

Art and Autism:  
Utilizing Art to Increase Mirroring Ability, Attention Skills, and Play Interaction of an  
Autistic Child

Katie Zuehlke

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Department of Art Therapy in the Graduate Program  
Saint Mary-of-the-Woods College  
Saint Mary-of-the-Woods, Indiana

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**ABSTRACT**

Major deficits seen in children with autism include social interaction skills, such as little imitation skills, odd play patterns, and impaired joint attention (American Psychiatric Association, APA, 2013). To date, there was limited literature on enhancing mirroring ability, play interaction, and attention skills in autistic children. Art making has been shown to provide a safe and fun learning environment for these individuals as art engages the child in expressive freedom while promoting social skills (Gazeas, 2012). This two-week case study explored the effectiveness of art interventions to promote mirroring ability, play interaction, and attention skills for a three-year-old boy diagnosed with Autism Spectrum Disorder. Pre- and post-art intervention questionnaires and observations were conducted to measure the child's possible improvements. The results were mixed with a decline on the participant's mirroring ability during peer interaction, but indicated an increase of imitation during art interventions, and improvements of play interaction and attention skills. Further research was recommended.

## TABLE OF CONTENTS

ABSTRACT .....	2
I. INTRODUCTION .....	5
Statement of Problem .....	5
Research Question .....	6
Basic Assumption .....	6
Statement of Purpose .....	7
Hypothesis .....	7
Definitions .....	7
Justification and Merits of the Study .....	9
II. REVIEW OF LITERATURE .....	10
Autism Spectrum Disorder .....	10
Mirroring Ability .....	11
Play Interaction .....	13
Attention Skills .....	16
Art and Autism .....	18
III. METHOD .....	20
Participant .....	20
Research Design .....	22
Procedures for Data Collection .....	24
Analysis of the Data .....	24
Qualitative Analysis .....	24
Quantitative Analysis .....	25

Reliability and Validity .....	26
Ethical Implications .....	27
IV. RESULTS OF THE STUDY .....	28
Art and Autism Questionnaire .....	28
Pre- and Post-Art Interventions .....	33
V. DISCUSSION .....	37
Discussion .....	37
Mirroring Ability .....	37
Play Interaction .....	38
Attention Skills .....	39
Limitations .....	39
Recommendations .....	40
Conclusion .....	40
REFERENCES .....	42
APPENDICES .....	50
APPENDIX A: Art and Autism Questionnaire .....	50
APPENDIX B: Assent Form .....	53
APPENDIX C: Consent Form .....	54
APPENDIX D: Observation Form .....	57
APPENDIX E: Consent to Photograph/Videotape .....	59
APPENDIX F: Consent to Videotape Peer .....	60
APPENDIX G: List of Counselors/Resources .....	61
APPENDIX H: Art Interventions .....	62

## CHAPTER I

### **Introduction**

Benveniste (1983) described autism as one of the most profound emotional disorders of childhood. Autistic Spectrum Disorder (ASD) is characterized by impairments in social interactions, interests, and activities, as well as language development (Emery, 2004).

Usually before the age of three, the onset of ASD has been diagnosed in individuals, and the disorder has been shown to affect the central nervous system resulting in cognitive, motor, and emotional ability impairments, as well as deficits in verbal and non-verbal communication skills (Scanlon, 1993).

Martin (2009) emphasized art as a complementary or adjunctive activity in the field of autism treatment. Art involved a complex developmental process and can be seen to affect behavioral and cognitive levels of an individual (Evans & Dubowski, 2001). Gazeas (2012) has found art improved the ability to relate, socialize, identify facial expressions, and improved the lack of joint attention skills with autistic individuals. In addition, art has been incorporated within many different theoretical frameworks and has been found efficacious with the autistic population.

### **Problem Statement**

Children on the autism spectrum exhibit behaviors of isolation and generally do not acknowledge other individuals (Scanlon, 1993). Art has been shown to provide learning opportunities for an autistic child as they are able to explore art materials and interactive activities (Robinson, 2009). Research suggested art promotes cognitive and problem solving skills, along with improving communication and interpersonal skills (Robinson, 2009). However, to date there appeared to be limited literature that focused on enhancing

mirroring ability, attention skills, and play interaction in autistic children. This study explored the relationship between art and these abilities within an autistic individual.

### **Research Question**

Research indicated a disturbance in the development of an autistic child's attention skills, a major characteristic of social deficits (Kim, Wigram, & Gold, 2008). Further research indicated that imitation deficits adversely affected mirroring ability within autistic individuals (Hadjikhani, Joseph, Snyder & Tager-Flusberg, 2006). This study was guided by the question, *How can utilizing art enhance an autistic child's mirroring ability as well as increase the child's attention skills and play interaction?*

### **Basic Assumptions**

Current research has found art activities provided a natural learning environment of fun interactions and engaged the child in the practice of social skills (Robinson, 2009). Scanlon (1993) emphasized that providing physical space along with non-verbal communication generated a calm and organizing influence which has been shown to be the most effective means of approaching an autistic child. Likewise, Evans and Dubowski (2001) stated that a sensitive interactive approach was effective in achieving attunement between the therapist and autistic child. According to Gazeas (2012) components of art media can entice children with ASD to become engaged with others, and has been shown to create a safe therapeutic environment for expression as well as encouraged meaningful social interaction alongside peers and family members.

Mirror neurons research supported the idea that it was helpful for individuals to observe the modeling of an art process as this action often accelerated observation and imitation skills (Franklin, 2010). In a study conducted by Goldstein (1964), art interaction

was found to increase concentration ability and attention span of an autistic child. Osborne (2003) also found a close association between play and art during early development. In another study, an autistic child was able to increase social skills through participation of art intervention as it was non-threatening and an acceptable activity (Epp, 2008).

### **Statement of Purpose**

The purpose of this study was to enhance an autistic child's mirroring ability, and improve attention skills and play interaction in an autistic child through the use of art activities. Engaging in art-making has been shown to increase interaction of reciprocal movement, gestures, and response (Osborne, 2003).

### **Hypothesis**

An autistic individual will display an improvement of mirroring abilities following participation in art interventions. In addition, the child will exhibit an increase in attention skills as well as play interaction following art activities with the researcher. This hypothesis will be supported by questionnaires with parents/caregivers and observations.

### **Definition of Terms**

**Attention Skills.** Awareness ability between a child, second person, and a third event, object or person (Warreyn & Roeyers, 2014).

**Art Activity.** Activities designed to explore child's retentive ability as well as cognitive skills (Goldstein, 1964).

**Art Intervention.** Use of visual and concrete art materials along with the creative process to produce structure and awareness as well as develop expression, social interactive skills, and ability to relate (Gazeas, 2012).

**Autism Spectrum Disorder.** A neurodevelopment disorder with persistent impairment of reciprocal social communication and social interaction including restricted repetitive behaviors, interests, and activities. Deficits include little or no initiation of social interaction and reduced imitation of others' behavior (APA, 2013).

**Automatic Mimicry.** The action of observing another person's behavior which can elicit corresponding behavior in the observer (McIntosh, Reichmann-Decker, Winkielman, & Wilbarger, 2006).

**Construct Validity.** The degree to which a construct, meaning an abstract concept or idea, can be measured (Kapitan, 2010).

**Internal Validity.** The degree of freedom from bias in determining results or causality, for example, whether the independent variable or treatment made a difference in the situation under study (Kapitan, 2010).

**Mirroring Ability.** Ability to acquire, by observation, a new motor behavior through an interactive activity or experience and to repeat it using the same movements employed by the teacher (Rizzolatti & Fabbri-Destro, 2010).

**Play Interaction.** Active engagement with peer promoting pleasure and enjoyment (Jordan, 2003).

**Qualitative.** Research paradigm that is characterized by exploratory or interpretive analysis of observed themes and reflections, and inductive reasoning to arrive at in-depth understanding (Kapitan, 2010).

**Quantitative.** Research paradigm characterized by measuring and controlling for variable, cause-and-effect relationships, and deductive reasoning to arrive at predictive explanations (Kapitan, 2010).



**Reliability.** The principle of consistency in research instruments. A reliable instrument measures what it is supposed to measure and obtains similar results consistently and over time (Kapitan, 2010).

**Single-Subject Research.** Research involving pre- and posttest measures with the same group serving as both the experimental group (treatment period) and control group (non-treatment period; Kapitan, 2010).

**Test-retest Reliability.** A reliable test expected to produce the same, or improved, results over time of multiple distributions (Kapitan, 2010).

### **Justification of the Study**

According to Richard, More, and Joy (2015) autism research was identified as the third most important population needing attention according to research in art treatments. This study explored the potential for art interaction to improve the mirroring ability as well as increase play interaction and attention skills within an autistic child utilizing quantitative methods and the qualitative method of thematic analysis. This study represents an addition to previous literature highlighting art interaction as a tool to increase learning and social skills for individuals with ASD (e.g., understanding social cues, building relationships, and increase motor coordination). Richard et al. (2015) emphasized children with ASD could benefit from early interventions and are able to learn to communicate through art during the developmental process.

## CHAPTER II

**Review of Literature****Autism Spectrum Disorder**

According to the *Diagnostic and Statistical Manual of Mental Disorders-Fifth Edition (DSM-5)* (APA, 2013), autism is defined as a neurodevelopment disorder with pervasive and sustained impairments in communication and social interactions displaying restricted, repetitive, and stereotyped patterns of behavior, interests, and activities. Marshall et al. (2008) stated that this neurodevelopmental disorder manifests in the first three years of life and consists of three core characteristics; impairments of reciprocal social interactions, problems in communication, and restricted range of behaviors and interests. In order for an individual to be classified as ASD impairment in social interaction domain criterion must be fulfilled and observed (Nah, Young, Brewer, & Berlinger, 2014).

Many factors have been associated to the rising prevalence rate of autism. For instance, Kim et al. (2011) stated that increased prevalence may be due to greater public awareness, broadening ASD diagnostic criteria, lower age at diagnoses, and diagnostic substitution. Studies have shown, in all populations observing ASD, four times more males have been diagnosed with autism than females (Marshall et al., 2008). Multiple environmental and scientific factors have been attached to the cause of autism. Martin (2009) suggested that some role of the Y chromosome was a causation factor for autism due to the high diagnosis of male individuals. Other mixed factors, such as allergies and mercury, have also been proposed as possible causes of autism (Martin, 2009).

According to Grandin (1987), autism was thought to be caused by a defect in the brain system that processes incoming information from sensory systems. Individuals with

autism demonstrated odd responses to the environment and sensory stimuli, such as over-sensitivity to noise, light, or touch, a high threshold for pain, and abnormal reactions to odors (Kern et al., 2006). Grandin (2009) observed sensory sensitivities in autistic individuals as highly variable, and caused low or high discomfort for those on the autism spectrum. Kern et al. (2006) added that sensory difficulties in different domains can affect functioning in many different activities of daily living.

### **Mirroring Ability**

McIntosh et al. (2006) claimed that the action of observing another person's behavior can elicit corresponding behavior in the observer. This is known as automatic mimicry. Automatic mimicry facilitates social functioning, including interpersonal rapport, fast learning, and understanding of other minds (McIntosh et al., 2006). Previous studies theorized that when humans see or hear another person perform a specific action, the same motor circuits were simultaneously activated in the body, and motor systems engage as if the action had been replicated using mirror neurons (Franklin, 2010). Research has found that the mirror neuron system plays a critical role in the action-simulation process (McGarry & Russo, 2011). The mirror neuron system within the brain has been shown to generate internal representations and understanding of actions shown by others, and provided understanding to social-communicative functioning such as imitative learning (Hadjikhani et al., 2006). In development, if an imitative deficit occurred early it could impair the child's ability to form self-other correspondences, perhaps contributing to autism (McIntosh et al., 2006).

The *DSM-5* states that autistic individuals tend to engage in little or no imitation of others' behaviors (APA, 2013). A study facilitated by Oberman et al. (2005) found a

dysfunctional mirror neuron system may contribute many behavioral deficits observed in individuals with ASD, such as imitation, language, theory of mind, and empathy, ultimately resulting in social impairments. McIntosh et al. (2006) explained how a prefrontal ‘mirror circuit’ discharged neurons when a similar action was executed, as well as observed by individuals and the circuit was activated during facial mimicry among typical individuals, but a mirror-circuit dysfunction indicates mirror neuron abnormalities in ASD.

Gazeas (2012) stated that children on the autism spectrum displayed the inability to relate to others, and do not use people as a source of reference to mirror or imitate in order to develop communication, language, and social skills. Rizzolatti & Fabbri-Destro (2010) defined imitation as the ability of an individual to repeat, by observation, the same movements employed by others. Hadjikhani et al. (2006) found imitative deficits in autistic individuals, including imitating simple body movements and actions with symbolic meaning as well as imitating facial expressions of emotion. A study conducted by Charman and Baron-Cohen (1994) found the imitation of gestures, particularly facial gestures, were poor in children with autism. Low functioning children with autism are able to imitate simple gestures, while nonverbal children with autism have been found to produce spontaneous imitations while meeting a non-autistic individual (Nadel, 2002). Poor performance of imitative tasks may reflect abnormalities in either functional or symbolic play of an autistic child (Charman & Baron-Cohen, 1994). Nadel (2002) emphasized how children use imitation in social exchange as they are able to take turns, switch roles, share topics, apply rules, and communicate with peers. A study conducted by Dapretto et al. (2006) found children with ASD adopted an alternative strategy of increased visual and motor attention due to mirroring deficits.

Viewing someone mirroring oneself has been shown to enhance prosocial behaviors in autistic children as well as increase tendency to mirror (McGarry & Russo, 2011). McGarry and Russo (2011) further emphasized simple practicing mimicry in social interactions has been shown to be an effective form of therapy. Field et al. (2014) found imitative behaviors help reduce stereotypic/repetitive behaviors in children with autism and are able to facilitate social behaviors, such as toy play behaviors. Imitative deficits may further disrupt development of peer play as early peer interactions are heavily based on reciprocal imitation of toys and actions (Ingersoll & Schreibman, 2006). A study by McGarry and Russo (2011) found an increase of an autistic child's prosocial behavior such as, language, pretend play, and joint attention following imitation training.

### **Play Interaction**

Playing is important to child development as it sets the stage for later social competence (Lantz, Nelson, & Loftin, 2004). The ability to engage in play activity and to interact with reciprocity is basic to the development of social relationships (Case-Smith & Bryan, 1999). Most young children naturally engage in play during typical developmental periods and acquire critical developmental skills while interacting with play materials and peers (Jung & Sainato, 2013). MacDonald and Parke (1984) found that through playful interaction children were able to learn social communicative values of individual emotional displays, as well as how to use signals to regulate social behavior of others. Howes and Matheson (1992) emphasized that in order to succeed in social functioning among peers, children must be able to initiate play, respond to peers' initiation, enter play groups, as well as learn to resolve conflicts with peers. Direct interaction may provide opportunities to learn and refine social skills, such as initiating, maintaining, and conflict resolving that are

common to a child's social interaction (MacDonald & Parke, 1984). Lantz et al. (2004) added that positive peer interaction helps develop a child's self-esteem and social competence as it gives children a chance to work through anxieties and social conflicts while exploring societal rules. Engaging in more complex play at earlier developmental periods has shown more social and less aggressive behavior in later developmental periods in children, suggesting play serves as a valuable component of social competence among peers (Howes & Matheson, 1992).

Children with pervasive difficulties, such as individuals with autism, display affected abilities to communicate with adults and peers as well as difficulties to engage in complex play with typical developing children (Case-Smith & Bryan, 1999). A key role in the diagnosis of ASD is social play, as these individuals fail to develop peer relationships (Jordan, 2003). A cardinal feature of autism, observed and investigated for years, is a severe deficit in reciprocal social interaction among adults and peers (Krantz & McClannahan, 1993). There may also be a lack of shared social play, pretend play, and imagination appropriate to developmental level among individuals with autism (APA, 2013). Impairments of pretend play have been linked to later problems in social understanding and reciprocal social communication that is characteristic of autism (Charman et al., 1997). Children with autism lack the ability to be spontaneous and imaginative, as well as are frequently limited to repetitive and nonfunctional themes or activities and are less likely to imitate the social behavior of others (Lantz et al., 2004). Children with autism do not generalize as well at play with a peer as they may not know behaviors expected of them, thus responding negatively to initiations of play actions (Stahmer, 1995). Studies have also found that autistic children are less socially responsive

when they are unfamiliar with their social partner, possibly displaying frequent negative affect and emotional blends during social interactions (Dawson, Hill, Spencer, Galpert, & Watson, 1990). Play is a childhood occurrence and failure to engage in play may cause social isolation and development of maladaptive social skills (Jordan, 2003).

Within unstructured or free play conditions, children with autism have been found to produce significantly less pretend play, but intact functional play and interaction (Charman et al., 1997). According to Jordan (2003), play interaction mirrored aspects of children's development such as cognitive, social, emotional, as well as explored sensory awareness in relation to play objects. Interaction may be difficult for a child with autism due to the multisensory nature of social stimulus and overarousment to the central nervous system (Case-Smith & Bryan, 1999). Research shows that even though children with autism can be taught to respond to initiations, complex social behaviors such as imitating play and conversation typically remain low (Pierce & Schreibman, 1995). However, a study performed by Koning, Magill-Evans, Volden, and Dick (2013) concluded that individuals with autism can learn to recognize nonverbal social cues when taught in the context of typically occurring social scenarios and reinforced during play-based activities. According to Case-Smith and Bryan (1999), sensory integration was fundamental to the child's ability to engage in play and sustain interaction. Activities with sensory integration provided graded tactile, proprioceptive, and vestibular input to the child in order to influence arousal and attention (Case-Smith & Bryan, 1999). Reduced sensory defensiveness has been shown to be related to an increase of play behaviors (Case-Smith & Bryan, 1999). When a child's tolerance of tactile input improved, he or she was able to become more comfortable with the manipulation of a variety of textures and ultimately play interaction (Case-Smith & Bryan,

1999). Lantz et al. (2004) emphasized that merely being in the presence of typical peers has shown to be a positive impact on social behavior for children with autism.

### **Attention Skills**

Rudy, Betz, Malone, Henry, and Chong (2014) defined joint attention as the coordinated exchange of attention between two individuals and an object with the use of eye gaze, gestures, as well as vocal or verbal communication of one or more words. Joint attention skills involve sharing attention with others through pointing, showing, and coordinated looks between objects and people (Kasari, Freeman, & Paparella, 2006). Sharing attention offers the child a possibility to share experiences and emotions with another person, meanwhile building and maintaining a relationship with that person (Warreyn & Roeyers, 2014). Kasari et al. (2006) found a significant association between joint attention skills and later language abilities in young individuals. Attention skills play an important role in early development as it indicated a promotion of higher functions of communication, social interaction, and language (Kim et al., 2008). Joint attention is often discussed as one of the first forms of communication and is regarded as an important developmental milestone in terms of promoting language and social development by encouraging social exchange (Rudy et al., 2014).

The basis of communicational dysfunction is described as failure to orient to social stimuli, impoverished social gaze, and impairment in shared attention or motor imitation (Case-Smith & Bryan, 1999). Warreyn and Roeyers (2014) emphasized an individual exhibiting a lack of attention within play around 18 months old had a very high chance of being diagnosed with ASD as joint attention has been associated with ASD symptoms including language abilities and social competence among peers. Existing evidence



suggests that joint attention is deficient in the majority of young children with autism and is an important predictor for later language and social abilities (Kasari et al., 2006). Multiple aspects of social attention are atypical in autism, for example, timing of attention to social information and cues in social scenes (Hanley et al., 2014). In addition, a study conducted by Ehlers and colleagues (1997) found that individuals with autism exhibited difficulties attending to wholes rather than details during object interactions. For instance, autistic individuals exhibited a need for perfection in regards to objects and displayed distractibility when attending large activities (Ehlers et al., 1997). Further deficits of the disorder include additional attention problems, deficient planning and poor time concepts (Ehlers et al., 1997).

A study conducted by Hanley (2014) indicated attention patterns of children with autism do not typically exchange a real person-to-person interaction. Charman and colleagues (1997) further emphasized that individuals with autism do not typically use gestures to share interests or attention to objects or their properties. Children with autism avoid attending to others and rarely utilize reciprocal communication (Case-Smith & Bryan, 1999). For instance, attention priority for autistic children does not involve social information such as social stimuli (e.g., name calling), but non-social stimuli (e.g., play material, Hanley et al., 2014). The absence of joint attention in children with autism may be due to the fact that children with autism often do not find social interaction from others as reinforcing (Rudy et al., 2014).

Ingersoll (2008) found that by teaching imitation skills to children with autism joint attention could be increased. Successful teaching or promoting of joint attention often occurs in the context of play, combining a developmental approach with behavioral

techniques, such as reinforcement (Warreyn & Roeyers, 2014). A study conducted by Kim et al. (2008) encouraged focusing on what the child is able to do rather than focusing on the pathology of the child, as this technique is able to offer the child more opportunities to be in control during promotion of various behavioral skills. Promoting attention among children with ASD indicated skills which may expand to social communicative abilities and language skills (Warreyn & Roeyers, 2014).

### **Art and Autism**

Waller (2006) highlighted the importance of art making and the human learning process because art enables a child to get in touch with feelings that cannot be expressed with words. Artistic expression can reflect a child's object constancy, growth and development, as well as the ordering of his or her internal world (Emery, 2004). Through the process of art making a child is able to build relationships and gain control over feelings and actions which may have produced a change in behavior (Waller, 2006).

Art provides tactile and kinesthetic awareness, fine and gross motor skills, self-expression, self-regulation skills, and sensory integration as well as processing ability (Robinson, 2009). Art interaction provides practice of motor coordination and imitation skills for a child with autism through a variety of artistic activities (Gazeas, 2012). A study conducted by Goldstein (1964) found an increase in attention span and concentration of an autistic child through the use of creative arts. In addition, active centering, such as an art task, has been shown to increase attention abilities and decrease impulsive behaviors, allowing better decision-making, completion skills, social skills, and expression growth (Gazeas, 2012).

Robinson (2009) stated that art provides a learning environment occupied with creative fun, where autistic children are able to express frustration and anxiety in a safe and effective manner. Art activities help to construct meaning in children with autism as a sense of external and internal experiences through the use of art materials (Osborne, 2003). Emery (2004) suggested that the use of nonverbal expression through the making of art encouraged autistic children to begin to represent experiences and let others relate to their world.

Art is an interesting crossroads for children with ASD in which strengths (e.g., visual learners, sensory interests) and deficits (e.g., imagination, need for sensory control) merge (Martin, 2009). Art is seen to be an effective therapeutic technique as it involves a complex developmental process at the behavioral and cognitive levels (Evans & Dubowski, 2001). Martin (2009) emphasized therapeutic art provides a variety of sensory stimulation in a safe, organized environment using activities that can crack open the door to a child's imagination. Osborne (2003) encouraged the value of art therapy to an autistic child as it can be a therapeutic child-led approach concerned more with the process than the product creating fundamental social and life goals of treatment for a child with autism.

## CHAPTER III

### Method

#### Participants

The participant for this study consisted of one Caucasian male, three years of age, on the lower end of the autism spectrum, exhibiting non-verbal, non-responsive, and repetitive behaviors. The child exhibited behavioral issues related to attention and separation. The child displayed low attention, as occasional eye contact was made with others, and eye gaze was maintained for a short amount of time. Furthermore, the participant showed low awareness when being called by name. The child became anxious when separated from his caregiver or parent displaying crying as well as task avoidant behavior. In addition, the participant appeared to be aware of surroundings, but did not choose to participate in directed activity. The child intentionally did not follow through on instructions given unless the instructor was turned away. This was a noted repeated behavior.

The participant came from a middleclass income family with a religious preference of Catholicism. The participant was the middle child of three children of his biological parents. The participant had a younger brother, two years of age, as well as an older brother, five years of age who has also been diagnosed as being on the Autism Spectrum. The participant's older brother did not participate in the researcher's art interventions as the researcher was the child's behavioral therapist, and co-relationships were not recommended to be in the best interest of the child. The participant stays home during the day, along with his siblings, where he is cared for 10-12 hours of the day by his maternal grandmother. The child also participates in five hours per week of one-on-one therapeutic treatment involving

intensive behavioral therapy. The participant was diagnosed with Autism Spectrum Disorder in January 2015 and began therapy in March 2015.

Two adults completed the questionnaire (Appendix A), (the participant's mother and maternal grandmother). The participant's mother was a Caucasian female, 34 years of age, working as an assistance underwriter of a local insurance company. During evenings she was involved with the participant during play, going for car rides, and bedtime routines. The participant's maternal grandmother was a Caucasian female, 57 years of age, working as the caregiver of the participant and his two brothers. During the mornings she was involved with waking, dressing, and feeding the participant. Throughout the day, when the child was not in behavioral therapy, she joined the participant in play as well as eating lunch, and giving the child an afternoon nap. During evenings, she was occasionally involved with the participant's nighttime routine alongside the participant's mother. Furthermore, both female participants placed simple demands on the participant, for example "give (object)" and "come here"; played physical games with the child, such as tickles and patty cake; and imitated all actions the participant performed, for instance clapping and running.

The researcher explained in developmentally and age-appropriate language the purpose and procedure of this research study written in a signed Assent Form (Appendix B) by the child. Given the autism diagnosis, it may have been unclear if the participant fully understood the purpose of this research, but refusal to engage in the art interventions signified withdrawal from this study. The participant's mother and grandmother signed a Consent Form (Appendix C) giving permission to conduct art and observation alongside the participant.

### **Research Design**

A child diagnosed on the autism spectrum was asked to participate in a two week study of pre- and post-art intervention observations and measurements of mirroring ability as well as attention skills and play interaction. Within the first week of the study, prior to art interventions, the participant interacted with the researcher three times out of the week on alternating days for 45 minutes in order to build a positive interactive relationship. During these 45 minutes the child was introduced to various art materials in order to build a tolerance for the new activities. The child was not expected to interact with the materials during this week as no intended directive was presented, although the researcher recorded possible independent art interaction by the child. During the remaining days of the first week the researcher observed the child three times for 45 minutes in a play setting alongside the participant's siblings. Throughout the observation period measurements of mirroring ability, attention skills, and play interaction were collected by the researcher. The researcher also presented a questionnaire to the participant's parent and caregiver related to the child's play interaction and attention skills prior to participating in art interventions.

For the final week of the study the child consistently participated in sessions of art activities alongside the researcher. The child participated in three art interventions on alternating days of the week for 45 minutes. Throughout the art sessions the researcher observed possible improvement of the child's mirroring activity and attention skill during the art interactions. During the remaining days of the final week the researcher again observed the participant for 45 minutes in a play setting alongside the participant's siblings. Throughout the observation period measurements of possible improvement in mirroring ability, attention skills, and play interaction were collected by the researcher. The

researcher also presented questionnaires to the child's parent and caregiver related to the child's play interaction and attention skills following the child's participation in art interventions.

The art interventions utilized during this study focused on increasing mirroring ability, interaction, and attention skills. The participant interacted with the researcher during a total of six art interventions throughout the two week time period of the study. The first intervention consisted of a tactile activity of kinetic sand while introducing the participant to art interaction. The use of the sensory component introduced exploration to the participant as the child was able to explore sensational awareness in a nonthreatening form (Hinz, 2009). During the second art intervention a color activity was presented to the participant. Gazeas (2012) found the activity of coloring reduced frustration and decreased impulsive behaviors while it also increased attention span. Finger painting was introduced to the participant as a third art intervention. Finger painting, as a sensory component, assists autistic children in self-regulation and organization of senses (Hinz, 2009). As the fourth art intervention the participant interacted in a drawing activity. Hinz (2009) emphasized drawing as a way to increase focus on observing and depicting. A painting activity was presented as a fifth art intervention. Painting has been shown to increase focus and attention in autistic children as well as promote social interaction (Hinz, 2009). As the final art intervention the participant interacted with the researcher during an activity of play-doh. According to Martin (2009) modeling materials encourage symbolic and pretend play through interaction and modeling.

### **Procedures for Data Collection**

The proposed study consisted of a single-subject case study involving a pre- and post-art intervention questionnaire, Art and Autism Questionnaire: Parent Response to Child's Interaction (Appendix A), as well as pre- and post-art intervention observations (Appendix D). The pre-art intervention questionnaire was presented to the participant's parent and caregiver at the beginning of the first week of research. Pre-art intervention observations were conducted during the first week of research. The post-art intervention questionnaire was presented to the participant's parent and caregiver on the last day of the final week. The post-art intervention observations took place on alternating days, opposite of the art interventions, during the final week of research.

In order to collect data during art interventions and observations, video recordings were filmed on a password protected video camera and later loaded on a password protected computer. A Consent to Photograph/Videotape (Appendix E) was presented to the participant's parent, and a Consent Form to Videotape Peer (Appendix F) was also presented to parents as peers were videotaped during peer interactions. After the video recording was loaded to the computer it was deleted from the previous device. Any paper data collected of the pre- and post-questionnaire was stored in a secure storage drawer in the home of the researcher. All data collected will be stored in the researcher's home under lock and key for one year following the completion of the research study, and will then be destroyed.

### **Data Analysis**

**Qualitative Analysis.** Data analysis for this study utilized the qualitative data method of Thematic Analysis (TA). Thematic analysis is a method for identifying,



analyzing, and reporting patterns, or themes, within the data being collected (Braun & Clarke, 2006). Thematic analysis allowed the researcher to search and identify themes which may have emerged as important patterns for the research being studied (Fereday & Muir-Cochrane, 2006). Braun and Clarke (2006) explained that a theme captures something important about the data in relation to the research question, and represents a patterned response, or meaning, to the data set within the current research.

Utilizing this data method allowed the researcher to identify themes through observing mirroring ability and play interaction displayed by the participant. The quality of the child's play interaction and imitation within a play room pre- and post-art intervention was observed and recorded. Common themes seen during observations of play interaction and imitation were gathered using the observation form (Appendix D), summarized, and recorded within the research data.

**Quantitative Analysis.** Quantitative data obtained from the pre-art intervention Art and Autism Questionnaire (Appendix A) provided a baseline measurement which was compared with the post-art intervention data from the Questionnaire. The subtheme values determined whether an increase was seen within the dependent variables being measured pre- and post-art intervention.

An additional analysis of quantitative data consisted of results indicated through interval measurements of participant's play interaction and mirroring ability as well as attention skills pre- and post-art intervention. This comparison included the amount of times in which the participant interacted with and imitated a peer during play and the duration of the participant's attention skills during play. A comparison of pre- and post-art

intervention quantities further determined whether an improvement was seen within the dependent variables being measured during the research study.

### **Reliability and Validity**

The test-retest reliability of the survey presented cannot be verified due to the fact the questionnaire was developed, based on a review of literature, specifically for this study and was utilized once. However, the questionnaire does relate to construct validity as the questions were gathered from various literatures on the subject. Internal validity may have been challenged as the participant was taught social skills weekly in behavioral therapy. The skills taught within therapy may have manipulated the results focusing on art intervention seen within the study (Kapitan, 2010).

Reliability was present within the study as the researcher observed the participant multiple times during the research study. Kapitan (2010) encouraged repeated observations as this may have shown patterns within the data. Triangulation was achieved through the researcher's use of multiple methods to collect data. Triangulation is the use of multiple perceptions to clarify meaning and to verify the repeatability of an observation or interpretation (Kapitan, 2010). Jick (1979) explained this method of research involves the use of multiple methods to examine the same dimension of a research problem. Likewise, reliability of this study was increased as the researcher directly observed the participant, videotaped sessions, as well as obtained questionnaires completed by the parent and caregiver. Multiple viewpoints improved the accuracy of judgments as well as produced some elements which did not fit the theory or model being studied (Jick, 1979). As a result of utilizing triangulation the researcher was able to discover unique themes which otherwise may have been overlooked by a single method of data collecting (Jick, 1979).

**Ethical Implications**

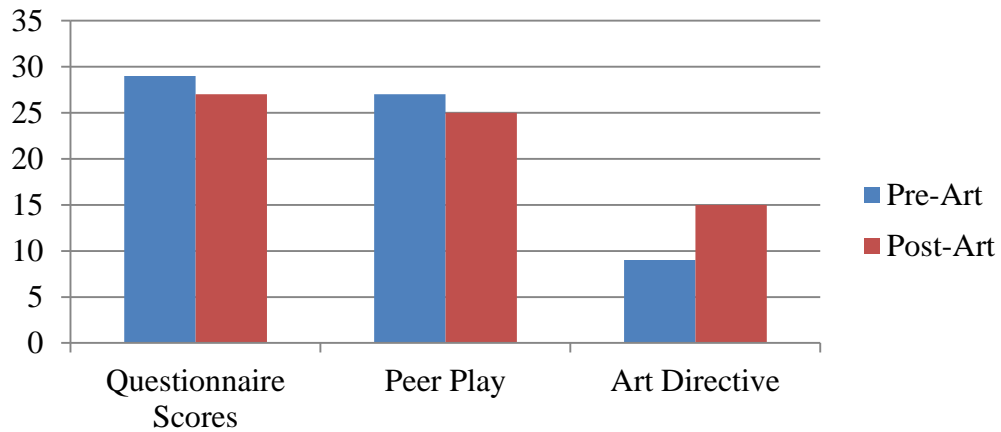
According to Kapitan (2010) before implementing the research safeguard of the participant's rights must be obtained and the final proposal must be submitted to a review board. The researcher recognized the importance of confidentiality, risk assessments, purpose explanation, data storage, and informed consent in regards to the participant's safety. A final proposal of the study was submitted and approved by the Institutional Review Board, and the researcher obtained a written and signed off-site approval form from her place of employment to conduct the study. There was minimal risk to the participant with the use of safe art materials, interviews, and observations. Positive activities favored by the participant were available if the child became anxious or distressed during art interventions. The researcher was aware of her own biases in support of art intervention to improve an autistic child's interactive skills. Further bias included the researcher's view of data in support of the Albert Bandura's Social Learning Theory stating that new patterns of behavior can be acquired through direct experience or observing the behavior of others (Bandura, 1971).

## CHAPTER IV

**Results****Art and Autism Questionnaire**

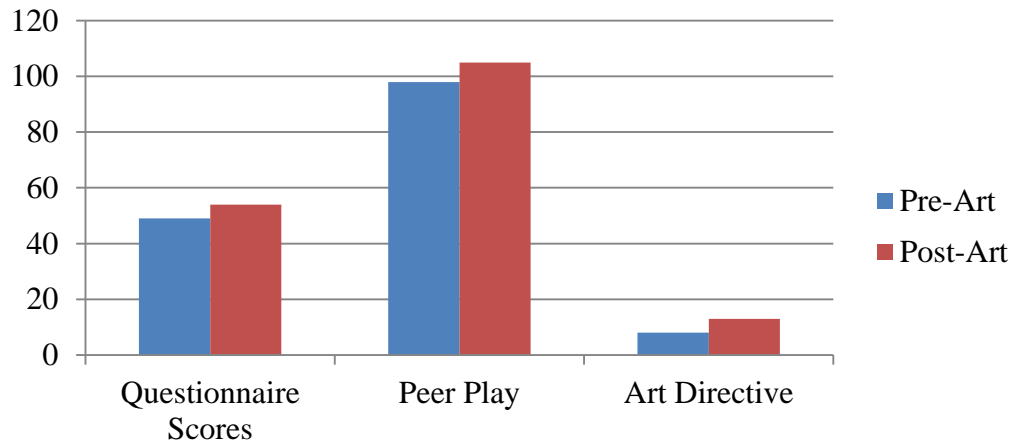
The analysis of the pre- and post-art intervention *Art and Autism Questionnaire: Parent Response to Child's Interaction* (Appendix A) consisted of numerical calculation for the subthemes within the constructs of mirroring ability, play interaction, and attention skills. The themes which were highlighted included physical play (e.g., running, jumping, falling down onto the floor), being interested, hand waving, hand grabbing, watching television, and engaging with older sibling (e.g., running games, playing with balls, crawling on floor).

**Mirroring ability.** The data indicated mixed results post-art intervention with regards to mirroring ability (see Figure 1). The participant's mother and grandmother observed a decline in imitating behavior, while the researcher recorded a decrease in mirroring responses during observations of peer play, but an increase while engaged in one-to-one art directives. When asked about peer play and what actions or behaviors the participant typically copied during social activities or play with others, engaging in physical play (10%) was cited most often. The participant's mother wrote that, "He does run around the room with me if I start running first." His grandmother noted that when interacting with his older brother he appeared to mirror his brother's behavior.

*Figure 1. Pre- and Post-Mirroring Scores*

When engaging in the art directives, results indicated an increase within the number of times the participant imitated the researcher pre-art intervention (9) and post-art intervention (15). Themes used to indicate results during the intervention included imitating others' actions and imitating others' physical movement. The behavior of imitating others' actions included grabbing materials (e.g., picking up pencils, markers, paintbrushes, and dipping brushes into paint), and the behavior of imitating others' physical movement included the manipulation of art materials (e.g., drawing, coloring, rolling play-doh, and painting). These themes were observed most often during a drawing activity where the participant was asked to copy the researcher during pencil drawing of scribbles and shapes upon paper.

**Play interaction.** The data indicated an increase post-art intervention with regards to play interaction (see Figure 2). The participant's mother and grandmother observed a rise in play behavior, while the researcher recorded an increase of interactions during observations of peer play and engagement during one-on-one art directives. When asked

*Figure 2. Pre- and Post-Play Interaction Scores*

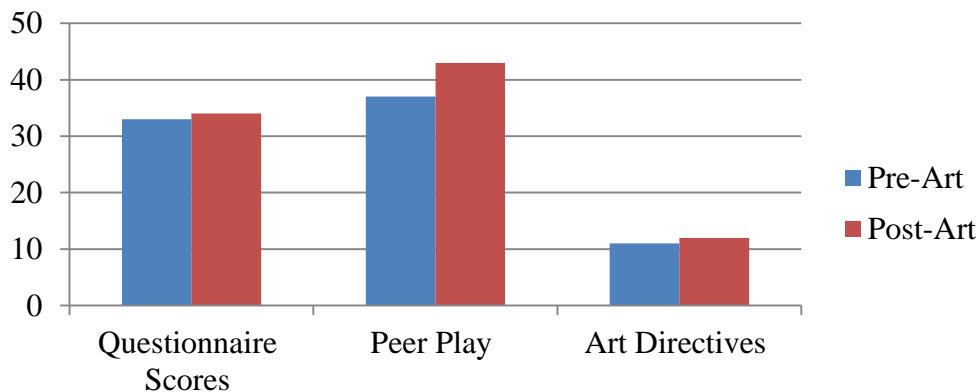
about peer play and what play activities the child typically interacts with alongside others engaging in physical play (20%) was cited most often. The participant's grandmother wrote that "Running, balloons, bubbles, jumping up and down, and falling down" were the most common play activities the child interacted alongside others. The participant's mother noted he interacted with his older brother during these play activities. Furthermore, when asked about peer play and how the child responds to others during play interaction "being interested" (20%) was indicated most often. The participant's grandmother wrote "He acts interested in what they are doing and at times joins in" and his mother noted that if the activity was not his idea he used avoidance.

When engaging in the art directives, results indicated an increase within the number of times the participant interacted with the researcher pre-art intervention (8) and post-art intervention (13). Themes used to indicate results during the intervention included behavior of sensory interest and behavior of interaction with others. The behavior of sensory interest included the child's response to art materials (e.g., sensitivity or enjoyment to touch, smell, or sight). The behavior of interaction with others included the child's participation during art directive (e.g., attempt to participate, joining in art activity, and utilizing art materials).

These themes were observed most often during a drawing activity where the participant was asked to copy the researcher during pencil drawing of scribbles and shapes upon paper.

**Attention skills.** The data indicated mixed results post art intervention with regards to attention skills (see Figure 3). The participant's mother and grandmother observed a slight increase in attention skills, while the researcher observed an increase of attention during peer play, as well as a slight increase during one-to-one art directives. When asked

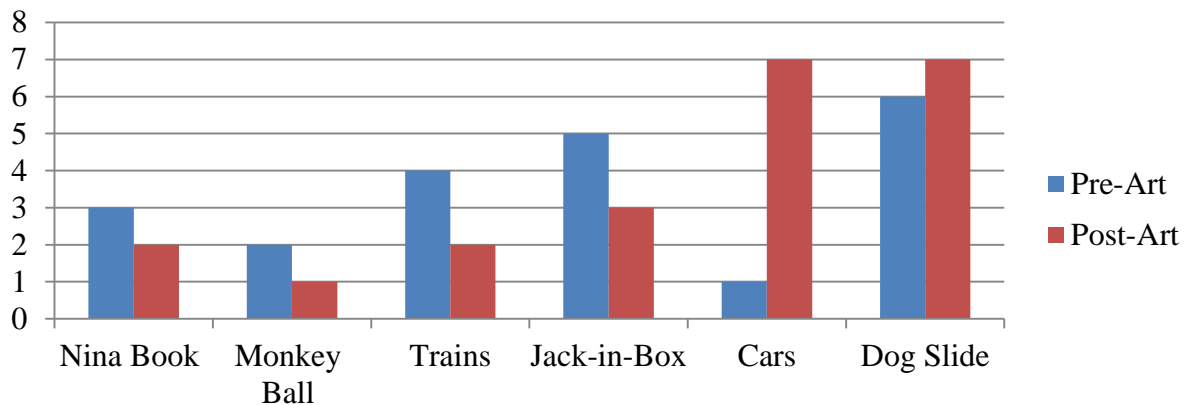
*Figure 3. Pre- and Post-Attention Skills Scores*



about peer play and how the child typically grabs others' attention the actions of waving hand (10%) and grabbing hands (10%) were cited most often by the child's mother and grandmother. The child's mother wrote "He usually does hand waving. Or he will come over by me and take my finger." When asked about peers and what activities or behaviors specially hold the child's attention the most watching television (10%) and engaging with older sibling (30%) were indicated most frequently. The child's grandmother wrote "Watching Big Block on the T.V. or Sam Sandwich. When older brother is done with therapy he plays with him" and the child's mother noted he holds attention to his older brother during physical play.

Furthermore, a duration comparison of the child's attention skills was observed by the researcher during peer play and indicated a decrease in the participant's attention during commonly played activities (see Figure 4). Activities and actions commonly enjoyed during

Figure 4. Pre- and Post-Attention Duration Scores



peer play included a Nina book (e.g., reading stories, imitating characters), monkey ball (e.g., placing balls in toy monkey, pushing musical light-up buttons), trains (e.g., building tracks, pushing trains), Jack-in-Box (e.g., turning musical dial, jumping from pop-up item), cars (e.g., turning wheel, lining up, counting), and dog slide (e.g., placing dogs on ramp, watching dogs slide down). Attention was held the longest as the participant enjoyed lining up cars and imitating the researcher's actions of counting and lining up additional cars.

When engaging in the art directive, results indicated a slight increase within the number of times the participant indicated attention towards the researcher pre-art intervention (11) and post-art intervention (12). Themes used to indicate results during the intervention included showing attention to others and displaying attention to others' voices. The behavior of showing attention to others included the child's awareness to the researcher (e.g., response to movements and alertness of materials utilized). The behavior of displaying attention to others' voices included the child's responses to the researcher's voice

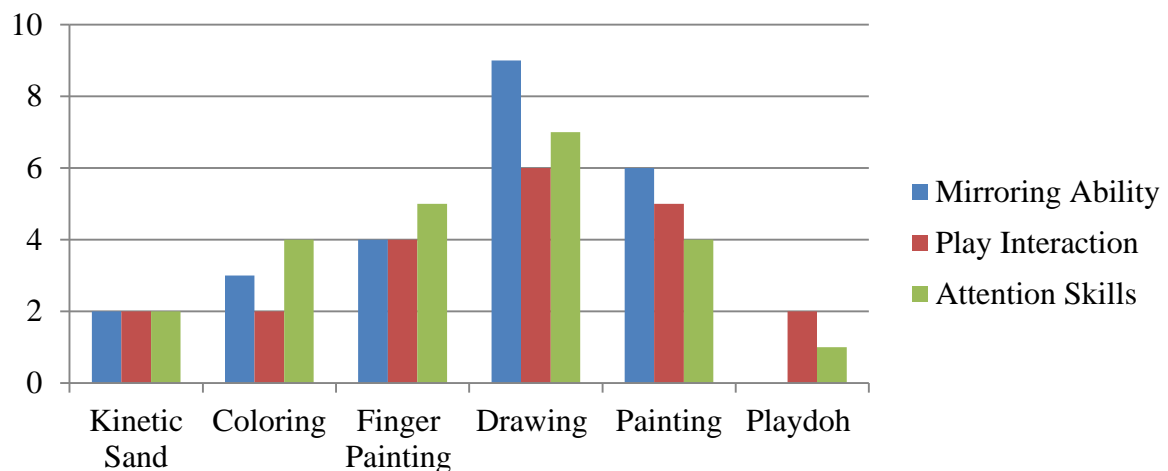


(e.g., commands of directives and response to sounds by researcher). These themes were observed most often during a drawing activity where the participant was asked to copy the researcher during pencil drawing of scribbles and shapes upon paper.

### Pre- and Post-Art Interventions

The participant was introduced to various art materials for the first week of this study in order to build a tolerance for new activities. During the final week of the study variations of art directives were given to the participant during art interventions with the researcher. Video recordings indicated mixed results of interactions regarding imitation, independent interaction, as well as attention skills throughout the art interventions (see Figure 5).

Figure 5. Art Intervention Interaction Scores



**Kinetic sand.** The child was presented with kinetic sand as an introduction to art. Directives were given throughout the interaction such as, “Do this,” “Roll it,” and “Watch this.” As the researcher began molding and rolling the sand the child attempted to imitate similar movements, but became distracted by sensory sensitivity to the tactile material. Following the sensitivity the child did seem interested to touch the sand further, but held

attention by watching the researcher manipulate the material. As the researcher lifted and dropped the sand onto the table in sprinkling motions the child became calmed and relaxed by watching the repetitive movements, and laid his head down in a sleeping position.

**Coloring.** The child was provided a simple mandala design similar to that of the researcher. The choice of markers or crayons was given upon the table. The directive of “Color the picture” was given. The child imitated the researcher and chose a marker to utilize. As the researcher began coloring the child imitated similar movements, but did not copy the researcher’s action of removing the marker cap. Following the removal of the cap by the researcher the child continued to color alongside the researcher with the use of multiple colors. The child became interested, amused and at times attention was distracted with the sensory of sight as he enjoyed watching the markers roll across the table during periods of coloring.

**Finger painting.** The child was introduced to finger painting for the first time alongside the researcher. Due to the parents’ report that the child was sensitive to liquid on his hands paintbrushes were provided as an option during the art interaction. The child gave the researcher his attention as she demonstrated the movements of finger painting and the directive of “Watch this.” The researcher slowly put paint on the child’s hand with her own fingers and the directive of “Paint the paper.” Even though the child indicated sensory sensitivity to the paint he remained calm and grabbed the researcher’s attention to wash it off as he waved in the direction of paper towels. The researcher grabbed paintbrushes to utilize throughout the rest of the art interaction. The child imitated the researcher’s actions of grabbing the brushes, but did not immediately imitate the action of dipping the brushes in

the paint or running the brush across the paper. The child indicated further sensory sensitivity to the brush bristles as he enjoyed running them across his arms.

**Drawing.** Video recordings indicated the highest number of interactions within the three recorded categories during the art intervention. Independent interaction was seen as the child grabbed a pencil and began scribbling upon the paper before the researcher gave the directive of “Let’s draw.” An increase in the child’s mirroring ability was seen as the child imitated multiple drawing movements by the researcher. The child grabbed the researcher’s attention several instances with vocal noises as the pencil ran off the paper onto the table. At this time the child attempted to imitate the researcher’s movement to erase the pencil marks. The child also indicated attention to the researcher’s voice as she highlighted no drawing on the table with vocal expression, and demonstrated a high duration of time during the art intervention.

**Painting.** Recordings indicated an increase within the categories of mirroring ability and interaction, but indicated a slight decrease within the child’s attention skills. Following the directive of “Paint the paper” the child indicated the imitation of movements such as, dipping the brush in paint and brushing paint across the paper. The child also indicated sensory interest by lining the bottles of paint along the table and indicated a counting movement. The child indicated lower attention towards the researcher’s voice as well as held a lower duration of attention in comparison to previous art intervention.

**Play-Doh.** Due to the child’s sensitivity to liquid upon the hands, Play-Doh was used in substitution of clay. Utilizing the phrase “Do this” the child was given several directives of squishing, imprinting, and rolling the art material. Results showed a decrease within each category during the art intervention as he indicated little interest of materials

during the art intervention. The child also held the lowest duration of time during the final art intervention.

## CHAPTER V

**Discussion**

The purpose of this study was to enhance an autistic child's mirroring through the action of art interventions as well as improve attention skills and play through the use of art activities. The *Art and Autism Questionnaire: Parent Response to Child's Interaction* (Appendix A) was used as a pre- and post-art intervention measurement to determine the child's mirroring ability, play interaction, and attention skills following the child's participation in art interventions. The art processes used were to promote the child's mirroring ability as well as increase play interaction and attention skills. While the data for the subthemes indicated mixed results within parent questionnaire and observation of peer play, the data for each subtheme indicated an increase for the participant during one-on-one art interaction with the researcher. These results support a study conducted by Emery (2004) which reported that the use of nonverbal expression through the making of art encouraged autistic children to begin to represent experiences and let others relate to their world. Osborne (2003) further concluded art activities construct meaning in children with autism as a sense of external and internal experiences through the use of art materials.

**Mirroring Ability.**

Questionnaire results and peer play observations were found to be the least successful in regards to the participant's mirroring ability post-art intervention. These results indicated a lack of imitation of other's behavior by the participant, which was consistent with Martin (2009) who found that common deficit areas of observing and spontaneously imitating others' actions is seen within individuals with autism. However,

these results contradict Gazeas (2012) findings that through a variety of artistic activities an autistic child is able to practice motor coordination and imitation skills.

During one-on-one art interaction results indicated an improvement in the participant's imitation skills. These results correlated with Vismara, Colombi, and Rogers (2009) who found short-term one-on-one interventions can result in significant change within a child with autism, especially within the child's natural setting. Furthermore, Franklin (2010) found imitation and modeling skills are increased by observing an artist using various artistic techniques.

### **Play Interactions.**

The data indicated an increase in the number of intervals of play. While Stahmer (1995) emphasized that children with autism do not generalize playing with a peer as they are unaware of behaviors expected of them, ultimately responding negatively to initiations of play actions, the researcher found an increase of the participant's interaction skills throughout the study. Results indicated an increase within parent questionnaires as well as observations during peer play and one-on-one art interaction with the researcher. These results support Waller's (2006) assertion that the art making process was able to help individuals with autism build relationships and gain control over feelings and behaviors while improving social skills. The participant's improvement of play interaction encourages success in social functioning among peers as children must be able to initiate play, respond to play initiation, enter play groups, as well as learn to resolve conflicts among peers (Howes & Matheson, 1992).

**Attention Skills.**

Data indicated an increase of the child's attention skills during interactions, but a decrease of attention duration during play activities. According to Hanley et al. (2014) aspects of social attention are atypical in autism, such as timing of attention to social information and cues within social scenes. However, the researcher found an increase during observation of peer play and one-on-one art interventions as well as a reported increase according to the parent questionnaires. These results support Gazeas' (2012) work that emphasized an art task promoting active centering increased attention abilities and decreased impulsive behaviors of a child with autism. Furthermore, the participant's improvement of attention skills play an important role in early development while promoting higher communication functions, social interaction, as well as language (Kim et al. 2008).

Results further indicated a decrease in the participant's attention duration of play activities throughout the study. These results contradict a study by Goldstein (1964) which found an increase in attention span and concentration of an autistic child following the use of creative arts. Furthermore, these results oppose the findings of Gazeas (2012) who found the activity of coloring reduces frustration and decreases impulsive behaviors while also increasing attention span.

**Limitations**

Due to the limitation of one participant the findings of this study only confirms results seen in one individual with ASD. In addition, the results from this study cannot be generalized to a larger population, but may be used as a guide to develop art therapy interventions. Furthermore, due to the fact the child participated in weekly behavioral

therapy presented a limitation of this study as the child was consistently learning positive interactive skills through that additional intervention. So cause and effect cannot be established.

### **Recommendations**

The use of art interventions may have multiple implications for children on the autism spectrum. Future studies may highlight the effects of art interactions and building social skills for individuals with autism. Since this study was limited to one individual, recommendations include a larger and diverse sample of participants including gender and/or severity of autism diagnosis. Furthermore, future studies may focus on the role of art with autistic children in a group setting. Epp (2008) found group therapy for children with autism has potential to improve social skills that may be generalized in the children's world, but found group activities also helps autistic children form friendships through the social skills being learned. A study performed by Schleien, Mustonen, and Rynders (1995) concluded art groups were a vehicle for prompting social interactions directed toward children with autism and peers. It is also recommended to limit the duration of the study. Two weeks proved to be long for the child as he indicated less interest towards the end of the study. The researcher recommends ten days for future studies in order to hold the child's interest.

### **Conclusion**

To date literature focusing on enhancing mirroring ability, attention skills, and play interaction in autistic children appears to be limited. This study provided insight into the impact of art interactions on the mirroring ability, play interaction, and attention skills seen within an individual with ASD. Overall, the results of this study support the researcher's



hypotheses that an autistic child will display an improvement of mirroring abilities following participation in art interventions, as well as exhibit an increase in attention skills and play interaction following art activities with the researcher. However, results did indicate a decrease in the child's mirroring ability during down time with peers. These results suggest further research is needed in order to understand the improvement of mirroring abilities among peers and children with autism through the use of art interaction.

Previous research supports the purpose of this study as nonverbal approaches, such as art, have been shown as positive motivation while working among individuals with ASD (Benveniste, 1983). Utilizing art as an intervention for autistic individuals encouraged developmental growth and social relatedness as it was able to increase awareness and relate to others (Gazeas, 2012). Furthermore, Schleien et al (1995) have found autistic children participating in structured art activities are able to learn basic art skills as well as ease into social interaction among peers. With the use of qualitative and quantitative analyses the research study applied scientific methods to determine the role of art and possible increase of an autistic child's skills. This study recommends further research in autism and art therapy to enhance social abilities and learning skills for autistic individuals.

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## APPENDIX A

**Art and Autism Questionnaire: Parent Response to Child's Interaction**

	<b>Never</b>	<b>Seldom</b>	<b>Sometimes</b>	<b>Usually</b>	<b>Always</b>
<i>Mirroring Ability</i>					
1. Does your child display copying behavior of social play with others?	1	2	3	4	5
2. Does your child copy or imitate others' when making sounds or noises?	1	2	3	4	5
3. Does your child copy or imitate others' actions during play?	1	2	3	4	5
4. Does your child copy or imitate others' physical movement?	1	2	3	4	5
5. What actions or behaviors does your child typically copy during social activities or play with others? (e.g., with body movement, sounds, and/or objects, etc.)					

*Play Interaction*

- |   |   |   |   |   |   |
|---|---|---|---|---|---|
| 6. Does your child offer to share with others?  | 1 | 2 | 3 | 4 | 5 |
| 7. Does your child display sensory interest?  | 1 | 2 | 3 | 4 | 5 |
| 8. Does your child respond to other approaching children?   | 1 | 2 | 3 | 4 | 5 |
| 9. Does your child look up from playing with a toy if a new toy is presented?                                     | 1 | 2 | 3 | 4 | 5 |
| 10. Does your child display eye gaze with others?   | 1 | 2 | 3 | 4 | 5 |
| 11. Does your child respond to the introduction of a new toy or activity?   | 1 | 2 | 3 | 4 | 5 |
| 12. Is your child interested in a variety of toys throughout the day?   | 1 | 2 | 3 | 4 | 5 |
| 13. Does your child interact with others?   | 1 | 2 | 3 | 4 | 5 |
| 14. Does your child interact with others, but on his own terms?   | 1 | 2 | 3 | 4 | 5 |
| 15. What play activities does your child typically interact with alongside others? (e.g., bubbles or balls, etc.) |   |   |   |   |   |
| 16. How does your child respond to others during play interaction? (e.g., avoidance or interaction)               |   |   |   |   |   |

*Attention Skills*

- |  |   |   |   |   |   |
|--|---|---|---|---|---|
| 17. Does your child show attention to others?  | 1 | 2 | 3 | 4 | 5 |
| 18. Does your child direct others' attention toward objects?   | 1 | 2 | 3 | 4 | 5 |
| 19. Does your child direct others' attention toward situations?  | 1 | 2 | 3 | 4 | 5 |
| 20. Does your child display attention to others' voices?   | 1 | 2 | 3 | 4 | 5 |
| 21. Does your child turn or look in direction of name being called?  | 1 | 2 | 3 | 4 | 5 |
| 22. Does your child try to get others' attention to play activities?                                       | 1 | 2 | 3 | 4 | 5 |
| 24. How does your child typically grab others' attention? (e.g., name calling, hand holding, waving, etc.) |   |   |   |   |   |

25. What activities or behaviors specifically hold your child's attention the most? (e.g., toy play, physical play, movements, etc.)

## APPENDIX B

**Assent Form**

My name is Katie and I'm doing a research study about autism and art. A research study is a way to learn about people and this study is about to learn how art can increase mirroring ability as well as play interaction and attention skills for someone with autism, just like you. If you would like to do this study you will be asked to join me in six days of art interaction and six days of allowing me to observe you while playing and interacting with others. I will be video recording you during art interactions as well as playing with others. The study will be a total of 12 days.

Some good things that may happen to you from being part of this study might be an improvement in your ability to imitate, or copy, others as well as increase your attention skills and play interaction with others, such as your brothers.

When we are finished this study I will write a report about what was learned. Your name will not be included in the final report. You do not have to be in this study if you do not want to, and you can stop working with me at anytime, and that is okay! Your parents also know about the study.

If you decide you would like to be in this study please sign or initial your name below.

---

Signature Mark of Participant

---

Date

---

Printed Name of Researcher

---

Date

---

Signature of Researcher

---

Date

## APPENDIX C

**Informed Consent**

The purpose of this research study is to enhance an autistic child's mirroring ability through the action of art interventions as well as improve attention skills and play interaction in an autistic child through the use of art activities. This research is a two week study involving three days of relationship building, three days of art interventions, and six days of observation. The importance of the research is to examine the effectiveness of art activities as an intervention technique for an autistic child's social interaction skills. This study is a requirement of the class, AR591 – Research, for Katie Zuehlke, a Masters of Art Therapy graduate student at Saint Mary-of-the-Woods College.

The procedures of the study involve minimal risk to the participant. All art materials used will be non-toxic, and quality art materials appropriately selected for chosen art interventions. I understand there is a risk to sharing personal and confidential information about my child. I understand I may feel uncomfortable having my child involved in the research study and have the right not to answer any question(s) or have my child participate in any study procedures. I understand the art activities utilized within the study may cause my child to become upset and possibly emotional during interactions. I understand responding to the Art and Autism Questionnaire: Parent Response to Child's Interaction may evoke possible emotions associated with the study. I have been informed and provided names of registered art therapists (Appendix G) whom I may contact for further professional consultation if I or my child are adversely affected by this research study. The benefit of my child's participation will be various completed art projects and possible improvements of my child's social skills.

The required questionnaires, Art and Autism Questionnaire: Parent Response to Child's Interaction, photographs of artwork, and video recordings, forms, and any data collected during the research study will be stored in a locked location as well as a password secured computer. I understand any personal identification information will be protected and I have the right to review all content. I understand no identifying information will be collected and a pseudonym will be used in references related to myself and my child. Any pre-and post art intervention video recording, questionnaires and data results will be sealed within a locked cabinet as well as a password protected computer and encrypted hard drive for review by the researcher following all art activities. Only the researcher will have access to the video recording, digital photographs of artwork, and the Art and Autism Questionnaire: Parent Response to Child's Interaction. Any digital recordings or photographs will be permanently deleted from cameras once transferred to the computer. All data collected will be maintained for a period of one year after publication of the study results.

I understand my child has been approved to participate in the research study and any digital photographs of artwork, video recordings, and comments upon the Art and Autism Questionnaire: Parent Response to Child's Interaction are records of this research study, but I have the right to withhold them from the study without repercussions. I understand that I have a right to review any data collected through the tools used and may remove portions of research if I wish to do so for any reason. I have the right to remove my child from participating within the study at anytime without fear of repercussions and I have the right

to request all data collected in this study be destroyed and not included with the research study.

If I have any questions about this research study, I understand that I may ask the researcher at anytime. If I have further questions or concerns in regards to this research study I have been informed to contact the primary researcher or the chair of the Human Subjects Institutional Review Board.

I approve the participation of my child in this research study and acknowledge that I have been informed of my rights defined above, and grant permission for study results to be used for educational and publication purposes. I have been assured confidentiality and compliance according to ethical standards of the American Art Therapy Association. By placing my signature below I acknowledge that I understand the contents of this document and have received a copy of this informed consent.

---

Participant's Printed Name

---

Printed Name of Participant's Parent

---

Signature of Participant's Parent

---

Date

---

Signature of Researcher

---

Date

**Principal Researcher**

Jill McNutt

Assistant Professor of Art Therapy/Operations Director of Art Therapy

Saint Mary-of-the-Woods College

Saint Mary-of-the-Woods, IN 47876

[jmcnutt@smwc.edu](mailto:jmcnutt@smwc.edu)

(812) 535-5160

**Co-Researcher**

Katie Zuehlke

N5507 Golden Lake Park Road

Oconomowoc, WI 53066

[kzuehlke@smwc.edu](mailto:kzuehlke@smwc.edu)

(262)490-4067

**Chair, IRB**

Dr. Lamprini Pantazi, PhD.

Chair, Human Subjects Institutional Review Board

Saint Mary-of-the-Woods College

Saint Mary-of-the-Woods, IN 47876

[lpantazi@smwc.edu](mailto:lpantazi@smwc.edu)

(812) 535-5232



## APPENDIX D

**Child Interactive Observation Form**

**# of  
Interactions**   **Never**   **Seldom**   **Sometimes**   **Usually**   **Always**

***Mirroring Ability***

- |   | _____ | 1 | 2 | 3 | 4 | 5 |
|---|-------|---|---|---|---|---|
| 1. Does the child display copying behavior of social play with others?  | _____ | 1 | 2 | 3 | 4 | 5 |
| 2. Does the child copy or imitate others' when making sounds or noises? | _____ | 1 | 2 | 3 | 4 | 5 |
| 3. Does the child copy or imitate others' actions during play?          | _____ | 1 | 2 | 3 | 4 | 5 |
| 4. Does the child copy or imitate others' physical movement?            | _____ | 1 | 2 | 3 | 4 | 5 |

***Play Interaction***

- |  |       |   |   |   |   |   |
|--|-------|---|---|---|---|---|
| 5. Does the child offer to share with others?                                | _____ | 1 | 2 | 3 | 4 | 5 |
| 6. Does the child display sensory interest?                                  | _____ | 1 | 2 | 3 | 4 | 5 |
| 7. Does the child respond to other approaching children?                     | _____ | 1 | 2 | 3 | 4 | 5 |
| 8. Does the child look up from playing with a toy if a new toy is presented? | _____ | 1 | 2 | 3 | 4 | 5 |
| 9. Does the child display eye gaze with others?                              | _____ | 1 | 2 | 3 | 4 | 5 |
| 10. Does the child respond to the introduction of a new toy or activity?     | _____ | 1 | 2 | 3 | 4 | 5 |
| 11. Is the child interested in a variety of toys throughout the day?         | _____ | 1 | 2 | 3 | 4 | 5 |
| 12. Does the child interact with others?                                     | _____ | 1 | 2 | 3 | 4 | 5 |
| 13. Does the child interact with others, but on his own terms?               | _____ | 1 | 2 | 3 | 4 | 5 |

*Attention Skills*

- |   |       |   |   |   |   |   |
|---|-------|---|---|---|---|---|
| 14. Does the child show attention to others?                        | _____ | 1 | 2 | 3 | 4 | 5 |
| 15. Does the child direct others' attention toward objects?         | _____ | 1 | 2 | 3 | 4 | 5 |
| 16. Does the child direct others' attention toward situations?      | _____ | 1 | 2 | 3 | 4 | 5 |
| 17. Does the child display attention to others' voices?             | _____ | 1 | 2 | 3 | 4 | 5 |
| 18. Does the child turn or look in direction of name being called?  | _____ | 1 | 2 | 3 | 4 | 5 |
| 19. Does the child try to get others' attention to play activities? | _____ | 1 | 2 | 3 | 4 | 5 |

## APPENDIX E

**Consent to Photograph/Videotape**

Thank you for participating in this research project exploring art and autism. As a participant of this study you are given the option to have your child's artwork photographed and video recording of art-making sessions. Please place your initials below to indicate the use of media to which you are willing to consent. There will be no negative consequences for refusing to have artwork photographed and/or video recording art-making sessions. Results of this study may be presented in educational settings, scientific journals, or professional conferences. The researcher will only use the materials in ways to which you agree and pseudonyms will be used in presenting this research.

I give approval for artwork to be photographed. Yes: \_\_\_\_\_ No: \_\_\_\_\_

I give approval for art-making sessions to be video recorded. Yes: \_\_\_\_\_ No: \_\_\_\_\_

I understand that I am able to withdraw my permission to photograph and/or video record at anytime with no explanation required.

I have read the above information and give my consent for the use of my child's artwork to be photographed and my child's art sessions to be video recorded for the use of this research study.

\_\_\_\_\_  
Participant's Printed Name

\_\_\_\_\_  
Printed Name of Participant's Parent

\_\_\_\_\_  
Signature of Participant's Parent

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of Researcher

\_\_\_\_\_  
Date

## APPENDIX F

**Consent to Videotape Peer**

Throughout the observation periods of this research study your child will be video recorded as a peer during play session and interaction with the participant of this study. As a participant of these observation periods you are given the option to have your child video recorded during play sessions and interaction with the participant of this study. There will be no negative consequences for refusing to have your child video recorded during play sessions and interactions. The video recordings will be used for research purposes only and a pseudonym will be used for your child in presenting this research.

I give permission for my son \_\_\_\_\_ to be video recorded during play sessions and interaction with my son Johnny, the participant of this research study.

I understand that I am able to withdraw my permission to video record at anytime with no explanation required.

I have read the above information and give my consent for the use of my child's play sessions and interaction to be video recorded for the use of this research study

\_\_\_\_\_  
Participant's Printed Name

\_\_\_\_\_  
Printed Name of Participant's Parent

\_\_\_\_\_  
Signature of Participant's Parent

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of Researcher

\_\_\_\_\_  
Date

## APPENDIX G

**List of Counselors/Resources**

Crystal Held  
Wisconsin Early Autism Project  
150 N. Sunnyslope Road  
Brookfield, WI 53005  
(262) 432-5660

Paula J Hillmann  
Stillpoint Counseling Services  
2717 N Grandview Blvd  
Waukesha, WI 53188  
(262) 558-6127

Peter Allen Schwoerer  
HopeforaBetterTomorrow  
2607 N Grandview Blvd  
Waukesha, WI 53188  
(262) 456-5978

Veronica Sosa  
LifeStriders, Inc.  
S11w29667 Summit Ave  
Waukesha, WI 53188  
(262) 563-2981

Jill R Turcott-Nielsen  
Turcott-Nielsen Psychotherapy Assoc.  
10625 W North Avenue  
Suite 225  
Milwaukee, WI 53226

\_\_\_\_\_By placing my initials here, I acknowledge that I have received a list of licensed psychologist and therapists who specialize in client centered therapy specializing in stress and needed support as well as children with special needs.

## APPENDIX H

**Art Interventions**

The art interventions used during this study will focus on increasing mirroring ability, interaction, and attention skills. The participant will interact with the researcher during a total of six art interventions throughout the two week time period of the study. The art materials used during this study will be non-toxic and child approved materials.

The first week of the study will consist of three art interventions focusing on building a relationship between the participant and the researcher. The process of an art intervention may be more effective following an established therapeutic relationship with an autistic child (Evans & Dubowski, 2001). The child will be introduced to various art materials in order to build a tolerance for the new activities, but will not be expected to interact with the materials during this week as no intended directive will be given. The researcher will record possible independent art interaction by the child during this week.

**Day One**

A tactile activity will be presented to the participant as an introductory art activity. The material of kinetic sand will be given to the participant during interaction. The use of the sensory component introduces exploration to the participant as the child is able to explore sensational awareness in a nonthreatening form (Hinz, 2009).

**Day Two**

A coloring activity will be presented to the participant alongside the researcher. The participant will have the option to use markers or crayons during the art activity. The act of coloring has been demonstrated to reduce anxiety, a common emotion seen in autistic individuals (Hinz, 2009). Gazeas (2012) has found the activity of coloring reduces frustration and decreases impulsive behaviors while also increasing attention span.

**Day Three**

Finger painting will be introduced to the participant. Hinz (2009) emphasizes finger painting as a sensory component assisting autistic children in self-regulation and organization of senses. Finger painting also promotes interaction, representation, and reduces anxiety as the autistic child is able to become more flexible with expression (Martin, 2009).

For the final week of the study the child will consistently participate in sessions of art activities alongside the researcher. The child will participate in three art interventions during this week focusing on mirroring ability, interaction, and attention skills. The researcher will record any imitation, independent interaction, as well as increase of attention skills during the three art interventions.

**Day Four**

The participant will partake in a drawing activity with the researcher. Hinz (2009) emphasizes drawing is known to increase focus on observing and depicting. Drawing is a non-threatening art activity which promotes development of spatial awareness as well as hand and eye coordination in young children (Osborne, 2003). The purpose of this study is to increase imitation skills in the autistic participant.

**Day Five**

A painting activity will be presented to the participant as the fifth art intervention. The participant will be presented with a variety of colors and brush sizes to choose. Painting has been shown to increase focus and attention in autistic children as well as

promotes interaction (Hinz, 2009). The purpose of this art intervention is to promote attention skills as well as increase interaction with the researcher.

**Day Six**

The final art intervention will be modeling clay. The participant will interact with clay to form shapes and figures. Modeling clay encourages symbolic and pretend play through interaction and modeling behavior (Martin, 2009). The purpose of this art intervention is to increase interaction skills as well as imitation abilities.