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# Bridging the Developmental Gap in the Montessori Toddler Classroom

An Action Research Report  
By Tama D'Angelo

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An Action Research Report  
By Tama D'Angelo

Submitted on December 9, 2013  
In fulfillment of final requirements for the MAED degree  
St. Catherine University  
St. Paul, Minnesota

Advisor \_\_\_\_\_

Date \_\_\_\_\_

## Abstract

The purpose of this research was to determine if the introduction of more developmentally appropriate materials and activities into the toddler classroom would create a more stimulating environment for the older toddlers, increase student engagement, and decrease disruptive behavior. Observations were carried out prior to the introduction of new work and after new work was implemented. This study was conducted in a toddler classroom at a private Montessori school. Children and teachers from the toddler classroom and three early childhood classrooms were included in this project. The results indicated that the older toddlers were more engaged and less disruptive after the introduction of new challenging work into the environment. However, this research was conducted early in the school year and the process of normalization likely impacted the results. Therefore, it is recommended that further research be conducted later in the school year.

At the end of my third year in a Montessori toddler classroom, I began to notice a pattern emerging. I was recognizing the difference in behaviors between the younger toddlers in the classroom and the older toddlers. More specifically, the older toddlers, those closer to age three, appeared to be less engaged as the school year progressed and more disruptive to the calm and peaceful classroom community. My attempts at re-direction were often ineffective and it became apparent that these children had become disinterested and under-stimulated with the environment in which they worked; I observed a huge developmental difference among them. Moving the older toddlers into the early childhood classrooms mid-year is not generally an option at my school as this has the potential to disrupt an already “normalized” classroom and increase their tendency to become overwhelmed. Additionally, these children may miss the opportunity to be leaders and mentors in the classroom if moved too soon. Therefore, it was important for me to address these developmental differences by designing and maintaining an environment that fits the needs of all the children in my classroom.

Maria Montessori (1995) identified four stages, or ‘periods of growth’, that children pass through from birth to maturity. Children, within each stage, have different characteristics and needs, and therefore require an appropriate environment for optimal development to occur. Each stage lays the foundation for the next stage, with the first stage being critical. This foundational first stage occurs from birth to six years and within this stage there are two sub-phases; birth to age three and age three to age six. It is the developmental overlap at age three that was of most interest to me and my classroom environment.

From birth to age six children's development can be thought of as the *construction of self*. This early childhood stage is characterized by concrete thinking, construction of the physical person, formation of character, and physical independence. Montessori called the child's mind during this stage, *the absorbent mind*, in which the mind is absorbing all that is in the environment. From birth to age three, learning is done unconsciously and effortlessly through observation and exploration. However, around age three the mind begins to absorb information consciously and the formation of intelligence is well underway (Montessori, 1995; Standing, 1998).

The developmental differences I have observed in my classroom are supported by Montessori's research and child development theory. However, I also wanted to address the classroom environment and look at characteristics that would ensure its conduciveness to each child's development. Haskins (2012) has identified specific characteristics of a prepared Montessori environment that nurture a child's development. These characteristics include order, organization, and accessibility; these qualities encourage independence. Beauty and simplicity in the environment invite exploration and respectful handling of the materials. Specifically designed learning materials and reality-based furnishings encourage purposeful work that fosters concentration and coordination. Ideally, the prepared environment includes an extension to the outdoors. This provides children a connection to the natural world and helps them to develop a love and respect for nature. A strong sense of community and peace in the environment promote respectful behavior, peaceful conflict resolution, and compassion. The ultimate purpose of the prepared environment is to "nurture and reveal the child's potential" (Haskins, 2012). Lillard (2007) also supports the importance of these characteristics in

her book, *Montessori: The Science Behind the Genius*, and reinforces the idea of purposeful work that Montessori often refers to.

There are several routine situations that take place in a Montessori classroom that produce meaningful behavior (Epstein 2012-13). However, children who find no meaning or purpose in their work are less able to concentrate and tend to be more distracting to classmates and to misuse materials (Lillard, 2007). Maria Montessori believed that, “The first essential, for the child’s development, is concentration. It lays the whole basis for his character and social behavior.” (as cited in Epstein, 2012-13). Considering the characteristics listed above coupled with my past observations, it seems clear that not only was the level of concentration beginning to decrease among the older students in my classroom, but also it could be attributed to the lack of purposeful work in the environment.

Before I designed a more developmentally appropriate environment for the older students, I wanted to observe the behavior of students individually and their interactions with other students. I also wanted to discover better methods of combining toddler and early childhood materials and activities, thereby creating hybrid versions that were both inviting and challenging, but not overwhelming. While my past observations in the classroom revealed disruptions and boredom, it was also noted that as children approached the age of three, there was much more collaborative and imaginary play amongst them. My thought was that by adopting work that fosters this kind of social development, it may help children channel their somewhat chaotic behavior into a more productive outlet.

The American Montessori Society (2013) has made available a list of recommended materials and activities for both a toddler classroom and an early childhood classroom. Since the ages for these classrooms overlap, it seemed significant to consider both. Utilizing this information along with my review of literature and the observation carried out in my classroom and the early childhood classrooms, it should be possible to design a suitable combination of developmentally appropriate work that intrigues the older children and improves the overall atmosphere in the classroom.

To my knowledge there has not been specific research done that addresses the developmental differences of children in a toddler classroom and how these differences affect their behavior, concentration and overall experience in their environment. The goal for my research project was to determine if providing more developmentally appropriate materials and activities will keep the older children engaged throughout the school year, better prepare them as they enter the next sub-phase of development, and help maintain a calm and peaceful classroom community.

My research project was carried out in a private Montessori school in Park City, UT. This school consists of two toddler classrooms which include children from 15 months to 3 years of age; three early childhood classrooms which include children from 3 years to 6 years of age; and a lower elementary classroom and upper elementary classroom which includes first through sixth grade. Children and teachers from both the toddler classrooms and early childhood classrooms were included in this project.



## Description of Research Process

Prior to any observations carried out in the classroom, I determined which children would be turning three years old within the first six months of the school year. These children were the focus group for my observations. My initial observations in the toddler classroom began on September 3, 2013 and concluded on September 20, 2013. Six children were observed four times each during this time period. I conducted a total of 24 observations lasting approximately 30 minutes each. Data collection techniques for these observations included: (1) observation form documenting work cycle activity, (2) observation form documenting disruptive behavior and its length of time, (3) narratives to summarize each observation.

Work cycle activity data included seven sections and separated the child's work cycle into distinct steps (Appendix A). This allowed me to distinguish if and when children were moving off-task and not completing a work cycle. The brief description of work chosen and level of work choice helped me identify what type of work children were choosing and helped reveal whether or not the level of work choice was associated with disruptive behavior. The 'level of work choice' was given one of three ratings: simple, appropriate, and challenging. The ratings were based on my current understanding of the materials and their developmental aim. However, the ratings were applied to each child separately and took into consideration my personal view regarding the child's development. For example, a certain puzzle might be simple for one child to complete, but challenging for another due to the individual's fine motor development. Furthermore, since most of the children in my study were returning students, I felt that

my past observations of their work choices allowed me to understand their specific capabilities.

The observation form for disruptive behavior included a brief description of behavior such as running, throwing work, abandoning work, taking another's work, shouting, and hitting; a record of the total time behavior was observed; and a notation on whether or not redirection was required (Appendix B). By comparing this data to the work cycle activity data I was able to determine whether disruptive behavior or time off-task was associated with work choice.

The narratives were generally written right after the class period ended. However, the work period was filmed each day and used as a reference in some instances. Narratives included my overall opinion of the observation and also documented the child's apparent disposition and level of concentration.

Prior to the second round of observations, survey forms were given to five early childhood teachers. Each teacher was instructed to focus on the youngest students in her classroom and particularly on students that had been in my toddler classroom the prior year. The survey forms included four questions to help better understand the behavior of the younger children and their work cycle activity (Appendix C). These surveys were also used to help determine what work to implement in my classroom prior to the second round of observations. Interviews were performed with each teacher to clarify any information and gather additional input.

The results from the teacher surveys and interviews, photos of work in the early childhood classrooms, as well as additional research on developmentally appropriate materials for children of toddler age obtained from the American Montessori Society

(2013) website were used as a resource for creating and improving a set of challenging work that was made available to the older children in my classroom from October 7, 2013-October 31, 2013. The set of work included the following: (1) a cultural basket containing various items relating to North America such as laminated photographs, Native American dolls, a small rug, a rain stick, and a dream catcher, indigenous animal figurines, and a simple puzzle of the North American continent, (2) a full set of brown prisms and pink cubes with the extension of a project book containing three photos of simple designs utilizing these materials that children could use to build and match to, (3) a challenging magnetic insect puzzle, (4) a Russian nesting doll—complete with five figures, (5) a tray containing the book, *Freight Train*, and individual felt pieces cut into the shape of the freight cars and used to build the train depicted in the book, (6) *letter box one* containing the sandpaper letters s, m, t, a, and corresponding objects for each, (7) a leaf rubbing art project, and (8) an enhanced baby washing work.

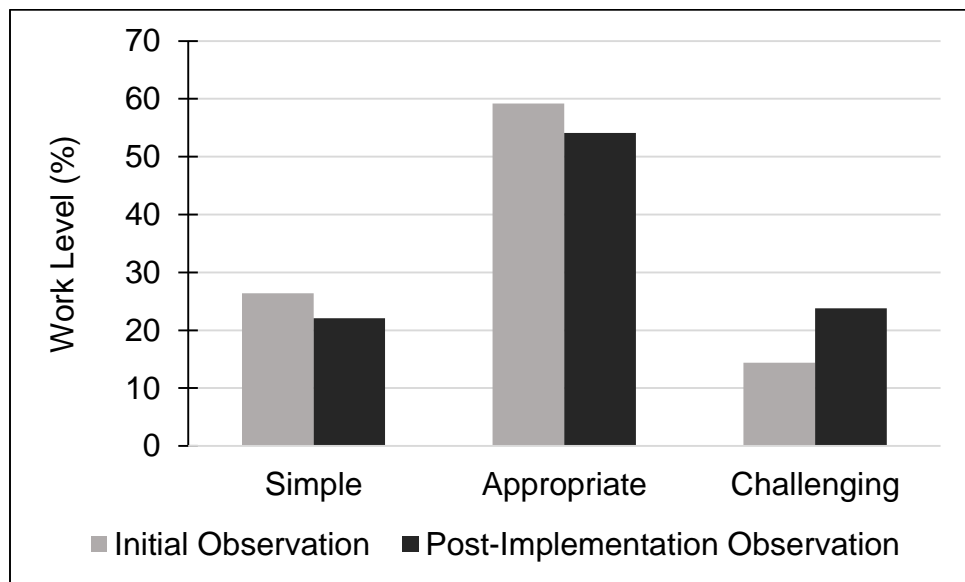
Through my surveys, interviews and additional research I came up with several ideas for new challenging work, but wanted to limit the selection to only one or two new materials in each area of the classroom. I did not want the younger children to feel overwhelmed and I still wanted to maintain a ‘toddler’ atmosphere. The specific works were chosen primarily because they each included several pieces, required multiple steps to complete, and engaged the use of multiple senses and fine motor skills. Furthermore, these were materials only found in the early childhood classrooms or typically scaled down in the toddler classroom.

Post-implementation observations began on October 14, 2013 and concluded on October 31, 2013. The same data collection techniques used in the initial observation

period were also used during this time, with special focus on how the new materials were being utilized by the children. Additional notes were taken regarding the behavior of the younger children in the classroom and how they were affected by the new challenging work placed within their environment.

### Analysis of Data

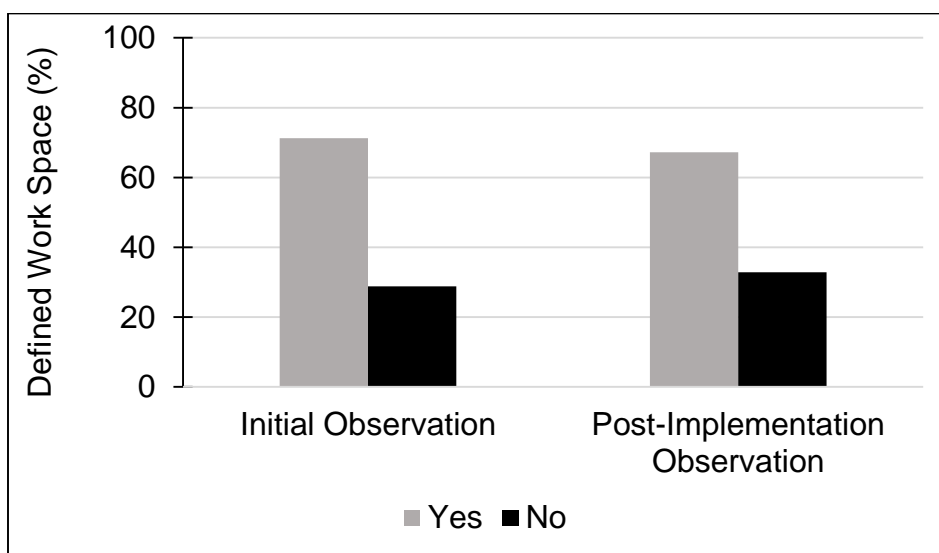
Beginning with the observational baseline data I collected in September, I determined that the total number of work cycles attempted and/or completed was 125. I subsequently divided each work into one of three categories: simple, appropriate, and challenging. The total number of work cycles attempted and/or completed from observational data collected after implementation was 122 and divided into identical work level categories. The difference in level of work chosen between the two observational periods is shown in figure 1.



*Figure 1.* Percentage of work level choice during the initial observation and post-implementation periods.

The data suggests that, overall, children began selecting more challenging work, but that simple and appropriate work choices were still relevant. This could mean two things. (1) The amount of challenging work available to children increased, while the number of simple and appropriate work choices decreased during the post-implementation period and (2) During the first observational period, normalization was still being established and the children were less likely to have received lessons on the challenging work, which is usually done individually as opposed to being presented to a group during circle. Typically, after a lesson had been presented to children, they were more drawn to the particular work and more likely to stay engaged.

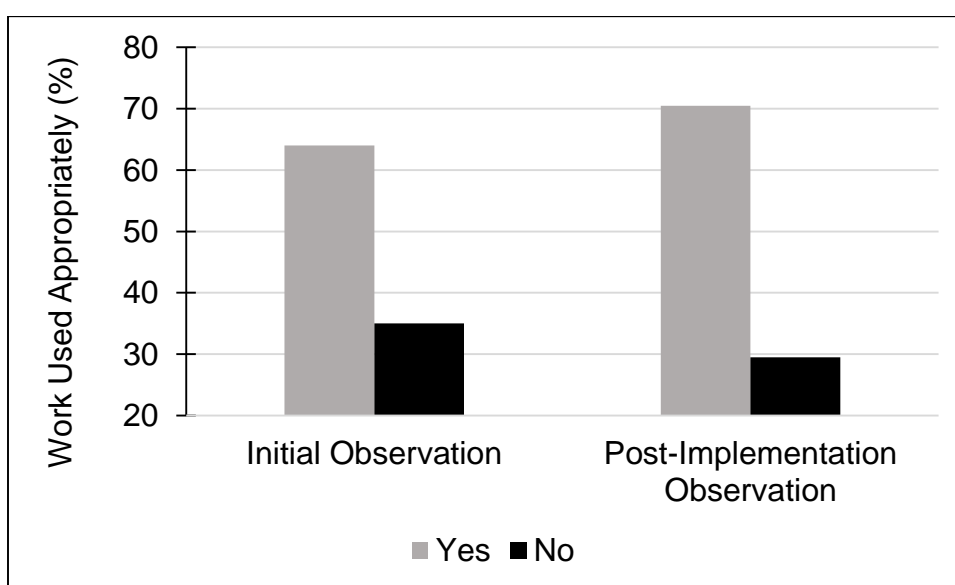
The work cycle consists of bringing a selected work to a defined work space (mat or table), using it appropriately, and then returning the work to the shelf. Data was collected to record the number of times each step in the work cycle was completed. The difference in how often a defined work space was used during the two observational periods is shown in figure 2.



*Figure 2.* Percentage of defined work space used during the initial observation and post-implementation periods.

There was a 4% decrease in the appropriate work space used during the post-implementation period. The narrative data suggests this slight decrease is likely due to more children opting to work on the floor and neglecting to use a mat to define their work space, which could be considered an additional step in the work cycle, but was not measured as such for this project.

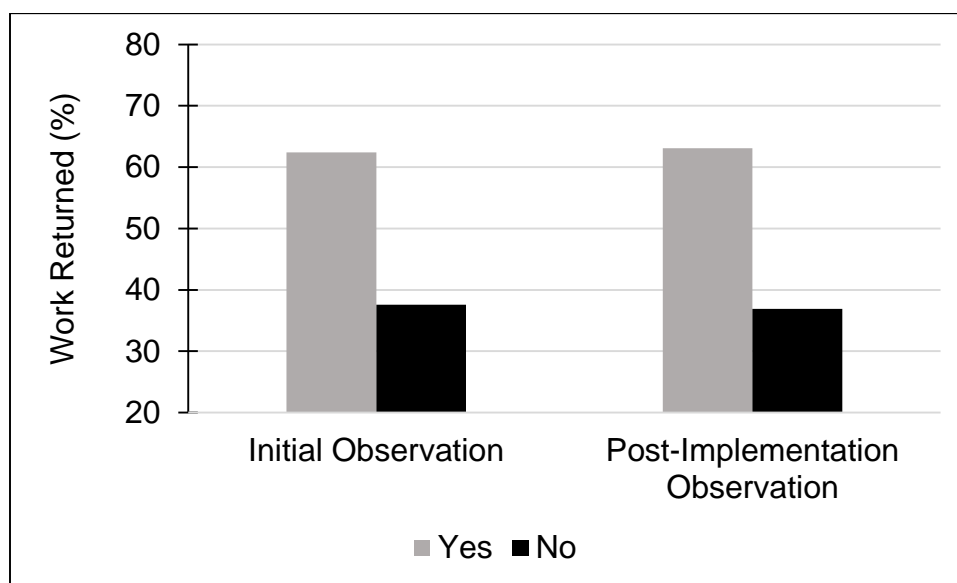
The difference in how often a work was being used appropriately during the two observational periods is shown in figure 3.



*Figure 3.* Percentage of work used appropriately during the initial observation and post-implementation periods.

The work was being used appropriately 64% of the time during the first observational period compared to 70.5% of the time during the post-implementation period—a 6.5% increase. This is likely due to an increase in the amount of lessons given overall. By the post-implementation period, the children had received lessons on most of the work available.

The difference in how often a work was being returned to the shelf during the two observational periods is shown in figure 4.



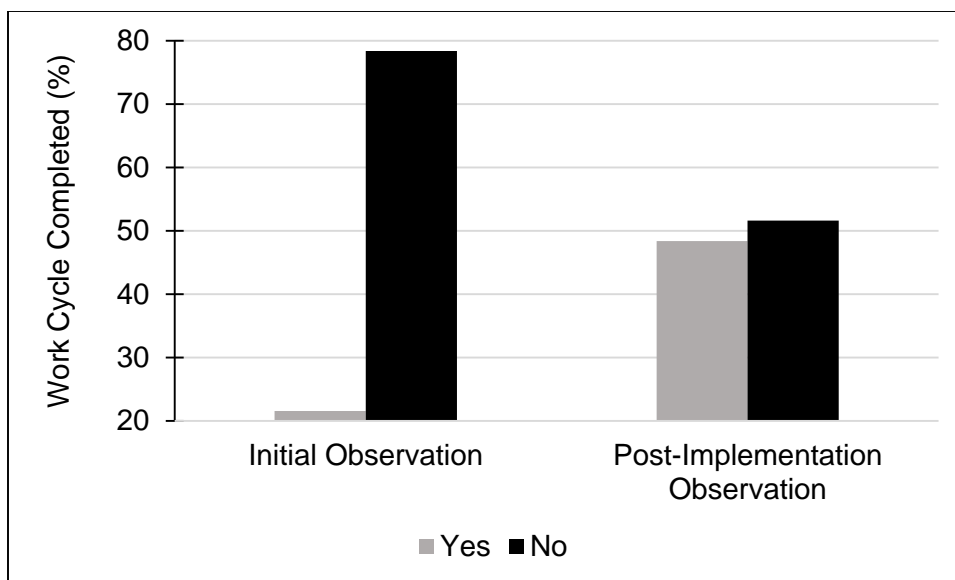
*Figure 4.* Percentage of work returned to shelf during the initial observation and post-implementation periods.

The data shows that the number of times work was returned to the shelf increased only slightly from the first observational period to the second—62.4% to 63.1%.

Narrative data confirms that children were still leaving work out or putting work back on the shelf, but neglecting to roll up and return the mat they had used for their work space.

The extra step involved with the use of a mat likely contributed to this. However, data for this project was not collected specifically to compare work taken to a table versus work taken to a mat.

The difference in how often the overall work cycle was completed during the two observational periods is shown in figure 5.

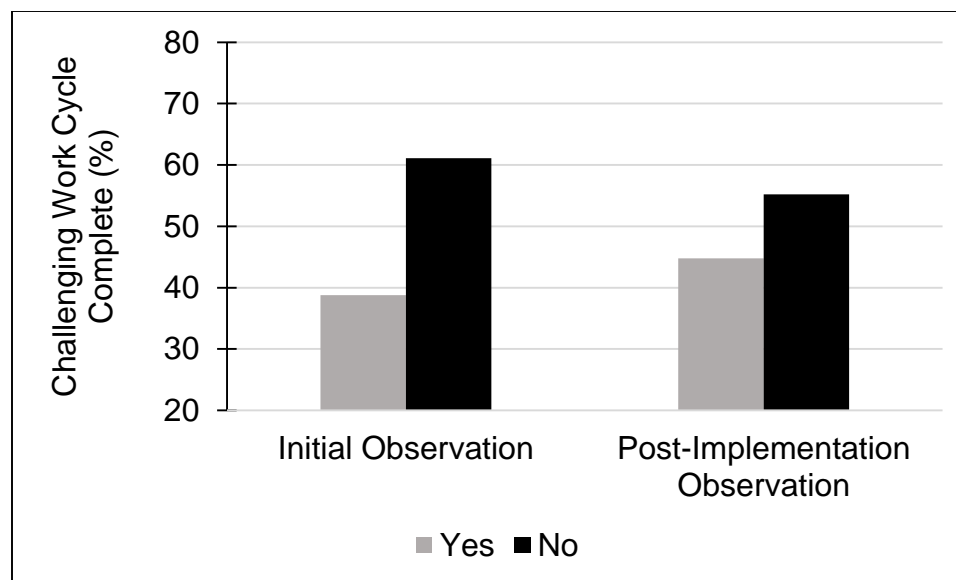


*Figure 5.* Percentage of overall work cycle completed during the initial observation and post-implementation periods.

When the two observational periods are compared, the data shows that children were completing overall work cycles only 21.6% of the time during the beginning of the school year compared to 48.4% of the time during the post-implementation period. Again, this is likely due to factors surrounding normalization, when children are still learning routines. Children during the first observational period were not completing all the steps required to complete a work cycle. The data shows that there was not a significant difference in the number of times an individual step was completed, but the data does suggest that the sequence of steps was being completed more often during the post-implementation period.

However, by isolating and comparing only the challenging work cycle data from both observational periods I found that there was only a slight difference in how often a work cycle was completed. This comparison is shown in figure 6.





*Figure 6.* Percentage of challenging work cycle completed during the initial observation and post-implementation periods.

Children were completing challenging work cycles 38.8% of the time during the first observational period and 44.8% of the time during the post-implementation period. This 6% increase is far different from the 26.8% increase noted when comparing the overall work cycles completed during both observational periods (figure 5). These results could indicate that normalization has less of an effect when children are working with challenging materials. This also may imply that when children select challenging work they are more likely to be engaged and focused and therefore less disruptive.

The specific type of challenging work that was made available to the children during the post-implementation period was not necessarily the focus of my research, rather the emphasis was on the basic concept of including more challenging work in the environment. However, data was collected to track how often each additional work was selected. The results are shown in figure 7.

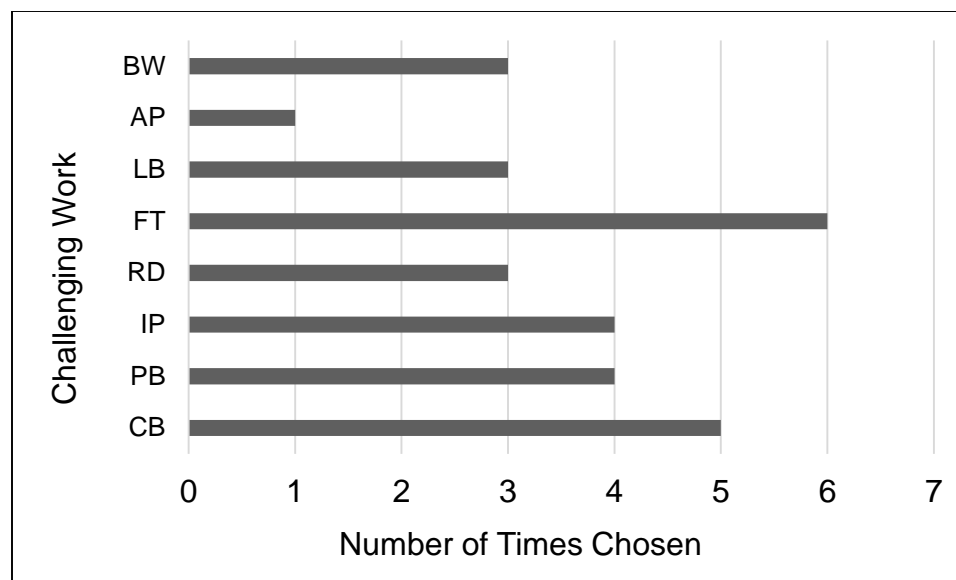
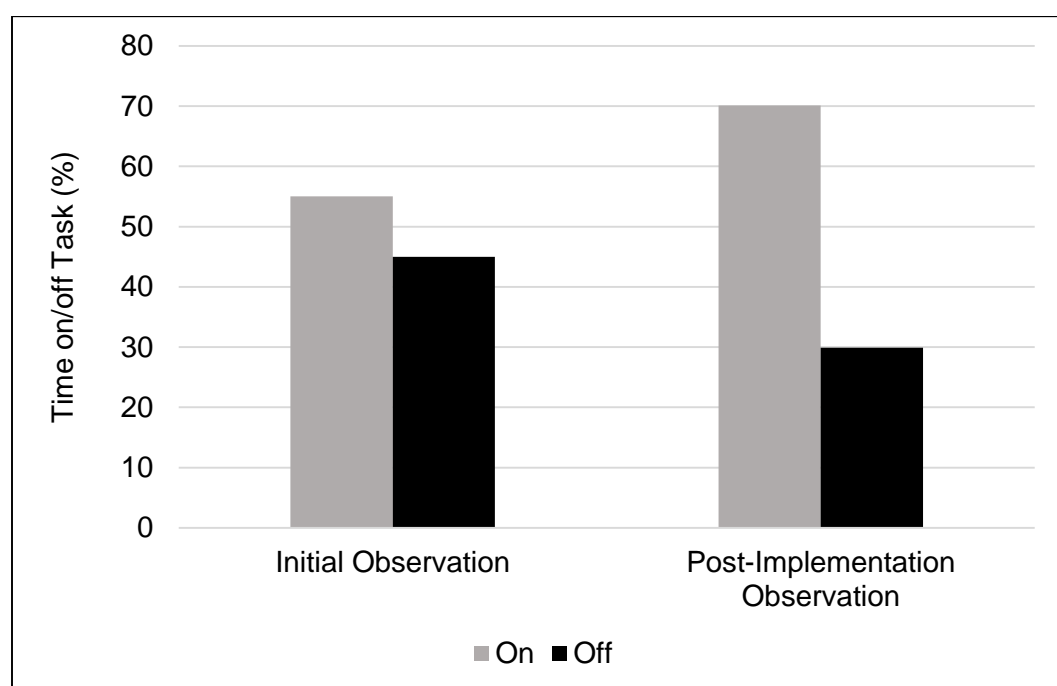


Figure 7. Number of times each new challenging work was chosen. CB=cultural basket; PB=project book; IP=insect puzzle; RD=Russian doll; FT=Freight Train book; LB=letter box 1; AP=art project; BW=baby washing.

There were a total of 8 additional challenging work choices made available to the children during the post-implementation period. The data shows that all but one work, the leaf rubbing art project, was selected somewhat equally throughout the 24 observations. Narrative data suggests that, overall, the cultural work and the *Freight Train* work were most appealing and children spent more time engaged with these activities than the other six. However, the leaf rubbing art project appeared to be too complicated and was only selected once throughout the post-implementation period. These results suggest that, aside from the complicated art project, children found the overall additional work meaningful and engaging. Moreover, the ability to complete a challenging work cycle nearly half the time (figure 6) indicates that this additional work was stimulating enough to meet the developmental needs of the older children.

The time off-task recorded during both observational periods included moments when children abandoned their work, required re-direction, were misusing the materials and required a lesson for its appropriate use, and any disruptive behavior, such as running, shouting, or invasion of another's personal space. The amount of time a child was off task was recorded and calculated for each individual observation. The difference in how often a child was on- or off-task during the two observational periods is shown in figure 8.



*Figure 8.* Percentage of time spent on/off task during the initial observation and post-implementation periods.

The data shows that there was a significant decrease of 15.1% in the time children spent off-task during the second observational period. Normalization is most likely a factor here. In general, once ground rules, routines, and expectations were established, children were more likely to exhibit positive and respectful behavior. Furthermore, appropriate work choices were selected the majority of the time during both observational

periods (figure 1), which suggests that the challenging work had minimal impact on the amount of time students spent on- or off-task.

### Action Plan

The purpose of this action research was to determine if student engagement could be maintained and disruptive behavior could be minimized by creating a more developmentally stimulating environment for the older children in my classroom. In order to achieve this, I introduced a small selection of challenging work that is often found in early childhood classrooms. The results from my research indicated that children were more engaged and less disruptive after the introduction of the new challenging work into the environment. However, it is not clear from the data that the introduction of this work was solely responsible for the change in behavior.

Normalization is a definite factor at the beginning of the school year, so I believe that the results from my research may have been more affected by the normalization process children go through in establishing routines and understanding expectations. The challenging work may have had little or no influence when introduced this early in the school year.

In addition, I believe that after a period of normalization children become focused on, and show excitement for, the materials and activities in the classroom, but after a few months this focus and excitement subsides and children, specifically the older children, become restless and are more prone to disruptive behavior. Therefore, I want to duplicate this research later in the spring when I know that normalization is not a factor and I know that the novelty of a new environment has subsided. I believe that conducting research during this later time period will provide the authentic results that I am truly seeking.

The results from my research revealed that children were choosing challenging work from the beginning of the school year and that the rate of challenging work selection increased within the relatively short amount of time between the two observational periods. Therefore, I plan to introduce challenging work more often into the classroom. This may be beneficial in maintaining a stimulating environment, especially for those children who are quick to master an activity and need something new and interesting in order to remain engaged.

Furthermore, the outside environment was not addressed during my research. The lack of sufficient adult supervision at the beginning of the school year made it impossible to allow the outdoor area to be utilized due to safety concerns. However, with the recent addition of a third adult in the classroom, this space can now be managed, which should allow children an entirely new area for exploration and meaningful work.

Collaborative work is another area that calls for further research. Although the data suggested that children were not collaborating on challenging work and there was little collaboration on other work choices, I believe that social development among the children will be more present towards the end of the school year. Therefore, I want to include work that can or must involve more than one person, and make certain that lessons are given so that children understand how to work appropriately with each other and with the materials.

It was unclear through the results of my research how the younger children in the classroom were behaviorally influenced by the additional challenging work that was available to them. The narrative data suggests that the younger children were drawn to the materials, but either observed others using the materials or selected the work and

quickly lost interest. My plan for introducing early childhood materials into a toddler classroom must ensure that there is still a reasonable balance of work in the environment.

In conclusion, it is clear from the data that when children were engaged in an activity they were less disruptive and are more likely to complete a work cycle. When normalization was reached, children were more familiar with the classroom environment; they understood routines and expectations and were, again, less disruptive. I believe that providing a developmentally stimulating environment is essential to student engagement and will look at ways to ensure that I am preparing and maintaining the classroom with the needs of all the children in mind.

This research has encouraged me to reevaluate how I apply the Montessori philosophy of following the child. A small shift in the classroom environment may provide stimulation for the older children in my classroom overall, but I must not lose sight of the individual child's unique interests and needs. Genuine observation and reflection must always be present in order to understand where an individual child is developmentally. Fostering my personal relationship with each child, building trust with each child, following through with each child, and preparing an environment that speaks to each child—will ultimately create a more developmentally stimulating atmosphere and increase student engagement throughout the year.

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## Appendix C

### Early Childhood Teacher Survey

1. Do the younger children generally spend equal amounts of time in all areas of the classroom or do they regularly gravitate to particular areas of the classroom, and if so, what areas?
2. What specific work do the younger children typically choose?
3. Are they completing a work cycle?
4. Are they focused and engaged or are they disruptive and require regular redirection?

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Tama D'Angelo  
December 9, 2013

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The purpose of this research was to determine if the introduction of more developmentally appropriate materials and activities into the toddler classroom would create a more stimulating environment for the older toddlers, increase student engagement, and decrease disruptive behavior. Observations were carried out prior to the introduction of new work and after new work was implemented. This study was conducted in a toddler classroom at a private Montessori school. Children and teachers from the toddler classroom and three early childhood classrooms were included in this project. The results indicated that the older toddlers were more engaged and less disruptive after the introduction of new challenging work into the environment. However this research was conducted early in the school year and the process of normalization likely impacted the results. Therefore, it is recommended that further research be conducted later in the school year.

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