student at a private school in the community. These students follow mostly the same curriculum as the Montessori Method with a couple extra requirements. The PreK program runs Tuesday through Friday. The teacher researcher is in the classroom from 7:50 a.m. to 1:15 p.m. Tuesday through Friday. Data is mostly collected during these times. Ten students are in the PreK program.

The classroom is located in a private preschool. The other classrooms at this preschool follow a traditional philosophy of education. The two teachers in the Montessori classroom have been or are in the process of being Montessori certified. The teacher researcher also has a teacher license through the state's Department of Instruction.

Intervention Procedures

Acknowledging Feelings.

One of the strategies implemented was acknowledging feelings. When the teacher explained a procedure or a limit was needed, the child's feelings were acknowledged. For example, the teacher might explain how sometimes cleaning up our work is difficult to do or comment that she understood that the student was so excited to move on to the next activity that he or she forgot to clean up.

Intrinsic Rationale.

Giving an intrinsic rationale usually accompanied acknowledging feelings. Once feelings were recognized, an intrinsic explanation of why the child was being asked to demonstrate the behavior was given. In the cleaning up example, the teacher would explain how cleaning up creates a beautiful classroom and gets the activity ready so another person can use it. The teacher also gave feedback to the students about how it feels good to take care of our things.

Peace Table.

Repeated demonstrations of how to use the peace table were given. The steps of the peace table included: taking a breath, using an "I" statement, finding a solution, and deciding on a solution. Use of the peace table was encouraged when a conflict arose.

Class meetings.

Class meetings were conducted on a weekly basis. In the beginning, the children learned about each skill related to how to do a class meeting. This included using a talking piece, breathing exercises, giving appreciations, using the problem solving steps, and using the solutions binder. Each week, the teacher would raise an issue that needed to be addressed in the classroom. Each student was given a chance to offer a solution to the issue. Solutions were recorded by the teacher and kept in a solutions binder. The students could use the binder to find solutions to problems that arose.

Mindfulness.

About halfway through the study, the teacher started participating in mindfulness exercises on a daily basis. Every morning, the teacher listened to a one-minute guided mediation before the children arrived. When possible, the teacher also did a longer guided meditation at home. Additionally, the teacher wrote in a mindfulness journal after every long meditation.

A notepad was also kept in the classroom. The teacher's phone was set to vibrate every twenty minutes. At this signal, the teacher was reminded to take a deep breath and record how she was feeling in the notepad. This practice was used to encourage awareness of breath and feelings. Finally, the teacher started taking a yoga class that meets on a weekly basis.

Measures

      Observations.

Unstructured observations were conducted with all students on a daily basis and recorded in an observation journal. These observations averaged about 15 minutes per day. The time and an objective observation were written down by the teacher. Most of the observations were done in the classroom during work time; however, some of the observations were completed outside or in the gym.

      Observational Checklists.

For some of the daily observations, an observational checklist was completed in order to analyze specific behaviors of all the students. This checklist included the child's name, what activity he or she was doing, who selected the activity (either the teacher or the student), whether or not the child used a rug or an art mat, whether or not the child cleaned up the activity, and a rating scale of the level of self-control and independence. For the rating scales, I used a 3-point Likert scale. A "1" was given for a low level of the behavior while a "3" demonstrated a high level of the behavior.

These behaviors were selected so that the data could be narrowed. Having consistent behaviors to make comparisons throughout the study helped the data become more reliable. The teacher researcher also focused on those behaviors when giving interventions.

Child Interviews.

The six case study children were the only children to participate in the interviews. The semi-structured interview included these questions:

1. What is a rule in the classroom? Why should we do that? Do you find it interesting/exciting to do that?

2. What if there is a problem in the classroom or the playground? What should we do? Why?

3. Do you find it interesting/exciting to solve problems using the peace table?

The third question and the last part of question one were presented as a rating scale. Students were given a 3-point scale. With each corresponding number, there was a drawing of a face (see Figure 1). The face that corresponded with "3" was described as "really interested". A "2" face was described as "kind of interested, but not a lot". The "1" face was described as "not interested". Students were asked to select a face that corresponded to his or her feelings in relation to the question after receiving a description of the emotion of each face.
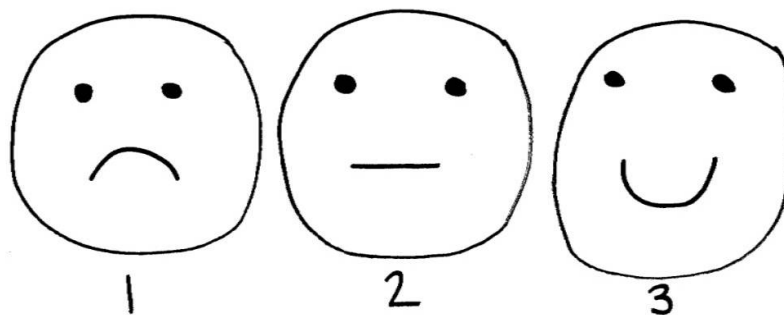
Figure 1. Likert scale used with child interviews.

Teacher Journal.

On a daily basis, a journal reflecting on the day was completed. The teacher researcher made general observations about the day as well as specific observations on progress or declines made by all students. Additionally, observations were made about behaviors related to using a rug/art mat, handling of the materials, and cleaning up in order to triangulate the data with the observational checklists.

Parent and Teacher Surveys.

At the beginning and end of the study, a survey was sent home to all the parents. This survey included a 5-point Likert rating scale with 5 items (see Appendix B). The 5 items were: my child is able to finish activities once he or she starts, my child is able to select activities on their own (as opposed to always needing someone there to be occupied or to choose for him or her), my child either seeks to or does things for themselves, my child is able to problem solve if there are conflicts, and my child is able to internalize norms such as being respectful and responsible (internalize means that he or she does it on their own, without much need for reminders. This is probably one of the most difficult one to rate; I am just wondering in general your perspective).

A "1" on the rating scale meant the child had not yet displayed the behavior. A "3" indicated the behavior was displayed half the time. A "5" meant the child frequently displayed this behavior. There were also several spaces for parents to include open-ended comments. This survey was also completed for each student by the teacher in order to triangulate the data.

Data was only collected on the parent surveys if the parent turned in both the pre- and post-intervention surveys.

Results

Qualitative

Inductive analysis was used with the qualitative data. The general observation notebook, child interviews, teacher journal, and teacher and parent open-ended comments from the survey were examined for changes. This involved identifying patterns and themes through the use of a coding scheme.

Subsequently, the data was connected to how it answered the research questions. Significant efforts were made to look for data that conflicted with the expected results. The last step was interpreting the data. Relationships, similarities, and contradictions in the data were noted.

Observations.

The observation notebook was analyzed and coded for positive or negative behaviors. The researcher only looked at the case study children in order to streamline and triangulate the large amount of data.

Child 1 had frequent occurrences of negative social behaviors before and after intervention. In relation to positive experiences, the child displayed behaviors of using positive

words during conflicts. However, throughout the study the child still struggled with hitting if the words didn't work.

Child 2 had many examples of positive social experiences and taking care of the classroom. The child only had one coded negative behavior pre-intervention with telling another child to go away when Child 2 was bothered. Child 2 did not have any observed negative experiences post-intervention.

Child 3 had many negative behaviors before and after intervention. However, the behaviors become milder and mostly related to needing a prompt to carry through with a positive behavior. One example of a positive behavior by Child 3 post-intervention was voluntarily helping to sweep up a mess that another classmate had made.

Child 4 had about an even number of positive and negative behaviors before and after intervention. Most negative behaviors stemmed from improper use of classroom materials— there were few negative social interactions. Furthermore, although there was some beginning evidence of concern about the behaviors of others pre-intervention, there was an increase of concern about others following rules and Child 4 became interested in using the solutions binder to solve conflicts post-intervention.

Child 5 had only positive observations. Evidence of internalization can be found in post-intervention behaviors of exclaiming "We need an art mat!" before the child works an art project with a classmate.

Child 6 had an increase in negative behaviors in the observation journal. This included running in the classroom and leaving work out. Child 6 had always shown concern for others when they get hurt in our class. This concern was demonstrated post-intervention as Child 6

asked about other students when they were gone and expressed interest in helping others

follow rules.

Child Interviews.

Responses to the question of why the child should follow a rule were coded as intrinsic

or extrinsic. The number of intrinsic answers pre-intervention (n=2) increased post-intervention

(n=5). The number of extrinsic answers pre-intervention (n=4) decreased post-intervention

(n=1). Responses to what the child should do if there was a conflict were coded as reliant on

the teacher or independent. The number of answers that relied on the teacher pre-intervention

(n=2) increased post-intervention (n=3). The number of answers that were independent pre-

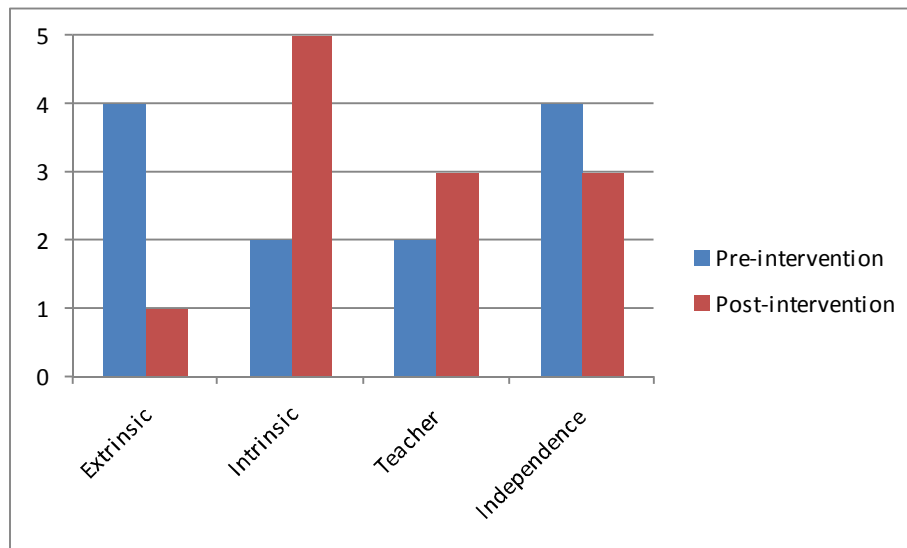intervention (n=4) decreased post-intervention (n=3).

Figure 2. Changes in total number of child interview responses by type.

Some examples of changes from extrinsic responses to intrinsic include: we shouldn't run because "the teacher tells us not to" changing into we shouldn't run because "it is dangerous, we could ruin someone's work and break it" by Child 3, we shouldn't fight "because" changing to we shouldn't run because it is "dangerous, we might slip" by Child 4, and we shouldn't run because "the teacher tells you to and you got to obey" changing to we shouldn't run because "it will distract and you could step on their work" by Child 5.

There was only one change in responses from independent to teacher reliant. Pre-intervention, Child 6 stated that the peace rose should be used to solve conflicts, while post-intervention the child stated that the teacher should be found during a conflict.

Teacher Journal.

The journal was first coded for the overall feeling of how the day went. The codes used were: "great", "OK", "not so good", and "chaotic". From the graph, "great" days and "not so good" days decreased and "chaotic" days increased, however "OK" days also increased.
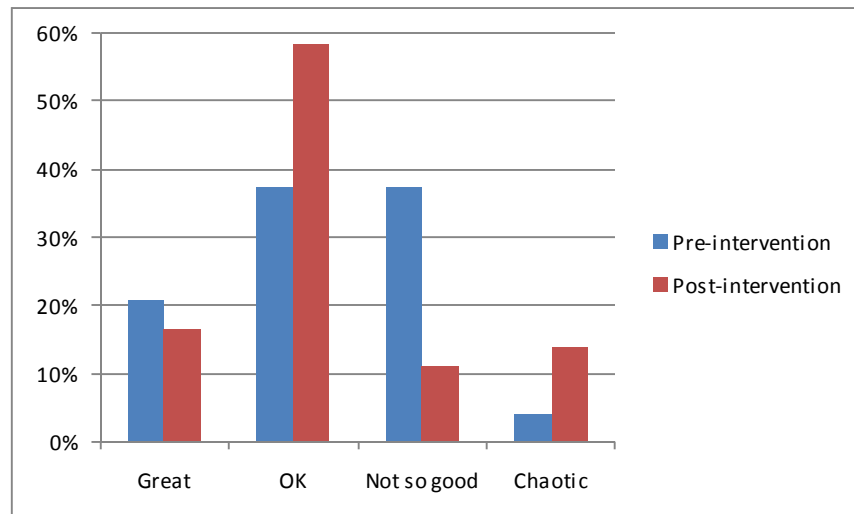

Figure 3. Change in percentage of total journal entries based on overall feeling.

The journal was also coded for use of these target behaviors: rug use, art mat use, and clean up. Each of these behaviors was coded as "good", "OK", and "not good" based on the quality that the class independently performed the behavior. This data didn't start being collected until after interventions started.

From Figure 4, we can see that rug use started out generally "not good", became a mix of "OK" and "good" and the last three weeks of data showed "good" rug use. The art mat use graph (Figure 5) shows that use was pretty variable in the beginning of the intervention and then started steadying out to "OK" and then "good" use for the last two weeks of data. Clean up data (Figure 6) was taken for a longer period of time and started out and held at "not good" for 11 weeks. Slowly clean up improved to an "OK" level and started becoming "good" in the last week of data.
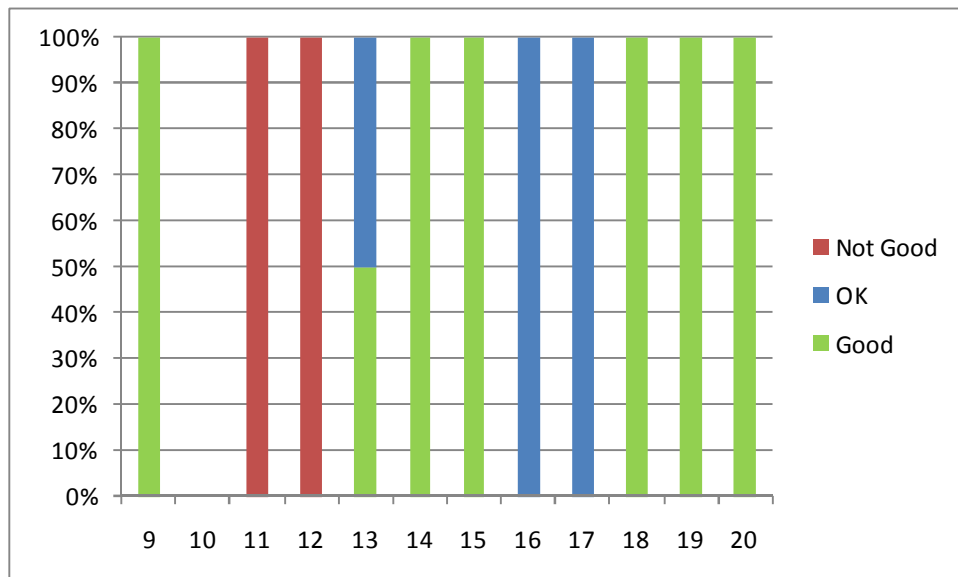

Figure 4. Percentage of journal entries based on quality of independent rug use by week.
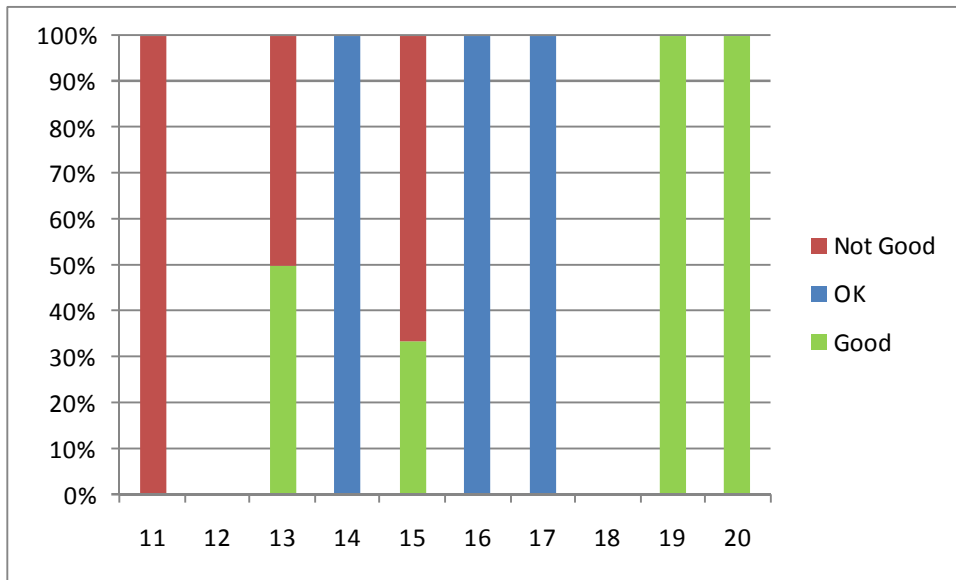
Figure 5. Percentage of journal entries based on quality of independent art mat use by week.
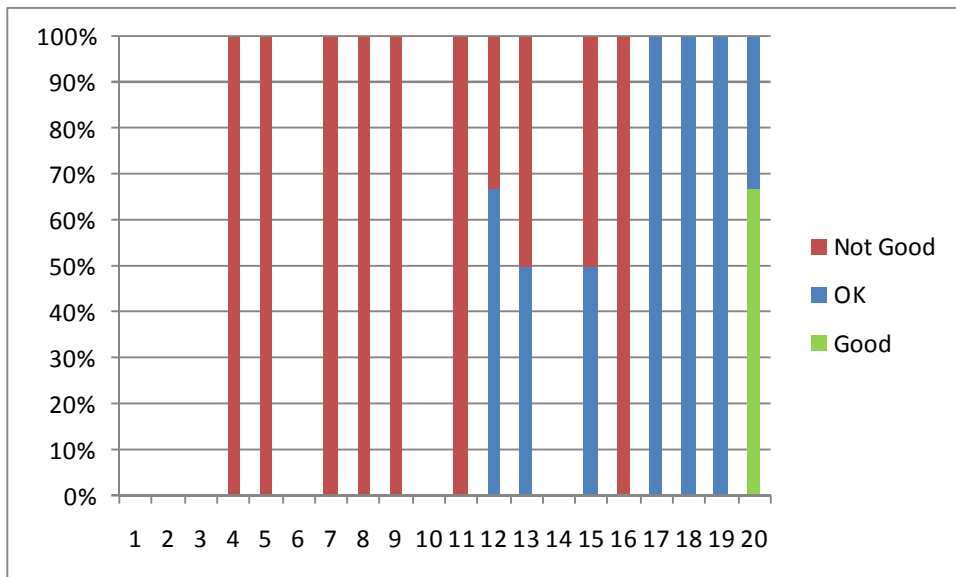

Figure 6. Percentage of journal entries based on quality of independent clean up by week.

Parent and Teacher Surveys.

The open-ended comments on these surveys were analyzed qualitatively. Comments were coded based on patterns in clean up, independence, and problem solving. Next, overall themes were determined based on changes between the pre- and post-intervention surveys. Data from the case study students was also analyzed in order to be triangulated.

In relation to clean up, most post-intervention comments expressed that the child was making progress, however there was still a need for reminders.

Some themes regarding independence included less frequent following around of the teacher during the work period and more students finding work and becoming focused independently. There were still about half of the students that required help with finding work and in need of making progress with focus. Other areas where a few students were struggling included: asking for help although the child was capable of helping himself and not wanting to try something that appeared difficult.

In the realm of problem solving, progress was a general theme of the post-intervention comments. Many students made improvements in patience, finding solutions, showing concern for respect and responsibility, and internalizing the peace table process. A major area of growth was voicing needs. In the beginning of the study, many students did not participate in solving a problem they were having. These students would avoid problem solving or ask the teacher to solve a problem for them. Post-intervention, students started improving these behaviors, especially with increased participation in class meetings. There were some problem solving skills that students were continuing to work on. Some issues were: telling others what to do

during problems, willingness to solve a problem, help with finding solutions, and not getting emotionally wrapped up in a conflict.

Child 1's comments only showed changes in being able to independently dress himself and voice his needs. However, the child still struggled with finding purposeful work and being respectful with his parents at home.

Child 2 had moved from following the teacher around without doing work to wanting to copy the activities the teacher does during work time. The child had also made progress in voicing her needs. Child 3 experienced fewer conflicts with other children and the teachers, but still had difficulty with a willingness to find solutions. This child had also improved her independence in cleaning up her lunch at lunch time.

Child 4's comments reveal growth in his concern of making sure others are being respectful and responsible, even though he sometimes struggled with doing it himself. Child 4 had improvements in independently navigating the work period, but sometimes got distracted. He had also improved his problem solving abilities, but did need help not getting excessively wrapped up in emotions, especially in conflicts with his sister.

Child 5 gained some confidence in voicing her needs during conflicts, but still required assistance. Finally, Child 6 had also made progress in vocalizing needs. He was also very keen on using the peace rose to solve conflicts, but got frustrated if the conflict did not worked out. Child 6 was working on dressing himself without needing reminders.

Quantitative

To evaluate from a quantitative angle, a one-group pretest-posttest design was used. The surveys, observation checklists, and child interviews were administered pre- and post-intervention. After collecting the beginning data, an experimental treatment was applied to the entire group. Data was regularly collected in the observation checklist format; however the surveys and interviews were only done twice—at the beginning and end. This allowed analysis of changes taking place.

This analysis was done with descriptive and inferential statistics. Descriptive statistics was used with the surveys, child interviews, and observational checklists. Since the surveys and some of the observational checklists and interviews used a Likert scale, the mean of the scores was calculated. A standard deviation was also calculated. A bar graph was used to represent the type of responses and behaviors before and after the treatment.

Inferential statistics was used with the surveys, child interviews, and observational checklists as well. A repeated-measures t-test was applied in order to make comparisons of the same group of children. The pre-test means were compared to the post-test means. A p-value was calculated to see if any differences were statistically significant.

Parent and Teacher Surveys.

There were increases in ability to finish activities and internalization for the teacher survey, but not the parent survey. Selecting activities, doing things independently, and problem solving had increases for both the parent and teacher surveys. These increases were statistically significant for the teacher survey, but not on the parent survey.

Table 1

Change in Means on the Parent and Teacher Rating Scale Categories and their Respective P-

Values

| Rating Scale Categories	Pre-intervention - Parent	Post-intervention- Parent	P value	Pre-intervention- Teacher	Post-intervention- Teacher	P value
My child is able to finish activities once he or she starts	4.1	4.1	1.0000	3.5	4.0	.0003
My child is able to select activities on their own	4.2	4.5	.0811	3.2	3.8	.0004
My child either seeks to or does things for themselves	4.1	4.6	.1038	3.1	3.7	.0007
My child is able to problem solve if there are conflicts	3.5	3.8	.5630	2.9	3.5	.0001
My child is able to internalize norms such as being respectful and responsible	3.9	3.9	1.0000	3.2	3.5	.0047
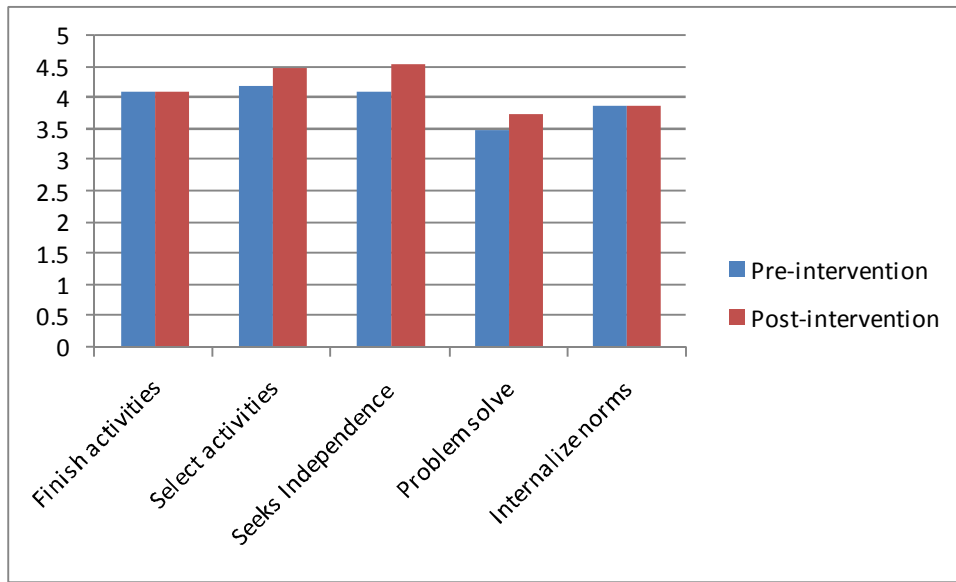
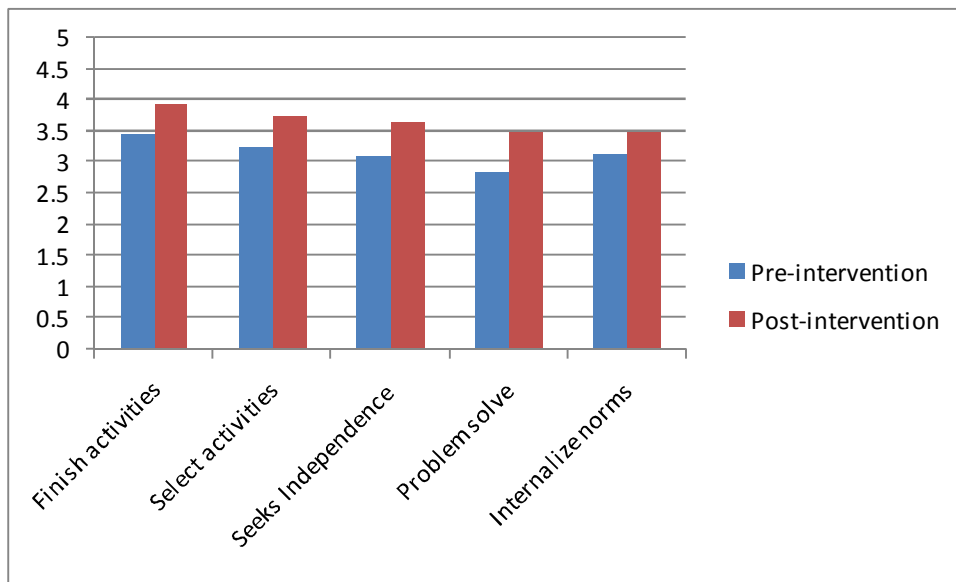*Figure 7*. Change in means for parent rating scale categories.

Figure 8. Change in means for teacher rating scale categories.

Children 3 and 6 had increases while Child 1 had a decrease in finishing activities. With

selecting activities and seeking independence, Children 2, 3, and 6 displayed growth in both.

Children 1 and 5 only went up in seeking independence. In problem solving, Children 1, 2, and 5

had increases, although Child 6 had an increased and decreased ratings. Finally, internalization

had raises in ratings with Children 1 and 6.

Table 2

Change in Means on the Teacher and Parent Rating Scale Categories for Case Study Children

Rating Scale Categories	Child 1		Child 2		Child 3		Child 4		Child 5		Child 6	
	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
My child is able to finish activities once he or she starts	3 (4)	3 (3)	4 (5)	4 (5)	3	4	3	3	4	4	3 (3)	3 (4)
My child is able to select activities on their own	3 (5)	3 (5)	3 (5)	4 (5)	3	4	3	3	4	5	3 (3)	3 (4)
My child either seeks to or does things for themselves	2 (5)	3 (5)	3 (5)	4 (5)	2	3	4	4	4	5	3 (3)	3 (4)
My child is able to problem solve if there are conflicts	3 (3)	4 (5)	3 (3)	4 (4)	2	2	3	3	3	4	3 (4)	4 (3)
My child is able to internalize norms such as being respectful and responsible	3 (4)	3 (5)	4 (4)	4 (4)	2	2	3	3	4	4	3 (4)	4 (4)

Note. Teacher rating scales are not in parenthesis and parent rating scales are in parenthesis.

T1 = Pre-intervention, T2 = Post-intervention.

Observational Checklists.

Observational checklists included a rating scale for self-control and independence. Who

selected the activity was translated into a "1" if it was teacher-selected and a "2" if it was child-

selected. For whether or not a child independently used a rug/art mat, a "1" was given for a

"yes" response and a "2" for a "no response. Clean up was a little trickier because it was more

variable. For example, sometimes a child would clean up most of the work, yet leave the rug on the floor. For these behaviors, a "1.5" was given. Like rug/art mat use, a "1" was used for a "yes" and "2" for a "no".

Self-control, use of a rug/art mat, clean up, and independence all increased, however only self-control had a statistically significant increase (p = .0007). Who selected the activity went from more child-selected to more teacher-selected; however, the change was not statistically significant (p = .4251).

The graph for daily self-control (see Figure 7) shows increases in these behaviors post-intervention. Children 1, 2, 4, and 6 also had increases in self-control. The daily means for selecting work do not show general progress (see Figure 8) and only Child 3 had an improvement. Use of a rug/art mat had a lot of variance, but appears to have a stable upward mean starting in February (see Figure 9). Children 2, 4, and 6 grew in this area.

Clean up also had a general pattern of variance in the beginning and a stable increase since February (see Figure 10). Children 3 and 4 improved on clean up. Independence on a daily basis does not seem to have a general increase or decrease (see Figure 11), but Children 1, 2, and 5 made improvements.

Table 3

Repeated measures t-test results for the observational checklist: Pre- and Post-Intervention

Means, and P-Values

Category	Pre-Intervention Mean	Post-Intervention Mean	P-Value
Self-control	2.23	2.78	.0007
Select activities	1.93	1.88	.4251
Use a rug/art mat	1.51	1.65	.372
Clean up	1.58	1.65	.4229
Independence	2.74	2.76	.7451
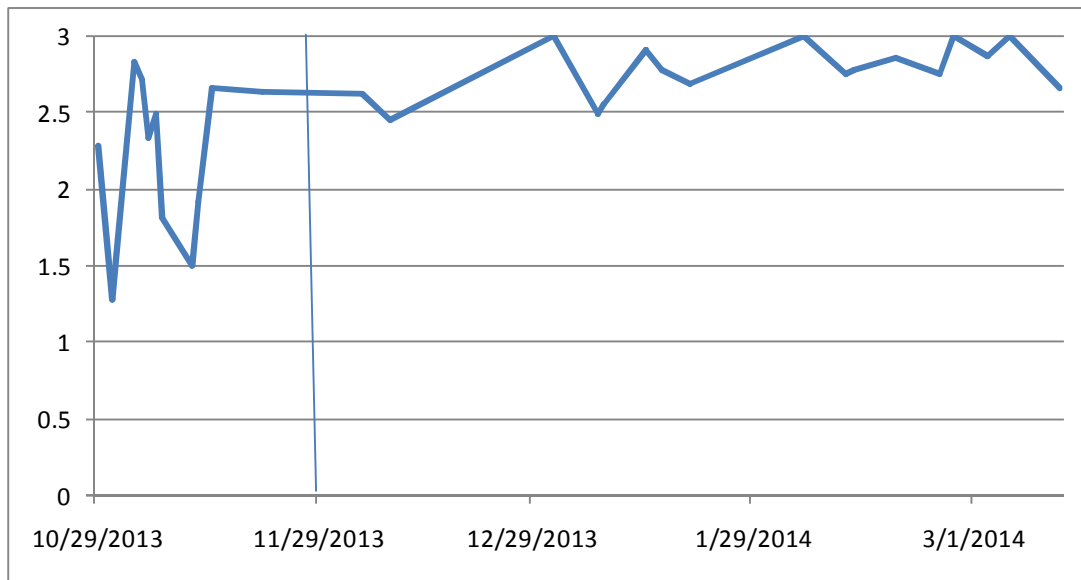
Figure 9. Daily means for self-control from the rating scale on the observation checklist with
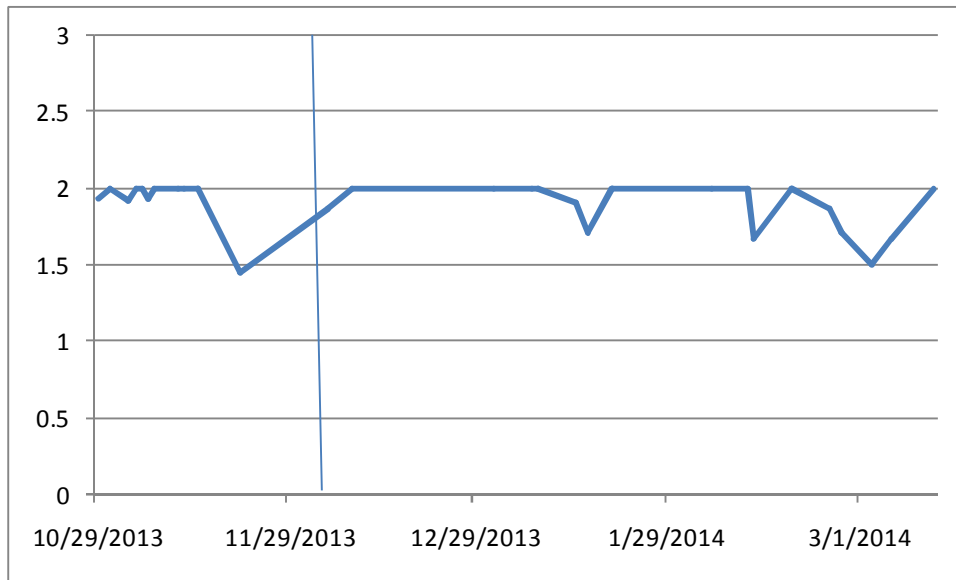
line dividing pre- and post-intervention values.

Figure 10. Daily means for selection of activities from the rating scale on the observation

checklist with line dividing pre- and post-intervention values.

Figure 11. Daily means for rug/art mat use from the rating scale on the observation checklist
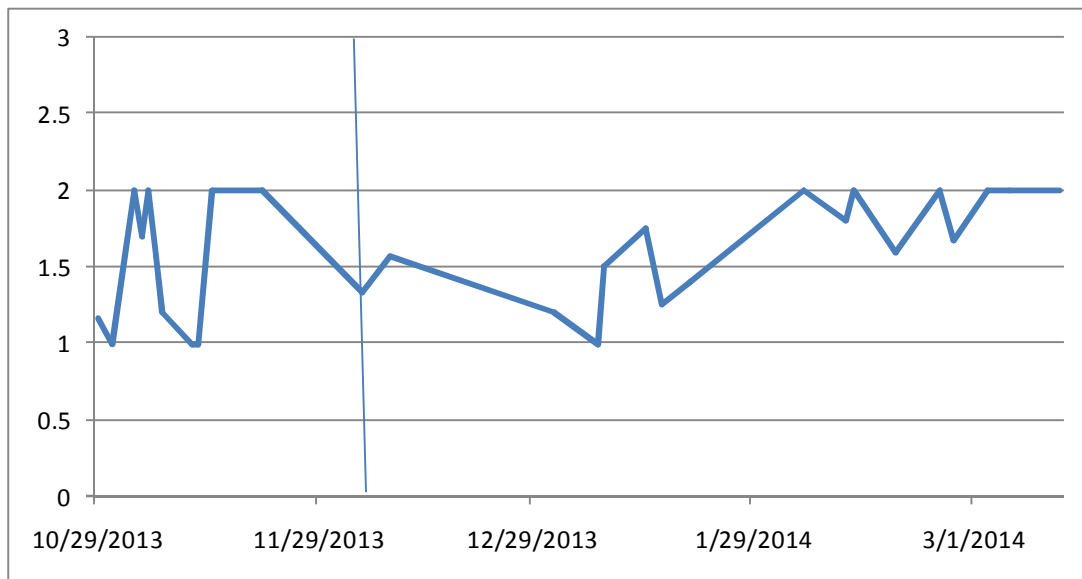
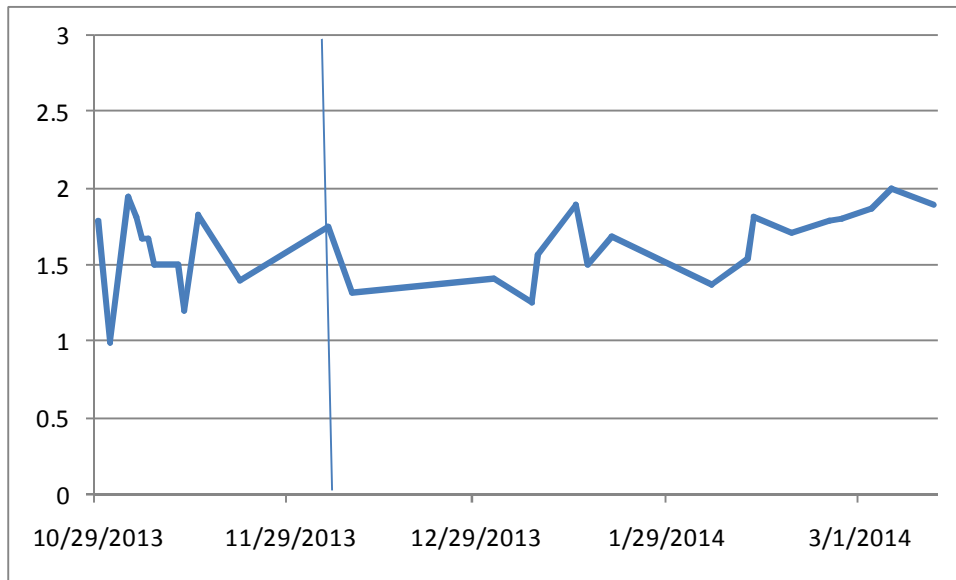with line dividing pre- and post-intervention values.

Figure 12. Daily means for clean up from the rating scale on the observation checklist with line

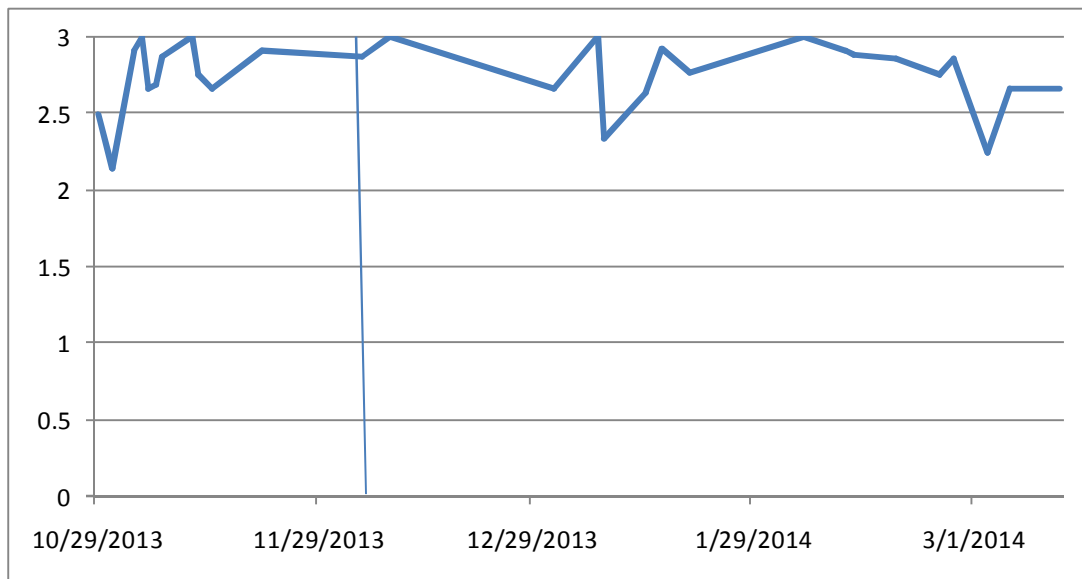dividing pre- and post-intervention values.

Figure 13. Daily means for independence from the rating scale on the observation checklist with

line dividing pre- and post-intervention values.

Table 4

Change in Means on the Observation Checklist Rating Scale Categories for Case Study Children

Category	Child 1		Child 2		Child 3		Child 4		Child 5		Child 6	
	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
Self-control	1.3	2.3	2.5	2.8	2.8	2.7	2.3	2.8	3.0	3.0	1.5	2.2
Select activities	2.0	1.8	2.0	1.8	1.8	2.0	2.0	1.9	2.0	2.0	2.0	1.9
Using a rug/art mat	1.5	1.5	1.5	2.0	1.7	1.0	1.3	1.5	2.0	2.0	1.2	1.7
Clean up	1.3	1.2	2.0	1.8	1.3	1.4	1.5	1.6	2.0	2.0	1.6	1.6
Independence	2.6	2.8	2.5	2.8	3.0	2.9	2.9	2.7	2.5	3	2.7	2.5

Note. T1 = pre-intervention, T2 = post-intervention.

Child Interviews.

After answering what a rule was in the classroom, the child selected what face

represented how interesting it was to follow that rule. The mean of these values stayed the

same from pre- to post-intervention, with Child 3 increasing and Child 4 decreasing. The second

Likert scale question asked how interesting the children found using the peace table. With this

question, the mean and Child 3 increased from pre- to post-intervention.

Table 5

Changes in Interest in Following a Rule, Means, and Standard Deviations from the Child

Interviews

	Pre-Intervention	Post-Intervention
Child 1	3	3
Child 2	3	3
Child 3	2	3
Child 4	3	2
Child 5	3	3
Child 6	3	3
Mean	2.8333	2.8333
Standard Deviation	.4082	.4082

Table 6

Changes in Interest in Using the Peace Table, Means, and Standard Deviations from the Child

Interviews

	Pre-intervention	Post-intervention
Child 1	2	2
Child 2	3	3
Child 3	1	3
Child 4	3	3
Child 5	3	3
Child 6	3	3
Mean	2.5	2.8333
Standard Deviation	.8367	.4082

Interpretation

Rug and Art Mat Use

Rug and art mat use was measured several ways in this study. It was recorded on the observational checklist and was noted in the teacher journal. From the observational checklist, rug use increased and is showing a trend of growth. However, the t-test indicated that it was not statistically significant. The checklist also demonstrated progress in half of the case study children. The journal showed steadily increasing and consistently good rug and art mat use the last few weeks of the study. Rug/art mat use improved for Children 2, 4, and 6.

Cleaning Up

Clean up was measured from the teacher survey and comments, observational checklists, and the journal. The teacher survey comments showed patterns of progress, but still a need for independence. The journal revealed patterns of progress, but growth was slow compared to other behaviors. The observational checklist also exposed an increase, but concluded that it was not statistically significant. Children 3 and 4 were the only case study children to improve on the survey and checklist. These results may be because the researcher put focus on rug and art mat use interventions first, and then moved to clean up.

Self-Control

The only measure of self-control was on the observational checklist. It was concluded that there was a very statistically significant increase along with four out of six case study

children improving. It is important to keep in mind that this rating was based on self-control

while the children were using materials and not while they were in between work.

Problem Solving

Problem solving measures came from the parent and teacher surveys and child

interviews. The comments from the surveys showed that about half the students made

progress with getting started and participating in problem solving on their own; however, when

engaged in conflict resolution many students were not independent and needed help to guide

them through.

The scales from the surveys displayed increases, which were significant for the teacher

survey, but not for the parent survey. The reason for this may be that the children have not

internalized enough to carry over to the home environment. The children may need more time

to do that.

From the child interviews, interest in using the peace table showed an increase,

however there was already a high reported interest in the peace table pre-intervention.

Students also reported less independent conflict resolution strategies from pre- to post-

intervention. This might be due to the arrival of a new student, who exhibited difficult

behaviors, in the middle of the study. Students might have had a hard time making

improvements in problem solving in a stressful environment. In the case study children,

improvements were verified by several sources of data for Children 1, 2, and 6.

Independence

Independence can be shown through most of the measures since doing something on one's own may be viewed as an indicator of intrinsic motivation. On the parent and teacher survey comments about half of the students made progress with independent behaviors; however, the other half of the class was still in need of help. The scales on the surveys revealed greater ability to find activities and exhibit independent behaviors, although this change was statistically significant on the teacher survey and not significant on the parent survey. The same reason may apply here as with the problem solving results.

Observational checklists showed a statistically insignificant increase in independence while working as well as an insignificant decrease in finding work. It is important to recognize that the teacher researcher identified receiving a lesson as a non-independent activity, although after reflection, it was noted that receiving a lesson does not necessarily mean that the child is not independent. Independence went up in several data sources for Children 2, 3, 4, and 5.

Intrinsic Motivation

Overall, all the behaviors noted are related to the concept of intrinsic motivation and how it is detected. A major way this was used was by indicating if a behavior was expressed independently after an intervention designed to encourage the behavior.

Another way intrinsic motivation was determined was through interest in the measured behaviors. From the child interviews, interest in following a rule and using the peace table for problem solving showed little to no difference from pre- to post-intervention. However, there

was an increase in the number of intrinsic reasons for following rules. Furthermore,

internalization of behaviors was evaluated. On both the parent and teacher surveys, there were

no significant changes.

Limitations

Conducting a study on human behavior, especially an internal aspect of human

behavior, can be very tricky. From the information in the literature review, finding evidence for

intrinsic motivation is limited to mostly physical or verbal displays of interest. Figuring this out

for very young children is also a hurdle because students may not have the ability to express or

understand this interest. One indication could be if a child does something on his or her own,

without a reminder. However, this does not eliminate more subtle influences such as the need

to please the adult.

There are some ways to help with these obstacles even if they cannot be altogether

eliminated. This includes having a variety of data to cover the various aspects of intrinsic

motivation. Another concept is time. By its nature, intrinsic motivation takes time to establish.

Its strategies are not intended to be quick fixes; however, the gradual improvements are

expected to be firm and long term. While there was a variety of data in this study, data over

greater time is needed to really tell if students did or did not become intrinsically motivated. In

the length of this study, it is quite possible that a child may be influenced, but needed more

time to really internalize the motivation.

This carries into another limitation of the study: teacher internalization. Not only do the

concepts need to be internalized by the students, but how well the teacher internalizes can be

an influence. As evidenced in the teacher researcher's journal, there was a struggle to deal with

the pressures from above, below, and within and to become less controlling. This lead to

difficultly with engaging in the implementation strategies and it was felt that this may be

influencing the interventions effectiveness. This was a major reason why the strategy of

mindfulness was included. As a result, it is recommended that teachers develop strategies to

internalize the intrinsic concepts he or she hopes the children will develop. Lack of teacher

experience and knowledge may also play a role.

There are also limits that come with participating in action research—when a teacher

researches his or her own classroom. First, there is the possibility of bias. Second, there are so

many variables that can influence how classroom behaviors result. Compared to a laboratory

experiment, action research makes it difficult to pinpoint what variables are influencing.

Furthermore, it may be difficult to tell if an intervention might be successful, but there are

other variables that cannot be eliminated that are decreasing its effectiveness.

One of these possible variables was a new student that came into the class one month

after interventions began. This student displayed severe, difficult behaviors. As a result, a lot of

time and energy was placed into making this student successful in the classroom. It also

resulted in other students having concern for safety and a comfortable learning environment.

Following Maslow's hierarchy of needs, it could be said that it made it difficult for students to

reach intrinsic reasons for their behavior when more basic needs were being threatened

(McLeod, 2007). This also influenced the decision to included mindfulness to reduce teacher

stress and burnout in order to effectively address intrinsic motivation in the classroom.

This leads to the possibility that the interventions might have been working for the class before this student's arrival, but there was not enough time to fully assess the effectiveness. After the new student arrived, different interventions were needed and this change disrupted the continuity of the interventions planned for the study. It is recommended that additional strategies or approaches may be needed with a class that has severe behavior needs. Furthermore, the fact that the class had 4 different students that either left or joined the class after the study started could be influencing the accuracy of the data.

Reflection

Participating in action research has been quite the learning experience. Although I started doing research last year as part of the requirements for renewing my teaching license, this year has brought me much more understanding and growth. First, I have gained so much insight from completing a literature review. Reading many research papers about the subject of intrinsic motivation has given me knowledge about how research is presented as well as a solid base on the topic.

Second, I have grown in my understanding about the complications of research on human behavior. While reading research, I had to figure out how to interpret what the papers value was to me as a preschool teacher. Many of the papers were in laboratory settings and I had a hard time figuring out how I was going to apply the findings to my real world teaching on a day-to-day, interaction-to-interaction basis.

I also realized how difficult it is to create a valid research study. I struggled with how I was going to find consistency in my qualitative observations and bring objectiveness to my

ratings. I caught myself wondering if my interpretation was really accurate and if I really used

the same criteria to evaluate over time. I would like to find ways to make this less of a factor.

Third, the research experience has impacted my teaching. Although my research is over,

I still aim to use acknowledging feelings and giving intrinsic rationales whenever I am giving

limits to children. I also still try to meditate and remember to stop and breathe on a daily basis.

Class meetings and the peace table are also still in use. Even though I struggle with fully

integrating these concepts into my teaching in the most effective manner, I feel it is a good step

towards where I aim to bring my teaching. I hope to continue to use action research to continue

the growth of my teaching skills and evaluating their effectiveness.

From here, there are also many things that I will explore further in my future teaching.

Like I mentioned above, I plan on practically applying the results as much as possible. I have

been observing another Montessori school and speaking with the lead teacher about how she

effectively creates intrinsic motivation in her classroom. I plan to continue these observations

for the rest of the school year. It is my hope that I can have a better understanding of how to

apply the interventions practically and not just theoretically.

I also plan on working towards alleviating problems that may be preventing effective

results. I feel that there were many limitations of the results of my study. Not all can be

eliminated, but I plan on continuing to practice the interventions to gain more experience in

how they operate. I also feel that starting my interventions in the beginning of the school year

next year will give me the greater time that intrinsic motivation requires and will yield greater

results.

Finally, I see the need to find ways to properly analyze qualitative data. It was something I struggled with during the study and since I have been a Montessori teacher. Observation is a hallmark of the Montessori classroom and while I have made improvements in incorporating observation time into my day, I am not always sure what to do with the all the information and what it really indicates. I plan to continue researching how this can be done.

Summary

Overall, the data expressed that the autonomy-supporting interventions may have increased many intrinsic behaviors, but not all were significant. Participation rates for rug and art mat use, clean up, problem solving, and independence increased somewhat. Self-control and intrinsic motivation showed a significant increase. There seems to be indications that there will be continued increase in data trends. Students also seem aware of why to intrinsically engage in a behavior, but have not fully internalized it and are still in need of reminders and assistance. As a result, the interventions may create some improvements in intrinsically motivated behaviors such as independent rug and art mat use, clean up, problem solving, and self-control. However, more time, experience, strategies, and teacher internalization may be needed.

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Appendix A
Parent Consent Letter

October 22, 2013

Dear _____ families,

As you may know, I am in the process of renewing my teaching license as well as completing my Master's Degree in Montessori Education. As part of the requirements, I am implementing an action research project. For my project, I am focusing on how to increase intrinsic motivation and independence in children, specifically in a classroom management context. I plan on collecting data in our classroom to guide my research and show effectiveness of certain strategies. I am asking for you and your child's participation in this research.

My research will include: observations, journal entries, pictures/videos, and interviews related to your child's participation in the classroom as well as a parent survey. Observation, journal entries, and pictures/videos are already things that I regularly do as a teacher and will not interfere with the normal activities of the classroom. I plan on interviewing several students at the beginning and end of the project about activities in our classroom and motivation. These will last about 10 minutes each. The parent survey I will send out soon after this letter. The survey will ask you to evaluate your child in various aspects of motivation: concentration, challenge, and independence. I will also send out a survey at the end of the project, about February or March.

From this information, I hope to gain many insights about the functions of motivation and independence in a Montessori classroom. The data will also help me understand your own child's personality and figure out ways that I can best enhance his/her intrinsic motivation. This is a topic that has always been of great interest to me and I am excited to see what the outcome of my research will be. Your participation is much appreciated and, upon request, I am happy to share the results with you.

If you or your child chooses not to participate, there will be no penalty. It will not affect the treatment of your child in our classroom. Your child's participation will be voluntary and he/she is free to withdraw from participation at any time without suffering any ramifications. You child's name will not be used in the report of my research; a pseudonym may be used.

If you have any questions concerning this study or your child's participation in this study, please feel free to let me know.

Sincerely,
Gena Gohr

Please sign and return this letter as soon as possible.

By signing below, I give consent for my child to participate in the above-referenced study.

Parent's Name: _____ Child's Name:_____

Parent's Signature:_____

Appendix B

Parent and Teacher Survey

Below is a survey that I mentioned in the parent letter. The only purpose of the survey is to gather information and to see if strategies I implement create improvements. It is helpful for you to answer as honestly as possible. I will also send the survey out again around February or March to observe growth. Providing this information would be much appreciated! If you have any questions, let me know!

Thank you,

       Gena Gohr

Please circle a number for each answer. Below each statement is a space to include any examples or things you notice in regard to that category.

	1	2	3	4	5
	Not yet		Half the time		Frequently

Concentration

My child is able to finish activities once he or she starts.

             1   2   3   4   5

_____

_____

_____

_____

Challenge

My child is able to select activities on their own. (As opposed to always needing someone there to be occupied or to choose for him or her).

             1   2   3   4   5

_____

_____

_____

_____

Independence
My child either seeks to or does things for themselves.

                                                                    1   2   3   4   5

My child is able to problem solve if there are conflicts.

                                                                    1   2   3   4   5

My child is able to internalize norms such as being respectful and responsible (Internalize means that he or she does it on their own, without much need for reminders. This is probably one of the most difficult ones to rate; I am just wondering in general your perspective).

                                                                    1   2   3   4   5

_____

_____

_____

_____