

Nature-Inspired Art Education for Adults with Autism Spectrum Disorder

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Abstract

The purpose of this study was to investigate how nature-inspired art education might foster a sense of connectedness and collaboration in adults with Autism Spectrum Disorder (hereinafter known as ASD) in a day program. While many studies have uncovered such beneficial art education for children with ASD, there has been little research attempted for adults with ASD. Through a single instrumental case study the participatory researcher, an art educator in a day program for adults with ASD, explores the impact of a unit of nature-inspired collaborative art making on both the participants in the day program and on their paraprofessionals. Of particular interest to the researcher is if time spent in the natural world creating art could decrease the challenging behaviors, anxiety, and stress levels of adults with ASD through assisting them to experience a connection with nature. Also addressed in this research is how this experience could simultaneously increase a connection with others through collaboration. The diverse data collection tools the researcher employs are observations from both the researcher and the paraprofessionals as well as interviews, student artifacts and surveys. Through a narrative analysis of the case study the researcher describes that after initial challenges, most participants did experience both a decrease in challenging behaviors and a sense of connection. The researcher concludes with advocating for further research on this topic, specifically, over a greater span of time during different seasons of the year.

DEDICATION

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CHAPTER 1: INTRODUCTION

Background to the Problem

There were two main layers of personal interest I had in the topic of the effort to effectively teach nature based art lessons to adults with autism. One related to my own experience as a parent of a child with special needs and the other related to my experience teaching nature based art lessons to adults with ASD at a nonprofit day program, Emmaus Home.

My son's early childhood was characterized by many peculiar behaviors. He was a bundle of energy to the point of hyperactivity and would act out strangely when around other children. He struggled socially, but meanwhile intellectually was ahead of other children. It was hard to understand why, at the age of three, he knew everything there was to know about the solar system, but would run up to other children and pinch them or throw massive tantrums at home. In preschool, teachers recommended he be evaluated. Was it ADD? Was he on the autistic spectrum? I remember his seasoned preschool teacher saying "Do we really need a label for these kinds of kids? Most of the time, I think they just need to be out in the woods skipping stones into streams. That's where they are happiest".

This was certainly true of my son. I was grateful I could stay home during his early years. We lived in the city and didn't have a backyard, so every morning we would set out for a local park or arboretum and he would run off his energy and then spend time just enjoying nature; throwing rocks into streams, digging in mud, collecting leaves. When we came home he

would be relaxed and then spend hours drawing in big newsprint pads that I, an artist myself, kept loose around the house. At the time, all I knew was that this was helping him. A friend passed on the book *Last Child in the Woods* to me in a spirit of encouragement since she knew I was beginning to feel self-conscious about how much time I spent lingering with my son in the woods. The author of the book, the educator Richard Louv (2008) created a bestseller by advocating that our society was suffering from “a cultural autism” due to not enough time spent in nature. He labeled this phenomenon “nature deficit disorder” (p.36).

At the age of 11 my son is now academically and socially well adapted and successful. He is considered gifted artistically. Though he does have a diagnosis, he is not considered to be on the spectrum. Being outdoors hiking or fishing are still major factors in his sense of equilibrium. When I work with my adult students with ASD I often think of my son and wonder: Could it have all turned out differently? Was he on the autistic spectrum? What if I had not had all that time to take him to the woods? Was that what helped? Could it still help my students somehow? Is it too late?

All these questions led into my personal professional experience as an art teacher at day program for adults with ASD called Emmaus Home. The director of the program, herself a mother of one of the adults there, encouraged me to teach nature based art lessons. Nature appreciation was a major part of their programming, including horseback riding lessons for core members, the term they use to describe day program participants. Field trips were also very important to the director and specifically trips to local parks or gardens.

I was most impressed with the need for solutions to engage my students with nature on a field trip this past spring to Chanticleer. When presented with the idea of creating art related to

the gardens around them, my usually engaged students became quickly uninterested. They seemed uncomfortable in their surroundings and were unable and unwilling to paint with the normally familiar water colors and brushes I offered them. I was discouraged that they could not engage in what seemed to be to me an essential part of human experience and one I knew had helped my son. I remember talking about the lesson with the director afterward. She stated: “I know it’s hard for them to see nature and paint it. It’s all part of “the mystery” (how she often describes autism). But it’s good for them to be out in it”. I know this emphasis will remain in my professional life as I continue to teach at Emmaus Home and I this led me to have a need to find effective solutions to engage my students artistically on these nature adventures. After my experience with my son, I also hope it might enhance the quality of their lives.

There were advantages to this personal motivation in my research. Since it was a necessity professionally, I felt highly motivated. I also experienced an internal confidence about it in that I know it may have helped my son. This, of course, could also be a great disadvantage, as it ran the risk of my research becoming too personal and specific or even biased. Perhaps other adults with autism enjoy and experience nature through art already? Perhaps being outdoors wasn’t really what helped my son? What about the well adapted successful adults who just don’t enjoy being out in nature and don’t feel a need to be? Is it a vital part of human experience? I needed to keep these questions in mind to create balanced research.

Problem Statement

With the rise of technology and the information age, scholars have noticed a decrease in the time the average person spends out in nature and simultaneously a rise in depression, anxiety and social disorders. Many researchers have argued for a link between the two. The art

educator Sally Gradle (2008) captures the atmosphere of this current discourse persuasively in her article “When Vines Talk: Community, Art and Ecology”:

Not only has the environment suffered when we lose vital connections to the natural world. Environmental psychologist Frances Kuo has noted that while tree-lined streets in urban areas encourage social interaction, large housing complexes devoid of green spaces contribute to social avoidance and potential violence. (p.7)

Gradle (2008) cites the findings of author Richard Louv (2005) and how he “has observed that children suffer from ‘a nature deficit disorder’ because they have no direct association with the natural world” (p.8). Gradle (2008) writes how Louv (2005) “describes this as cultural autism, an estrangement of humankind from other forms of life” (p.8). Present in this discourse is the rising numbers of children diagnosed with Autism Spectrum Disorder (hereinafter known as ASD) who are aging into a growing population of adults in need of care.

As many contemporary neurotypical adults experience a disconnection from nature, so do adults with ASD, but in a way unique to their disorder (Hunter, 2012, p.50). This is a phenomenon I have experienced teaching art to adults with autism at a local day program. I was most impressed with the need for solutions to engage my students with nature on a field trip this past spring to Chanticleer, a local public estate and gardens. The director of the day program asked if I would lead the students in creating water color landscapes of the gardens. I knew at once that this would be an enormous challenge for them and brought along some alternate lesson plan materials. I remember one of my students walking up to a lilac blossom after being encouraged to smell it and immediately being disgusted by the wetness of the dew on the blossom. Also, the students struggled to look at the gardens and paint what they saw.

Normally able to put their brushes to paper, they showed no interest in the activity, putting down their materials and staring into space. What was all this nature around them? After my lesson at Chanticleer, I found a need for further research on nature based techniques in art education to support the needs of adults with ASD.

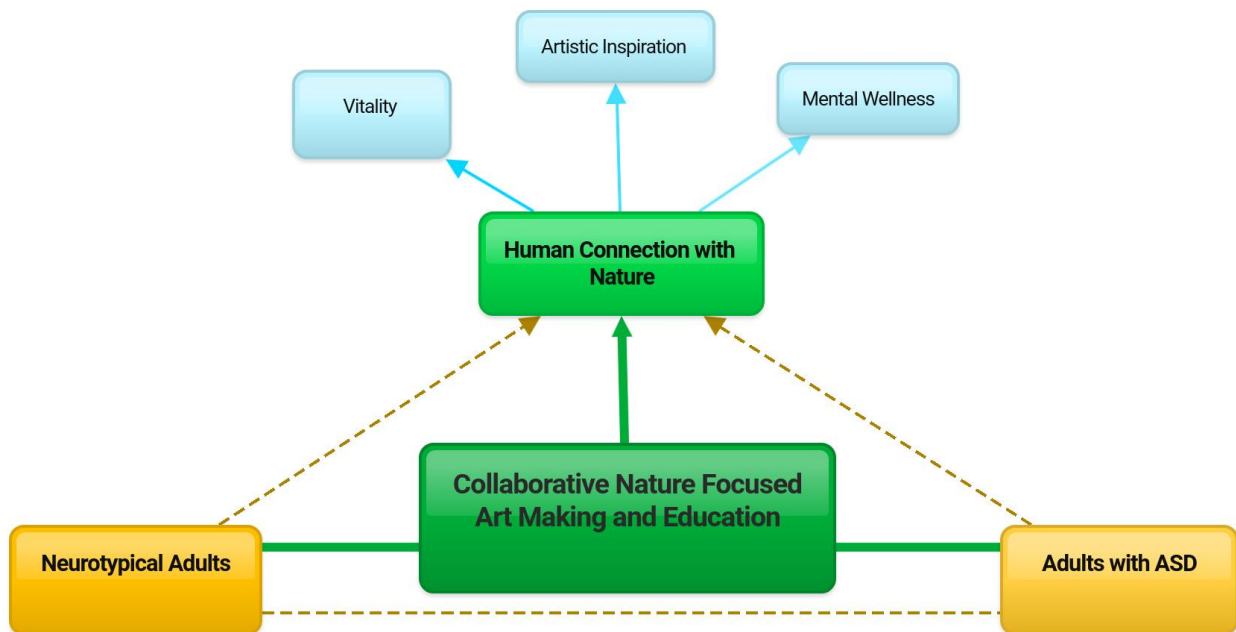
Sally Gradle (2008) advocates that art making that involves the natural world is a “restorative” experience for the average person and that it can inextricably lead to a greater sense of connection to one’s community (p.10). In her afore mentioned article, “When Vines Talk: Community, Art and Ecology” Gradle (2008) poses the question: “How can art education reverse the estrangement students often feel with the natural world, and forge a sustainable vision of education?” (p.7). Gradle (2008) describes how a local art form of “vine wrapping” or “vine craft” in one community in Southern Illinois created a greater connection between individuals and their local natural environment and in turn also fostered a greater connection to their community (p.7). Through supporting quotes by other scholars, Gradle (2008) asserts that this effect is something that can and should be experienced by other communities and humanity in general (p.10).

A voice that is missing in Gradle’s (2008) article is the voice of those with special needs, particularly those with ASD who often experience a strong sense of disconnection. The researcher Siri Carpenter (2015) describes this experience in his article “Disconnected”: “The misconception about people with autism, Laugeson says, is that they’re asocial and perfectly happy being alone. Most adults with autism will tell you that they want to make friends and have relationships, but they don’t know how. As a result, they often experience tremendous loneliness.” (p. 17). Instead of keeping those with autism on the outside of Gradle’s (2008) discourse, how could I, as an art educator include my own students, adults with ASD, in the

exciting experience of art education that addresses that natural world(p. 7)? Could that experience itself lead to making them feel more connected to their community, as it did for the participants in Gradle’s (2008) case study?

With this in mind I asked the following research question:

Given that adults with Autism Spectrum Disorder can experience feelings of "disconnectedness" (Carpenter, 2015) from their communities and the natural world and that Gradle (2008) suggests that art lessons focusing on the natural world can bring about a sense of interconnectedness, how might nature-inspired collaborative art- making encourage a sense of connectedness for adults with Autism Spectrum Disorder in a day program?



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Figure 1: Research question diagram

Theoretical Framework

I applied the ideas presented by Sally Gradle (2008) about the interrelationship of art, ecology and community to adults with ASD, using the art education best practices explored by Simone B. Alter Muri (2017).

From this research, I created a unit of nature based art lessons that would be appropriate for adults with ASD. Collaboration was a theme throughout.

Significance of Study

The findings of this research might benefit art educators who seek to engage adult students with ASD. There has been little research and information about how best to teach this population (Carpenter, 2015, p.7). The results could indicate whether nature focused art making can inspire adults with ASD artistically and whether it could teach them more about art and nature simultaneously. I hope to provide other art educators with effective practices and lesson plans that incorporate the natural world, so that outings to create nature focused art can be rewarding and productive experiences for both the art educator and the adult student with ASD.

My findings could also benefit individuals with ASD in helping them experience a greater sense of connection with the natural world. In my literature review, I explored how research indicates that this connection can lead to increased mental health and vitality as well as closer social relationships. This could increase this population's sense of vitality and inner happiness as well as connect them with the wider community of neurotypical adults through collaboration.

Lastly my research has the potential to benefit communities by the creation of visible art forms. In this way, it could also make adults with autism more visible and more appreciated for

who they are. The implications could be a greater awareness of the value of time spent in nature both for adults, children, and those with special needs. This awareness for the value of nature based art forms and the role art plays in beautifying communities could lead to greater governmental and community support for outdoor collaborative art projects as well as research on adults with ASD. These larger implications, however, will not be a part of my data collection

Limitations of Study

A significant limitation to my study was time constraints. Since I had only eight weeks in which to conduct my study, I did not have time to explore, through data collection and investigation, the effects on the larger local community of the outdoor sculpture my students created. I was able to explore, however, any greater connection experienced between my students, their paraprofessionals and other members of the day program through their collaboration efforts.

My study was also limited by its setting, that of Emmaus Home and the adult students whose work I studied and the work of any of their paraprofessionals who participated on a volunteer basis. The small number of my research participants allowed me to create an in depth case study, but the findings cannot be presumed to be indicative of all adults with autism and more research with a larger number of participants will need to be done.

An additional potential limitation brought forth by the participants in my study was their variable behaviors. Adults with ASD can behave in unpredictable ways and they were not

always able to participate in my lesson plans. This was to be expected and I planned to make my lessons as flexible as possible.

Not only was my student's behavior a variable, so was the outdoor component of my unit. Since three of my six lessons would take place outside, I was limited by the weather and had to adjust the sequence of my lessons to this. If an outdoor lesson was scheduled on a cold and rainy or even snowy day, I had to postpone it for the following week or reschedule it.

My own biases could also have limited my study. As an artist, I myself, am drawn to naturalistic art and am inspired by the natural world. This could have led me to assume that my students should be also or may have led me to read this bias into my observations. From my personal experiences with my son and his special needs and the positive outcomes he experiences from being out in the natural world, I might have been too eager to show that this experience could be common to other individuals with special needs. In the Methodology portion of my proposal I will explain how I planned to balance this potential for bias.

Key Terms

Before continuing with my discussion it is necessary to clearly define key terms I used in both my methodology and literature review. They are as follows:

Autism Spectrum Disorder: Autism Spectrum disorder as defined by National Institutes of Mental Health:

"Autism spectrum disorder (ASD) is the name for a group of developmental disorders. ASD includes a wide range, of symptoms, skills, and levels of disability.

People with ASD often have these characteristics:

- Ongoing social problems that include difficulty communicating and interacting with others
- Repetitive behaviors as well as limited interests or activities
- Symptoms that typically are recognized in the first two years of life
- Symptoms that hurt the individual's ability to function socially, at school or work, or other areas of life" (retrieved from <https://www.nimh.nih.gov/health/topics/autism-spectrum-disorders-asd/index.shtml>)

Day Program: “An Adult Day Program (ADP) is a non-medical adult day services center licensed by the State’s Dept of Social Services Community Care Licensing Division (DSS-CCLD) to provide care to elderly persons and other adults with physical and/or cognitive impairments who require personal care services, protective supervision or assistance in activities of daily living on less than a 24-hour basis.

Services are provided according to an individual plan of care in a structured, comprehensive program that offers therapeutic activities tailored to the individual's abilities; nutrition services; basic health monitoring; transportation coordination; and respite and support for families” (retrieved from: http://www.caads.org/adultdday/becoming_licensed_adc.html).

Nature deficit disorder: The idea coined by Richard Louv (2005) that our contemporary culture suffers detrimental effects due to increased time spent with technology indoors and decrease time spent outdoors in nature (p.36). It is not officially recognized as a disorder by the National Institutes of Mental Health.

Connection and/or connectedness: A “restorative” sense of well being and identification with the natural world and simultaneously with each other that the art educator Sally Gradle (2008) explores in her article “When Vines Talk: Art, Ecology, and Community”. An experience that can lead to increased vitality and mental health (Van den Berg, 2016, p.8)

Environmental Art Education: Art practices that teach both art and ecology and utilize natural materials for the main purpose of the conservation and preservation of the environment (Gradle, 2015).

Nature Focused/Inspired Art Education: Art practices that teach or encourage an appreciation/enjoyment/ and /or interaction with the natural world, where conservation and preservation are not as emphasized, although they are often implicit (Neperaud, 1997, p.19).

Assumptions

In this case study I do not intend to assert that nature based art making is the only way for adults with ASD to experience a connection with the natural world. Instead, I present it as one avenue among many. Given that even average adults have differing needs for connection with their community and with nature to feel happy and fulfilled, the issue of whether all people will experience beneficial effects from nature focused art education will not be debated because of the differing needs of some individuals.

Given that I am an art educator and not an art therapist, I did not aim to provide nature focused art therapy to my adult students with ASD. I took the approach that the art educator

Simone B. Alter Muri (2017) advocates: “Integrating concepts from UDL and concepts from art therapy helps art educators to develop and modify lesson plans that accommodate all learners and allow for the symptoms of students with ASD to decrease “(p.25). In this manner I viewed my research from that of an art educator who was both aware of the therapeutic benefits inherent in art making and endeavoring to make these benefits more accessible to adults with ASD through art education.

In my research, I also did not intend to offer nature therapy as a cure for individuals with ASD. I also do not suggest that ASD is caused in some way by nature deficit disorder (Louv, 2005, p36). Although linkages between nature deficit and ASD have been researched (Lite 2008) there is no official connection between them listed in the National Institutes for Mental Health (retrieved from <https://www.nimh.nih.gov/health/topics/autism-spectrum-disorders-asd/index.shtml>). In my literature review I will address Louv (2005)’s description of nature deficit disorder as “cultural autism” and discuss how the relationship between individuals with ASD and the natural world is much more nuanced and complex (.p36). ASD remains a continuously researched condition currently without a known cause or cure (retrieved from <https://www.nimh.nih.gov/health/topics/autism-spectrum-disorders-asd/index.shtml>). In his article “Disconnected”, the educator Siri Carpenter (2015) advocates for more research on adults with ASD from the perspective of “stress reduction” for both them and their families” instead of research that “presumes there's something defective with the person, and if we want the person to have a better outcome, we need to fix the person.” (p.17). My research aligned with Carpenter’s perspective, of not attempting to “fix” individuals with ASD, but rather to decrease their stress through the nature-inspired art education.

My research aimed to directly address whether neurotypical adults and adults with ASD are detrimentally disconnected from the natural world due to the rise of technology. This is an issue that continues to be debated in our culture and among current scholars. Research indicates that more time spent outdoors is beneficial to both populations. Given that many people have experienced a sense of connection and vitality from being out in nature creating an environmental art education activity, I debated the issue of whether this same effect could assist adults with autism. This could indicate that more of these projects could be beneficial for art educators to introduce. Since many adults with autism experience anxiety and depression and also may simultaneously experience a disconnection from the natural world, I addressed the issue of whether time spent making art in nature could decrease these symptoms, since this knowledge could be helpful to them.

Timeline of Study

I presented my research in the form of four chapters and my timeline was as follows:

Month	Process	Steps to Accomplish
December 9	Proposal Hearing	Complete AEGR618 course requirements and participate in proposal hearing on Dec 9.
December 16	Gain IRB Approval	Submit full proposal as requested no later than December 16th
January	Seek participant permissions	Working with site(s), distribute and collect IRB approved permissions. Finalize plans with potential outdoor/nature space for field trips and art

		installation.
January 16th	Prepare to launch field study	Begins fieldwork course to ensure readiness
Early February	Collect data for the “before” portion of your research. Begin financial preparation.	Send out initial written surveys/interviews. Complete participant observations of a regular class. Save up \$25/week supply stipend.
Mid February	Collect all the supplies needed for the unit and finalize any unfinished details	Make supply lists, research suppliers.
March 10 th or so	Begin teaching unit, see unit plan. Begin collecting data from observations and interviews	Start with a field trip to outdoor/natural space
Mid to end of April	Finish unit and conduct “after” data from continued observations and final surveys/interviews.	Install collaborative piece in outdoor space. Conduct final observations and interviews
April-May	Analysis of Data and writing	, Work on completion of Chapter 4: Results of Study. Compare and contrast before and after data
May-June	Final Details	Write Chapter 5: “Conclusions and Implications for the field”
August 4th	Thesis Presentations	Present Thesis
August 10th	Thesis Exhibition	Exhibit Thesis

CHAPTER 2: LITERATURE REVIEW

Introduction

In this review, I gathered information from an array of sources to explore the benefits of and best practices for nature-inspired collaborative art making for adults with ASD in the setting of a day program. I showed how past researchers have documented and implemented a variety of methods that support my researcher model. I explored what methods might be the most effective when teaching art activities and how art educators might be able to assess if they are successful. I hoped to encourage further research in this field.

Contemporary Culture and the Negative Effects of a Disconnection from the Natural World

Psychologist Victoria Dunckley has uncovered about the effects of screen time on individuals with ASD a recent article in *Psychology Today*. Dunckley (2016) concluded that although those with ASD are more attracted than the average person to screens, at the same time they experience increased detrimental mental health effects from it (“Autism and screen time: Special brains, special risks”). Her study linked screen time to a myriad of diminished mental health symptoms in individuals with ASD, ranging from anxiety to poorer sleep patterns (Dunckley, 2016, Autism and screen time: Special brains, special risks). Dunckley (2016) stated

that those with ASD are particularly vulnerable to screen addiction (Autism and screen time: Special brains, special risks).

Individuals with ASD are not alone in their fascination with screens. The psychologist, Delaney Ruston (2016) explains “a recent study from Common Sense Media (CSM) surveyed 1800 adults“ found that (adults) spend 7.5 hours a day of non-work time on screens, and 1.5 hours a day of work related screen time “ (**“Do you know how much time parents spend playing video games?”**) . Whether it comes to video games, iPads or iPhones every adult is trying to figure out how to mitigate their “screen time” both for themselves and for any children they might be raising. This contemporary debate is explored in depth by Delaney Ruston (2016) in her recent film *Screenagers: Growing Up in the Digital Age*. In the movie, Ruston (2016), an expert on child and adolescent development, encourages parents to balance their adolescent’s screen time with other interests. Some of these activities involve fresh air and exercise outdoors such as becoming involved in a 4H club or Boy or Girl Scouts (*Screenagers: Growing Up in the Digital Age*).

It is an innate sense we humans have that time spent out in nature is beneficial and that the technological revolution has removed us from it in varying ways. The British educator, Dr. Blakesly (2017) describes this phenomenon:

In our modern world, we have surrounded ourselves with new technology and inanimate objects and devices, which have alienated many of us from nature. As a result, the natural world has become little more than another commodity to many of us – something to possess, to look at from a distance. This disconnection with the environment has been a gradual thing, which has crept up on us, imperceptibly, one generation at a time. Now,

the majority of us cannot recognize the song of a Blackbird, know which berries we can eat in the hedgerow or indeed even feel comfortable in the countryside (p.IV)

Perhaps, this experience is just part of an inevitable change in human development and that we no longer need this connection to nature. Blakesly (2017), however, argues: “The value of being outside and reconnecting with nature, particularly while growing up and developing life skills, is known to be of huge value to ... everyone” (p.IV). If, however, “everyone” does not know this, the weight of scholarly and scientific research on the subject is very persuasive.

For example, an expansive quantitative study performed by the scientist Magdalena Van Den Berg (2016) found that adults can dramatically increase their mental health and sense of vitality by visiting “green space”. The study, published in the public health journal *Health and Place* charted the change in individuals from four different European cities when they increased the number of their visits to local parks (Van den Berg, 2017). All of these adults lived in an urban environment and did not often visit natural spaces. Van den Berg (2016) summarizes her findings, explaining:

Multilevel analyses showed significant positive associations between time spent visiting green spaces and mental health and vitality in the pooled data, as well as across the four cities...the findings confirm the hypothesis that more time spent in green space is associated with higher scores on mental health and vitality scales, independent of cultural and climatic contexts (para.1).

The study defined vitality as energy and lack of fatigue and mental health as a lack of depression and anxiety (Van den Berg, 2016, 2.1) To assess this, Van den Berg (2016) used a

questionnaire delivered through in person interviews, or by mail to one city that was of too far away (2.1) . She explains:

Two subscales from The Medical Outcome Study Short Form (SF-36) general health survey were used to measure mental health and vitality (Ware and Sherbourne, 1992). The 5-items mental health subscale assessed nervousness and feelings of depression in the past month. The vitality subscale includes four items and assessed perceived level of energy and fatigue. All items were scored on a 6-point scale and summed scores were transformed into a scale from 0 to 100. Higher scores reflect better mental health and higher vitality. Both subscales have been shown to be a reliable and valid measure of mental health (Ware, 2000) (2.1).

Here Van den Berg (2016) demonstrates the veracity and professionalism of her study.

Van den Berg's (2016) voice is but one in a large number of scientists and scholars who argue for the continued human need for a connection to nature. Perhaps one of the most well known of these thinkers is the naturalist and educator Richard Louv whose ground breaking book *Last Child in the Woods* became a national bestseller in 2005. In his book, Louv (2005) coins the term "nature deficit disorder", describing it as: "the human costs of alienation from nature, among them: diminished use of the senses, attention difficulties, and higher rates of physical and emotional illnesses" (p. 36). Louv's (2005) book charts the detrimental effect too much screen time indoors is having on American children and argues that more time spent in the natural world is an urgent need. Although Louv's (2005) book mainly argues for the importance of exposing young children to nature he does deal with some studies that indicate that adults also benefit from exposure to the outdoors. He explains:

Research revealed Michigan prison inmates whose cells faced a prison courtyard had 24 percent more illnesses than those whose cells had a view of farmland. In a similar vein, Roger Ulrich, a Texas A&M researcher, has shown that people who watch images of natural landscape after a stressful experience calm markedly in five minutes: their muscle tension, pulse, and skin conductance readings plummet (Louv, 2008, p. 46).

Here, as in Van den Berg's (2016) study, the natural world is seen as therapeutic for both mental and physical health.

Autism Spectrum Disorder and Nature Deficit

As stated scientists believe time in nature is therapeutic for adults and children. Next I will explore if it can benefit specific populations differently. Dr. David Blakesly (2017), a British naturalist and educator explains:

The value of being outside and reconnecting with nature... is known to be of huge value to absolutely everyone, but especially to those with special educational needs. Being outside has the ability to sooth and heal, to fascinate and inspire, with the added bonus of developing a life-long connection to nature, which will nurture the need to look after and protect these special places (IV)

Blakesly is the founder of Autism and Nature, a nonprofit in the United Kingdom that seeks to make the natural world more accessible to those with Autism Spectrum Disorder. Autism and Nature was founded with the cooperation of the UK's Sensory Trust and National Autistic Society. Autism and Nature provides guide books to parents and caregivers for taking individuals with ASD on hikes and trips throughout the local countryside. It also performs case studies in cooperation with local public schools to assess the success of field trips to the

countryside for adolescents with ASD. Why might individuals with ASD stand to benefit from such experiences?

Individuals with Autism might benefit from these activities since they often experience diminished mental health as part of their condition. The National Institute of Mental Health lists “anxiety and depression” as “difficulties that are common” with ASD (“Autism Spectrum Disorder”). It states that these are conditions for which they often need medication (“Autism Spectrum Disorder”). If time spent outdoors can make neurotypical adults more vital and mentally well, perhaps it could do the same for adults with autism who demonstrate an increased need in this area.

Dr. Blakesly of *Autism and Nature* (2017), however, asserts that time spent outdoors can bring additional benefits beyond just mental health to adults with autism. He explains:

Such experiences (nature) are especially valuable for people with autism, because they can provide: • a calming environment which helps to reduce stress and anxiety; • opportunities to take part in activities with family and friends, developing social skills; • new sensory experiences that are soothing; • opportunities to find plants, birds, animals and rocks that could become a focus of special interest; • artistic inspiration from colours and forms seen in the landscape and clouds” (Blakesly, 2017, p.IV).

Here, not only can time spent in nature improve mental health for those with ASD, it can also be a way for them to both connect better socially and process their senses more successfully. It even has the potential to inspire them with new ways of art making or through subject matter.

Yet, in my own experience as an art teacher to adults with ASD, taking them out into a natural setting, so that they can connect with it, is not always this easy. Students can be

distracted by other elements of the field trip itself, or be overwhelmed with the intensity of the sensory experience. The extensive collection of guide books offered to caregivers by Autism and Nature for taking individuals with ASD out into the natural world is evidence that I am not alone in this experience. In one particular guide book, *Visiting the East Sussex Countryside*, Dr. Blakesly (2017) suggests:

Here are a few tips on how to prepare for an outing to the countryside with your child or friend with autism. Careful planning means that as far as possible, you can select suitable locations avoid the unexpected and reduce anxiety for the person with autism (p.3).

Here we see that experts advocate taking those with ASD into the natural world can involve, at the very least, advance planning.

The evident challenge individuals with autism experience in the natural world is one that is a part of their condition; this being their difficulty with connecting to their environment. The American Institute of Mental Health states that symptoms of ASD include:

- Ongoing social problems that include difficulty communicating and interacting with others
- Repetitive behaviors as well as limited interests or activities (retrieved from <https://www.nimh.nih.gov/health/topics/autism-spectrum-disorders-asd/index.shtml>)

The art educator Simone B. Alter Muri (2017) explains further: “Emotional issues among students with ASD can include feelings of aloneness, along with withdrawal from the surrounding environment accompanied by anxiety, fear as well as a lack of emotional reciprocity” (p.23).

All of these symptoms show the challenge adults with ASD have in relating to their environment.

The outdoors can be a particularly challenging environment for adults with ASD because of its potential for overstimulation. The art educator Simone B. Alter Muri (2017) describes how just the interior noises of a classroom can be a challenge to individuals with ASD. She explains that: “Individuals on the spectrum may have difficulties with attending to one sound when another sound is taking place...auditory processing can fluctuate...smells may also increase hypersensitivity. Teachers should employ strategies so that students are not overwhelmed by environmental stimuli” (Alter Muri, 2017, p.23). Now, imagine you are someone with ASD stepping out on walk in the woods on a bright spring day. The sun may feel too warm, the sound of the breeze and the bird song may be too loud and the smells of spring flowers too pungent. The experience itself has the potential to be incredibly overwhelming.

Nature Based Art Education for Adults with ASD

There are many ways neurotypical adults connect with the natural world: hiking or bird watching to name just a few. However, in the case of an individual with autism, they may benefit from a more focused and organized activity. Autism and Nature’s guidebook *Visiting the East Sussex Countryside* includes several case studies of activities that have been successful with students with ASD from local public schools. One involved a collaborative art project at a local beach:

The next activity was to collect larger pebbles, which they painted with all the colours of the rainbow. There was as much paint on some hands as on the pebbles, so when the artwork was complete, the children ran down to the shoreline to wash their hands in the sea. Finally, there was time to create a giant crab from driftwood, Cuttlefish bones and

debris from the strandline. The crab's empty eyes were made from soft, yellow balls of Whelk eggs, which stared up at the children. All the children enjoyed this activity, and posed proudly by their artwork for photographs (Blakesly, 2017, p.36)

Here we see the creation of art inspired by nature as a means to connect with the natural world. This type of art making, however, is not just the domain of children. It has been a means by which adults have connected with the natural world from the beginning of recorded history. It is in the early cave paintings of horses at Marseille and the ancient Native American serpent mounds. We see it in Impressionist's expression of landscapes and also in the contemporary landforms of Andy Goldsworthy. The natural world is a source of constant artistic inspiration. Art making can be one way for both adults with ASD and contemporary neurotypical adults to connect with the outdoors and experience its gifts of vitality and mental health.

So far, the research performed by Dr. Blakesly (2017) on adolescents with ASD also shows that these individuals, like neurotypical adults, do experience benefits to their mental health from being outdoors, particularly during focused and creative activities. He describes the observations of teachers from a local public school after taking their students with ASD on a field trip lead by Autism and Nature:

We have written about some of the benefits in Part 3 of this guide, which describes six visits to the East Sussex countryside with classes of school children with autism. Some studies, such as the Royal Horticultural Society Special Educational Needs (SEN) schools project, worked with classes with a wide range of conditions, including autism (Blakesly, 2017, p.4).

The teachers observed an improvement in the “social skills “of the students and a decrease in their challenging behaviors (Blakesly, 2017, p.36). The students were unusually engaged and motivated to participate (Blakesly, 2017, p.36). Blakesly also records the teacher’s observations after completing a shelter building activity with the students:

The teachers remarked that the children were much more relaxed... and clearly enjoyed the practical den building activities. They were pleased and genuinely surprised at how well the children worked together, and how long they persevered with the task of building the den. Visits such as this give children opportunities to develop their social and communication skills, and to have new conversations and develop new relationships with other children as well as their teachers. Two children showed significant improvements in their behaviour, just during this one visit to the countryside (Blakesly, 2017, p.49).

Here we see evidence that nature focused creative activities have a wide range of benefits for those with ASD. Their behaviors and attention spans improved and they were motivated to practice new fine motor skills. As they connected with nature, they also began to connect more with each other and with their teachers. Yet perhaps this is just part of the enthusiasm children with ASD might experience out of doors and perhaps green space may not be so inspiring to adults with ASD.

The voices and artwork of some adults with ASD are also evidence that, although they may seem at times disconnected from the natural world, art making can be a means for them to connect as well. In the book *Drawing Autism*, Jane Mullin (2014) compiles a fascinating array of artwork by adults with autism and interviews them about their work. One artist, Esther

Brokaw, an adult with high functioning ASD, creates beautiful images of trees in autumn.

Brokaw explains her motivation:

As a child I loved to peer into the forest with all the light streaming through the leaves.

As an adult, I wanted to paint this painting in autumn in the woods, showing the light coming through the brightly colored leaves like stained glass in a cathedral. Standing in the woods I get an awe inspiring shiver and a spiritual inspiration (Mullin, 2014, p.475)

Here Brokaw shows that art making is a way for her to express the mental vitality she experiences from the natural world. Another artist with ASD who Mullin (2014) showcases in her book, Eleni Michael, write about her paintings of landscapes: “I wanted to create a mysterious beautiful image of nature. This painting is about my yearning for beauty and harmony in the world” (p. 539). Michael later states “I love the natural world and often paint nature subjects” (Mullin, 2014, p. 619). These artists with ASD provide documentation of the connection they have to nature, which may not always be easily verbalized. They provide us with a voice for those who may be nonverbal. Art making can be a way for these adults to communicate and express their inner feelings about nature. Mullin (2014) describes this when writing about one particular section of art she compiled in her book: “‘bird’s eye view’ surveys meticulously detailed landscapes. In some cases every ray of sunlight is accounted for...the detail and beauty related to the scenes can help us appreciate how some of the artists may see their world everyday” (p. 117). We may not always know exactly the connection adults with ASD may feel in green space, but we cannot assume that they do not experience one. The art educator, Alter Muri (2017) reflects this when she states how Alice Wexler (2009): “discussed that individuals living with autism wrote about inner lives that many researchers previously did not believe existed” (p.24). Here we see that art making not only has the power to help

individuals with ASD connect with the outdoors, but also better communicate those feelings with others, thus forging a greater connection socially.

Art educators can have a role to play in this process, even for adults with ASD. Indeed, as Dr. Blakesly (2017) of *Autism and Nature* advocates, education, with its' focused activities, is an effective and useful tool for engaging individuals with the natural world, and for who better than those with special needs (p.3).

Nature Focused Art Education for Adults with ASD: A Research Gap

There has been little research on how art educators can best reach adults with ASD and how nature-inspired art education can benefit them. Dr. Blakesly (2017) of *Autism and Nature* explains that, although there is great deal of research that has been done on the benefits of time spent in nature for neurotypical children: “few studies have been undertaken with children on the autistic spectrum” (“Nature and Autism”). If there is a gap in research on the benefits to children with ASD, even less has been attempted for adults with ASD. As the reporter Siri Carpenter (2015) explains in his article “Disconnected”:

Scientists are beginning to take note, but their understanding of how best to help adults with autism is paper thin. Of the more than \$400 million that the United States spends each year on autism research, the vast majority is for two avenues of study: genetics research to find the causes and a cure, and studies on early diagnosis and intervention in children. Few studies have examined treatments for adults (p.7).

Most therapists stress the importance of early intervention in children with continued therapies up through their adolescence. After this, as the brain matures, it is assumed that less can be done for individuals with ASD. Temple Grandin, a successful designer and activist with ASD

herself, has expressed the need for more research in Susan Senator's (2016) book *Autism Adulthood*. Grandin states "There is a huge need for books to help individuals with autism make the transition to adulthood" (Senator, 2016, p.1). This need will be a continual one as the rising numbers of children diagnosed with ASD, "6-15 percent each year from 2002 to 2010. (Based on biennial numbers from the CDC) ", to be exact, age into adults in need of care (retrieved from <http://www.autism-society.org/what-is/facts-and-statistics/m>). Currently, more money is spent on services to this growing population of adults with ASD, than on children (retrieved from (Buescher et al., 2014) <http://www.autism-society.org/what-is/facts-and-statistics/>).

To arrive at a successful way to engage adults with autism in nature focused art education we can, however, fuse the best practices of teaching art to individuals with ASD with nature focused art activities that have been effective with neurotypical adults.

Nature Focused Art Education for Neurotypical Adults: Connection and Collaboration

In an article written in 1997 for the magazine *Art Education*, the art educator, Ronald Neperaud explores the experiences and results of a colloquium on nature focused art education for neurotypical adults. He relates the importance of such art being collaborative (Neperaud, 1997, p.15). He describes the nuanced and rich discourse as well as sense of community that the participants experienced. The colloquium, entitled "Art and Ecology" was held at the University of Ohio and involved group art making activities to study the relationship of art and the study of nature (Neperaud, 1997, p.15) A group of art educators, volunteers, park rangers, and ecologists came together to create "environmental art" for five days (Neperaud, 1997, p.15).

This group of adults engaged in such activities as strolling through a public topiary garden created to resemble Seurat's "Sunday Afternoon". They created artistic shelters for local wild life. Neperaud (1997) explains:

Lynne Hull, whose work Raptor's Roost is featured in Gablik's "The Reenchantment of Art (1991), led colloquium participants in creating ecologically sensitive structures for turtles, toads, dragonflies, birds, and other pond life at the Pickerington Elementary School Wetland. These constructions served not only as planned actions but also as restorative acts (p.16)

Neperaud (1997) describes the results of the colloquium, obtained from a brief pencil and paper questionnaire that was distributed to participants:

How is art related to ecology? To some participants art celebrates the joy found in nature because nature itself is art. Some teachers saw art as a visual language capable of conveying strong environmental messages. To others art reflects ecological history, values, and hopes for future environmental relationships and is a means of enhancing an environment and developing awareness of environmental issues. Other teachers suggested that art and ecology are related in broader ways, for example, with the concerns of the society (p.17)

Here Neperaud's (1997) evidence shows that, for neurotypical adults, art making inspired by nature is a continuing uplifting experience with many different avenues and point of view to explore. Ultimately, it explains why environmental art often leads into a discussion of

community and interconnectedness, especially when the art making is collaborative. He writes how:

A team spirit and a sense of community were achieved through the colloquium. Many participants spoke of the camaraderie resulting from collaborative efforts and the fact that up to 12 hours a day were spent with others for the common purpose of relating art, ecology, and curriculum concerns (p.18).

Here we see nature focused art education as a way for neurotypical adults to experience a connection with nature and with each other through collaboration. Research needs to be done into how art educators can make this experience accessible to adults with ASD and the benefits that might result.

Applying Best Practices for Adults with ASD: Day Programs and Collaboration

In her recent article “Art Education and Art Therapy for Autism Spectrum Disorder Students”, the art educator Simone B. Alter-Muri (2017) relates art education practices that she has found successful in engaging students with ASD. She explains how collaborative art can be a good way of reaching them: “Although the emphasis is not on product but process, a satisfying collective project can develop a sense of success, which increases a connection to the outer world (Martin, 2009)” (p.23). Here collaborative art making, a successful nature focused activity for neurotypical adults, can also engage students on the spectrum as well and increase their social connectedness. The art educator Beverly Gerber (2006) touches on this when she describes the positive effects of a collaborative nature focused art activity on a group of adolescents with

developmental disabilities. She describes a unit developed by the organization Art Partners in which the teens studied the art of the landform artist Andy Goldsworthy and other environmental artists (Gerber, 2006, p.185). The students created and exhibited together a collection of artworks about environmental concerns (Gerber, 2006, p.185). She writes how “They learned empathy for people and things beyond their own sphere of interest...therapeutic teachers recognize the need to create, model, and teach community building with students” (Gerber, 2006, p.185). Here again nature focused art making can the connection individuals with ASD experience not only with nature, but also with others. Neperaud (1997) even goes so far as to states that:” Embedded in (nature based art making) ... is a social relationship. In considering art, aesthetics, ecology or other experience, one is intimately tied not only to one's own previous experiences but also to a community of like-minded others” (p.19). In the experience of connecting to nature through art making we inescapably connect with each other.

The setting of a day program, the situation many adults with ASD find comfortable, is ideal for collaboration. Susan Senator (2016), in her book “Autism Adulthood” describes the usual structure of day program and how they are often “set up with enriching activities, structure, and community based occupations” p.(XVII). Day programs have neurotypical staff working with adults with ASD on life skills and focused projects. Day program participants have the continual opportunity to interact with the staff and with each other. Collaborative nature focused art making can be a means to encourage and enhance these already vital connections. Alter Muri (2017) advocates for this, stating; “collaborative group projects...assist in the practice of social skills” (p.24). Collaborative projects can boost the overall morale of everyone at the day program by the creation of something visible that expresses a positive experience together. As discussed, neurotypical adults in contemporary culture exhibit a need to connect to the natural

world too. Should members of the staff of a day program become involved in a project with the participants it could benefit them as well.

Effective Collaborative Nature-inspired Art Activities

There are seemingly endless possibilities for creating a unit on collaborative nature focused art making. Researchers need to explore what types of projects are most accessible to individuals with ASD and how to introduce them. The art educator, Simone B. Alter Muri (2017) explains: “there are many considerations in developing lesson plans for the student with special needs” (p.21). This is true especially when introducing the potentially over stimulating natural world to adults on the autism spectrum. The valuable insights offered by Alter Muri on teaching art to those with ASD in her aforementioned article: “Art Education and Art Therapy Strategies for Autism Spectrum Disorder Students” can be applied to a classroom that embraces the outdoors. From the information gleaned in this article and from my research I envision a unit that incorporates natural forms and photography in an open self led setting. An additional engaging element could include the creation of something that preserves or benefits a part of the natural world. Through teaching this type of unit, adult students with ASD could connect collaboratively with nature and their peers.

By natural forms I mean leaves, pinecones, sticks and other materials that easily found in nature. These can be combined to produce a sculpture or be used in printmaking. Natural forms, as opposed to encouraging students to create traditional two dimensional paintings or drawings of the natural world, are more accessible. Although many traditional landscape painters have connected with nature through representation or en plein air painting, merely asking adults with ASD to go out in nature and paint it, however, can be highly problematic.

Alter Muri (2017) explains that many individuals with ASD exhibit “the difficulty to represent through the use of symbols” (p.21). I have found this with many of my students on a field trip to an historic garden last spring. When asked to paint a water color of the landscape, some students had difficulty visually representing the landscape in front of them and they became quickly disengaged. The psychologist and art educator Kyle Hunter (2012) explains how those with ASD often experience a different way of seeing due to “weak central coherence”:

Central coherence is the ability to see wholes comprised of parts. Persons with weak central coherence focus on the details, to the exclusion of the larger picture. Central coherence describes the aptitude to recognize wholes from smaller fragments. For example, a person with autism may center his or her attention on the mouth of a face, failing to understand that the mouth is but one component of a whole (p.49).

For some individuals with ASD, this can make a large vista of trees and hills and bushes hard to visually represent. Introducing them to something small from nature, a part of the larger whole, that they can touch and look at closely can ultimately be more effective and comfortable for them. I noticed this with the same group of students on the field trip I mentioned before. When I brought a leaf to them and asked them to paint it or even to put it on their paper and paint around it to mask out patterns, they became instantly engaged and enjoyed the experience.

Not only was a leaf or group of leaves less overwhelming because of its smallness, but also because of its lack of change. Alter Muri (2017) explains how, for students with ASD, “Focusing on an object that has the least amount of change may help individuals to modify a sense of being overwhelmed by an overload of stimuli” (p.22). One leaf, unlike the landscape with its shifting shadows and branches waving in the breeze, is less changeable and more

permanent and thus a less overwhelming experience for my students with ASD to take in. All of these factors make a collaborative nature focused art project that involves the use of natural forms very accessible to students with ASD.

This is something that the researchers of Autism and Nature seem to already be aware of when they describe the collaborative art activities that they introduce to students from local public schools; activities such as collecting pebbles and applying paint directly to them or building different structures from found sticks (Blakesly, 2017, p.36). The teachers involved in these types of projects had a high level of success with students, noticing that: “Another child impressed the teachers with his focus, as he sat still and concentrated ...when normally he would be constantly on the move, either standing, bouncing or hand clapping. (Blakesly, 2017, p.36). Here we see how natural forms can help those with ASD connect to nature and experience mental health benefits from this.

Natural forms have the added benefit of sensory engagement, but must also be introduced with care. Alter Muri (2017) explains how “Some materials may be over stimulating due to tactile hypersensitivity. Pre-Art activities such as indirect exploration of the material can be helpful” (p.22). Here we can envision the importance of allowing adults with ASD to touch and manipulate natural forms prior to working with them. Dr. Blakesly (2017) of Autism and Nature describes how stimulating and exciting an experience this can be when he relates the reactions of a group of children with ASD to natural forms:

James asked them to sit on logs under a giant Sweet Chestnut tree, and all were keen to explore the contents of James’s huge ‘touchy/feely’ box. James pulled out an animal

skin, which turned out to be from a Fallow Deer. This was very soft, and everyone was keen to touch the fur...the children enjoyed touching it (p.53).

These children are exhibiting what Alter Muri (2017) quotes the researcher Martin (2009) noticing: “that sensory experience... is important and can lead to increased verbal and nonverbal communication (p.21). Here it is evident that working with natural forms can be an ideal way for individuals with autism to connect with nature through art because of their sensory stimulation. Although adults with ASD may not approach the sensory stimulation of natural forms with the same sense of discovery as children, they may not have much opportunity in their daily life to be reminded of how these forms feel.

Another key element in teaching students with ASD that Alter Muri (2017) reveals in her article is the use of photography for self expression. Photography has many possibilities for helping individuals with ASD connect to the natural world through art making, especially given their challenges with representation. Alter Muri (2017) explains how she was able to engage one student through photography, who previously would only scribble (p.24). She noticed how he would often carry a photo clenched in his hand (Alter Muri, 2017, p.24). When she gave him a camera and taught him to take pictures he became very interested and was even able to create his own photo album (Alter Muri, 2017, p.24). He began to talk about his album with others which enhanced his positive communication skills and connection with others (Alter Muri, 2017, p.24). Photos, like natural forms, have permanence to them that make them easier to experience for those with ASD. One artist with ASD showcased in Jane Mullin’s book “Drawing Autism”, Shawn Belanger, paints beautifully detailed landscapes. He prefers to work from photographs rather than form direct experience. Mullin (2014) relates how “he is often inspired by photos from National Geographic” (p.288). Photography also includes the element of the screen and of

technology, something many individuals with ASD are drawn to. Having individuals with ASD take photos outdoors on a nature walk could provide artistic inspiration for them when they are back in the classroom.

Taking photos while on a nature walk can also be a way of assessing what parts of the natural world adults with ASD are interested in and become useful information for more engaging self led art projects that might in turn foster greater connection. For many adults with ASD who have fixations and repetitive behaviors, an art educator must meet them where they are and then encourage them in new directions. Alter Muri (2017) explains how some artists with ASD have an “insistence on sameness” and a “repetitive” fixation (p. 22) Alter Muri (2017) explains: Student’s motivation can increase when aspects of their (repetitive) art are valued” (p.22). She also describes how the art educator Robert Carr developed a program that promoted student’s learning through exploration of ideas developed from their interests (Alter Muri, 2017, p.21) She writes how Carr experienced greater success in the classroom by exploring what the students were interested in (Alter-Muri, 2017, 21). From the elements of the natural world an individual with ASD chooses to photograph, an art educator could learn what aspects of it they are already inspired by or interested in. Dr. Blakesly (2017) of *Autism and Nature* reflects this when he describes how time spent in nature provides “opportunities to find plants, birds, animals and rocks that could become a focus of special interest “ (p.2) This can be valuable information for helping art educators create nature related art projects that they will engaged their particular students with ASD.

When taking students with ASD into nature on a photography field trip careful advance planning could lead to greater success. *Autism and Nature’s* guide books advise: “use visual supports and timetables to prepare the person with autism before the outing, for example, the

pictures in this guide or a sketch map of a circular walk might help” (Blakesly, 2017, p.3). Alter Muri (2017) also advocates the need for such preparation, advocating that art teachers should “break down” all the parts of the lesson into “smaller components” and should introduce materials slowly (p.21). Art education units aimed at helping adults with ASD connect with the natural world through photography and /or natural forms should be attempted slowly and with care. It would need to include field trips to outdoor spaces, but these trips should be carefully placed in the unit, with preparation for the students beforehand. An art educator may experience more success from visiting the site and planning their visit carefully. The unit could build slowly starting with smaller projects and opening out into a larger collaborative piece.

Environmental Art Education

Although not directly related to Alter Muri’s article, but of great importance to the creation of nature related collaborative art is the theme of environmental concern and education. The art educator Neperaud (1997) even goes so far as to say:

A relevant relationship between art and environment cannot be achieved by simply considering nature as subject matter or as a material from which to create art.

Relationships among art, aesthetics, ecology, and curriculum are part of a holistic process, for the moment one experiences directly, other linkages emerge (p.19)

Neperaud (1997) shows that environmental concerns are implicit in lessons that involve the natural world. This could be a theme that might prove very effective for helping adults with ASD connect with the natural world and would be ideal to include in lesson planning. Many of the collaborative art projects described in this review have involved the building of a shelter for an animal or the preservation of natural spaces. In Neperaud’s (1997) article the neurotypical

adults at the environmental art colloquium worked together to create shelters for wildlife (p.16). In the Art Partners project adolescents with ASD created art about environmental concerns and this created in them a new sense of empathy (Gerber, 2006, p. 185). For individuals with ASD this type of activity need not be about an environmental concern that is extremely complex. As Alter Muri (2017) advises: “Activities need to be simple, yet engaging” (p. 24). A collaborative project involving something as simple as making a large bird or animal feeder from natural forms might help individuals with ASD connect to the natural world through art. It could also be a sculpture related to a garden with plant elements that might grow over the course of time. This type of activity could help individuals with ASD connect with nature by directing prompts about the birds and animals that populate it or about how plants grow. It would be an exercise in how they might become “caregivers not care takers “(Gerber, 2006, p.185). Returning to a sculpture to take photographs or to see how the elements have changed it, or to even see what animals it has attracted, would be nice way to close out a nature based unit.

The possibility of incorporating video in this type of activity could be an interesting one in which the students could tape and watch how the sculpture changes over time. This could reference the work of the video artist Bill Viola whose video piece “A Million Other Things” invites viewers to sit and watch his recording of a landscape as it changes over the course of one day. Video can be way to reach adults with ASD through art making since they are often so intensely drawn to the screen. As the psychologist Victoria Dunckley (2017) explains “Individuals with autism are typically highly attracted to screen-based technology “(p.1). To incorporate video into a unit on nature based art making would be a way to meet students where they are with an activity that can often decreases their mental health (Dunckley, 2016, p.1) and reclaim it for connection with nature, an activity that has been shown to increase mental health in

neurotypical adults. Here, as Alter Muri (2017) advises, we would be returning to a natural interest of theirs and reclaiming it for an artistic activity that connects them to the natural world and to each other.

Assessing Success through Narrative

The art educational activity of teaching adults with ASD to connect to the natural world and to each other through collaborative art making can be challenging. Indeed, Alter Muri (2017) relates that in general “it can be challenging to obtain attention and engage clients (with ASD) in projects “(p.24). For adults with ASD who may be nonverbal or have difficult verbalizing, art educators need to seek alternative ways to know about their experience. Perhaps focusing on signs of increased mental health could provide clues. This is a result seen in neurotypical adults when they spend time in nature. In Andra Nyman’s (1999) book *Issues and Approaches to Art for Students with Special Needs* she presents how an art educator can find clues for an individual with ASD’s experience through narrative and careful observations (p.101). She discusses how the scholar Gleason (1993):

Proposes a theoretical guide for interpreting “what persons with severe or multiple developmental disabilities do in context (p.157). He suggests that “there are visual clues for discerning patterns of participation. ...For Gleason, explanation of what an individual does “involves deciphering patterns expressed through their human systems” (p.101).

According to Gleason, “Making sense of what is implicit in what (individuals) are doing is an avenue for discovering the capabilities of the person” (Nyman, 1999, p.102). There is an emphasis on observing changes in behavior patterns to assess positive experience in the case studies of Autism and Nature, which focus heavily on the teacher’s reports of the student’s new

exuberance and ability to focus (Blakesly, 2017, p.52). Watching and observing the behaviors of adults with ASD before and after creating nature based art could provide a window into what connections they might be experiencing. A decrease in their anxiety and an increase in their attention could indicate they have made a restorative connection. Through a composite of clues we can create “a history” or “narrative” of an individual with ASD’s experience with the natural world through art making (Nyman, 1999, p.157).

The art educator has a unique role to play in ascertaining this connection; that of being able to see the art individuals with ASD create. Nyman (1997) explains : “narrative accounts that include portfolio reviews have made me appreciate more fully the challenge of contrasting what a student does with what I may be trying to help him or her accomplish” (p. 107).

Listening to the visual clues in the nature based art adults with ASD create could be a very useful tool in seeing any new connections they might be making.

Summary

Thus from the sources I have discussed, I have shown that nature focused collaborative art education can be a beneficial way for adults with ASD to connect to the natural world and to others. There is a contemporary need for both neurotypical adults and adults with ASD to connect with the natural world and nature focused art making can help bring these groups together. The time spent outdoors can be beneficial to group’s mental health and vitality as well as encouraging them to value the natural world. As there is little research on the potential aids to adults with ASD on this subject, I will look to explore if more specific research could be beneficial.

CHAPTER 3: METHODOLOGY

Design of Study

My study took place at Emmaus Home. Emmaus Home is both a residential facility and day program serving adults with intellectual disabilities. The day program is located in Aston, PA, while the residential facility is in Media, PA. The program provides busing and/or other forms of transportation for participants to and from the day program, which runs from 9am to 3pm each week day. The day program facility, where I conducted my study, was in a large building in an office park that is nicely landscaped. The art room did not have any windows, but the room one walked through to get to it had several large windows. The facility was clean and neatly organized.

Emmaus Home has a Catholic religious affiliation, but nevertheless the participants in the program receive public social services and some public funding. Participants of Emmaus Home are called “core members” and most of the core members reside at Emmaus Home, while a few do not. All of the core members have a paraprofessional or caregiver who stays with them most of the time, although they are careful to switch caregivers regularly so that core members do not become too dependent on any one paraprofessional. A few of the paraprofessionals are “house parents” who live with the core members in the residential facility. Core members have many organized activities such as art and music class, as well as volunteer work and field trips.

The residential members will sometimes take weekend trips together such as camping or going to the beach.

Emmaus Home was founded about four years ago by Anne Bradley, herself a mother of one of the core members. Her vision for the organization is to eventually have it approved as a L'Arche community. L'Arche was founded by the French humanitarian and theologian Jean Vanier. His model is a group of caregivers and adults with intellectual disabilities living along side each other as equal parts of a community. His focus is on the intrinsic value of every person based on their common humanity. His philosophy is eloquently expressed in his book *Becoming Human*. In the L'Arche mission statement it states: "At the heart of L'Arche communities is relationships. They create the possibility of truly appreciating each person in their uniqueness, whatever their strengths and weaknesses" (www.larche.org). To be approved as a L'Arche community Emmaus Home still needs to meet certain requirements which it is currently working towards.

Due to the nature-based focus of my research question, I planned to take my students on three field trips outdoors during the course of my study, one of which would involve the creation and display of a collaborative outdoor sculpture that they would create. This outdoor space would be at the Garrett Williamson Foundation, with which Emmaus Home already has a connection. The Garrett Williamson Foundation is a large estate and farm given to the public under the care of a trust. It is located in Delaware County, PA and hosts many community outreach activities such as summer camps and 4H clubs (<http://www.garrettwilliamson.org>).

For my study I planned to work closely with a small number of participants. The participants would be three of the core members and three to five paraprofessionals. Participants

would be asked to participate on a volunteer basis and will be given consent forms outlining the plans for my research and guidelines. Art class would take place once a week for two hours. My study would focus primarily on three participants who have varying forms of ASD and some of whom have multiple disabilities and a wide range of needs.

My reasons for involving the paraprofessionals in my study were that they work so closely with my students at Emmaus Home, so their observations of potential changes in my students would be a great asset to my own. Also, since the theme of Emmaus Home is neurotypical adults and adults with autism living in community, the idea of them creating art collaboratively with my students would further that mission and hopefully add to a sense of connectedness among them, thereby also fitting in nicely with my research question.

Ethical Considerations

I conducted my study professionally and respectfully. I ensured that I had signed informed consent forms from my student's legal guardians before I began my research. Each volunteer received a participant's bill of rights. The director of Emmaus Home also received a consent form and will give formal permission before the beginning of my study. Although most of my students do not have power of attorney, I attempted to communicate to them what I was doing, using PECS if needed and/or emoticons to attempt to gauge their agreement. I did not include my students' actual names in any writing or research related to my thesis, to preserve their anonymity

Paraprofessionals were also invited to participate in my study and were given a consent form as well. I presented them with a brief description of what I was doing and what participating in

the study would entail, including any extra time I was requesting of them. I made it clear that they would not be paid to participate. I assured them that I would not include their last names to preserve their privacy. I kept data obtained from them and my students locked in my studio or on my laptop which needed a password to be accessed.

The paraprofessional's role in my study and feedback was a valuable tool in keeping my potential research biases in check. My study and my analysis of data could be influenced by my own enjoyment of the natural world or my own desire to see a change in my students. Hearing the paraprofessionals perceptions of how my students were responding to the lessons balanced my own.

I also gained the official permission of my outdoor site, the Garrett Williamson Foundation. I gave the director of the foundation a consent form as well. I gave them a brief written synopsis of the unit I am planning to teach and assured them in writing that the sculptures my students would create on their grounds would not pose a danger to anyone or cause any destruction of property. The sculptures would be light weight, carefully installed and temporary.

Research Methods

My study was a single instrumental case study as described by the scholar Stake (1995), where: "the researcher focuses on an issue or concern, and then selects one bounded case to illustrate this issue" (p.75). The one bounded case I chose for my research was that of three students and their paraprofessionals at Emmaus Home over the course of two to four months. They took part in a unit about using natural forms in art making and two of the six lessons were

taught outdoors at the Garret Williamson Foundation. The unit ended in the creation of one large collaborative sculpture temporarily displayed outdoors at the Garret Williamson Foundation. As with most case studies, I performed purposive sampling, drawing from many different types of data collection to create an overall picture as the project unfolded.

I attempted to make my study as natural as possible and took a participatory role as a researcher, observing while I taught my class. This being said, I created a special circumstance at Emmaus Home in order to conduct my study. Due to the relaxed community atmosphere at Emmaus Home, I did not usually teach an intensive focused unit to my students. Often, I relied more on a choice based approach, knowing my students and what was most likely to engage them. I also did not usually invite the paraprofessionals to participate in the art making itself. Although, when this had happened in the past, I had always been open to their participation. I hoped that a more formal class involving the paraprofessionals will not interfere too greatly with my rapport with both groups.

My case study was a bounded system due to Emmaus Home already being a bounded system of adults with autism and paraprofessionals living together in a tight knit community. Due to the nature of their disabilities, the adults at the day program's activities are closely monitored and controlled. Although they often go on field trips, they mainly interact with each other and their caregivers. The two participants who still live at home also interact with their parents in the evening. They are naturally bounded to the location of the day program itself, its building and a local park they often frequent.

Although I used the case study methodology, because of the subjective nature of my research question I also drew from a narrative typology. As the educator Creswell (2007) describes:

Throughout the slow process of collecting data and analyzing them, we shape our narrative—a narrative with many forms in qualitative research. We tell a story that unfolds over time. We present the study following the traditional approach to scientific research (i.e., problem, question, method, findings). We talk about our experiences in conducting the study, and how they shape our interpretations of the results. We let the voices of our participants speak and carry the story through dialogue” (107).

This method of research was ideal for my study since my research question was extremely qualitative and the idea of demonstrating a sense of connection to the natural world and to others was a subjective and complex one. Having just one source of data would be ineffectual or undemonstrative; the purposive sampling conducted in an instrumental case study allowed me to piece together my findings using multiple sources of data to create an overall picture. This picture was one that was best described through a narrative described by myself and my participants.

Data Collection

To build this narrative within my case study, I used three main types of data collection: observations, interviews, and artifacts. I observed and recorded my student’s level of engagement and interest during each lesson using a non-participant observational protocol form (Appendix A). Although I was a participant observer, my small class size allowed for me to record while giving a lesson. I was also looking for any observed changes in their typical behaviors that might indicate an increase or decrease in anxiety or mood. Since my class was small and each student had a paraprofessional helping them, this enabled me to stop

occasionally and make notes. I was also able to write down any information and reactions my students volunteered, such as comments or emotional reactions to the lesson. Since I often have time to reflect on my lesson right after I teach, I recorded anything I did not have time to write down then. I looked to see if my student's level of engagement with natural materials and with the natural world increased over the course of the unit. In this way, I needed to create a before and after effect. I observed if my students seemed more connected to their paraprofessionals or to each other by comparing and contrasting information on my observation forms before and after the nature based unit.

Due to the verbal challenges of adults with ASD, interviewing my students proved difficult. Nevertheless, I gathered what information I could from them using a simple emoticon assessment, asking them to circle an emoticon for how the lesson made them feel. I combined my verbal questions with a visuals or PECS of outdoor scenes, assessing their reactions. I also showed them PECs of different types of landscapes, asking them to select one they like best. I expected the questions I would ask them and the images I would use to accompany those questions would narrow and become further defined over the course of my study, but part of my unit would involve helping them create a landscape of a seemingly favorite type of outdoor scene. I planned for these landscapes to be incorporated in the ending collaborative sculpture.

The verbal and communication challenges of my students made the collection of artifacts very important in my case study. The artwork they created expressed their feelings where words proved difficult. I took pictures of the work they created and provided detailed lesson plans. I planned to start the unit by appealing to their interest in screens by giving them simple cameras outdoors while on a field trip and asking them to take pictures of whatever interests them. This would provide me with valuable information on what drew their attention when they were

outdoors. I would use these photo images as pre and post assessment by recreating the same activity at the end of the study to see if there are changes. These photos, combined with the art they created were valuable data in my study.

My methods for collecting data from the paraprofessionals who volunteered to participate in my study were through two surveys. I provided them with a written questionnaire to take home and complete on their own time. I tried to make these questionnaires as anonymous as possible to make them feel comfortable replying to the questions honestly. I asked them what their own individual reactions to the natural world were and what they observed in the students they assisted when they were outdoors. I provided a questionnaire before and after the unit. The end of unit questionnaire had different questions such as: “have your feeling of being outdoors and your appreciation of the natural world increased over the past few months? I used a multiple choice system with options such as “has more” , “ has less” or “ stayed the same” to make the questionnaires simple to fill out while providing maximum feedback

Date Analysis

In terms of my system for analyzing my data, I coded my data into two main categories, these being the data from my students and the data gathered from the paraprofessionals. Into each of these categories, I created a further division between data gathered prior to my study and data gathered afterward. The data gathered prior to my study would be seen as the beginning point for a trend downwards or upwards in an engagement with nature focused art making. I then created yet another division between data that deals with a connection to nature and the data that deals with a connection with others. These themes were two threads that ran through my research question. Into these two groups I separated data that indicated a sense of connection

from other data that seemed to indicate the opposite. I discovered if I had more data indicating a greater collaborative connection to the natural world than the data that represented disconnection. I was watching for a “trend” in my student’s behavior and engagement in the lessons, with my prior data. I coded my data into these groups:

1. The students behaviors and engagement with others through art making
2. The paraprofessionals engagement with the natural world through art making.
3. The paraprofessionals engagement with the students and each other through art making.

Although I researched effective ways to visually represent my coded data, I mainly emphasized an interesting illustrated narrative of my case study. This I composed through quotes from students and paraprofessionals combined with the artwork they created. In this way I employed the type of data analysis presented in Andra Nyman’s (1999) book *Issues and Approaches to Art for Students with Special Needs*. She presents how an art educator can find clues for an individual with ASD’s experience through narrative and careful observations (p.101). She discusses how the scholar Gleason (1993):

Proposes a theoretical guide for interpreting “what persons with severe or multiple developmental disabilities do in context (p.157). He suggests that “there are visual clues for discerning patterns of participation. ...For Gleason, explanation of what an individual does “involves deciphering patterns expressed through their human systems” (p.101).

According to Gleason, “Making sense of what is implicit in what (individuals) are doing is an avenue for discovering the capabilities of the person” (Nyman, 1999, p.102). Ultimately this

type of data analysis provided the best picture of the results of my research, since a sense of connection was extremely qualitative.

CHAPTER IV: RESULTS OF STUDY

1. INTRODUCTION TO DATA COLLECTION PROCESS:

In this Chapter 4, I will present the data I collected over the span of eight weeks in the late winter and early spring of 2018. To review, I researched how nature-inspired collaborative art-making could foster a sense of connectedness for adults with ASD in a day program. I began this process based on research that showed that *many adults with ASD can experience emotions of “disconnectedness” (Carpenter, 2015) from society and from outdoor experiences, and that Gradle (2008) noticed that art lessons that incorporate the natural world can give rise to feelings of connectedness*

PROCESS OF DATA COLLECTION

Data was collected over the course of six weeks, during each lesson of the pre-planned unit. These lessons took place once a week for two hours. Before the unit, I collected pre-unit surveys from the paraprofessionals. During each lesson I recorded my observations, jotting down short quick notes on the nonparticipatory protocols that I then fleshed out in more detail immediately after the lesson. I recorded volunteered comments and observations from paraprofessionals in the “other notes” portion of the protocol. After each lesson, I interviewed the students using emoticon and PEC closure assessments. I also photographed the work they created and recorded my observations of it in a schematic analysis protocol. After each lesson

of the unit, I gathered the collected written data in an organized binder with subject headings for each participant with each lesson in consecutive order. I saved photographs of student work and photos from class in files named by date, on my personal computer in a separate folder entitled “Thesis”.

CHANGES MADE IN THE FIELD

Due to unforeseen circumstances, I had to modify my research due to changing student needs and weather constraints.

When initially planning my unit, I took into consideration the needs and special strengths of three of my student with whom I was very familiar. These three students presented as being moderately functioning on the ASD spectrum. All three were verbal and drew at the naturalistic level. As can happen in a day program setting, two of these students unexpectedly shifted to different placements.

I invited two other students to participate in the study, who present as lower functioning on the ASD spectrum, one of whom is mainly nonverbal and draws at the pre-schematic level. This change led me to modify my unit to reach this student in particular by simplifying some of the projects that may have been more representational in nature. Specifically, I switched from having the students create a landscape collage, to having them create an abstract contact paper collage using found natural materials. I also changed the final project to incorporate weaving instead of representational collage, since this was a strength of all three students.

I added a lesson on kite making, since, upon further research into Andy Goldsworthy’s work, I became curious if the students’ experience with broader more active parts of the natural world, such as the wind, might also foster a sense of connectedness. Additionally, as I

progressed through the unit the weather and particular time of year became intrinsic aspects of nature I wanted my students to experience. March is a month that is often associated with windy weather.

I had initially left my unit open to three outdoor lessons, with two being admissible depending on the weather. Due to record-breaking cold this spring in the local area, we visited the site twice, although we made plans to visit again in the future.

Another change I made was in the post unit survey for the aides. Here, I changed the wording to make it more appropriate for our experience and increased the specificity of some of the questions. Specifically, I realized the term “unit” might be confusing to some of the participants.

Lastly, I added the category of “craftsmanship” in the artwork schematic protocol since this became an effective way to assess weavings and sculptural installations. It is also a good gauge of student interest since more care is often taken with something in which a student is emotionally invested.

I entered the field as a teacher with whom my students were already familiar. I am a participant researcher, actively teaching while recording data.

Because of the variable nature of a typical day program environment and the variable behaviors of individuals with autism, some of my participants become less involved with the study as it progresses, while some join the study in the last few lessons. Specifically, Sam, initially a participatory student, began a generalized behavioral decline due to changing circumstances with his multiple disabilities. This decline made him unable to participate.

Greg, usually a nonparticipant by choice, is a student who joins the study later, along with his aide, Jack. Greg became noticeably more engaged in art class over the course of the unit.

METHOD OF DATA PRESENTATION

Since my study is a narrative case study I will present my data in chronological order like a storyteller might tell a story. Thus, I will begin at the start of the unit and follow my data through it to the conclusion. I will emphasize my students experience with nature- inspired art making as seen through my observations and the artwork they create. I will include volunteered remarks made by their paraprofessionals since their collaboration is an intrinsic part of my study. I will begin relating data from each lesson with my observations and end with the student's emoticon "interviews" and PEC closure assessments (Appendix C). I will also conclude with their artwork, as assessed through the artwork schematic protocol, to emphasize their work as the final "voice" in the data collection (Appendix B)

II. PRESENTATION OF DATA

Before I present the data from the unit on nature-inspired art making, it is necessary to get to know the participants and what a typical art class at the day program looks like. This is an essential starting point for understanding their experience. I will relate all narrative observational data in the present tense to distinguish it from the main body of my writing.

PRE UNIT AIDE SURVEYS

Three aides have volunteered to be a part of the study. Their names are Jean, Alana, and Lisa. They switch aiding for different core members so that the core members do not get too dependent on a particular one of them. Initial data collected from the aides, via surveys, indicated a diverse understanding and interest in nature-inspired art activities (Figure 2). Jean

was the only one who indicated that she enjoys and often already creates art outdoors. All of them noticed that sometimes or often core members’ behaviors and levels of happiness change when out in nature.

Figure 2: Pre Unit Aide Surveys

	Do you go outdoors for recreation?	Do you enjoy helping core members outdoors?	Do core members’ behaviors change outdoors?	Does core members’ happiness change in natural spaces?	Do you create art inspired by the natural world?
Jean	Sometimes	Sometimes	Often	Often	Often
Alana	Never	Sometimes	Sometimes	Sometimes	Never
Lisa	Sometimes	Often	Sometimes	Sometimes	Sometimes
Notes: “Sometimes” most common response					

SETTING THE STAGE: NARRATIVE OF DATA

It is a gray cloudy day in late February and I am leading the students in creating a large collaborative painting with different colored abstract sections. Once the paper is painted, the students add black straight lines by printing over the painting with edges of cardboard, creating a “stained glass” effect. I have brought two large paper panels so there is enough space for all core members to participate.

SAM

Sam is a verbal young man in his twenties with ASD and multiple disabilities. Sam can be difficult to engage in art class due to his obsessions and fixations, often preferring to spend art class writing lists of the days' activities or his "good choices". Sam can become physically aggressive when others come too near to him or move the favorite objects he often carries with him. His medications can also make him very drowsy.

Today, Sam is resistant to participating. Invited to work on a panel with Ellie, another core member, he chooses instead to work on a corner of a panel with Matt, his other peer. He needs many prompts from me and his aide, Alana, to put down any paint at all. While not working, he curses occasionally. He often mimics the sounds Ellie makes while she works. Sam will work a little when I remind him that we are creating something all together and we want him to be a part of it.

After we are done painting, Sam chooses weaving for choice time, but only stays on task for a few minutes. During his closure assessment, Sam chooses yarn and weaving for his most enjoyed materials and circles the happy emoticon to indicate that he was happy during art class.

A schematic analysis of his portion of the painting reveals that he avoids mixing his colors. When printing with cardboard edges he makes his lines regularly spaced and all in one direction. He recognizes that it looks like stained glass, saying the word "church" while working.

MATT

Meanwhile, Matt, Sam's peer, also a young man in his twenties with ASD and multiple disabilities, is fully engaged in the large painting. Although Matt speaks mainly in short sentences, he listens well and is positive during art class. Matt works independently and chooses to use a plastic triangle stencil to lay out sections of color carefully. Lisa encourages

him and both collaborate with each other. Matt notices he is out of a color he likes and verbally asks for more. Matt needs prompting only when Lisa reminds him to answer a peer's question. At times, Matt can be over stimulated during art class, repeating an excited sound and dancing around the room or shaking as though he is having a small seizure. Today, Matt makes a calmer repeated sound I have come to associate with his times of peaceful focus. After working for more than forty minutes Matt says he is "all done" with his painting.

Matt is happy to weave during choice time, but only for a few minutes. Despite his evident enjoyment of the painting activity, he chooses yarn and weaving as the materials he most enjoyed in his closure assessment. He circles a happy emoticon to indicate he was happy during art class.

The schematic analysis of his and Lisa's portion of the large painting reveal clear recognizable triangle shapes carefully painted, without mixing any colors. Lisa, in particular, prompted Matt not to mix colors despite my saying that color mixing was welcome.

ELLIE

Ellie is working at the table next to Matt and Sam. Ellie is a young woman in her twenties with ASD and multiple disabilities. Ellie is mostly nonverbal and uses signs to communicate. Jean assists her, while they create a painting together since the core member who was going to work with Ellie is a non participant by choice. While staying on task and being engaged, Ellie needs lots of positive reinforcement and is often more interested in this than in the work itself. She needs a "high five" after almost every brush stroke or for me to make the sign for "show me more" which means "keep going". When I hold the paintbrush, she holds my limp hand or Jean's and uses our arms to paint. After working for forty minutes, she becomes

very upset very suddenly and intensely, hitting herself in the head and wringing her hands and signing that she would like to go for a walk. These are common behaviors for Ellie and she can become physically aggressive if she is not allowed a break. After taking a break and before the end of class, Ellie falls asleep in the nap section of the day program. Jean remarks that she thinks she may not be feeling well and I add that she was much more productive that day than usual, creating a large painting.

Since Ellie falls asleep, I cannot collect closure assessments from her. A schematic analysis of her painting with Jean reveals no recognizable shapes, but some color mixing. Their printed lines go in different directions, crossing each other.

From working with them for the past year and a half, I note that the behaviors and engagement of Ellie, Matt and Sam during this art class is representative of a typical art class with them.

LESSON 1: NARRATIVE OF DATA

It is now early March and I am excited to be beginning the unit of nature-inspired art-making with my students. Since the weather is still quite cold and a snowstorm is expected that afternoon, I bring in a large number of natural forms I have collected and create a choosing table for the students. I provide them with wire, paint, and glue and help them explore making paintings, prints, or sculptures depending on what seems to interest them most.

Before they begin work, I share visuals of outdoor sculpture installations by Andy Goldsworthy (Figure 3). I also share images of the Garrett Williamson and its surrounding nature areas, telling them we will be going there on a field trip soon. I ask them a few simple questions about the images and explain that we will be making our own small sculptures to install in the Garrett Williamson's natural surroundings.



Figure 3: Hanging hole

Holbeck, Leeds

May 1986 copyright Andy Goldsworthy, retrieved from

https://www.goldsworthy.cc.gla.ac.uk/image/?id=ag_03576&t=1

SAM

Sam is restless since he knows he will be leaving halfway through class to travel for a weekend retreat. He keeps asking: “When are we going?” and needs frequent prompting to participate.

Sam, although verbal, is unresponsive when I ask him what shape he sees in the lesson’s visuals.

When everyone gets up to go to the choosing table, Sam stands by the table unsure of what to pick and reticent to touch any of the materials. He sees Ellie confidently begin to fill her tray with pinecones. He copies what she is doing, filling his tray with pinecones too. He sits back down and chooses some wire to work

with. He places two pinecones next to each other by the stems and attempts to tie them together with wire. I help him wire them together and then ask him if he would like to paint them. I am unable to collect any closure PEC assessments from him since he is called from class early to leave for the retreat. A schematic analysis of his finished piece shows no color mixing and a use of symmetry when working with shapes (Figure 4).



Figure 4: Sam's sculpture

listens and says a
 looking at the
 begin class. I
 sees in the
 Goldsworthy's
 states. When it
 choosing table
 choosing any



Figure 5: Matt's paintings and weavings

Meanwhile, Matt
 few sentences when
 visuals with which I
 ask him what shape he
 images of Andy
 work. "I see a hole" he
 is time to go to the
 Matt, is indecisive about
 natural forms. He

spends five or ten minutes looking at them. Finally, with much prompting from me, and his aide that day, Lisa, he chooses some sticks, leaves and bark. Matt brings them back to his seat and spends ten minutes or so just looking at them. He eventually decides to paint the leaves and bark and is engaged with this activity for twenty minutes with a few prompts from Lisa too keep going (Figure 5). When he stops painting, it is choice time. As usual, Matt chooses weaving. Carrying on with the focus on natural forms for our lesson, I help him set up a makeshift warp using wire and two of the sticks he has chosen. When given a choice of colors for his weaving, Matt chooses a thin bright green yarn, an unusual choice for him since he usually prefers to work with thick neutral colored yarn. Matt weaves with this yarn for forty-five minutes without prompting. A schematic analysis of Matt's weaving reveals a high level of craftsmanship with careful regular weaving and no color mixing. A theme present appears be nature since green is a color often seen in the leaves growing on sticks in the natural world (Figure 5). In his closure PEC assessments Matt chooses yarn and weaving with natural forms as the materials he most

enjoyed using that day (Appendix D). He circles a happy face emoticon to indicate he was happy in art class (Appendix D).

ELLIE

Ellie listens attentively during my before class discussion, looking at the visuals, but offering little response. When she walks over to the choosing table, she immediately begins to fill her tray with pinecones, but then stops suddenly, gestures at the forms intensely and then makes her sign asking to go for walk. Ellie often makes this sign when she needs a break from class. Ellie is known in the day program for taking her aides on long walks around the parking lot outside, despite weather conditions. Often, her aides have to bring her in when it is raining or too cold. I explain to Ellie that we will go for a walk next week at the Garrett Williamson. She could make something now to put out in nature on our walk. Ellie begins crying and hitting herself in the head. Jean, her aide that day, steps in and reassuringly offers to help Ellie, praising her on her choice of pine cones. Ellie calms down and sits down to work with Jean. Ellie chooses to work with wire. “These pinecones are beautiful. Let’s try to make a wreath” encourages Jean. Alana and Lisa agree that the project reminds them of making wreaths at Christmas time. Ellie works with Jean for twenty minutes or so before becoming very upset again. She takes a break with Jean in another room and then returns to paint their sculpture for a few moments. When a group of other aids and the day program supervisor enter the room and begin talking and joking with each other, Ellie begins crying again and leaves art class for a final time. When she has calmed down, I am able to collect PEC closure assessments for her. She chooses painting sticks as the activity she most enjoyed that day and circles a smiling emoticon to indicate that she was happy, but not very happy (Appendix D). A schematic analysis of Ellie’s and Jean’s sculpture indicates Jean’s interest in creating a cross-shaped garland. Ellie

chose the colors, which were blue and black mixed together. These are unusual choices for Ellie, since in my experience with her; she almost always chooses pink or orange.

After class, I discuss Ellie's behaviors with Jean. When I remark that she seemed to have a strong emotional reaction to the natural materials, Jean states that she feels, instead, that Erin felt the room was too loud and crowded today. We decided to have her work in a separate more quiet room next week.

LESSON 2: NARRATIVE OF DATA

The next week the weather is still cold and there is snow on the ground at the Garrett Williamson, so the director and I decide to have art class at the day program as usual. Adapting to this change, I decide I can use it to my students' advantage in that it allows them more time to work on their nature installations. I also decide that they may need more direction and structure in working with the natural materials. Additionally, I have recently read a book by Andy Goldsworthy in which he describes his artistic process. I have noted how he often collaborates with nature by reacting to weather conditions. Based on their current level of material resistance, touching or working with snow and ice would be overwhelming for my students. Instead, I decide to have them experience the March wind through art by creating kites. Kite paper and kite building materials were already materials listed for the unit. The inclusion of these materials was inspired by a presentation I had watched by the local artist Marilyn Keating (2017).

I start class by spreading out the same choosing table of natural materials and showing them a kite I have made out of kite paper. I explain that we are going to make our own kites today with designs made by tracing natural forms. This time, based on the research of the art

educator Simone Alter Muri (2017), I limit their choices to make the experience less overwhelming, bringing them over two natural forms at a time for them to choose from

SAM.

Sam begins class alert, talking a little with me and his aid and answering questions. I show him the choice of a pine cone or a leaf and he chooses a leaf to trace onto his kite paper. He chooses red kite paper but has difficulty focusing on tracing the leaf. Sam falls asleep and is unable to participate in the rest of art class. His aide explains that he has just changed medication and it makes him very lethargic and that it would be best to let him rest.

MATT

Meanwhile, Matt is engaged in making his kite with Jean. Matt is very verbal today, even calling me by my name when asking me questions. Nevertheless it takes him a long time to choose his natural materials, even with limited choices. He eventually chooses a leaf and needs at least three prompts from Jean to pick out a color of kite paper. Matt carefully traces it onto the kite paper and cuts it out. He and Jean work together on the kite for forty minutes, even making a leaf-shaped streamer to attach to it (*Figure 6*). When the kite is complete Matt smiles and laughs and makes contented humming sounds. Jean is smiling too. He leaves the art room with his kite to show it proudly to the day program director



Figure 6: Matt and Jean's kite

and the other aides. A schematic analysis of Jean and Matt's kite reveal a high level of craftsmanship, with very recognizable leaf shapes. A pleasing mix of gold and blue colors is evident, with Matt choosing blue and Jean choosing gold.

For choice time, Matt chooses weaving again. I bring out the weaving he began last class so that he can keep working on it. Matt works independently on his weaving for twenty minutes, until art class is over. Despite his great enjoyment in the kite making activity, Matt chooses weaving with sticks as the activity he enjoyed most in art class that day and he circles the happy "thumbs up" emoticon.

A schematic analysis of Matt's weaving reveals he has made some changes in the warp from last week to create a recognizable woven shape (Figure 7)



Figure 7: Matt's weaving

ELLIE

Working near Matt, Ellie is also having a productive art class. Since it is a small class today and the day program is quiet, Jean and Lisa, her aide that day, decide she will be fine working in the art room with everyone else. Ellie is very responsive and quick to answer questions with a sign or gesture. It takes her a long time to pick out a natural form to trace. She does not want to touch the materials. After giving her ten minutes, I decide that she may be unable to choose a natural form today. I take out a familiar stencil of a butterfly that she has

enjoyed working with in the past. Ellie signs that she wants to work with this and Lisa helps her trace it onto the pink kite paper Ellie has quickly chosen. Ellie wants to use her scissors independently to cut out the butterfly, getting a little upset when I try to hold the kite paper upright for her. A new material for our art class, I discover the kite paper is hard for her to cut and make plans to find an adaptive tool to help her next time. Despite wanting to control her own paper cutting process, Ellie gets momentarily upset when I turn my attention to another



Figure 8: Ellie and Lisa's Kite

student, crying a little and pulling her ear. Demanding constant attention from the teacher can be one of her challenging behaviors. After much perseverance, Ellie has cut out her butterfly and sits with Lisa to glue it onto her kite. I bring

over some torn tissue paper pieces for Ellie to collage onto her kite. I know this is a process she enjoys and it is easy for her to tear the tissue paper. She still needs many prompts and almost constant praise from Lisa to keep working. Lisa asks her if she wants to add a streamer to her kite and she signs "yes". She politely signs "all done" when she is done with her kite, rather than getting upset. During choice time, Ellie does not want to weave but still seems interested in the kite paper. Eager to help her engage with the natural forms before our field trip next week, I

show her how to scrunch up the kite paper into flower shapes and attach it to some of the sticks from the natural forms choosing table. Ellie becomes very engaged in this, signing that she wants to make more after making one. She is still resistant to touching the sticks, preferring to attach her new flower to the flower she had previously made, rather than taping it to a new stick. Ellie, again, becomes upset after working for fifteen minutes or so and has to leave class.

When Ellie has calmed down, I am able to collect closure assessments from her. She chooses a PEC of scissors as the material she most enjoyed using that day and chooses a PEC of a kite to show she enjoyed the kite making activity. She circles a frustrated emoticon to indicate how she felt in class that day (Appendix D). I assume this could have a lot to do with her difficulty using the scissors to cut the kite paper. Since it also seemed she was frustrated by the natural materials, I investigate further by showing her some natural materials and asking her how she feels about them. She circles a happy emoticon.

A schematic analysis of Ellie's kite shows the recognizable shape of a butterfly. She chose to decorate her butterfly with the tissue paper pieces instead of the kite surrounding it. She created a complementary mix of colors with pink, orange and light blue. She arranged the tissue paper on the butterfly to create a symmetrical pattern on the wings with a cluster of red around the center (Figure 8).

As I am packing up to leave, I overhear Alana talking to the other aides about an outdoor activity the core members had participated in the past week. She was explaining how the director of the day program had had them volunteer at local park by helping to pick up fallen sticks and leaves around the grounds. She tells them: "It was so cold and stupid". This remark makes me

realize that my students may associate gathering natural materials with manual labor and I consider how to avoid this association on our upcoming field trip.

LESSON 3: FIRST SITE VISIT NARRATIVE OF DATA

The following Friday, we visit the Garrett Williamson for the first time. Hoping for a milder mid- March day, as often occurs in our area, I notice that the day is cool and gray instead. It is, however, windy enough for kite flying. I have emailed the day program supervisor earlier in the week to remind her to tell the core members' parents or house parents to dress them warmly and to have them wear boots if possible. I arrive early with the sculptures and kites the students have made and set up in the indoor room in which we will meet before heading out on our nature walk. I leave the kites indoors for them to carry outside, but I place some of the sculptures they have made outside near the trailhead, so they will not have too much to carry.

SAM

Soon after, my students arrive and I discover that Sam has a doctor's appointment. He, and his aide for the day, Jean, are absent.

MATT, ELLIE, AND GREG

Matt comes calmly into the room dressed in a warm down wind breaker and listens attentively while I show him how to attach twine to his kite so that he can fly it. Ellie is not wearing a coat and she is wearing poorly fitting pants that keep sliding down, occasionally exposing bare skin. I explain that we will be flying kites and then going on a nature walk. I show the students simple disposable cameras I have brought along so that they can take pictures on their walk. I show them images of winter birds and snow drops, talking about how these are

things they may see in the woods and that they could take pictures of them. Matt is able to use the camera, while Ellie holds it and snaps pictures without looking into the sighter. Lisa remarks, “There won’t be any birds,” and Alana complains, “It’s so cold.” Along, aiding another student is an aide named Jack, who states: “It’s not that cold. I enjoy the change of scenery”. He does not have a coat with him, but is wearing a simple sweatshirt.

We leave the classroom and go outside to the hill where we will fly kites. Matt, after a little help from his aide in getting started, becomes very engaged in independently flying his kite (Figure 9). Lisa walks out onto the grass with Ellie, tentatively, asking “is it ok to step on this?” Ellie becomes very upset, signing she would like to go back inside and crying and hitting her ear when the wind blows on her. Despite my quick attempts to engage her, by encouraging her to fly her kite, Lisa decides Ellie is too cold: “She’s too cold. I’ll take her in. She says she wants a snack too”. Ellie and Lisa return to the indoor classroom.

I let Matt and the other students fly their kites for a few more minutes and then ask them to put their kites on the porch of the large house. I then give each student the sculptures they have made from natural forms and remind them that we will be going on a walk and to think about where they might want to install them.

We walk down the hill and onto the trail. Although Matt does not need prompting to go on the walk or hold the bright green weaving he has been working on in class, Jack cheers him on, saying: “Come on Matt, you are making your mark on the world.” We come to a field with tall dry grasses. There are woods on either side. Jack and another aide begin encouraging Matt to choose a spot to install his weaving. After standing in the clearing for a few minutes, Matt walks a short way into some nearby bushes and places his weaving in one of them. “Now you should take a picture of it,” says his aide. Matt and his aide each take several pictures of Matt’s installation and one of Matt with his installation (Figure 10). “It’s one green leaf,” says Alana, who is along helping another student.



Figure 9: Matt flying his kite.



Figure 10: "One Green Leaf"

She bends down onto the ground and picks something up: "Look, I found one green leaf and it is soft! She shows it to Jack and then says: "There's another, you're stepping on it." While Matt is helped by his aide to take pictures of his installation, I am attempting to engage a student named Greg. Greg is new to the day program this year and usually does not participate in art class, mainly due to a disability that causes him to have extremes in mood. I am glad to see Greg has joined us on our nature walk and I help him find a place to install a sculpture he had created during a rare moment of participation in a previous class. Greg needs a great deal of prompting to place his sculpture, eventually dropping it down near some bushes at the edge of the field.

I ask Matt and Greg to help me choose some large branches on the ground to take back to the day program to use in creating a larger weaving. With a few prompts, both of them help choose several branches and help to carry them back toward the indoor classroom.

I then explain that now we are going to go back up the trail, but first we will gather some natural materials in a paper bag I have brought along. We can use these to make a nature collage together back in the indoor classroom with Ellie. Greg helps me gather a few pieces of field grass. Matt and Alana help as well. Both Matt and Greg only gather several pieces of tall grass, with Alana and me gathering most of it. We walk back up the trail and back into the indoor classroom to join Ellie and Lisa.

Ellie seems relaxed and peaceful when we enter the room. “She had a snack” states Lisa. Everyone sits down at the table and I show them two contact paper boards I have brought along. I show them the grasses and leaves we have collected and how they can stick these materials to their board to make a collage. Ellie begins to make a low repeated humming sound I usually associate with her feeling contented and focused. The aides call it “her singing.” She immediately begins work, confidently sticking the tall grasses we have brought from outside to the contact paper. Matt helps her slowly, seeming very relaxed and almost sleepy. He methodically arranges similarly sized small brown leaves in rows. I encourage Greg to join in, but he is disinterested and sits and watches instead. Ellie and Matt work together for twenty minutes with only one or two prompts. I bring out an extra contact paper board and they collage onto this, as well, until there are no more natural materials and we begin adding yarn. They work until it is time for class to be over.

For his closure PEC assessments Matt chooses the kite as the material he most enjoyed using today and flying the kite as the activity he enjoyed most. He circles the happy “thumbs up” emoticon.

Ellie chooses the scissors she worked with to cut some of the natural forms before placing them, as the material she enjoyed using the most. She chooses the natural form collage as the activity she most enjoyed. She circles the smiling face emoticon for how she felt today.

We leave the classroom and I walk with the students out to the bus. The sun has come out and it is warmer. Ellie is making her singing sound again. I am carrying Ellie's flower sculpture she made in class last week and I give it to her. With a little prompting she places it in a nearby bush, being careful to hang it on a branch without touching the branch or the bush.

A schematic analysis of Matt and Ellie's collaborative collages reveal some recognizable shapes, namely rectangles created with leaves, swirls, and a linear yarn pattern resembling a tree. Both pieces reveal pleasing compositions (Appendix E). From observing them while they worked, the recognizable shapes were created by Matt, except for the swirls which are a favorite shape for Ellie.

LESSON 4: NARRATIVE OF DATA

The following Friday we meet back at the day program to work on a large sculptural weaving for the students to install on a trail at the Garrett Williamson. I show the students pictures I took of our field trip to the Garrett Williamson, reminding them of details about our field trip. Matt smiles, looks at and wants to hold a picture of him flying his kite, saying "fly kite". Jack, Sam's aide that day, asks if the photos from Matt's camera have been developed yet and if I brought them in. I explain it will take a few weeks develop them. "I want to see his green leaf photo" adds Alana. I show the students the large branches they selected from the trail we walked and how we are going to tie them together with wire to create a frame for our weaving's warp.

We start the class with a simple screen printing activity to prepare some cards for an upcoming day program event.

SAM

Sam is back in class today and is very verbal. When I demonstrate pulling a print to him, one on one, he becomes impatient saying “Sam, do it!” Sam is slow to choose colors and is mimicking the sounds Ellie makes. He seems very disengaged in the activity and falls asleep after ten minutes. Jack explains that Sam was up late again last night playing video games and it would be best to let him rest.

GREG

Greg tires after the initial printing activity and leaves art class for another part of the day program.

MATT AND ELLIE

When I take out the branches he collected at the Garrett Williamson Matt seems very interested, coming over and touching them. Ellie, who is standing in another part of the room, comes over and touches the branches too. I get out the wire and Ellie immediately wants to hold it. I cut off some pieces for Matt to work with so that he can tie the branches on one corner of the frame while Ellie and I work on the other. Matt starts work without prompting, working hard and with much care, to wire the end of the branch to a piece of flat timber I have brought along using a criss-cross technique. Ellie is very interested and does not need prompting to help me work on the other corner, winding it around the branch herself, while I pull it tighter if needed. Once we have constructed the frame, I show Matt how we can make a warp with the

wire. Matt takes the wire from me and begins work. Elli stands by eagerly. I realize I should have brought two sets of wire, since both Matt and Ellie want to make the warp. I prompt Matt to take turns with Ellie. They develop a system where Matt makes a loop on his end and then passes it to Ellie to make a loop around her end. They work very carefully, going over loops that seem too loose and tightening them without prompting. Matt is careful to make sure the warp is even, adjusting it where necessary. Both he and Ellie is patient when it takes several tries. “I think Ellie likes art class. It’s soothing for her” notices Alana.

Once we have the warp, it’s time to begin weaving. I bring out the box of yarns and Matt selects the same bright green yarn he had used for his previous weaving. Ellie chooses green this time too, selecting a variegated yarn with different shades of green. They weave, each at one end of the frame, for the remainder of class without prompting. I have to tell them when class is over.

In his closure PEC assessments Matt chooses yarn and weaving as the materials he liked best. He circles the happy thumbs up emoticon to show how he felt during art class.

In her closure PEC assessments Ellie chooses a screen printing squeegee from our initial activity and circles the happy thumbs up emoticon.

A schematic analysis of Matt and Ellie's weaving reveals a high level of craftsmanship with even warp



Figure 11: The first stage of the weaving

strings and systematic weaving (Figure 11). Ellie chose mixed colors with her variegated green yarn while Matt chose a solid green. Nature is again a theme, with green being the natural color to see with branches.

LESSON 5: NARRATIVE OF DATA AND SECOND SITE VISIT

ALL THE STUDENTS

It is now April and I am watching the weather closely in an attempt to decide when we should visit the Garrett Williamson again. The coming Friday is forecasted to be warm, but cloudy, and since the spring has been so cool, I decide we should go while we have a chance. Although the weaving is not finished, Matt and Ellie can finish it outdoors and perhaps even

incorporate some weaving with the field grasses native to the site. I had planned for the other students to glue natural forms to the frame, since they had enjoyed a similar activity in the past. Since we will be gluing the natural forms outdoors and onto the frame vertically, I research and decide on a strong caulk to use as glue. This caulk has an “instant grab” and is weather resistant.

It is the morning of our site visit and the weather is a bit cooler than forecasted and the sky is gray. It is still a milder fifty degrees. I arrive at the site early to assess the current trail conditions, looking for a trail that isn't too muddy and that is also out of the wind, so Ellie can be more comfortable. I find a suitable trail that leads down a hill. It has a meadow of tall grasses on one side and woods on the other. I leave Matt and Ellie's sculpture here, leaning against a tall bush, along with the caulk gun and two bags of natural forms. I then walk over to where Matt had installed his green leaf weaving last visit and take a picture of it, with the new spring growth around it, to show Matt (Appendix F). After this, I walk to a covered picnic area where we have planned to meet. I plan to start the students outside today. I have materials for them to make small kite paper birds before walking the trail.

The students arrive and Sam heads immediately toward the big house wanting to start in the indoor classroom. Jack, his aide for the day, comes over to me and asks if we can start inside today, since Sam may need familiar surroundings. “It's cold. Could we start inside?” seconds Lisa. I agree and we all go indoors to the classroom. Before we go in, I prompt everyone to stop and listen and tell me what they hear in the area around them. Lisa says “birds”. As is often the case on an early spring morning, the woods are full of birdsongs.

Once inside, I talk to the students about our upcoming nature walk and remind them of the birds we heard outside, showing a bird on a nest as a visual. I talk about how this is the time of year birds are making nests and that we are going to make our own birds to put out in nature during our nature walk. I get out the materials and demonstrate.

Sam is calm now that he is indoors. He is interested in making a kite paper bird and quick to pick out the colors of kite paper he wants to work with, repeating the phrase “good choices” that his aides often prompt him with.

Matt is engaged in the kite paper birds. “I want red,” he says decisively. I show him the picture I took of his weaving in the woods. He looks at it for a moment and moves his head to one side, almost to indicate he feels “ok” about it.

Ellie seems on edge today. She is being demanding of my attention, flicking my shoulder when I pay attention to other students. “Personal space, Ellie” Jeanne tells her calmly, “Relax.”

Greg is participating today and is quick to pick out the color white for his kite paper bird.

After working for fifteen minutes, everyone has finished their bird. I tell them we are going to go for our walk now and that I have a surprise waiting for them in the woods. I explain that we are also going to create something that can feed the birds, who may still be hungry this time of year, since it has been a cold and late spring. “Ooo ... a surprise” repeat some of the aides to prompt the students out of the classroom. On their way outside, Ellie gives her bird to Greg and Greg gives his bird to Ellie.

Once outside, Matt holds his bird up above his head to watch the streamers he attached to its wings blow in the wind. Ellie enjoys doing this as well.

“Stephanie, look at Joe” laughs Lisa. Joe is a long standing member of the day program and experiences profound disabilities. Joe is nonverbal, and has PICA which causes him to attempt to eat most art materials. He often walks around carrying a sock that he likes to rub in between his fingers. I usually keep Joe away from messier art supplies and provide him with a felt board and pieces of felt with which to create simple collages. What Lisa is pointing out to me is that Joe is smiling and flying his bird while making whooshing or flying noises.

We reach the trailhead which leads down an incline and into the meadow. “We have to go down the hill?” asks Lisa. “Yes”, I encourage. Sam refuses to continue down the trail and is asking to go back inside to look for light bulbs, which are one of his fixations. His aide takes him back indoors.

Once down the hill, the students find Matt and Ellie’s weaving. They appear to prefer where the weaving is currently, leaning upright against a bush. Matt walks up to it and makes his happy sounds. “This is good for him” states Lisa. Matt is eager to weave again and Lisa and I give him some yarn. This time he chooses the variegated green yarn. Weaving upright is new for Matt and Lisa is quick to help him (Appendix F). Ellie begins to make a crying noise and I tell her not to worry because she will still get to help. Ellie calms down. I ask Ellie and the other students to help me gather some field grasses, but they do not want to touch them. I bring a handful of long grasses over and show Matt and Ellie how they can weave with it like yarn. Matt makes a troubled expression and calmly but firmly removes the grasses. He gets another strand of yarn and continues to weave. Ellie makes a quick dismissive brushing away gesture at the grasses.

I ask Ellie and the other students to select a place to install their kite paper birds. They all choose to hang them in the bush above Matt and Ellie's weaving, except for Greg who holds onto his.

To give Matt extra time to weave and to engage the rest of the class, I show the students the visuals of Andy Goldsworthy's work which we have been looking at throughout the unit. One of them is a spiral he made on the ground with green leaves. I ask the students and aides to hold a very long piece of yarn in a circle and then drop it on the ground to create a large circle. I then arrange it in a spiral shape and ask the students to place natural forms to follow the yarn line, passing out the natural forms to them. Ellie picks out pinecones and drops them along the line without bending over. Greg participates for a few minutes as well, but the aides finish the spiral. "This is a great activity" says Jean. "It would be fun for children too". When completed, the spiral is mostly made of pinecones (Appendix F).

Now I explain to Matt and the other students that we are going to add to the weaving's frame using natural forms. I spread caulk out on the flat timber sides of the weaving's frame. Before I can demonstrate how they can place natural forms into the caulk, Greg begins to put pinecones in it. Ellie does the same without prompting, making her happy singing or humming sound. Ellie begins to select pieces of bark, instead of just pinecones. Matt also helps and the aides help by pointing out areas that need to be filled in more. All three students work together without prompting for twenty minutes. When the frame is full of natural forms, Greg takes the leadership to attach smaller pine cones to the natural branch cross pieces (Appendix F).

I show the students how they can scatter bird seed in the pinecones to help feed the birds. Matt, Ellie, and Greg all participate in this, pouring the seed using some plastic cups I have brought along.

When the sculpture installation seems to be done, everyone stands around and looks at it. “It’s beautiful” says Jean. “If only we had one of Joe’s socks, then it would really be all of ours” laughs Jack. “Let’s take a picture” says Lisa “we need everyone in it”. The aides and I begin taking pictures (Figure 12). Matt stands in front of the sculpture and says “cheese” and smiles.



Figure 12: Taking pictures with the final piece

It is now the end of class and time to head back to the indoor classroom for closure. Matt and Jack lead the way, while I stay for a moment to gather the extra materials. Ellie, and her aide Alana, linger with me. Ellie is holding Greg's bird which he has given her. Alana and I begin walking back, but Ellie stays at the sculpture a moment longer in order to place Greg's bird in the bush directly above the sculpture.

As we begin to climb back up the hill, Ellie, who experiences obesity, begins to breathe irregularly and is struggling up the hill. She stops and sits down on the grass half way up. I ask Alana if this has happened before and we both ask Ellie if she is all right. She seems fine other than being out of breath. When she is breathing normally again we encourage her: "You can do it, Ellie. Let's keep going". Ellie stands up and works hard climbing back up the hill and back down the rest of the trail. When we suggest another break she refuses, even when she is breathing hard. Alana explains adamantly: "She's twenty-five. This shouldn't be hard for her. This is good. We should do this every Friday. I'm serious, could we come every Friday? She needs the exercise".

MATT AND ELLIE'S CLOSURE AND SCHEMATIC PROTOCOL

When we get back to the classroom, Sam's aide has taken him to the bus already.

For his closure assessments, Matt chooses working with pinecones and glue as the materials he most enjoyed using today. For the first time, he verbalizes this while circling the PECS (Appendix D). He circles both the pine cone frame and the kite bird as the activity he enjoyed most. He circles the thumbs up happy face emoticon to show how he felt in art class today.

Ellie chooses bark as the material she enjoyed working with the most and the kite birds as the activity she enjoyed the most (Appendix D). She also circles the happy thumbs up emoticon.

A schematic analysis of the finished sculptural installation reveals a high level of craftsmanship and recognizable bird shapes (Figure 13). The birds positioned around the sculpture make a three-point composition. The color choices for the birds are mixed. Matt's choice to be done



Figure 13: The finished installation

weaving leaves most of the sculpture open, making it resemble a window or a door. Once the students leave I check in with the director of the Garrett Williamson, letting her know we will be leaving the sculpture up for a week. She is excited, giving me her cell phone number so I can send her a photo. “It’s so cool!” she texts later.

LESSON 6: CLOSURE AND SUMMATIVE ASSESSMENTS

The next Friday, we are back at the day program for art class. I have decided to use the photo choice assessment interviews I had planned to use in the middle of the unit, today, as summative

assessments. This assessment was designed for the higher functioning students with ASD who left the day program before the unit. I change it to just asking the students just one question: “which photo taken during the unit shows what you liked the best. The photos I use include the photos Matt took on our first site visit, which have now been developed. I show him the photo he took of his green leaf installation and he looks at it for a moment and then puts it down. I spread out a group of photos from the unit.

SAM, MATT AND ELLIE

Sam is sitting in the other room with Jack. The director of the day program has recently reached out to me to tell me Sam’s behaviors and overall health still seem to be in decline. They are optimistic that with a new behaviorist who they have recently hired, he could improve. I invite Sam to art class, but Jack tells me: “He’s not in a good place today.”

Matt is also a bit sleepy today and is slow to choose a photo he likes best. He becomes overactive and begins to dance around the room. Deciding there are too many photos for him to choose from, I take away a few that seem redundant. Once he has five photos to choose from, Nick selects a picture Jack took of him preparing to fly his kite on the first visit (Appendix G).

Ellie is calm today and engaged. She is quick to choose a photo Nick took in the indoor classroom of Jack putting his arm around Joe and smiling (Appendix G).

I engage Ellie and the other students in a simple vegetable printing activity. Part of the pre-planned unit was a landscape collage activity which I know would not engage Ellie or the other students, but that I would like to attempt with Matt.

Matt draws at the naturalist level when inspired and has drawn successful cityscapes and horses in the past. I show him the photo he chose during his summative assessment since it is also a nice simple landscape of the scenery of the Garrett Williamson. I ask Matt to do a drawing of the photo on a canvas I provide him with and then direct my attention to the other students.

Matt needs several prompts to begin work. When I look back over at him I discover he has traced his photo onto the canvas in two places, creating two simple rectangles. I decide to bring some additional scaffolding materials next time and invite Matt to vegetable print with the other students.

When given a brief lesson on foreground, middle ground, and background the following Friday and with help of a horizontal irregular strips of cardboard to trace, Matt is now engaged in creating a successful landscape. After prompting him what colors to use for his foreground and middle ground, Matt knew on his own that the background should be the sky, saying “Now I need blue”. Matt continues to be observably more verbal in art class. Saying, “I would like blue and green” and deciding him to mix these colors. Lisa notices saying: “Well, you haven’t said that much before”.

Ellie is so calm in class that she helps me clean up, wiping down the table and helping me put materials away in drawers.

I collect the post unit surveys from the aides. As I am leaving, I discover the director, aides, and core members are all outside. In the narrow strip of land between the day program door and the parking lot they have created three raised gardening beds. Matt and Greg are busy filling them with soil from bags and the director is encouraging Ellie to help her scatter seeds (Appendix F). “We’re planting some herbs” explains Lisa.

I go back in because I have forgotten something and Jack is inside encouraging Sam to participate in the gardening activity. “No, I want to go on the computer” states Sam. “You can go on the computer” Jack replies calmly “You just need to go outside for a little first.”

POST UNIT PARAPROFESSIONAL SURVEYS

The data collected from aides in their post unit surveys yielded some interesting findings (Figure 14). Alana left the day program to take a position elsewhere before I could collect a survey from her. However, Jack participated in the post unit survey. All the aides reported a believed increase in the students’ overall happiness and engagement in art class during the outdoor lessons at the Garrett Williamson. Two aides reported an increase in their own enjoyment of the natural world. Two of the aides reported an increase in the challenging behaviors of the students and one a decrease. Jack was the only aide to write notes in the additional comments portion of the survey (Appendix G). He reiterated that he felt the students challenging behaviors had decreased and that being outdoors “allows a much more open space for core members to roam around a bit”.

Figure 14: Post Unit Paraprofessional Surveys

	Has your appreciation of the natural world changed?	How have Core members challenging behaviors changed?	How has core members’ relative happiness changed?	How has core members’ interest and participation changed?	Overall has your empathy for core members changed?
Jean	+	+	+	+	0
Jack	0	-	+	0	0
Lisa	+	+	+	+	+

Notes: + = has increased, -= has decreased, 0 = stayed the same

III. DATA ANALYSIS

In Chapter 5, I have coded my data by both theme and participant. Due to the extremely qualitative nature of narrative data, coding by theme allows the most honest and broad analysis.

I have coded the data based on the themes I originally intended to explore, namely:

4. The students' behaviors and engagement with others through art making in the natural world
5. The students' engagement with the natural world through art making.
6. The paraprofessionals' engagement with the natural world through art making.
7. The paraprofessionals' engagement with the students and each other through art making in the natural world

To code my data for themes 2 and 3, I returned to my narrative and looked for keywords that related to them such as "leadership", "without prompting", "craftsmanship", and "recognizable shape" (Figure 15). I used the data gathered from my "setting the stage" narrative as a control. I looked for engagement in the student's artwork through their level of craftsmanship and indications of related nature themes and recognizable shapes. Color mixing can also be an indication of enhanced artistic interest. Coding by participant allowed me to analyze evidence of engagement in detail.

Figure 15: Engagement Key Word Graphic

Lesson	Matt	Sam	Ellie	Greg
control	5	1	0	n/a
1	2	0	1	n/a
2	3	0	1	n/a
3	4	n/a	1	1
4	7	1	7	0

Notes: Theme of connectedness to nature and/or engagement = number of times keyword “leadership” or “without prompting” or “craftsmanship” “recognizable shape” used.

I then reversed this process and looked for keywords that indicated a lack of engagement (Figure 16).

Figure 16: “Disconnection” Key Word Graphic

Lesson	Matt	Sam	Ellie	Greg
control	1	3	3	n/a
1	2	2	3	n/a
2	3	1	5	n/a
3	5	n/a	4	2
4	1	2	0	1/n/a/
5	0	1n/a	2	1

Notes: Theme of challenging behaviors and disconnection = number of times “prompt” or “takes a long time” “upset” used

When searching for evidence of themes 1 and 4, I coded for unifying moments of interaction and collaboration between the students and aides as witnessed through my observations and the observations of the aides (Figure 17). This idea was inspired by the book *Assessment in Art Education*, where Donna Kay Beattie (1997), lists a type of assessment called Collaborative Assessment in which the art teacher keeps a record of how many times collaboration was used (p.100).

Figure 17: “Connectedness” Key Word Graphic

Lesson	control	2	3	4	5	6
Work together/ Interact	3	1	2	5	7	6

Notes: Connection to others/collaboration = number of times key word “work together” or “interact” used.

I found the four themes were also present in the paraprofessionals' surveys, the student’s artwork, and their closure assessments, thus unifying the different data streams to create an overall picture of the results.

The different data types connected in that the student’s artwork, closure assessments, and the aide’s surveys often verified my narrative observations.

Upon reading the artist, Andy Goldsworthy’s descriptions of his experiences creating his landscape art, I found evidence of very similar themes in his work and so I have begun each theme analysis with a corresponding quote.

IV. SUMMARY OF FINDINGS

A close analysis of my different data streams reveals that nature-inspired art education can be challenging for adults with ASD, initially causing an increase in challenging behaviors and material resistance. This experience is then followed by an increase in their engagement with and evidence of connectedness with the natural world through art making. For the participants, this in turn revealed moments of connectedness with each other. There was also simultaneous evidence of an eventual decrease in challenging behaviors. Aides too may

experience initial discomfort followed by these beneficial effects. It is an experience that may not be easy, but that can be ultimately beneficial. As the artist, Andy Goldsworthy (1990) explains “discomfort is a sign of change” (Foreword).

Since connectedness is not quantifiable, I will not attempt to state how much of an increase in connection occurred.

The data I gathered also points to some new themes that warrant further research. The most prominent of these was resilience which became a theme equal to connectedness. Other minor themes were the advantage of prior knowledge, the feasibility of teaching a unit in day program setting, and weaving as a therapeutic art intervention.

CHAPTER V: DISCUSSION AND IMPLICATIONS FOR THE FIELD

INTRODUCTION TO FINDINGS

As presented in Chapter IV, the data I collected while teaching a unit of nature-inspired art making to adults with ASD showed that the “connectedness” I sought to see in my research question was present in my results. To review, I define “connectedness” as a “restorative” sense of well being and identification with the natural world and simultaneously with each other that the art educator Sally Gradle (2008) explores in her article “When Vines Talk: Art, Ecology, and Community”. This is an experience that can lead to increased vitality and mental health (Van den Berg, 2016, p.8). This idea of “connectedness” can be seen in a comparison of Tables 3 and 4. Here it is evident that by the end of the unit, the students and their aides both experienced a drop in challenging behaviors and an increase in artistic engagement with the natural world.

IN CONTEXT OF MY RESEARCH QUESTION

My research question asked how nature inspired collaborative art making might foster a sense of connectedness for adults with ASD in a day program. I based this idea off of research that demonstrated how many adults with ASD experience emotions of “disconnectedness” (Carpenter, 2015) from society and from outdoor experiences and that Gradle (2008) noticed that art lessons that incorporate the natural world can give rise to feelings of connectedness. I was also interested in how this experience might decrease the anxiety levels and challenging behaviors of my students with ASD. To further organize my data and research, I chose thematic coding since this is a helpful way to understand a narrative presentation of data. In the following discussion, I will address how my findings relate to the four themes addressed in my research question.

1. The students’ engagement with the natural world through art making.
2. The students’ behaviors and engagement with others through art making in the natural world
3. The paraprofessionals’ engagement with the natural world through art making.
4. The paraprofessionals’ engagement with the students and each other through art making in the natural world

THEME 1: STUDENT’S ENGAGEMENT WITH THE NATURAL WORLD THROUGH ART MAKING

“When I work with a stick with a leaf, rock, stick, it is not just that material in itself, it is an opening into the processes of life within and around it. When I leave it these processes continue”- Andy Goldsworthy (Foreword)

MATT: ONE GREEN LEAF

The students' growth in engagement with the natural world through art making can be seen in numerous moments throughout the data narrative. In Lesson 1, Matt's contemplation of the natural forms he chooses gives rise to his selection of a new color choice for his weaving.

When it is time to go the choosing table Matt is indecisive about choosing any natural forms. He spends five or ten minutes looking at them and finally, with much prompting from me and his aide that day, Lisa, he chooses some sticks and leaves. Matt brings them back to his seat and spends ten minutes or so just looking at them....When he seems done with painting it is choice time and Matt chooses weaving. Carrying on with the natural forms focus of our lesson, I help him set up a makeshift warp using wire and two sticks. When given a choice of colors for his weaving, Nick chooses a thin bright green yarn, an unusual choice for him since he usually prefers to work with thick neutral colored yarn.

In choosing this bright green colored yarn, Matt not only showed his prior knowledge of green leaves and vines on sticks, but also that working with natural forms, touching and thinking about them, had created an interest in addressing nature through his art. After tracing leaves in Lesson 2, he shaped his weaving into a green leaf shape without prompting. This shows a developing interest in naturalism and an awareness that leaves grow on branches (Figure 5). It may even indicate a yearning for the green leaves of spring, given that he created his weaving in late winter.

Although his green leaf weaving was a notable collaborative experience, as I will later discuss, Matt's personal engagement with the natural world is most evident in his kite making and kite flying experience. It is this experience he selected, as the one he most enjoyed from the

unit in his summative assessment from Lesson 6. In comparison, in Lesson 5, his reactions to seeing his green leaf weaving out in nature seemed non committal. Matt demonstrates great pride in creating his kite in Lesson 2, showing it off to others in the day program, and great interest in flying it in Lesson 3 where he flies it without prompting and verbalizes “fly kite”. Here, Matt shows an engagement with the forces of nature, namely the wind, and it is after flying his kite in Lesson 3 that he becomes both more verbal in art class and take a greater leadership role. This shows evidence of “connectedness”, where his engagement with nature leads to an increase in artistic vitality.

ELLIE: STEADY PROGRESS

Ellie’s interest in the natural world through art making develops more slowly. In Lesson 1, she is reticent to touch the materials and ultimately unable to participate. In Lesson 2, although she is still unwilling to touch natural forms, she chooses a naturalistic butterfly shape for her kite design and creates a naturalist symmetrical design on the butterfly’s wings (Figure 8). Here she demonstrates an awareness of nature.

In Lesson 3, although Ellie is overwhelmed by the wind and remains indoors, she is able to touch and work with the natural forms for the first time. Her evident enjoyment and focus in creating a contact paper collage from native grasses shows an increased engagement with the natural world and a simultaneous decrease in her anxious and angry behaviors.

Ellie seems relaxed and peaceful when we enter the room. “She had a snack” states Lisa. Everyone sits down at the table and I show them the contact paper boards I have brought along and how they can stick the grasses and leaves we have collected to it to make a collage. Ellie begins to make a low repeated humming sound I usually associate with her

feeling contented and focused. The aides call it “her singing” since it sounds like softly undulating singing. She immediately begins work, confidently sticking the tall grasses we have brought from outside to the contact paper. .. Ellie and Matt work together for twenty minutes... until it is time for class to be over.

It would seem that even from the brief and intense time she is out in the natural world. Ellie has gained a sense of peace and focus. Although it could be contentment from her recent snack, but although Ellie takes breaks for snacks during the previous lessons, this is the only time in all of the narrative data that she makes her peaceful humming sound.

Lastly, for both Matt and Ellie, their increased engagement with the natural world through art making is most obvious in their choice of natural forms for their PEC closure assessments at the end of Lesson 5 (Appendix D). This is the first time that either of them chose a natural form as material they enjoyed most and the one time that Matt verbalizes his PEC choice. This is a progression for both of them. Through the unit, they move from being completely reticent to engage with these materials to them being the ones they are most enthusiastic about. They have connected with nature through enjoying these materials.

GREG AND JOE

This increased connectedness with the natural world through art making can also be seen in two other students in the narrative.

Greg moves from being a virtual non participant to taking a leadership role in Lesson 5, in choosing to extend where the students are placing the pinecones to other parts of the sculpture.

Additionally, Joe exhibits an enjoyment of the natural world by flying his kite paper bird in Lesson 5:

Joe is a long standing member of the day program and experiences profound disabilities.

Joe is nonverbal, and has PICA which causes him to attempt to eat most art materials...

What Lisa points out to me is that Joe is smiling and flying his bird while making whooshing or flying noises.

Here Joe demonstrates his awareness that birds fly and an enjoyment of simulating that experience through art making.

The idea that most of the students in the unit experienced increased “connectedness” is corroborated by the written comments of Jack, Joe’s aide in his post unit survey (Appendix G).

He writes:

Creating art outside with Joe has decreased his challenging behaviors significantly. I would credit the use of natural materials, rather than indoor supplies as a key factor in decreased behavior for Joe. Also the outdoor environment allows a much more open space for core members to roam around a bit

Jack expresses how an increased connection with the natural world has lead to an increased vitality in the students.

THEME 2: THE STUDENTS’ BEHAVIORS AND ENGAGEMENT WITH OTHERS THROUGH ART MAKING IN THE NATURAL WORLD

“The social nature of these larger works interests me” Andy Goldsworthy (Foreword)

As previously discussed, the second theme of my research question deals with how creating art inspired by nature might increase a sense of connection with others for my students with ASD. This increased connection was also evident in my results.

In the Setting the Stage lesson Matt, Ellie and Sam's interaction with each other is minimal or at times even negative. Jack has to be prompted to answer Sam's question. Sam interacts with Ellie by mimicking her. The students' interactions with the aides and me are for the most part positive, but mainly when prompted. Artistically, the students are collaborating with the aides, but not with each other. Throughout the unit there is a progression of the students interacting more with each other through collaboration and more volunteered collaboration on their part with myself and the aides.

This increased interaction begins in Lesson 1, when Sam, unsure how to relate to the natural forms, refers to what Ellie is doing.

Sam sees Ellie confidently begin to fill her tray with pinecones. He copies what she is doing, filling his tray with pinecones too. (Lesson 1 narrative)

In Lesson 3, as previously discussed, Ellie and Matt collaborate on their natural form contact paper collages, where;

Ellie and Matt work together for twenty minutes with only one or two prompts. I bring out an extra contact paper board and they collage onto this as well until there are no more natural materials and we begin adding yarn. They work until it is time for class to be over.

Here Matt and Ellie experience an extended moment of volunteered collaboration.

This intensifies in Lesson 4 in the breakthrough moment when Matt and Ellie create their collaborative weaving with me. This moment is inspired by remembering their shared time outdoors.

I show the students pictures I took of our field trip to the Garrett Williamson, reminding them of details about our field trip...When I take out the branches he collected at the Garrett Williamson, Matt seems very interested, coming over and touching them. Ellie, who was standing in another part of the room, comes over and touches the branches too. It is after this moment, with only one instance of prompting, that Matt and Ellie collaborate with intense focus, even passing materials to each other.

I get out the wire and Ellie immediately wants to hold it. I cut off some pieces for Matt to work with so that he can tie the branches on one corner of the frame while Ellie and I work on the other. Matt starts work without prompting, working hard and with much care, to wire the end of the branch to a piece of flat timber I have brought along using a criss crossing technique. Ellie is very interested and does not need prompting to help me work on the other corner, winding it around the branch herself, while I pull it tighter if needed. Once we have constructed the frame, I show Matt how we can make a warp with the wire. Matt takes the wire from me and begins work. Elli stands by eagerly. I realize I should have brought two sets of wire, since both Matt and Ellie want to make the warp. I prompt Matt to take turns with Ellie. They develop a system where Matt makes a loop on his end and then passes it to Ellie to make a loop around her end. They work very carefully, going over loops that seem too loose and tightening them without prompting. Matt is careful to make sure the warp is even, adjusting it where necessary.

Here, creating art inspired by being outdoors is a unifying experience for Matt and Ellie that helps them connect to each other and to me.

This connection grows further in Lesson 5, not just among Matt and Ellie, but all the students except for Sam. Greg, usually aloof from others and from art class in general gives his kite paper bird to Ellie as the students head outdoors. After walking on the nature trail, the students enthusiastically volunteered to collaborate with each other by decorating the weaving's frame with pinecones. This was a significant and powerful moment for them.

Now I explain to Matt and the other students that we are going to add to the weaving's frame using natural forms. I spread caulk out on the flat timber sides of the weaving's frame. Before I can demonstrate how they can place natural forms into the caulk, Greg begins to put pinecones in it. Ellie does the same without prompting, making her happy singing or humming sound. Ellie begins to select pieces of bark, instead of just pinecones. Matt helps as well and the aides help by pointing out where they may have missed a spot. All three students work together without prompting for twenty minutes. When the frame is full of natural forms, Greg takes the leadership to attach smaller pine cones to the natural branch cross pieces.... Ellie is holding Greg's bird which he has given her. Alana and I begin walking back, but Ellie stays at the sculpture a moment longer in order to place Greg's bird in the bush directly above the sculpture.

Ellie concludes the experience by putting a finishing touch on the sculpture with something another student had made and given her, expressing in this action a sense of connection. Elli's acknowledgement of the social nature of her experience with the unit of nature inspired art

making can also be seen in her choice of summative assessment in Lesson 6, where she chooses a social photo of everyone together as the part she likes best about the unit (Appendix G).

THEME 3: THE PARAPROFESSIONALS' ENGAGEMENT WITH THE NATURAL WORLD THROUGH ART MAKING.

The third theme that is implicit in my research question is the aide's engagement with the natural world through art making. At the start of the unit, only one paraprofessional, Jean, indicated that she creates art outdoors and often goes out into nature for recreation. The other two aides replied to questions such as: "Do you go outdoors for recreation?" and "Do you enjoy helping core members outdoors?" with "sometimes" and "never" (Figure 2). Here the majority of the aids had noncommittal or even negative ideas about creating art outdoors and about nature in general. In their post unit surveys all of them indicated an increase in both their enjoyment of the natural world and their appreciation of it through art making (Figure 14). This experience is also evident in the narrative of data.

In Lesson 3, Jack becomes very involved and interested in Matt's installation of his "green leaf" weaving. As they head down the trail to install it "Jack cheers him on, saying: "Come on Matt, you are making your mark on the world." I do not have to ask Jack to prompt Matt to take a picture of his green leaf installation. He becomes personally involved:

Jack and another aide begin encouraging Matt to choose a spot to install his weaving.

After standing in the clearing for a few minutes, Matt walks a short way into some nearby bushes and places his weaving in one of them. "Now you should take a picture of it" says

his aide. Matt and his aide each take several pictures of Matt's installation and one of Matt with his installation (Figure 8).

Looking at Matt's installation inspires another aide, Alana to notice and look more carefully at nature around her.

"It's one green leaf" says Alana, who is along helping another student. She bends down onto the ground and picks something up "Look, I found one green leaf and it is soft! She shows it to Jack and then says: "There's another, you're stepping on it!"

Alana may even be experiencing Matt's intention in creating the piece, the simple human joy of seeing green leaves at the end of a long winter.

The aides' interest in Matt's weaving continues in the following Lesson 4 where they ask if the picture of it have been developed yet and state that they want to see them when it is. Alana remembers the experience stating: "I want to see his green leaf photo".

In Lesson 5, like the students, the aides enjoy creating the weaving installation. They make remarks like "it's beautiful" and "we have to take a picture".

THEME 4: THE PARAPROFESSIONALS' ENGAGEMENT WITH THE STUDENTS AND EACH OTHER THROUGH ART MAKING IN THE NATURAL WORLD

The last major thematic component of my research question was how the aides might experience an increased sense of connection with the students through art making in the natural world. The aides' pre- unit surveys indicated that they all experienced mixed feelings about assisting the core members out in nature. They noticed that "sometimes" the core members'

behaviors could change out in natural spaces and most indicated that they only “sometimes” enjoyed taking the student out into these environments. At the end of the unit, in their post unit surveys, most aides reported no change in these feelings, but one aide, Lisa, indicated an increase in her empathy with the students.

With Lisa in particular one can see an increase in her connection with the students in the narrative data as well. What is not mentioned in the main narrative data is that before the unit, Lisa began most art lessons by telling me “You won’t get much out of them”. In the narrative itself, Lisa often makes negative comments such as “It’s cold” or “Do we have to go down the hill?”

In Lesson 5, Lisa’s attitude begins to change as she connects with the students through art making in the natural world. It is Lisa that enjoys and points out to me that Joe is “flying his kite paper bird and making whooshing noises”. Lisa also starts the process of taking pictures of the finished weaving in the woods. Of particular importance to her is getting all the students in the photo:

When the sculpture installation seems to be done, everyone stands around and looks at it. “It’s beautiful” says Jean. “If only we had one of Joe’s socks, then it would really be all of ours” laughs Jack. “Let’s take a picture” says Lisa “we need everyone in it”. The aides and I begin taking pictures (Figure 12). Matt stands in front of the sculpture and says “cheese” and smiles.

Collaborative art making in the natural world helps Lisa renew her enthusiasm for her vocation.

In Lesson 5, another notable moment of connection for the aides occurs. This is Alana's experience helping Ellie. Although Alana was unable to fill out a post unit survey, one can imagine how she would have filled it out in listening to her comments about how she feels the experience helped Ellie and her sense of concern and renewed connection with Ellie.

As we begin to climb back up the hill, Ellie, who experiences obesity, begins to breathe irregularly and is struggling up the hill. She stops and sits down on the grass half way up. I ask Alana if this has happened before and we both ask Ellie if she is alright. She seems fine other than being out of breath. When she is breathing normally again we encourage her: "You can do it, Ellie. Let's keep going". Ellie stands up and works hard climbing back up the hill and back down the rest of the trail. When we suggest another break she refuses, even when she is breathing hard. Alana explains adamantly: "She's twenty-five. This shouldn't be hard for her. This is good. We should do this every Friday. I'm serious, could we come every Friday? She needs the exercise".

Here the experience of creating art outdoors has helped Alana connect with Ellie's needs.

FROM MY RESEARCH QUESTIONS TO THE LITERATURE SOURCES FROM CHAPTER 2

DISCONNECTION

"I need the shock of touch, the resistance of place" Andy Goldsworthy
(Foreword)

Although connectedness was evident in the themes of my study, so was the "disconnectedness" (Carpenter 2015) that created the problem my thesis question addressed.

The idea of adults with ASD's disconnection from nature and from community is a bridge between my discussion of the major themes in my research question and how those relate to my literature sources. This "disconnectedness" (Carpenter 2015) was evident in my research findings, especially in the initial intense resistance and rise in anxiety of my student participants.

In Lesson 1, all the students exhibited confusion when dealing with the natural forms I had brought in. They either did not want to touch them, did not know what to do with them, or wanted more from the experience. For Ellie in particular, this intensified her anxiety and behavioral difficulties. Perhaps for Ellie, seeing the natural forms made her wish she were out in nature, making her more aware of her disconnection from it. She wanted to go for a walk immediately.

When she walks over to the choosing table, she immediately begins to fill her tray with pinecones, but then stops suddenly, gestures at the forms intensely and then makes her sign asking to go for walk. Ellie often makes this sign when she needs a break in class or sometimes to get out of class. Ellie often enjoys and ask to go for walks with her aides around the parking lot outside. I explain to Ellie that we will go for a walk next week at the Garrett Williamson. She could make something now to put out in nature on our walk. Ellie begins crying and hitting herself in the head. Jean, her aide that day, steps in, and reassuringly offers to help Ellie, praising her on her choice of pine cones.... Ellie works with Jean for twenty minutes or so before becoming very upset again. She takes a break with Jean in another room and then returns to paint their sculpture for a few moments. When a group of other aids and the day program supervisor enter the room and begin talking and joking with each other, Ellie begins crying again and leaves art class for a final time".

Ellie's inability to positively participate is a decline in her level of artistic engagement from the Setting the Stage lesson, showing the challenges many adults with ASD may experience with nature. Not only is she less connected with the materials, but she is disconnected from her aide, myself, and her peers as she has to leave art class. Matt's participation and leadership also decline in Lesson 1 as he needs extensive prompting to work with the materials.

In Lesson 2, Ellie refuses to touch the natural forms at all. Even when volunteering to create kite paper flowers to attach to branches, she chooses to attach the flowers to each other rather than touch the sticks. Matt also exhibits such moments of disconnection from the natural world through art making. After initially installing his green leaf weaving in Lesson 3, he shows no particular interest in photos I show him of it, even in Lesson 5, when I show him a picture of the spring leaves that have grown up around it (Appendix F). Matt also refuses to weave native grasses into the weaving in Lesson 5, preferring to work with yarn.

Many of these moments of seeming disconnectedness relate directly to my literature sources in Chapter 2. In Lesson 3, Ellie is unable to come outside at all because she dislikes the feeling of the wind on her face. This is a clear example of how being outdoors for adults with ASD had the potential for over sensory stimulation. This was addressed in Chapter 2, where the art educator Alter Muri (2017) discussed how "teachers should employ strategies so that students are not overwhelmed by environmental stimuli" (p.23). I go on to speculate:

Now, imagine you are someone with ASD stepping out on walk in the woods on a bright spring day. The sun may feel too warm, the sound of the breeze and the bird song may be too loud and the smells of spring flowers too pungent. The experience itself has the potential to be incredibly overwhelming.

This certainly proved true for Ellie.

Not only were my students with ASD disconnected from nature at times, the aides too showed signs of Richard Louv's (2005) "nature deficit disorder". As discussed in Chapter 2, Louv describes this as: "the human costs of alienation from nature, among them: diminished use of the senses, attention difficulties, and higher rates of physical and emotional illnesses" (p. 36).

The British educator, Dr. Blakesly (2017) describes this phenomenon:

In our modern world, we have surrounded ourselves with new technology and inanimate objects and devices, which have alienated many of us from nature, as a result... the majority of us cannot ...even feel comfortable in the countryside (p.IV)

This discomfort is evident in both outdoor Lessons, 3 and 5, where some of the aides are very reticent to be outside, complaining of the cold, despite wearing coats. Lisa, in particular, even seems unsure of whether it is safe to step on grass.

"Lisa walks out onto the grass with Ellie, tentatively, asking "is it ok to step on this?"

Lisa decides Ellie is too cold: "She's too cold. I'll take her in. She says she wants a snack too". Ellie and Lisa return to the indoor classroom.

Lisa repeats this pattern in Lesson 5, complaining of the cold and not wanting to walk down a grassy hill

In the findings of my study, certainly the clearest example of the disconnection discussed in both my research question and literature sources is in Sam's inability to participate in most of the unit, but especially in Lesson 5's outdoor component.

In Sam we see the “limited interests and activities” that characterize ASD as explained by the American Institute of Mental Health. In Lesson 5, Sam’s fixation on light bulbs or being in the same indoor classroom prevent him from connecting with nature or participating in the collaborative art activities that might connect him with others. In Sam, we see the “emotional issues” the art educator Simone B. Alter Muri (2017) explains as “withdrawal from the surrounding environment accompanied by anxiety, fear as well as a lack of emotional reciprocity” (p.23).

Most indicative of Sam’s disconnectedness is his behavior at the end of Lesson 6, where he is unable to participate in the seed planting with the rest of the day program members and instead wants to be on the computer. As discussed in Chapter 2, this moment mirrors what the Psychologist Victoria Duckley has uncovered about the effects of screen time on individuals with ASD a recent article in *Psychology Today*. Duckley (2016) concluded that although those with ASD are more attracted than the average person to screens, at the same time they experience increased detrimental mental health effects from it (“Autism and screen time: Special brains, special risks”). Sam, the student most in need of “the vitality and improved mental health” that accompany time spent outdoors (Van den Berg 2016). proved to be the most difficult to reach through the art making strategies I introduced in the unit, due to the severity of his symptoms.

CONNECTEDNESS IN MY LITERATURE SOURCES

When viewed through the lens of my literature sources, my findings not only corroborated the idea of a disconnection from nature that many adults with ASD may experience, but also a hidden connectedness for some. As discussed in Chapter 2, the art educator Mullin’s

book, *Drawing Autism*, shows how many adults with ASD may feel very connected to nature, but may have difficulty expressing this. Many of my students exhibited an inner prior knowledge of nature through their art making, revealing that art was a means for them to express a connection that might seem otherwise hidden. This is seen particularly in a schematic analysis of Ellie's kite from Lesson 2, which

shows that she chose to decorate her butterfly with the tissue paper pieces instead of the kite surrounding it. She creates an attractive mix of colors with pink, orange and light blue. She arranged the tissue paper on the butterfly to create a symmetrical pattern on the wings with a cluster of red around the center "(Figure 8).

Ellie's butterfly shows an awareness of and enjoyment of the design found in nature. We do not know whether a prior teacher taught her that butterfly wings are symmetrical or whether she has noticed this herself, but she demonstrates her knowledge of this through her artwork. The red at the center could represent a butterfly's body, positioned in the middle of the wings.

BENEFITS OF OUTDOOR ART MAKING

The need for and benefits of collaborative outdoor art making for adults with ASD as advocated by Dr. Blakesly of *Autism and Nature* (2017) in my literature review were also present in my findings.

The collaborative art activities he describes as being successful with children were also successful with my adult students. He explains:

Such experiences (nature) are especially valuable for people with autism, because they can provide: • a calming environment which helps to reduce stress and anxiety; •

opportunities to take part in activities with family and friends, developing social skills; • new sensory experiences that are soothing; • opportunities to find plants, birds, animals and rocks that could become a focus of special interest; • artistic inspiration from colours and forms seen in the landscape and clouds” (Blakesly, 2017, p.IV).

This is seen in Matt and Ellie’s new color choices of green yarn when weaving. It is seen in the decrease in their behaviors, and in Jack comments on his survey. All these benefits were present in four themes of connectedness that emerged from my findings.

Additionally, from my literature sources, in the connectedness both the aides and students feel when they work on and take pictures of their outdoor weaving in lesson 5, we see a similar “team spirit and a sense of community” that the art educator Neperaud (1997) described as present in a colloquium on nature based art making with neurotypical adults.

ALTER-MURI AND BEST PRACTICES:

In my literature sources, I refer to an article by Simone B. Alter-Muri (2017) entitled “Art Education and Art Therapy Strategies for Autism Spectrum Disorder Students” to help me determine the best practices for teaching my unit. Much of her article proved helpful in my findings. She explains how collaborative art can be a good way of reaching students with ASD: “Although the emphasis is not on product but process, a satisfying collective project can develop a sense of success, which increases a connection to the outer world (Martin, 2009)” (p.23). This observation describes the reason for the success of the collaborative weaving in Lesson 5 for both the students and their aides.

I also discuss how Alter Muir advocates for the use of repetition when introducing new materials to students with ASD. Alter Muri (2017) explains how “Some materials may be over stimulating due to tactile hypersensitivity. Pre-Art activities such as indirect exploration of the material can be helpful” (p.22). This was certainly evident in the initial resistance all my students experienced to natural forms and how the indirect exploration of the natural world itself in Lesson 3 helped them feel more comfortable engaging with the materials in Lesson 4 and 5. Overall, it may be that the simple repetition of these materials helped the students grow comfortable with them over time.

One of my findings, however, seemed to contradict Alter Muri. In my literature sources she states how, for students with ASD, “Focusing on an object that has the least amount of change may help individuals to modify a sense of being overwhelmed by an overload of stimuli” (Alter Muri, 2017, p.22). From this I speculated that:

One leaf, unlike the landscape with its shifting shadows and branches waving in the breeze, is less changeable and more permanent and thus a less overwhelming experience for my students with ASD to take in. All of these factors make a collaborative nature focused art project that involves the use of natural forms very accessible to students with ASD.

Although this proved true for many of my students, experiencing larger very powerful and changeable elements of nature proved for some to be just as engaging, if not more. For Matt, The kite flying experience was a meaningful moment of connection with nature through the wind. For Ellie, the wind was too stimulating. It remains that these large forces of nature are

exciting and perhaps more attention grabbing than leaves. Seeing his kite blowing in the breeze made nature visible for Matt.

Lastly, Alter Muri suggested photography as an appealing medium for students with ASD. My findings indicated this may not be the case for individuals who are on the lower functioning side of the spectrum. For all of my students except Matt, holding a camera and deciding to take a picture was not accessible activity for them.

· IN CONTEXT OF RESEARCH ENVIRONMENT

Although my findings were mainly corroborated by my literature sources they were limited by my research environment.

A day program setting, due to its relaxed and open atmosphere, can make research complicated with many variables. This required me to make many changes in the field. Additionally the unpredictable nature of ASD itself made Sam and Greg's consistent participation difficult and thus complicated my data findings. My results remain bounded to a small case study and cannot be assumed indicative of all individuals with ASD in all day programs.

· IN CONTEXT OF RESEARCHER AS SELF AND PRACTITIONER

Not only were my findings limited by my research site, they were also limited by the time constraints I myself experienced as a graduate student. The results of my study might have been different if I had been able to teach the unit during a warmer season of the year. Teaching a unit on nature inspired art can require great resilience in a teacher and much planning. The initial resistance and rise in anxiety of the students, seen in my findings, required confidence and perseverance in continuing with the unit.

MEANING OF FINDINGS FOR ART EDUCATORS

PERSEVERANCE

To review, the findings of my study indicated that nature inspired art education can be challenging for adults with ASD, initially causing an increase in challenging behaviors and material resistance. This is then followed by an increase in their engagement and evidence of connectedness with the natural world through art making. For the participants, this in turn revealed moments of connectedness with each other and an eventual decrease in challenging behaviors. Aides too may experience initial discomfort followed by these beneficial effects. It is an experience may not be easy, but that can be ultimately beneficial. As the artist, Andy Goldsworthy (1990) explains “discomfort is a sign of change” (foreword). Now I will discuss what these findings may mean for other art educators.

It is possible that my results may point to the experience of introducing anything new to an individual with ASD that they may not initially recognize as being beneficial to them. Feeling discouraged by my seemingly poor results, by Lesson 4 I felt my teaching style was being affected. As it turned out, it was just at the moment that my students began to understand and be very engaged and enthusiastic about the unit. This was the moment when Matt and Ellie began to collaborate on their weaving. It is important to have perseverance when teaching individuals with ASD. Your consistency and endurance may eventually be rewarded. Their “discomfort” can be “a sign of change” (Andy Goldsworthy, Foreword).

It is also possible there may always be a few students who like Sam; you are unable to reach due to the severity of their symptoms. Students like Sam may do better with units that play to their interests, like digital art.

FIELD TRIP STRATEGIES

I had intended for my research to help other art educators who may wish to take adults with ASD out into nature to create art. I set out to research effective strategies for teaching outdoor lessons. Although already discussed in my literature sources in terms of Alter Muri's (2017) influence on my findings, I will now discuss some additional best practices that I uncovered.

Successful outdoor art experiences for adults with ASD require extra orchestration and extra time from an art educator. It is also important to know your students and their triggers. As explained in my literature sources and as Dr Blakesly (2013) recommends, taking individuals with ASD out into nature involves "careful planning" (p. 3). Making sure that I arrived early for each outdoor visit and that I knew my outdoor site well helped make my lessons successful. Due to all the extra planning these visits entailed it is best for the art educator to determine if they have the time to devote to this experience and whether it requires extra payment from their employer, particularly if they are working on a consulting basis.

It may also be that these experiences, in a day program setting, may be best suited to isolated field trips rather than a continuous unit. Adults with ASD, like neurotypical adults may have schedules or other needs that complicate the time they can devote to art making.

Additionally, when planning outdoor art making activities, it is important to find a site that offers an indoor space for students who may become overwhelmed. The indoor classroom at the Garrett Williamson was used often in the narrative as a low stimulation beginning point for the class or as a place for Ellie or Sam to retreat to when overwhelmed.

It is also important when selecting an outdoor site for adults with ASD to have a site with the option of paved trails and handicap accessibility. When I was planning my unit all of my students were physically quite able. However, one of them fell and broke his toe before the beginning of the unit. This made it sometimes difficult for him to navigate the stairs and dirt trails of the Garrett Williamson. I have learned that students with ASD and multiple disabilities can be accident prone and having paved trails would have made the unit easier for this particular student.

One key to the successful moments of my lessons related to having a specific place outdoors in mind to take the students and telling them that there would be a reward at the end of their hike, however long. This idea is suggested in Dr. Blakesly's (2017) *Visiting the East Sussex Countryside*. In Lesson 5, I was able to motivate the students to walk farther into nature by telling them there was a surprise ahead. Seeing their weaving out in nature provided a familiar art making activity for them in the midst of their new surroundings. Staying and creating art in that specific place, helped my students with ASD, easily overwhelmed by new stimuli, grow used to their environment and relax into art making.

Lastly, the success of Matt's kite making experience provides the encouragement for the art educator to attempt a myriad of similar potentially engaging art making experiences involving the wind. Having adults with ASD make kinetic sculptures out of kite paper to take out into nature is an example of a lesson plan that may engage them, as are making pinwheels, weather vanes or wind chimes.

DAY PROGRAM UNITY

A major implication for the field in my research is the finding that collaborative nature inspired units can help foster unity between aides and participants in day program settings through creating shared experiences. Aiding adults with ASD can be a challenging profession and I often notice feelings of burn out in the aides at the day program. This is seen in Jack's comment in Lesson 4 when he states: "I like the change of scenery". In this Lesson 3 also note on my observational protocol that at first the paraprofessionals "seemed tired and unhappy". Using art as a tool to encourage and inspire the paraprofessionals in their vocation benefits not just them, but also those they assist. This feeling of unity and positivity are sentential elements of a successful day program.

The increased unity my students experienced is also a major implication for the field. That my findings indicate that collaborative nature inspired art education helped adults with ASD relate more to each other, is also beneficial for both the field of art education and art therapy.

IMPLICATIONS FOR FURTHER RESEARCH

WEAVING

There is ample room for further research into my topic. One avenue to explore might be how weaving could be seen as a therapeutic art intervention for adults with ASD. All of my students responded well to weaving related activities, especially to building their own warp. Weaving was also the material and activity they selected as most enjoyed most often in their PEC closure assessments.

RESILIENCE AS A MAJOR THEME

“I take the opportunity each day offers: if it is snowing, I work with snow, at leaf fall it will be leaves; a blown tree becomes a source of twigs (Andy Goldsworthy Foreword)

Though weaving may have played a more minor role in my research findings, the theme of resilience became very prominent in my findings and certainly begs for further research. Here, by resilience I mean tolerance to change and the ability to adapt to perceived physical or mental discomfort. This is a theme I encountered in one of my literature sources and dismissed as seeming to be more related to art therapy than art education. The article found in my bibliography by Keith C Russell (2000) entitled “ Exploring how the Wilderness Therapy Process Relates to Outcomes” discussed the successes experienced by psychologists in taking adolescents with ASD camping. Individuals with ASD can often struggle with dealing with changes in weather or feelings of dirtiness or wetness or even the physical exertion camping requires. Nevertheless, Russell explains how exposing those to these experiences can help them become more adaptable in general.

Thinking that resilience did not have much to do with art making or art education, I was both surprised and intrigued to find it not only in my research findings but in the heart of Andy Goldsworthy’s Foreword as being integral to the creation of his art.

In his Foreword to *A Collaboration with Nature* Goldsworthy (1990) discusses how he “ take(s) the opportunity each day offers: if it is snowing, I work with snow, at leaf fall it will be leaves; a blown tree becomes a source of twigs (Foreword) . Goldsworthy collaborates with nature by accepting and acknowledging its changeability and its ruggedness, becoming tolerant and resilient to it, his art flows out of a celebration of that experience. This can be seen in his “Slits, cut into frozen snow” (Figure 18). After teaching art lessons outdoors and looking at this piece I have become aware of what creating it entailed for Goldsworthy physically. He was most

likely very cold while he made it and probably got quite wet. Finding the site and walking to it took physical exertion. His work stems from the idea that there is beauty and humanity in that experience of resilience.

This can be seen in many moments in my research findings. It is in Ellie and the aides' resistance to the cold wind of March and in the students discomfort at touching the irregular and harsh textures of the sticks, leaves, and grasses. It is the essence of Ellie's struggle back up the hill in Lesson 5, as Alana actively encourages her to build up her stamina through exercise.



*Figure 17: “slits cut into frozen snow
stormy strong wind weather and light
rapidly changing, February 1988”
Andy Goldsworthy*

Tolerance for these materials, experiences and adapting to the weather are essential to making art outdoors. This experience is challenging to the very nature of ASD, with its symptoms of low adaptability and over sensitivity. My findings call for further research as to whether nature inspired art education can assist adults with ASD in becoming more resilient. It is possible my findings might have been different under different weather conditions and at

different times of year. However, a recent outdoor art making trip I took with the same group of students and aides revealed similar issues with tolerating the weather and the seasons. As we walked around an arboretum on warm May day, the aides complained that it was “too hot” and one was worried about getting ticks. One of the students became upset by how far we were walking, even though it was a relatively short distance. No matter the time of year, going out into the natural world involves leaving the safe controlled spaces that we humans have understandable built for ourselves.

PARAPROFESSIONAL ATTITUDES

Lastly, my research findings reveal interesting moments where the attitudes and feelings of the student’s aides seemed to directly affect my students. One example is Lisa’s feelings in Lesson 3, of being tired, of not wanting to walk on the grass and feeling that it was too cold outside. Did these feelings affect Ellie? To what extent do paraprofessional attitudes about art making effect those that they aide?

CONCLUSION

In conclusion, my own resilience was a major discovery in teaching a unit of nature inspired art education to adults with ASD in a day program setting. Not mentioned in the narrative, is that for most of the duration of working on the weaving outdoors in Lesson 5, my hand was bleeding from having accidentally pulling out a thorny vine when helping Ellie look for native grasses. This experience typifies the surprise of how much planning this unit entailed for me as a teacher and my surprise at learning to respect nature and its wildness.

In planning my outdoor lessons, I had to watch the weather daily which caused more than several anxious moments towards the end of the unit where I wasn't even sure we would be able to visit the outdoor site again.

Not only was the unit learning experience for me in terms of building my own resilience, it also was a risk for me to take in terms of teaching an art form with which I had little personal artistic experience. I am portrait and landscape painter who usually works representationally with pastel. Branching out into sculpture and three dimensional landscape installation art was both exciting and challenging for me. It required extra research into alternative materials, such as the instant grab glue I discovered to help hold the pinecones vertically to the weaving's frame for Lesson 5. It was exciting to learn about Andy Goldsworthy's process and be inspired by his work and I feel this will inform my own artwork in the future.

In conclusion, it is interesting for me to circle back to my undergraduate honors thesis which was "Art and the Computer Age's Perception of Time: A Return to a sense of a Passage". In this I discussed how art can encourage individuals to slow down and stop and enjoy the beauty of the natural world. I attempted to do this through a show that incorporated a large series of etchings and art books. It is interesting that now in my masters thesis, it is a similar experience that I sought to bring to my students in the midst of the challenges they experience with ASD. This speaks to the personal growth I have undergone being a mother of a child with special needs, as discussed in the introduction to my thesis. As a young artist in my undergraduate years, I always planned that I would be a portrait painter and illustrator. A few years ago, in my studio working while my children were at school, I began to feel that there were needs in the world that I wanted to address more directly than just through my artwork. I hope this thesis speaks to that intention.

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APPENDIX A

MA THESIS CONSENT FORM

RESEARCH SITE SUPPORT FORM 1

Ann Bradley

Emmaus Home

2989 Duttons Mill Rd

Aston, PA 19031

January 15, 2018

To Whom It May Concern:

I, Anne Bradley, give permission to Stephanie Nicholson to conduct an action research study at Emmaus during the spring 2017 semester in order to fulfill the requirements of his/her Master's thesis at Moore College of Art and Design. I understand that this project is intended to research nature-inspired art making for adults with ASD.

I understand that Stephanie Nicholson will be a participant researcher who will be teaching art while gathering data during 9:30-11:30 on three Friday mornings. I understand she will be collecting data using various methods including observations, interviews, surveys and conversations with the core members and paraprofessionals of Emmaus Home.

Sincerely,

RESEARCH SITE SUPPORT FORM 2

Carol Ruark

Garrett Williamson

395 Bishop Hollow Road

Newtown Square, PA 19703

January 15, 2018

To Whom It May Concern:

I, Carol Ruark, give permission to Stephanie Nicholson to conduct an action research study with Emmaus Home at Garrett Williamson during the spring 2017 semester in order to fulfill the requirements of his/her Master's thesis at Moore College of Art and Design. I understand that this project is intended to research nature-inspired art making for adults with ASD.

I understand that Stephanie Nicholson will be a participant researcher who will be teaching art while gathering data during 9:30-11:30 on three Friday mornings. I understand she will be collecting data using various methods including observations, interviews, surveys and conversations mainly with the core members and paraprofessionals of Emmaus Home.

I understand and give permission for Stephanie Nicholson to install a temporary sculptural form on the grounds of Garrett Williamson for one week in the middle of April 2018. I understand this sculpture will be carefully installed and very light weight so as not to pose any risk or liability to visitors or employees of Garrett Williamson.

I understand that Emmaus Home will provide Garrett Williamson with a certificate of insurance naming Garrett Williamson as additional insured prior to their initial visit.

Sincerely,

INFORMED ASSENT FORM 1: CORE MEMBERS

DESCRIPTION OF THE RESEARCH: You are invited to participate in a research study that investigates **how nature-inspired collaborative art making can encourage a sense of connectedness to the natural world and to others for adults with Autism Spectrum Disorder in a day program.** It is hoped valuable information on how to best structure art education for individuals with ASD will be revealed throughout the course of this research study. For this study, you will participate in research sessions over the course of 2-4 months. . Participation will in no way impact your regular participation schedule. I will not be asking to view any of your personal information. During some research sessions, you will be audio recorded. These audio recordings will provide information that I will use in writing my thesis and the audio recordings will be destroyed upon the completion of my study. This study will take place at Emmaus Home with field trips to the Garrett Williamson Foundation and I, Stephanie Nicholson, will conduct the research.

RISKS AND BENEFITS: Participation in the study is completely voluntary. There will be no effect on your standing at the day program. The dialogues around art works and the art making for the study will be the same for all the core members participating in the study. Therefore, you will not be singled out or pulled out from any of the activities if you chose not to participate in the study and/or the art making. The research has the same amount of risk you will encounter during a usual art or classroom activity. It is also hoped that I will learn through the study more about how to provide a supportive arts learning environment that will influence art instruction for students with ASD.

PAYMENTS: There will be no payments for you for participation in this study.

DATA STORAGE TO PROTECT CONFIDENTIALITY: Subject's confidentiality will be preserved. I am the sole researcher of this study. For the collation, analysis and reporting of all data, all of the participants will be assigned a pseudonym to prevent individuals from being identified. Any charts used in my dissertation or presentations will be coded. All the data that I collect for this research project will be kept in a locked file cabinet in my home. The audio recordings will be destroyed upon the completion of my dissertation. I will reserve the right to use the data and photographs of artwork but the artists' identify will continue to remain confidential.

TIME INVOLVEMENT: Your participation in the study will take approximately 2 - 4 months.

HOW WILL RESULTS BE USED: The results of the study will be used in drawing conclusions from the investigation on how **nature-inspired collaborative art making can encourage a sense of connectedness for adults with Autism Spectrum Disorder ?** The study will be reported in the form of

a thesis, it serves to fulfill my requirements for a master's degree in Art Education.

PARTICIPANT'S RIGHTS

Principal Investigator: Stephanie Nicholson

Research Title: Nature Focused Art Education for Adults with ASD

- I have read and discussed the Research Description with the researcher. I have had the opportunity to ask questions about the purposes and procedures regarding this study.
- My participation in this research is voluntary. I may refuse to participate or withdraw from participation at any time without jeopardy to future medical care, employment, or other entitlements.
- The researcher may withdraw me from the research at his/her professional discretion.
- If, during the course of the study, significant new information that has been made available to me may relate to my willingness to continue to participate, the investigator will provide this information to me.
- Any information derived from the research project that personally identifies me will not be voluntarily released or disclosed without my separate consent, except as specifically required by law.
- If at any time I have any questions regarding the research or my participation, I can contact the investigator, who will answer my questions. The investigator's phone number is (215)490-6363.
- If at any time I have comments, or concerns regarding the conduct of the research or questions about my rights as a research subject, I should contact Moore College of Art and Design at 215-965-1000 and I should receive a copy of the Research Description and this Participant's Rights document.
- If audio recording is part of this research,
 - I () consent to being audio recorded.
 - I () do NOT consent to being audio recorded.

The written, artwork and audio taped materials will be viewed only by the principal investigator, inter-rater scorers, and members of the program faculty.

- Written, artwork, and audio taped materials,
 - () may be viewed in an educational setting outside the research.
 - () may NOT be viewed in an educational setting outside the research.
 - () may NOT be viewed in an educational setting outside the research.

My signature means that I agree to participate in this study.

Participant's signature or that of legal power of attorney/guardian:

_____ Date: ____/____/____

Name: _____

If necessary:

Investigator's Verification of Explanation

I certify that I have carefully explained the purpose and nature of this research to

_____ (participant's name) in age-appropriate language.

He/She has had the opportunity to discuss it with me in detail. I have answered all his/her questions and he/she provided the affirmative agreement (i.e. assent) to participate in this research.

Investigator's Signature: _____

Date: _____

INFORMED ASSENT FORM: PARAPROFESSIONALS

DESCRIPTION OF THE RESEARCH: You are invited to participate in a research study that investigates **how nature-inspired collaborative art making can encourage a sense of connectedness to the natural world and to others for adults with Autism Spectrum Disorder in a day program.** It is hoped valuable information on how to best structure art education for individuals with ASD will be revealed throughout the course of this research study. For this study, you will participate in research sessions over the course of 2-4 months. . Participation will in no way impact your regular participation schedule. I will not be asking to view any of your personal information. During some research sessions, you will be audio recorded. These audio recordings will provide information that I will use in writing my thesis and the audio recordings will be destroyed upon the completion of my study. This study will take place at Emmaus Home with field trips to the Garrett Williamson Foundation and I, Stephanie Nicholson, will conduct the research.

RISKS AND BENEFITS: Participation in the study is completely voluntary. There will be no effect on your employment status at the day program. The dialogues around art works and the art making experiences for the study will be the same for all the paraprofessionals assisting in the study. Therefore, you will not be singled out or pulled out from any of the activities if you chose not to participate in the study and/or the art making experiences. The research has the same amount of risk you will encounter during a usual art or classroom activity. It is also hoped that I will learn through the study more about how to provide a supportive arts learning environment that will influence art instruction for students with ASD.

PAYMENTS: There will be no payments for you for participation in this study.

DATA STORAGE TO PROTECT CONFIDENTIALITY: Subject's confidentiality will be preserved. I am the sole researcher of this study. For the collation, analysis and reporting of all data, all of the participants will be assigned a pseudonym to prevent individuals from being identified. Any charts used in my dissertation or presentations will be coded. All the data that I collect for this research project will be kept in a locked file cabinet in my home. The audio recordings will be destroyed upon the completion of my dissertation. I will reserve the right to use the data and photographs of artwork but the artists' identify will continue to remain confidential.

TIME INVOLVEMENT: Your participation in the study will take approximately 2 - 4 months.

HOW WILL RESULTS BE USED: The results of the study will be used in drawing conclusions from the investigation on how **nature-inspired collaborative art making can encourage a sense of connectedness for adults with Autism Spectrum Disorder ?**. The study will be reported in the form of

a thesis, which serves to fulfill my requirements for a master's degree in Art Education.

PARTICIPANT'S RIGHTS

Principal Investigator: Stephanie Nicholson

Research Title: Nature Focused Art Education for Adults with ASD

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- My participation in this research is voluntary. I may refuse to participate or withdraw from participation at any time without jeopardy to future medical care, employment, or other entitlements.
- The researcher may withdraw me from the research at his/her professional discretion.
- If, during the course of the study, significant new information that has been developed becomes available which may relate to my willingness to continue to participate, the investigator will provide this information to me.
- Any information derived from the research project that personally identifies me will not be voluntarily released or disclosed without my separate consent, except as specifically required by law.
- If at any time I have any questions regarding the research or my participation, I can contact the investigator, who will answer my questions. The investigator's phone number is (215)490-6363.
- If at any time I have comments, or concerns regarding the conduct of the research or questions about my rights as a research subject, I should contact Moore College of Art and Design and I should receive a copy of the Research Description and this Participant's Rights document.
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 - () may NOT be viewed in an educational setting outside the research.

My signature means that I agree to participate in this study.

Participant's signature: _____ Date: ____/____/____

Name: _____

If necessary:

Investigator's Verification of Explanation

I certify that I have carefully explained the purpose and nature of this research to
_____ (participant's name) in age-appropriate language.

He/She has had the opportunity to discuss it with me in detail. I have answered all his/her questions and he/she provided the affirmative agreement (i.e. assent) to participate in this research.

Investigator's Signature: _____

Date: _____

BILL OF RIGHTS FOR BOTH GROUPS**PARTICIPANT'S RIGHTS**

Principal Investigator: Stephanie Nicholson

Research Title: Nature Focused Art Education for Adults with ASD

o I have read and discussed the Research Description with the researcher. I have had the opportunity to ask questions about the purposes and procedures regarding this study.

o My participation in research is voluntary. I may refuse to have him or her participate or withdraw from participation at any time without jeopardy to future medical care, employment, student status or other entitlements.

o The researcher may withdraw me from the research at his/her professional discretion.

o If, during the course of the study, significant new information that has been developed becomes available which may relate to my willingness to continue to participate, the investigator will provide this information to me.

o Any information derived from the research project that personally identifies me will not be voluntarily released or disclosed without my separate consent, except as specifically required by law.

o If at any time I have any questions regarding the research or my participation, I can contact the investigator, who will answer my questions. The investigator's phone number is (215)490-6363.

o If at any time I have comments, or concerns regarding the conduct of the research or questions about my child's rights as a research subject, I should contact the Moore College of Art and Design or the Institutional Review Board /IRB. The phone number for the IRB is (212) 678-4105. Or, I can write to the IRB at Moore College of Art and Design 20th St and the Parkway Philadelphia, PA 19131.

o I should receive a copy of the Research Description and this Participant's Rights document.

o If audio recording is part of this research,

I () consent to being audio recorded. I () do NOT consent to being audio recorded.

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o Written, artwork, and audio taped materials,

() may be viewed in an educational setting outside the research. () may NOT be viewed in an educational setting outside the research.

() may NOT be viewed in an educational setting outside the research.

Participant's signature or that of power of attorney/legal guardian:

_____ Date: ____/____/____

Name: _____

If necessary:

Investigator's Verification of Explanation

I certify that I have carefully explained the purpose and nature of this research to _____ (participant's name) in age-appropriate language.

He/She has had the opportunity to discuss it with me in detail. I have answered all his/her questions and he/she provided the affirmative agreement (i.e. assent) to participate in this research.

Investigator's Signature: _____

APPENDIX B

**Non Participatory Observational Protocol (Newman Godfrey, retrieved from:
<https://moodle.moorecollege.net/mod/folder/view.php?id=89592>)**

DATE:	TIME:	LENGTH OF OBS:
--------------	--------------	-----------------------

CLASSROOM DEMOGRAPHICS:	CLASSROOM DIAGRAM
<i>CLASS DESCRIPTION:</i>	
<i># STUDENTS:</i>	
<i># OF TEACHERS:</i>	
<i># OF AIDES:</i>	
<i># OF THERAPISTS PRESENT:</i>	

CLASS ACTIVITY:	
------------------------	--

DESCRIPTION OF ACTIVITY:	

NAME OF STUDENT UNDER OBSERVATION	GENERAL ACTIVITY LEVEL OF STUDENT (CIRCLE ONE)
	O = OBSERVING ONLY L = LOW, LITTLE SPEECH & EYE CONTACT M = MEDIUM, INTERIM SPEECH & EYE CONTACT H = HIGH, REGULAR SPEECH & EYE CONTACT OA = OVER ACTIVE, INTERRUPTIVE, OFF TASK NPC = NON-PARTICIPATORY BY CHOICE NPNC = NON-PARTICIPATORY BUT REMOVED BY THERAPIST / VOCATION CHOACH

VERBAL LANGUAGE USE (TYPOLOGY):
INTERACTIONS WITH STAFF:

INDEPENDENCE:
RESPONSIVITY TO QUERIES:
EXPRESSIVITY OF NEEDS:
INTERACTIONS WITH PEERS:

LEVEL OF ENGAGEMENT IN ACTIVITY:
TIME ON TASK:
LEADERSHIP:
FOLLOWS DIRECTIONS:

OTHER NOTES:

:

**Observational Protocol Artwork Schematic (Newman Godfrey, retrieved
<https://moodle.moorecollege.net/mod/folder/view.php?id=89592>)**

Date:

Time:

Length of Observation:

Shapes		
Qualities of Lines		
Recognizable Forms		
Color Mixing		
Themes / Purpose		
Joy / Engagement		
Naming Process		
Spec. Ed. Interventions		

Surveys For Paraprofessionals

Pre-Unit Survey

Stephanie Nicholson

Nature Focused Art Education for Adults with ASD

Thank you for participating in this survey. Know that you are contributing to valuable research.

Please know that your answers will be treated anonymously and please answer the following questions as honestly as you can. Please return this survey to the drop box in the provided anonymous envelope no later than March 5th, 2018.

1. Do you go outdoors into a natural space for hikes or recreation?

- Sometimes
- Often
- Never
- Always

2. Do you enjoy assisting core members on field trips to natural spaces?

- Sometimes
- Often
- Never
- Always

3. Do core members' challenging behaviors change when out in natural spaces?

- Sometimes
- Often
- Never
- Always

4. Do core members' relative happiness change when out in natural spaces?

- Sometimes
- Often
- Never
- Always

5. Do you yourself ever create art on your own that is inspired by the natural world?

- Sometimes
- Often
- Never
- Always

Additional Comments:

Post-Unit Survey

Stephanie Nicholson

Nature Focused Art Education for Adults with ASD

Thank you for participating in this survey. Know that you are contributing to valuable research.

Please know that your answers will be treated anonymously and please answer the following questions as honestly as you can. Please return this survey to Stephanie Nicholson no later than April 15th, 2018.

1. How have any of your positive feelings of being outdoors and your appreciation of the natural world changed while assisting the students in creating art outdoors at the Garrett Williamson?

- Have increased
- Have decreased
- Have stayed the same

2. During art class, how do you feel the challenging behaviors of the core members have changed while working with natural materials (pinecones, leaves etc) and/or creating art outside?

- Have increased
- Have decreased
- Have stayed the same

3. During art class, how do you feel the relative happiness of the core members has changed while working with natural materials (pinecones, leaves etc) and/or creating art outside?

- Have increased
- Have decreased
- Have stayed the same

4. During art class, how do you feel the interest and participation of the core members has changed working with natural materials (pinecones, leaves etc) and/or creating art outside?

- Have increased
- Have decreased
- Have stayed the same

5. Overall, has your sense of connection, identification with, and/or empathy for core members changed while assisting them to work with natural materials (pinecones, leaves etc) and creating art outside?

- Has increased
- Has decreased
- Has stayed the same

Additional Comments:

Photo Choice Assessment Interviews for Core Members

Core members will be given 10 seconds to answer each question before moving onto the next.
(Newman Godfrey, retrieved from:
<https://moodle.moorecollege.net/mod/folder/view.php?id=89592>)

If there is no verbal response from the student the teacher will record body language.

T: These are the photos you took last week on our nature walk to the Garrett Williamson Foundation. I enjoyed going on that walk with you. These photos are really interesting. Let's spread them out and look at them.

Question 1: Which photo do you like the best? You can point at it or pick it up.

T: I like that one too

(or, if no response) I like this one, let's look at it.

Question 2: What do you like about it?

T: That's very interesting. What do you see in it? You can point or tell me.

T: You see _____ in it? That's very interesting.

Question 3: What colors do you see in it? Feel free to point.

Question 4: What shapes do you see in it? Feel free to point.

Question 5: Do you see light in it? Do you see darkness? You can point or tell me

T: Thanks for sharing that today. Let's create a collage of with this colored paper based on what you have told me about this photograph.

APPENDIX C

UNIT PLAN

Grade Level: Young adult to adult, 4th grade and up for a school setting.

Unit Title: Nature Focused Art Making and Collaboration

PA Standards:

9.1.A.5: Know and use the elements and principles of each art form to create works in the arts and humanities.

9.1.B.5 Recognize, know, use and demonstrate a variety of appropriate arts elements and principles to produce, review and revise original works in the arts

9.1.H.5 Handle materials, equipment and tools safely at work and performance spaces

9.2.G.5 Relate works in the arts to geographic regions:

9.4.D.5 Recognize that choices made by artists regarding subject matter and themes communicate ideas through works in the arts and humanities.

Overarching Objective (Goal): Through the process of exploring the use of natural forms in art making, and through exploring diverse ways to artistically address the natural world students will learn that art making can be an expressive and collaborative means to experience nature.

Materials for Unit: natural forms (i.e. pine cones, leaves, sticks) , water proof tacky glue, non toxic paint, thin gauge wire, paper bags, **kite paper, bendable wood**, shellac, images of the work of Andy Goldsworthy, images of the windows of Louis Comfort Tiffany and other stained glass artists, salvage found old windows without glass or splinter potential that are light in weight, yarn, heavy gauge picture wire, clay

Developmental Rationale / Prior Learning: Students are familiar with collaging, painting, gluing, and weaving and have had numerous field trips to the outdoors.

Lesson Plan Sequence

Lesson #1 Primary Objective: Through the process of painting, weaving, and/or printing with found natural forms students will learn that natural forms can be used to create diverse works of art.

Lesson #2 Primary Objective: Through the process of placing and/or arranging previously painted or woven natural forms outdoors in a natural setting, students will learn that these objects can create outdoor sculptural effects and expressions.

Secondary Objective: Through the process of taking photographs of outdoor elements that interest them students will learn that photography is an expressive art form.

Lesson #3 Primary Objective: Through the process of selecting a previously taken photograph and creating a kite paper collage of it, students will experiment basic landscape painting techniques such as foreground, middle ground and background and the use of shapes and colors to create objects.

Lesson #4 Primary Objective: Through the process of exploring the use of windows as a sculptural art form that addresses the natural world and through collaboratively applying natural forms to create new shapes on salvage windows students will learn that windows can be an expressive art form and way of seeing out into the natural world. Students will learn that sculpture can be collaborative. This lesson may take place outdoors weather permitting.

Lesson #5 Primary Objective: Through the process of collaboratively applying previously made and shellaced kite paper collages to spaces in previously made windows students will learn basic stained glass techniques in way that is accessible to them.

Lesson #6 Primary Objective: Through the process of collaboratively selecting a space and safe/responsible way of displaying previously made sculptural “windows” outdoors and then installing these pieces students will learn the considerations inherent in the creation of outdoor sculpture, such as balance and weight.

Secondary Objective: Through the process of scattering bird seed and other types of food for native animal species on their sculpture “windows” students will learn that sculptures displayed outdoors can be a way of collaboratively sustaining the natural world.

Extension Activities / Other Resources: Possibly a visiting artist if funding allows.

Vocabulary: collaboration, sculpture, landscape, natural forms, stained glass, land forms, natural world, kite paper, expression, address, shapes, foreground, middle ground, background, collage, color

Assessment(s): See Data Analysis section in Methodology and individual assessments in lesson plans.

Lesson Plan 1

Student Name: Stephanie Nicholson

Date: 11/29/17

Grade Level: Young adult to adult, grade 4 and up if in a school setting

Activity: Artistic experimentation with natural forms.

Materials: found natural forms, non toxic paint, air dry clay, yarn, rollers, and images of the art of Andy Goldsworthy.

Objective: Through the process of painting, weaving, and/or printing with found natural forms students will learn that natural forms can be used to create diverse works of art.
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Development Rationale/Prior Learning: Students are familiar with the processes of weaving, painting and printing.

Accommodations/Modifications/Adaptations: gloves for students who have sensory resistance, plastic bags or sheets to cover clay for students with sensory resistance, adaptive tools to assist students who struggle to hold brushes, such as Velcro strips or cut out plastic milk jug handles. Since many of the students have lower attention spans, a variety of artistic methods will be employed to fill out the two hour class period.

National Standards:

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Spark/Do Now: Students will be invited to choose a variety of natural forms from a choosing table. They will have time to touch and manipulate the natural forms. They will carry paper bags to contain the forms they collect.

Association: Where did these materials come from? How could we incorporate them into art making? The teacher will show the students images of the art of Andy Goldsworthy and discuss how he uses natural forms in his art work.

Visualization: We are going to see what we can do artistically with the natural forms you selected. How might we paint them or arrange them in interesting patterns, what marks might they make in clay? How could we incorporate them into a weaving?

Recap: We are going to first spend some time painting our natural forms or arranging them in patterns. Then we'll get the clay out and see what marks they might print into clay. Lastly, we'll see how we might add them to your weavings that you have been working on.

Transition: Let's start with painting.

Clean-up: We have five minutes before we need to clean up. It's time to clean up, let's wash our brushes and throw out any yarn clippings or unused bits of clay. Let's sweep the floor since there are bits of dirt and small pieces from our natural forms.

Closure: Let's look at the art everyone created with natural forms. Are there any arrangements we might want to take a picture of? What type of art making method did you enjoy the most?

Assessment (Formative): **The teacher will be using observational protocol** and recording the class. After the students have cleaned up the teacher will come around and talk to them briefly about their work. For non verbal students, the teacher will use a sentence with Velcro blanks. I enjoyed using ___ to _____. Velcro visuals of materials and techniques will be provided for these students to place in the blanks. The following charts will be used.

The following charts will be used:

TODAY I ENJOYED USING _____

TO _____

AND

Today I felt:



Nature Walks make me feel:



Lesson Plan 2

Lesson Plan 2

Student Name: Stephanie Nicholson

Date: 11/28/17

Grade Level: Young adult to adult, grade 4 and up if in a school setting

Activity: Natural Forms in Outdoor Spaces

Materials: previously painted, woven, or printed in clay natural forms, inexpensive disposable cameras, images of the art of Andy Goldsworthy.

Objective: **Primary Objective:** Through the process of placing and/or arranging previously painted, printed in clay, or woven natural forms outdoors in a natural setting, students will learn that these objects can create outdoor sculptural effects and expressions.

Secondary Objective: Through the process of taking photographs of outdoor elements that interest them students will learn that photography can be an expressive art form.

Development Rationale/Prior Learning: Students will be working with materials familiar to them that they have made in a previous class. They will have already seen the work of Andy Goldsworthy in a previous class, but the repetition of these images should be a helpful accommodation for them.

Accommodations/Modifications/Adaptations: The teacher will visit the outdoor space prior to teaching to insure that it is safe for the students and to examine the potential of the site. Since many of the students take awhile to adjust to new surroundings, the students will be taken to an outdoor space which is already familiar to them from a previous field trip unrelated to art class. The students will be given ample time to proceed on the nature walk around the site at their own pace. Since many of the students have difficulty modulating their emotions the teacher will be flexible about whether the

student want to leave their natural materials in certain places or whether they may wish to keep them. The teacher will be open to any new direction the students may want to go in, in terms of working with any new natural forms that they themselves find.

National Standards

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9.2.G.5 Relate works in the arts to geographic regions:

9.4.D.5 Recognize that choices made by artists regarding subject matter and themes communicate ideas through works in the arts and humanities.

Spark/Do Now: the teacher will gather the students and give them paper bags of the natural form art they created in a prior class and congratulate them on the work and encourage them to examine it again.

Association: The teacher will show them images of the work of Andy Goldsworthy. What could you do with your art here out in the natural world?

Visualization: We are going to go on a nature walk together. Look and see where you could place your natural form art or even attach it to the world you see around you. What could you do with it? The teacher will provide an example by taking a natural form art and placing it somewhere in nature and briefly discussing the effect that creates.

Recap: We are going to take our natural art forms with us on a nature walk and see how we might add them or incorporate them to the world we see.



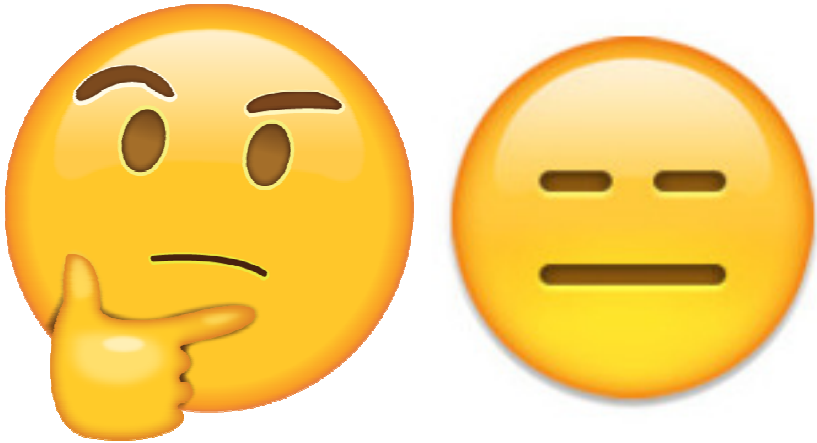
AND

Today I felt:

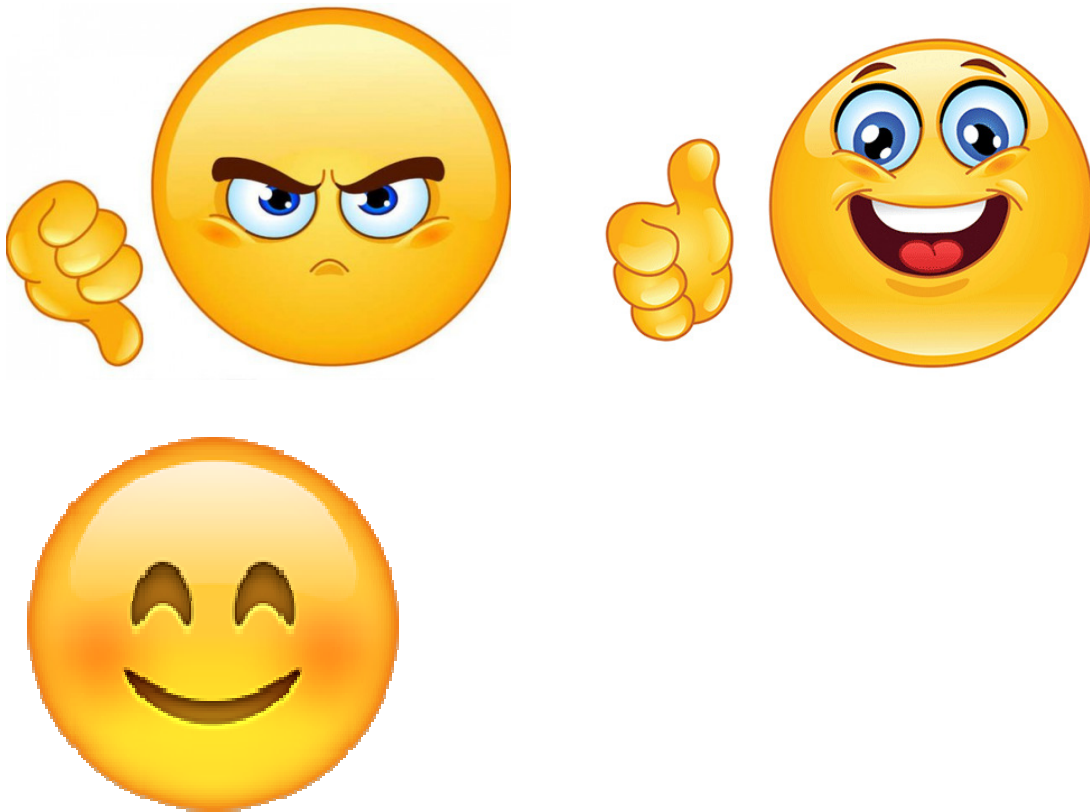


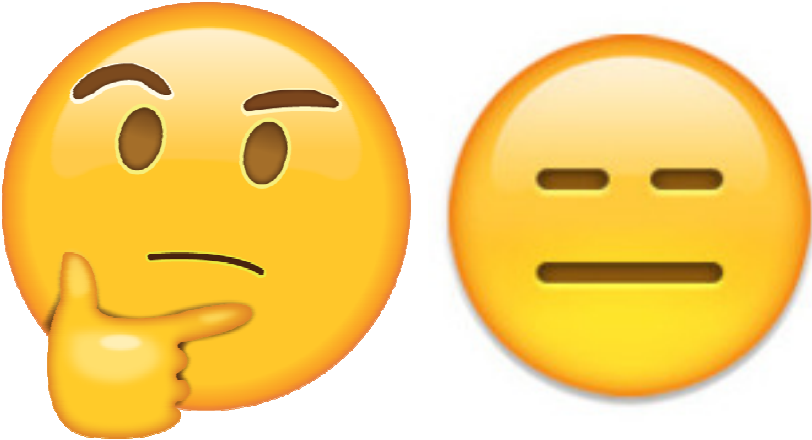


**Taking Photos made me
feel:**



**Placing and Arranging my
Natural Forms made me
feel:**







APPENDIX D: Lesson 1 Closure

NATURE INSPIRED ART EDUCATION FOR ADULTS WITH AUTISM SPECTRUM DISORDER

TODAY I ENJOYED USING _____



TO _____

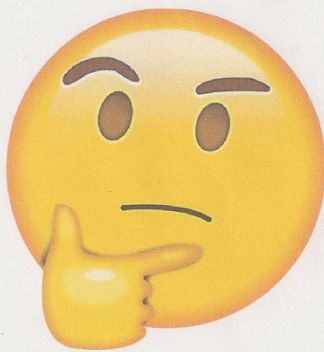
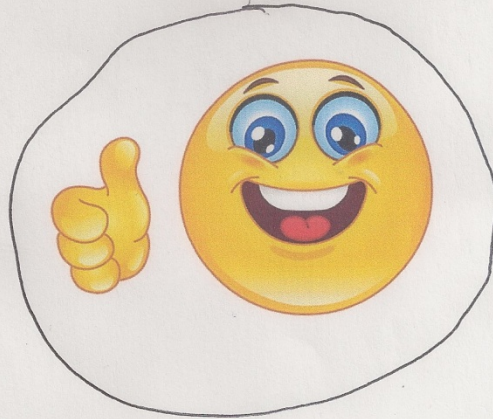


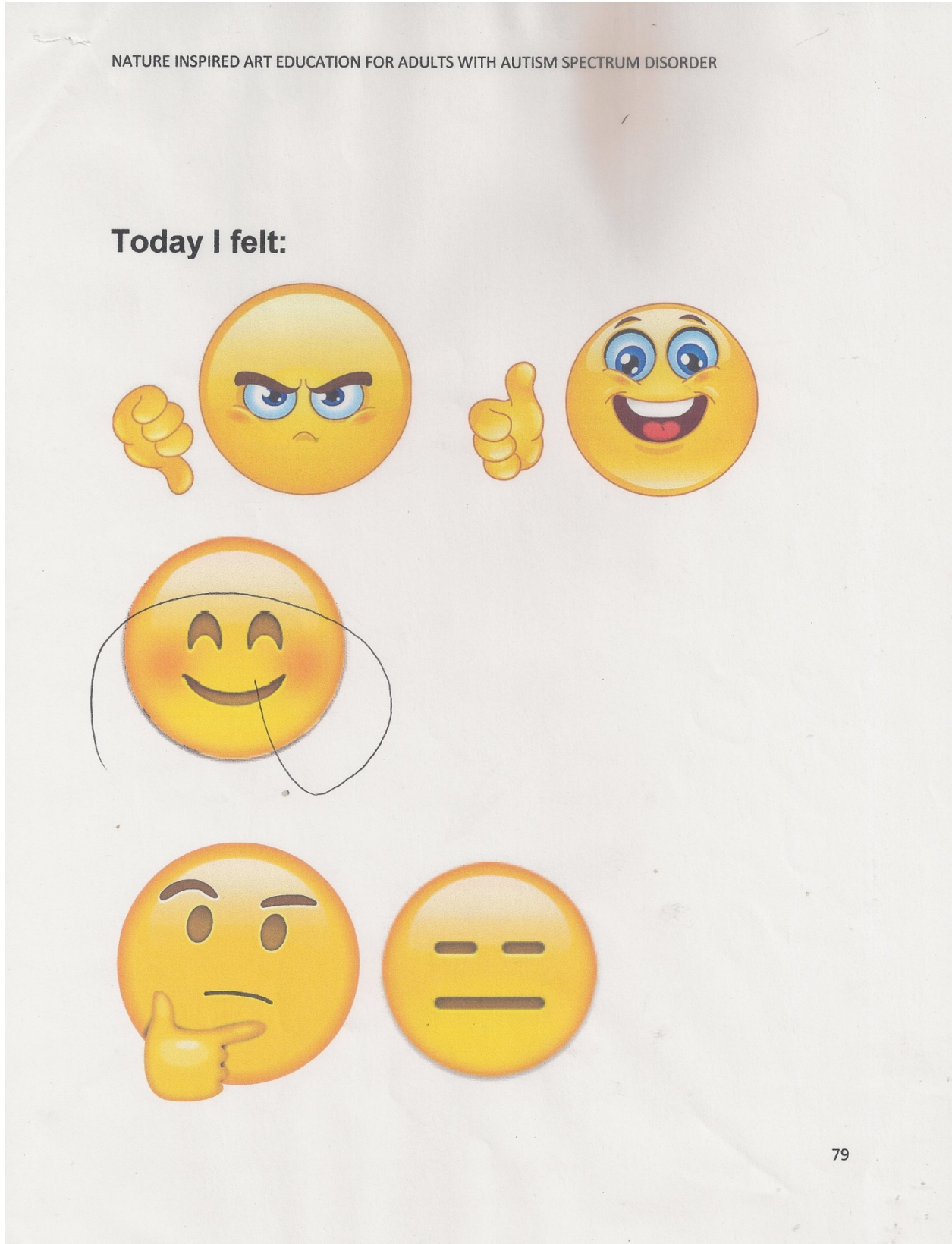
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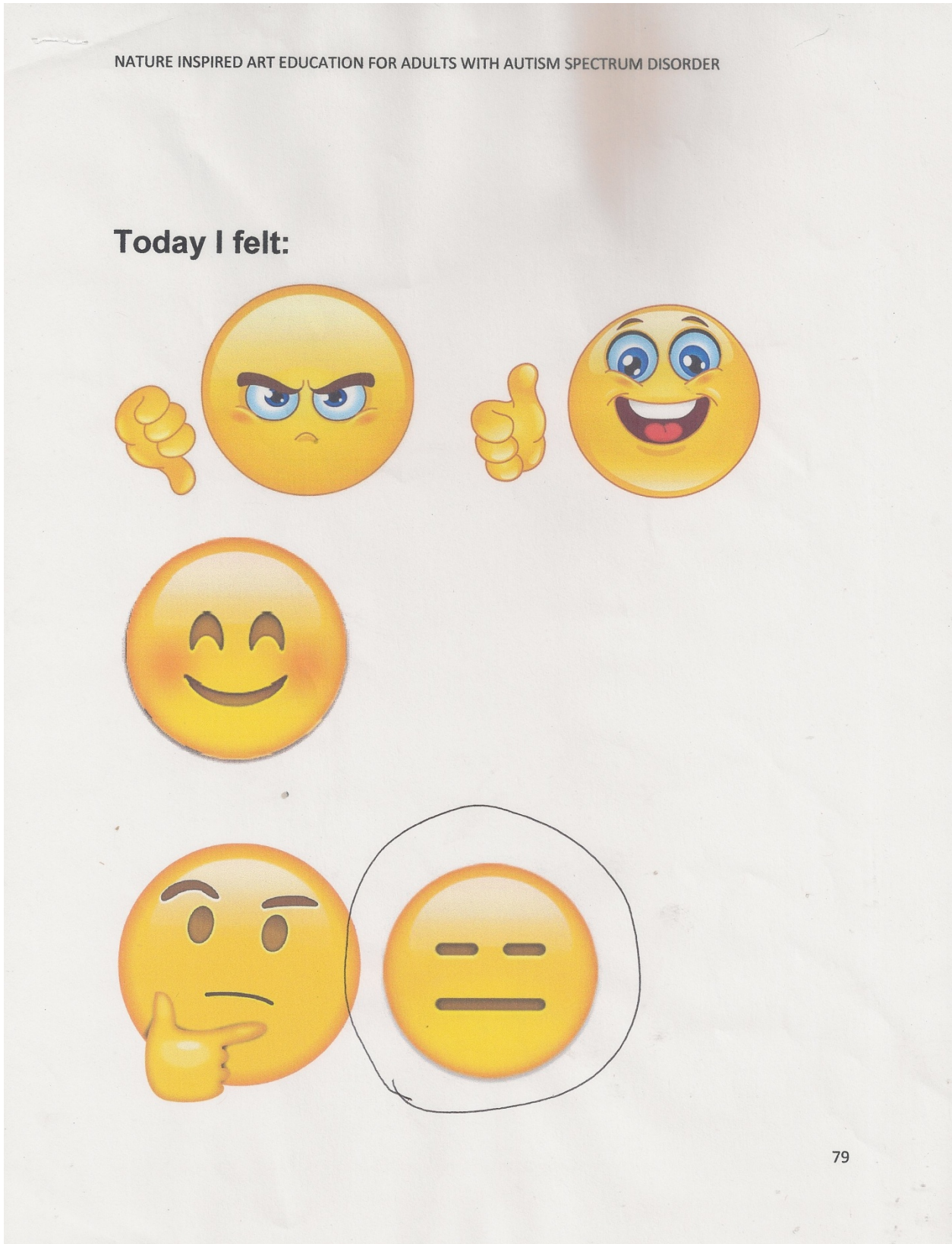
NATURE INSPIRED ART EDUCATION FOR ADULTS WITH AUTISM SPECTRUM DISORDER

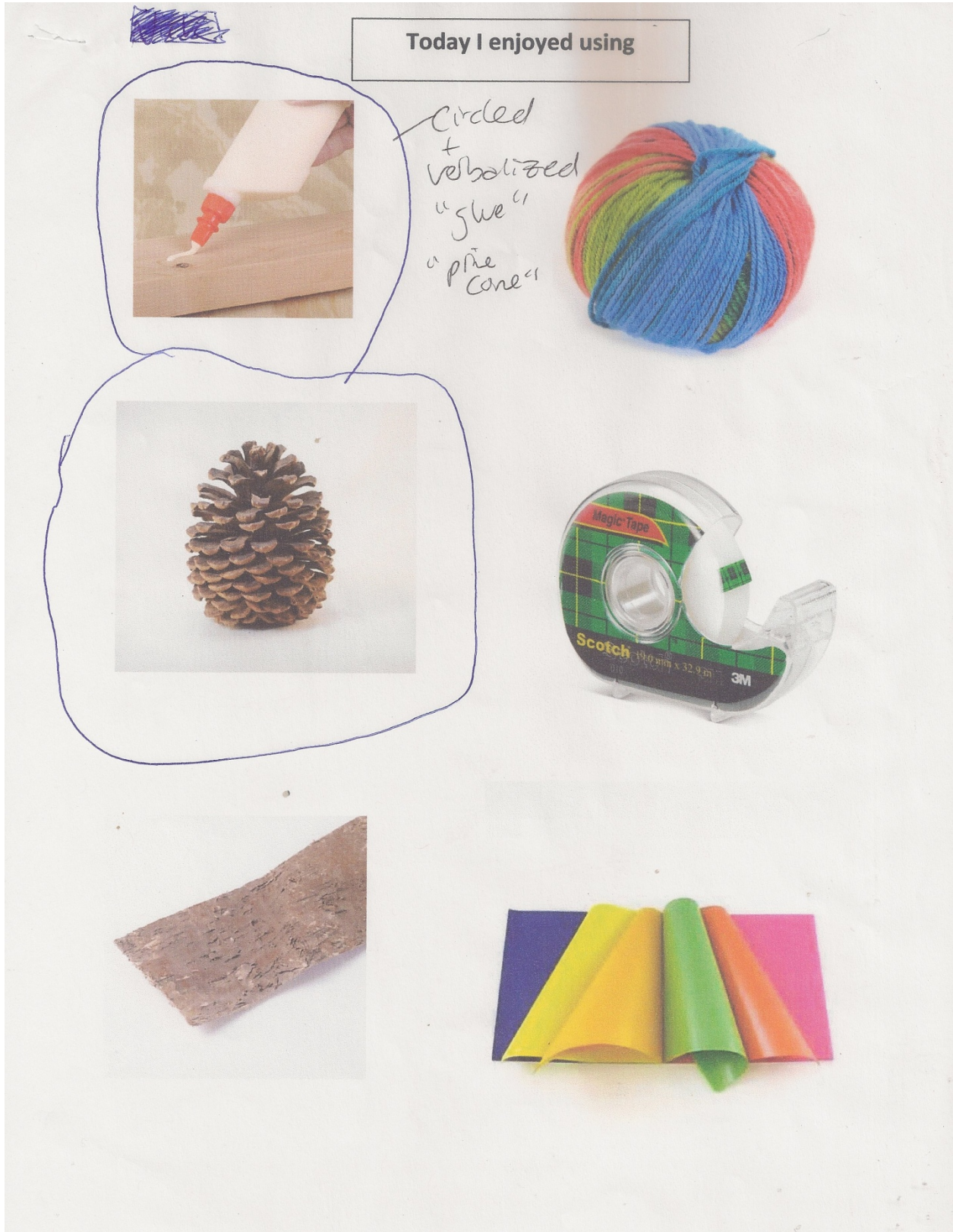
Today I felt:



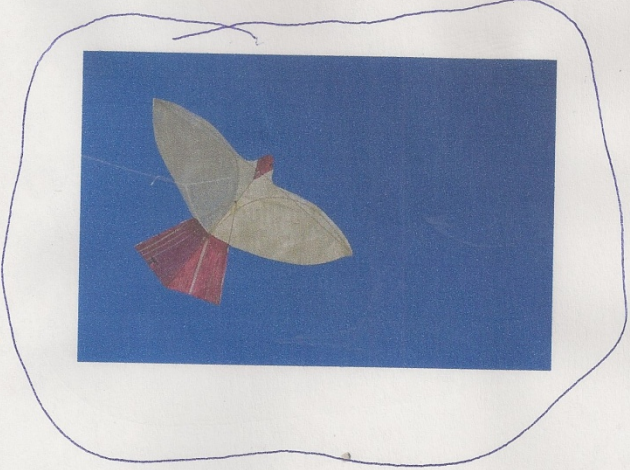


Ellie Lesson 2 Closure



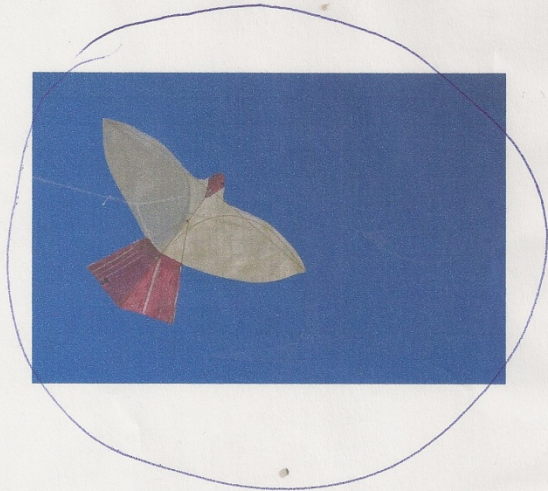


To Make:





To Make:



APPENDIX E: STUDENT WORK





APPENDIX F













APPENDIX G

NATURE INSPIRED ART EDUCATION FOR ADULTS WITH AUTISM SPECTRUM DISORDER

- Have increased
- Have decreased
- Have stayed the same

4. During art class, how do you feel the interest and participation of the core members has changed working with natural materials (pinecones, leaves etc) and/or creating art outside?

- Have increased
- Have decreased
- Have stayed the same

5. Overall, has your sense of connection, identification with, and/or empathy for core members changed while assisting them to work with natural materials (pinecones, leaves etc) and creating art outside?

- Has increased
- Has decreased
- Has stayed the same

Additional Comments: Creating art outside with [redacted] has decreased his challenging behaviors significantly. I would credit the use of natural materials, rather than indoor supplies as a key factor in decreased behavior for [redacted]. Also the outdoor environment allows a much more open ~~environment~~ ^{space} for core members, to roam around a bit.



NATURE INSPIRED ART EDUCATION FOR ADULTS WITH AUTISM SPECTRUM DISORDER

Photo Choice Assessment Interviews for Core Members

Core members will be given 10 seconds to answer each question before moving onto the next.
(Newman Godfrey, retrieved from:
<https://moodle.moorecollege.net/mod/folder/view.php?id=89592>)

If there is no verbal response from the student the teacher will record body language.

T: These are the photos you took last week on our nature walk to the Garrett Williamson Foundation. I enjoyed going on that walk with you. These photos are really interesting. Let's spread them out and look at them.

Question 1: Which photo do you like the best? You can point at it or pick it up. #2

took a long time for a response

T: I like that one too

(or, if no response) I like this one, let's look at it.

Question 2: What do you like about it?

T: The

T: You

Questi

Questi

Questi

T: The

you ha



~~scribble~~

NATURE INSPIRED ART EDUCATION FOR ADULTS WITH AUTISM SPECTRUM DISORDER

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Question 1: Which photo do you like the best? You can point at it or pick it up.

Photo 1

T: I like that one too

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