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The Effect of Creativity in Nature

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An Action Research Report
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Abstract

The purpose of this research was to determine the effects on children's creativity by using natural materials. Children are sometimes lacking in creativity when performing a teacher directed art lesson or step by step crafts. This research, was instigated to observe how using natural materials will affect children's creativity. In order to determine the effects that nature materials in a preschool classroom have on a student's creativity, the children were provided with nature materials to use and few instructions to create their own artwork. Data was collected from five sources to measure preschooler's creativity using nature materials. The data included artifacts such as children's work samples, observational data such as photographs, checklist, and tally sheets, and inquiry data by a short interview about their artwork. The findings suggested that nature does help with children's creativity and children are able to express their creativity using the materials.

In many classrooms, crayons, markers, paints and clay are few mediums used for art in an early childhood setting. Children are allowed to draw however, many children are participating in teacher directed arts and crafts. In teacher-directed arts and crafts, the children are provided with a visual of the artworks of what they will be creating by the teacher. The teacher will provide step by step instructions where the end results will be twenty-four to twenty-eight of the same artwork. Providing children the step by step instructions does not allow the children to express their creativity.

What is creativity? Creativity is defined as, "the ability to transcend traditional ideas, rules, patterns, relationships, or the like, and to create meaningful new ideas, forms, methods, interpretations, etc.; originality, progressiveness, or imagination" (Dictionary 2015). Art is one of many ways for children to express their new ideas and ways to see visually things in new perspectives.

After reading to the children the story called, *Have Fun Molly Lou Melon* by the author Patty Lovell, this action research project came to my mind. Molly Lou is a little girl who enjoys nature and wildlife around her. In the story, Molly Lou finds creative ways to play in nature using the different materials she finds in the wildness. She would use her imagination and shows her new neighbor a different way to play. After reading the story, I started to critically think about creativity in young children. Most of the art I do with the children are teacher directed crafts. Children were shown a visual of what they were to make, and I would have twenty-eight versions of the same artwork. The paintings done by the children with the fine arts instructor are all the same as well.

The purpose of this research was to determine the effects of children's creativity in nature. Was the children's lack of creativity a result of the teacher directed art lesson

or step by step crafts. This research studied how using nature will affect creativity in children. The study was conducted with a group of children at a preschool where there are thirteen boys and thirteen girls participating in this research. The age range of the children is from three to five years old.

The classroom art shelves in the classroom have been changed for this action research project. The crayons, color pencils, markers, and the teacher created art example for the week were put away in the teacher cabinet. Instead, the art shelves are filled with nature materials such as rocks, pinecones, feathers, leaves, bamboo sticks and more. Children will be participating in creating artwork using the different nature materials.

Children participated in this research for six weeks in three sessions. They had one hour for the session. Children who did not wish to participate were not forced to take part in the art session with the nature materials. Before the session, children were reminded not to throw the rocks or the other materials for their safety. However, they were free to use the materials any way they liked for their artwork.

During each session, children used trays to collect the materials needed for their creation from the shelves. They placed the materials they required on the tray and placed the tray on the table. The children then created their artwork on a placemat. During their creation, no instructions were given. Children were welcome to use their imagination to create any masterpiece to express their creativity. Through the action research project, I assessed the effects of children's creativity using natural materials.

Review of Literature

Trees, grass, animals, insects, mountains, and dirt are known as nature. Nature is an important part of children's development. Nature is a way for children to explore and discover their natural environment. Nature is known to "improve awareness, reasoning, observation skills, creativity, concentration, and imagination" (Dowdell, 2011, p. 24). However, the preschoolers in my classroom lack engagement in nature and creativity. A contributing factor to their lack in nature and creativity is the environment and the teacher directed art like crafts, the limited supplies, and unfamiliarity with art techniques. In order to enhance children's engagement in nature and creativity, I will be incorporating nature into the classroom to allow children to create their artwork without direct directions with the end results of their artwork being their own. The goal is to enhance children's creativity using nature.

Why are children not engaged in nature? Larson, Green, and Cordell (2011) stated how children are moving more away from spending time outdoor and are becoming less active in outdoor play. The research stated many children are not spending time outdoors because they are "watching television, DVDs, or playing video games (48.1%), and using electronic media such as internet and texting (47.8%)" (Larson et al. 2011, p. 11). Dowdell et al. (2011) stated in her research a reason why children don't spend time in nature is "the fear of safety issues have been highlighted as a major factor, particularly parental fears about traffic and stranger danger" (Dowdell et al., 2011, p. 25).

Educators have incorporated nature into their environment. Wirth and Rosenow (2012) mentioned how including a small piece of nature can make a difference in the

environment to engage children. For example, teachers can place "Raised wooden planter boxes on top of an all rubber playground surface provides a place for gardening" (Wirth, 2012, p. 44). Dowdell et al. (2011) stated, "'Schoolyard Greening' a term used to describe the changes being made to school environments to restore the natural habitats. This includes planting trees, vegetable gardens, and bringing nature back into schools and centers" (Dowdell e.al., 2011, p. 26). Many schools and centers are implementing schoolyard greening to bring back nature to their schools for children. Teachers have incorporated nature walks to allow children to discover and explore their natural environment. Woyke (2004) and Adams (2013) mentioned how nature walks allows children the opportunity to use their senses to help them to learn and to see their environment. Wirth and Rosenow (2012), Woyke (2004), and Adams (2013) states that nature provides children many positive hands-on learning opportunity.

Dowdell et al. (2011) observed children from two different schools. One of the schools was Kids Kindy, because of their "unusual environment, being located within a warehouse with a completely artificial internal 'outdoor' environment" (Dowdell et al, 2011, P 26). The second school observed was Garden Grove due to its "emphasis on nature and sustainable education" (Dowdell et al, 2011, P. 26). She observed the two schools to identify the difference of play in children through nature and without nature.

The data gathered on the play behavior and social interaction: pattern across the two centers stated both school has shown children participating in the imaginative play (Dowdell et al., 2011, P. 29). However, Garden Grove showed children's interaction with the environment higher being at 19% when Kid Kindy had 13% on play on a fixed structure (Dowdell et al., 2011, P. 29). The result of the study showed imaginative

activities at Garden Grove was higher being at 20% while Kid Kindy was at 14% (Dowdell et al., 2011, P. 29). The study indicates that children who are surrounded in a nature environment have a higher engagement with the environment and are using their creative imagination in their play.

Another study by Alexander and Russo (2010) tracked student engagement with science through the natural environment. The study followed 22 children age six to seven and five teachers. The focus of the study was to see the involvement of the student in science through nature. The children participated in five science lessons that incorporated in nature.

In this project, the researchers gathered their data through observation of student participation, work samples, sustained interest in the lessons and activities, along with their extended engagement level. The results from this research concluded, children's participation level during the time was excellent or good. Only one child was not involved, while the rest of the children participated regularly. The evidence from Alexander et al. (2010) and Dowell et al. (2011) indicates children participation in a subject is higher when nature is involved. In Alexander et al. (2010) research, children were asked what their favorite part of the study was. Twelve children found the outdoor observation and recording of birds as their favorite activity, while six children stated their favorite activity was learning about the preserved bird, and four percent reported they're favorite was drawing birds (Alexander et al, 2010, P. 50).

Creativity is defined as, "capacity to keep producing new, original and useful ideas" (Michalopoulou, 2014, p. 70). How can we assess creativity? Lindstorm (2006) used portfolios to measure creativity. The study was if creativity can be measured and be

taught. In the research children's visual art portfolio were evaluated using a rubric. It measured on their visibility of the intention behind the picture, color, form, and composition, craftsmanship, investigative work, inventiveness, ability to use models, and capacity for self-assessment. Children's artworks were assessed using the rubric by their teachers and teachers from their grade level. The results from the study shows, that by using a guidelines children's creativity can be measured with their work samples.

Oncu (2015) and Micalopoulou (2015) observed children's creativity by their divergent thinking. Oncu (2015) used divergent thinking to measure children's play using unstructured materials. Children were asked ways they could use the unstructured material. The researcher used fluency and originality score to measure divergent thinking (Oncu,2015, p. 11). The results from the research showed girls have higher originality scores than boys (Oncu, 2015, p. 12). The study also stated children's originality will be higher as the children get older and will find symbolic usage of the materials (Oncu, 2015, p. 13).

The children in Michalopoulou study were given an abstract art to look at. They were then asked to recreate the artwork, and they were asked to incorporate their creative ideas to the work. The results from the study show children were able to imitate the original artwork with their own creative ideas as well. Michalopoulou (2014) stated it is importance to provide children the time and the materials to express themselves. Oncu (2015) and Michalopoulou (2014) both stated in their study that providing children the materials is important for their creativity.

"Art provides a stimulating environment in which creativity, originality and expressiveness are valued, and encourages young people to develop and demonstrates

creativity and innovation" (Michalopoulou, 2014, p. 79). My goal is to see creativity in my children's artwork. Nature will be incorporated into the classroom and will be used as a tool for the children to express themselves. Divergent thinking will be a tool to measure the children's creativity. By collecting their work samples I will be look for its originality to measure their creativity of their artwork.

Methodology

The children who participated in this analysis worked with the natural material to create artwork to show their creativity. The day before starting the research, the art shelves were transformed with earthy natural materials. The crayons, markers, paper, scissors and the teacher directed arts and crafts were put away in the cabinets. The shelves were filled with woven baskets that contained stones, pebbles, feathers, dried flowers, bamboos, rocks, small and big pine cones, and sticks. Trays were provided to help children place the materials to carry to the tables, where they can create their artwork on a table mat.

On the start date of the research, children were introduced to the new art shelves. The children were sitting down for the morning circle and I explained to them how they are going to use the materials. I introduced each of the material, explaining and showing the children how to use it for the artwork. Once they have gathered the materials, they carefully walked over to their workplace (the table). There they will carefully place the materials they have gathered onto the table mat where they will create their art. The children were asked to inform me once they were done before they put away the materials back on the shelves.

As children completed their artwork, they were requested to show me their creation. A photograph was taken before the children replaced the materials back on the shelve data collection. Since the materials were loose nature materials, their creations couldn't be saved. Photographs were taken to keep the images for later analysis.

To measure creativity in children, I examined their artworks. I looked for divergent thinking in the children's artwork. Divergent thinking is a tool to measure creativity. I looked for different ways children used the natural materials, and how original their ideas were and the symbolic usage of the materials. Photographs were taken so I could visually see their creations and for me to analyze their artwork using the different data sources.

After the children completed putting away the natural materials back on the shelves, they were interviewed about their creation. Children were asked open-ended questions about their artwork. For examples, what did you create? Can you tell me about the creation? What is this supposed to be? Children looked at the artwork they created from the photograph image on the digital camera. They looked at their creation and answered the questions that were asked by me. The responses of each child were written down on a data inquiry sheet (See Appendix A).

Once the photograph and the data research of the children's responses have been collected, a rubric was used to score the children's work sample on their originality and symbolic usage. A score of one was given to those artworks where the materials were placed on the place mat, and there was no response about their creation. A score of two was given to those children who created an artwork and intervention showed minimal symbolic usage. For example, children used a pinecone and said the pinecone represented

a people. A score of three was given to those children who used symbolic usage. For example, the children used the natural materials to create different setting. For example, they said they created a jungle or a house or used a pinecone to represent people (See Appendix B).

A checklist was used for the data analysis (See Appendix C). With the photographs and the responses of the children, I used the checklist and looked at their exploration. In the exploration, I observed how the children were engaging with the materials to create their artwork. If the children created artwork using symbolic creation they received a check mark on yes. However, the children who utilized the materials, but did not create anything received a check mark on sometimes. However, those who did not participate received a check mark on no.

The originality of their artwork was also observed. In originality, I checked to see how the children created their artwork using their knowledge. I looked to see if the children were able to create something using the materials and using their ideas to come up with something. If a child was able to create artwork using their ideas they received a check mark on yes. However, if a child recreated or gave the same response as a peer next to them, they received a check mark on sometimes. If the child did not participate or use the materials, the child received a check mark for no (See Appendix C).

During the last two weeks of the research, the children were also introduced to a mode which was a tray filled with sand and rock. Children were instructed to add more nature materials to the model and come up with their own creation. Children received a check mark on yes on the model if they were able to add more of their creation to the model. The children who added minimal changes to the model received a check mark on

sometimes. Lastly, the children who didn't participate received a check mark on no (See Appendix C).

Once the analysis of the data from the checklist and the originality were complete, I went back and tallied how many times each child used the materials creatively. If the child did not, they received a score of exploration (See Appendix D). With the gathered data, I assessed how children used the nature material creativity.

Analysis of Data

The data for this research has been collected for a six-week time frame and has been broken up into two-week time periods. I observed the children's exploration, originality, and symbolic usage in their artwork. By finding and identifying the three parts, it helped me to look at children's creativity using the nature materials.

During the first two weeks, children were excited to use the nature materials to create their artwork. Thirteen children participated out of twenty-seven children. Eight used the nature materials for exploration, where focused on using the materials to create their artwork. However five children out thirteen children were interested in the materials; however they were playing with the materials (see Figure 1).

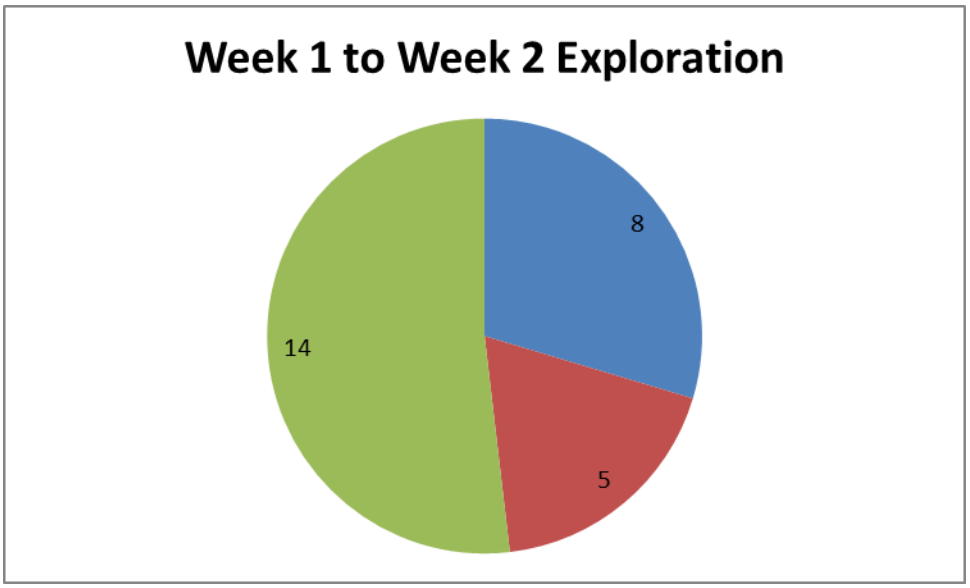

Figure 1. Exploration of Nature Material (Week 1 to Week 2)

By observing and interview the children about their artworks, I was able to look at their originality and symbolic usage. I observed how children were able to create original artwork using their knowledge. Seven children out of 13 children designed scenes using the nature material, for examples houses, beach, and garden. However, three children out of 13 recreated an artwork same as their peers (see Figure 2).

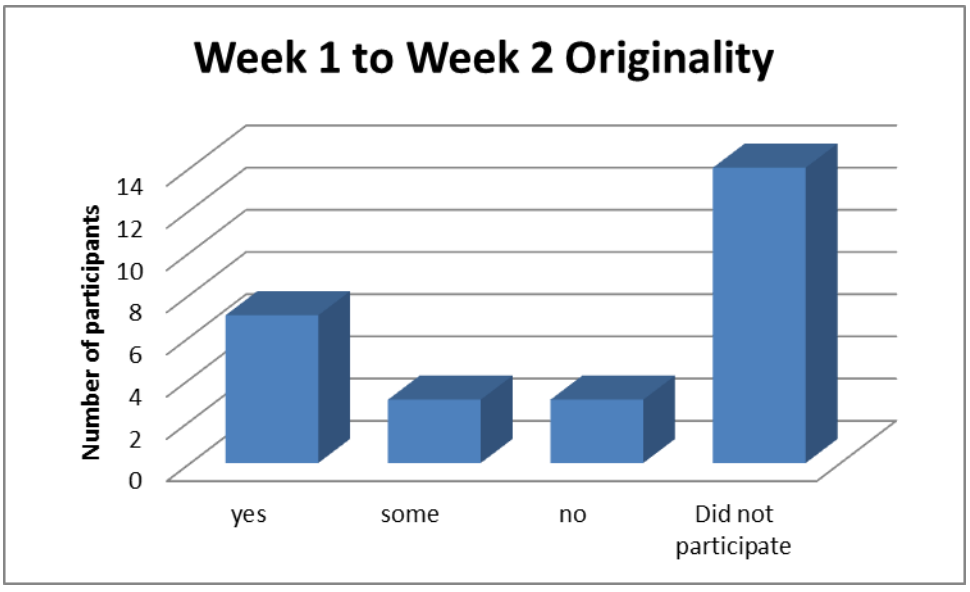

*Figure 2.*Orginality (Week 1 to Week 2)

The children symbolic usage of the nature materials was observed. During the interview, 7 out of 13 children used the materials symbolically. The children were using their imagination to create their art and told me about their creation. The children who created a scene received a score a three. One of the children scored a rating of two by making a "rock collection" with the rocks, but was unable to explain more in depth. Thus the child received a score of two. The children who used the materials to create artwork, but could not explain their artwork at all received a score of one. Only one of the children received a score of one for their ordinary usage of the materials (See Figure 3).

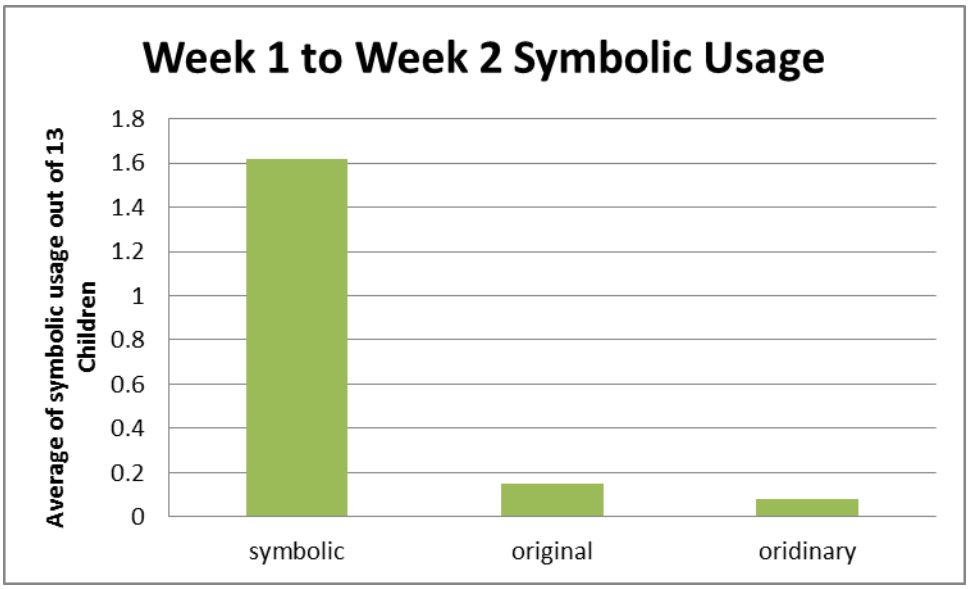

Figure 3. Children's Symbolic Usage (Week 1 to Week 2)

The average was found by the total number of each scored received in each category, divided by the number of participants (13 students).

For weeks three and four, the participation went down. The children showed less interest in the materials. I switched a few of the materials: different feathers, different sized shells, and different dried flowers. For these two weeks, 10 children participated in this research.

For the children who participated during weeks three and four, ten out of the ten children explored by using the materials. All the children who participated were focused and were creating artwork. None of children were playing with the materials. More children were focused during these two weeks used the materials to create their artwork. Children from these two weeks were not only placing the materials on their work mats but also were stacking the materials and standing the materials up. The children were now giving their artwork a three-dimensional effect (See Figure 4).

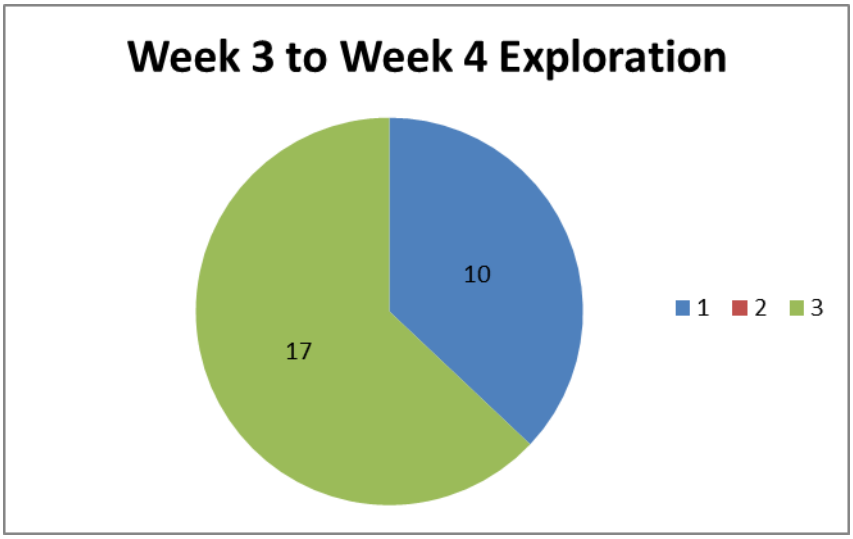

Figure 4. Exploration of Nature Material (Week 3 to Week 4)

After the interview and by observing their photographs of their art, 8 children out of 10 had created art from their original ideas. However, two of the children were not able to create their art using their ideas. There were similarities and very minimal differences to their pervious art. During my observations, I noticed the children talking about their artwork to the other kids working around them and seeing their art creations as well (See Figure 5).

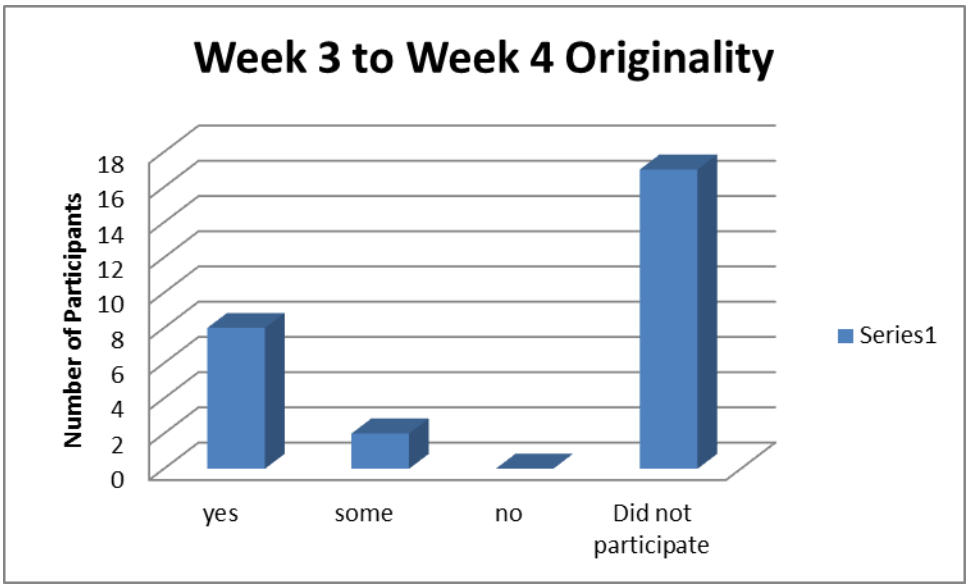

Figure 5. Originality (Week 3 to Week 4)

For the symbolic representation, 7 children scored a three because they were able to inform me about their art. For example, one of the children made a self-portrait using the different materials. Another child created a car using the bamboos, rocks, and round stick spheres. There was only one child who scored a two because she created art that represented the materials itself. Lastly, two children scored a one because they could not explain their creation (See Figure 6).

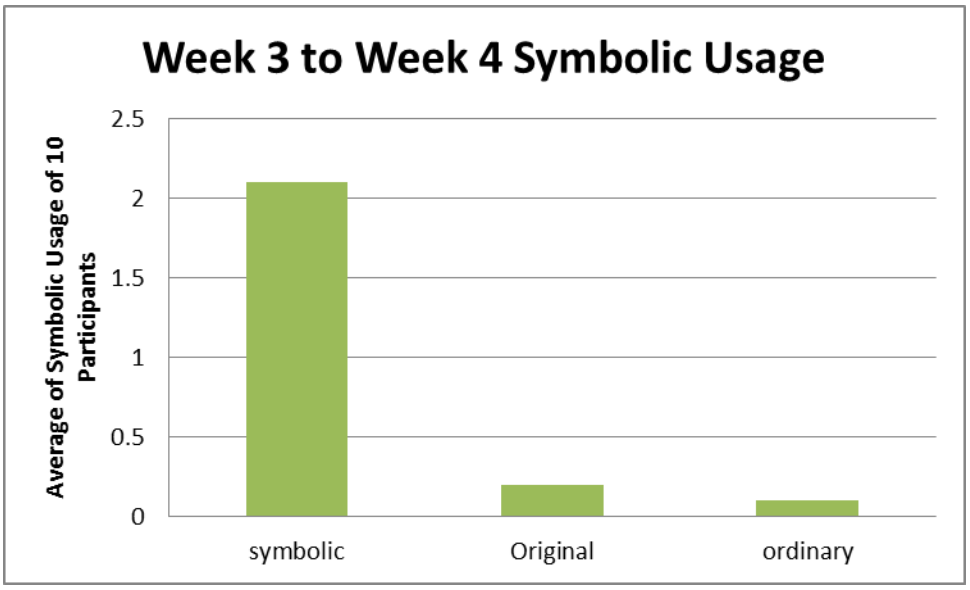

Figure 6. Children's Symbolic Usage (Week 3 to Week 4)

The average was found by the total number of each scored received in each category, divided by the number of participants (10 students).

For week five and six, children were given a tray with sand with one rock to create their artwork. Fifteen children participated these two weeks. For the data analysis for this week, a model section was added. Children were given a model of sand with one rock. Children could then add more nature materials to insert their ideas into the model.

For week five to six, 11 children explored using the materials. The children were focused and were able to create artwork using the nature materials. However, five children were feeling and playing with the sand instead of adding more materials and creating art. For originality, 12 children were able to create artwork using their ideas, and one child created art similar to one of their peers (See Figure 7)

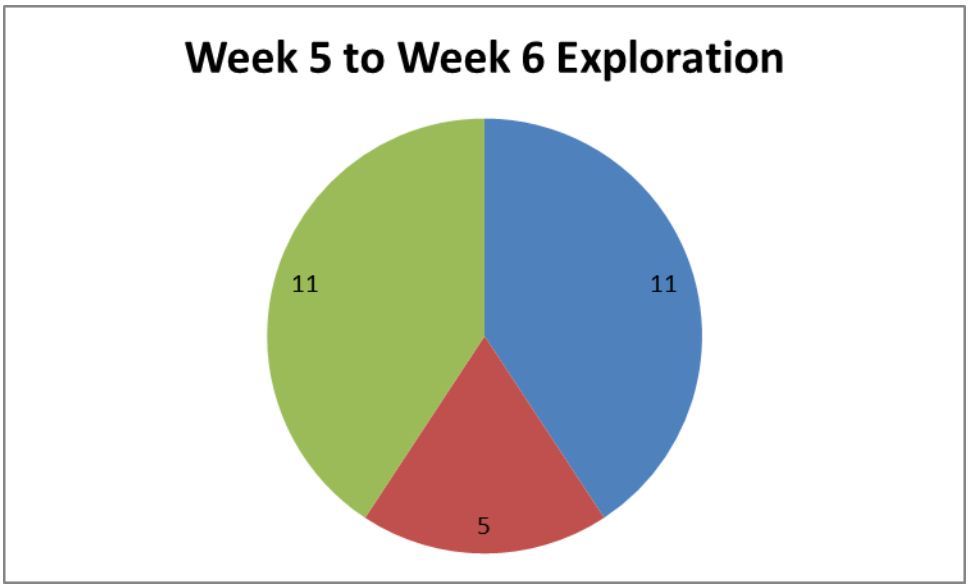

Figure 7. Exploration of Nature Material (Week 5 to Week 6)

By using the sand and the rock model, eight children were able to add their personal touches to their artwork. Children drew in the sand using their fingers and added

more nature materials to the tray. Two children did create artwork but did not add very many changes to the model. Five of the children played with the sand, so it was considered no changes were made onto the model (See Figure 8).

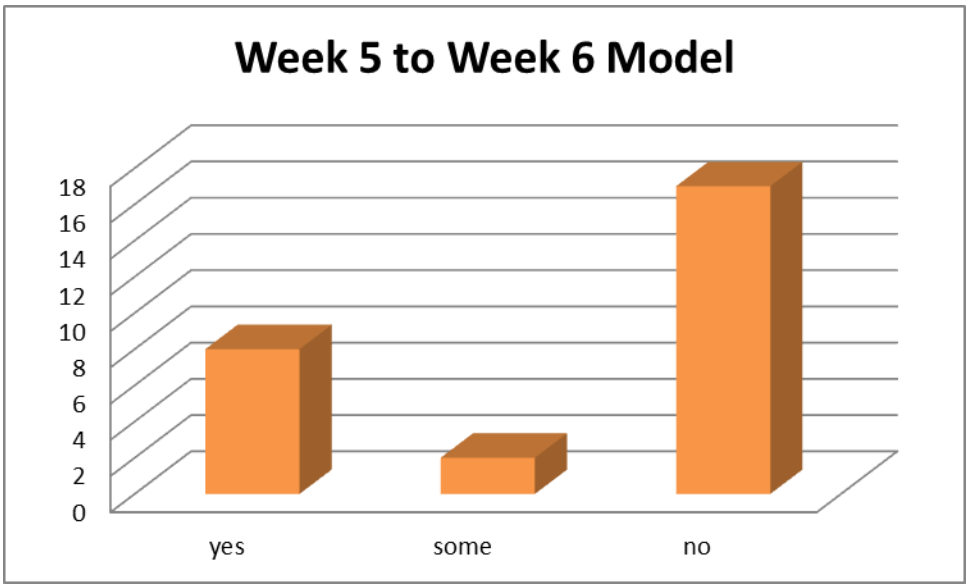

Figure 8. Model Creation

Action Plan

After analyzing the data gathered from the research, the results show that nature does help children with their creativity. Children can use the nature materials to create different scenery, items, and portraits. The research has shown children can use the open-ended nature materials in various ways to express their creativity without being given directions to create artwork. Children can create artwork without the step by step guidance to create a particular image or sculpture alike.

The research shows that, children enjoy working with different nature materials and other flexible materials in their artwork. The art shelf of our classroom should be open to not just crayons, color pencils, and markers. Children introduced to a variety of

nature materials (switched out bi-weekly), and they can be encouraged to use their imagination to create the beautiful artwork. Children will be given precise instruction on how to use the materials, but will not be given step by step instructions in creating artwork. Children are able to express their own ideas, it is important for educators to encourage this.

I believe by allowing children to use the nature materials to express their creativity will benefit the children in the future. Children will be able to create and construct artwork outside the norm, and this will help them think outside the box and develop critical thinking skills. Those critical thinking skills will hopefully help children when they come across a challenge, and they are more likely to find solutions on their own rather following traditional methods in the future to problem solving. By allowing children work with the nature materials, some children were able to express their creativity using their imagination.

Through this research, I have discovered children used their imagination to create their creative artwork using the nature materials. The children used their imagination to express their creativity using the nature materials. For example, a child stated a monkey is trying to get the banana from the tree. The child used a pinecone as a monkey and a bamboo as the tree. The child is using their imagination to express their creative artwork.

Listening to their responses helped me to understand the need for tactile materials to help stimulate their creative imagination. Children were using their imagination to create their nature artwork. Then I thought, what creative stories can the children come up with using the nature materials and how I can incorporate this into story telling. Before doing this, I need to find out how to attract more children to the nature materials.

Not many children were interested in the nature materials. I will need to find more variety of nature materials. I could engage the children by having the children gather nature materials from outdoors and to use the materials they gathered for their artwork.

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Appendix A

Inquiry Data

Date: _____

Child	Can you tell me about your art? What did you make? Child's response

Appendix B
Rubric Originality Score for Children's Work Sample And Photographs of Children's Work

Date of Work Sample or Photographs:_____

Child	Symbolic Usage +3	Original Usage +2	Ordinary Usage +1

Appendix C
Check List

Date:_____

Child	Exploration			Originality			Models		
	Yes	Some	No	Yes	Some	No	Yes	Some	No

*Exploration – **Yes:** Child is focused and they are using the materials as they begin to develop a creation. **Some:** Child is engaged but is playing with the materials. **No:** Child is looks at the materials.
*Originality – **Yes:** Child is creates something from her knowledge. **Some:** Child creates what they have seen from their peer's creation. **No:** Child just uses the materials.
* Model – **Yes:** Child sees models and adds more to the original model. **Some:** Child sees the model and adds few changes. **No:** Child does not make any changes to the model.

Appendix D
Tally

Date:_____

Child	Use of Materials in a Creative Way	Exploration the Materials