

Lesley University

DigitalCommons@Lesley

Expressive Therapies Dissertations

Graduate School of Arts and Social Sciences
(GSASS)

2016

An Evaluation of a Developmental Individualized Relationship (DIR®) and Creative Arts Therapies Program for Children with Autism

Faith Thayer
Lesley University

Follow this and additional works at: https://digitalcommons.lesley.edu/expressive_dissertations



Part of the [Art Therapy Commons](#), and the [Music Therapy Commons](#)

Recommended Citation

Thayer, Faith, "An Evaluation of a Developmental Individualized Relationship (DIR®) and Creative Arts Therapies Program for Children with Autism" (2016). *Expressive Therapies Dissertations*. 41.
https://digitalcommons.lesley.edu/expressive_dissertations/41

This Dissertation is brought to you for free and open access by the Graduate School of Arts and Social Sciences (GSASS) at DigitalCommons@Lesley. It has been accepted for inclusion in Expressive Therapies Dissertations by an authorized administrator of DigitalCommons@Lesley. For more information, please contact digitalcommons@lesley.edu, cvrattos@lesley.edu.

Evaluation of a Developmental Individualized Relationship (DIR®) and Creative Arts
Therapies Program for Children with Autism

A DISSERTATION
Submitted by

FAITH CONDON THAYER

In partial fulfillment of the requirements for the degree of
Doctor of Philosophy

LESLEY UNIVERSITY
February 25, 2016



Lesley University
Graduate School of Arts & Social Sciences
Ph.D. In Expressive Therapies Program

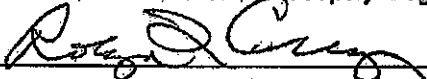
DISSERTATION APPROVAL FORM


Student's Name: Faith Condon Thayer

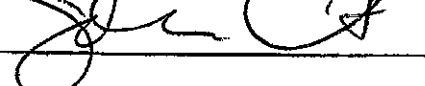
Dissertation Title: Evaluation of a Developmental Individualized Relationship (DIR®) and Creative Arts Therapies Program for Children with Autism

Approvals

In the judgment of the following signatories, this Dissertation meets the academic standards that have been established for the Doctor of Philosophy degree.

Dissertation Committee Chairperson:  1/22/16
(date)

Internal Committee Member:  2/16/16
(date)

External Committee Member:  2/16/16
(date)


Director of the Ph.D. Program/External Examiner:  2/16/16
(date)

Final approval and acceptance of this dissertation is contingent upon the candidate's submission of the final copy of the dissertation to the Graduate School of Arts and Social Sciences.

I hereby certify that I have read this dissertation prepared under my direction and recommend that it be accepted as fulfilling the dissertation requirement.


Dissertation Director

I hereby accept the recommendation of the Dissertation Committee and its Chairperson.


Dean, Graduate School of Arts and Social Sciences

STATEMENT BY AUTHOR

This dissertation has been submitted in partial fulfillment of requirements for an advanced degree at Lesley University and is deposited in the University Library to be made available to borrowers under rules of the Library.

Brief quotations from this dissertation are allowed without special permission, permission that accurate acknowledgement of sources is made. Requests for permission for extended quotation from or reproduction of this manuscript in whole or in part may be granted by the head of the major department or the Dean of the Graduate College when in his or her judgment the proposed use of the material is in the interests of scholarship. In all other instances, however, permission must be obtained from the author.

SIGNED: 

ACKNOWLEDGEMENTS

I would like to say thank you to the following individuals for making this study possible:

To my committee chair Dr. Robyn Flaum Cruz for being my mentor and guiding light throughout this entire doctoral journey;

To my committee members Dr. Mitchell Kossak and Dr. John Carpentre for their generosity in sharing their time and close attention;

To the participants in this study and their parents for sharing their therapeutic process with me;

To the Lesley University department of expressive therapies, my professors, and, especially, my fellow students;

To Imagine Academy, the students and their families, the school board, Principal Elisa Chrem, and my fellow colleagues;

To my supervisor Dr. Michelle Havens for her support and friendship;

To my friend and colleague Dana Whiddon for introducing me to the model;

To my best friend Jenna for always believing in me;

To all members of my extended family, especially Fiona, Jimmy, Trudy, Cait, Chris, Pam, Mikey, and Erin;

To my favorite people whose love and humor make all things possible, my siblings Darcy, Rory, Logan, Emmett and Shane for always being my teammates;

To my mother for her creative influence;

To my father for always being my rock and grounding force throughout life;

To my husband who makes all my dreams come true;

And to our Bobby, the best dream of them all.

TABLE OF CONTENTS

LIST OF TABLES.....	7
LIST OF FIGURES.....	8
ABSTRACT.....	10
1. INTRODUCTION.....	12
Topic and Context.....	13
Purpose and Question.....	14
Assumptions	15
2. LITERATURE REVIEW.....	16
Definition of ASD.....	16
Characteristics Associated with ASD.....	17
Criterion A: Social Interactions and Communication.....	19
Criterion B: Restrictive Repertoire of Activities.....	20
Criteria C and D.....	20
Rate of Occurrence.....	21
Cost.....	21
Causes.....	22
Treatment Methods.....	24
Behavioral Intervention.....	29
Relationship-Based Intervention.....	31
Creative Arts Therapies and the DIR® Model.....	38
Music Therapy.....	40
Art Therapy.....	40
Other Creative Arts Therapies.....	44
Conclusion.....	45
Need for Treatment Programs.....	45
Lack of Quantitative Research.....	46
3. METHOD.....	47
Design.....	47
Site.....	47
Participants.....	48
Measures.....	48
Procedures.....	50
Data Analysis.....	53

4. RESULTS.....	55
Analysis of SEGC.....	55
Analysis of DASH.....	56
Analysis of FEAS.....	56
Analysis of Treatment logs.....	58
5.DICUSSION.....	83
Research Question.....	83
Limitations.....	88
Implications of Findings.....	88
Recommendations for Future Research.....	89
Conclusion.....	90
APPENDIX A: Informed Consent Form A.....	92
APPENDIX B: Informed Consent Form B.....	94
APPENDIX C: Therapy Treatment Log.....	96
APPENDIX D: FEAS.....	97
APPENDIX E: Art Therapist Statement.....	102
APPENDIX F: Music Therapist Statement	105
REFERENCES.....	99

LIST OF TABLES

TABLE 1, Neurological and Functional Differences Observed in Children with ASD..	18
TABLE 2. Categories of Treatments for ASD.....	23
TABLE 3. Means and Standard Deviation at Each Assessment.....	53
TABLE 4. Means and Paired t- test Results	55
TABLE 5. Correlation Coefficient of Total Number of Sessions and Difference	56

LIST OF FIGURES

FIGURE 1. DIR® Strategies.....	52
FIGURE 2. Participant 1 Treatment Log Data.....	66
FIGURE 3. Participant 2 Treatment Log Data	67
FIGURE 4. Participant 3 Treatment Log Data	67
FIGURE 5. Participant 4 Treatment Log Data	68
FIGURE 6. Participant 5 Treatment Log Data	68
FIGURE 7. Participant 6 Treatment Log Data	69
FIGURE 8. Participant 7 Treatment Log Data	69
FIGURE 9. Participant 8 Treatment Log Data	70
FIGURE 10. Participant 9 Treatment Log Data	70
FIGURE 11. Participant 10 Treatment Log Data	71
FIGURE 12. Participant 11 Treatment Log Data	71
FIGURE 13. Participant 12 Treatment Log Data	71
FIGURE 14. Participant 13 Treatment Log Data	72
FIGURE 15. Participant 14 Treatment Log Data	72
FIGURE 16. Participant 15 Treatment Log Data	73
FIGURE 17. Participant 16 Treatment Log Data	73
FIGURE 18. Participant 17 Treatment Log Data	74
FIGURE 19. Participant 18 Treatment Log Data	74
FIGURE 20. Participant 19 Treatment Log Data	75
FIGURE 21. Participant 20 Treatment Log Data	75
FIGURE 22. Participant 21 Treatment Log Data	76

FIGURE 23. Cumulative Treatment Log Data	77
Figure 24. Visual Findings Discussion.....	83

ABSTRACT

This study evaluated a Developmental Individual Differences Relationship-based (DIR®) creative arts therapy (CAT) program for children with ASD. The study was intended to assess whether the program met its stated goals to stimulate individualized social-emotional growth for children with ASD. The study was motivated by a central research question: Do DIR®-based creative arts therapies promote the social-emotional growth of children with ASD? A summative, longitudinal program evaluation research design was used to examine the program's fidelity and outcomes. The evaluation included assessments for pre- and post-test quantitative standardized measures for data collection and analysis. The study also collected data from treatment logs composed of both qualitative and quantitative information. The study was conducted in a non-profit, parent-founded private day school in a large city on the East Coast of the United States. All individuals in the program ($N=21$) were recruited via parent flyer and an email circulated to parents at the school. All children currently enrolled in the school as of September 2014 and participating in the CAT program were invited to join the study. Participants ranged from age 5 to 19 ($M=11.9$ years; $SD=4.83$). All 21 participants underwent 45-minute DIR®-based music or art therapy sessions at least once weekly throughout the 6 months examination period (during the 2014-2015 school year). The study found moderate evidence supporting the proposition that children who participated in a DIR®-based creative arts therapies program experienced increased and improved social/emotional skills. More specifically, the study found statistically significant growth in participants according to the FEAS and DASH assessment scores. In addition,

qualitative findings of themes in therapists' notes of Regulation, Engagement, and Communication, provided further support for the program's fidelity and effectiveness.

CHAPTER 1

INTRODUCTION

In 2014 the CDC estimated about 1 in every 68 children in the United States had an autism diagnosis (otherwise known as autism spectrum disorder or ASD). With the increase in numbers of children diagnosed with ASD (CDC, 2014), scholars need further studies questioning current perspectives on treatment. ASD affects an individual's overall everyday functioning, specifically inhibiting social/emotional processes (*DSM-5-TR*, 2013). In addition, ASD is often accompanied by other disorders. According to the APA (2014) "70 percent of individuals with autism spectrum disorder order may have one comorbid mental disorder and 40 percent may have two or more" (p.58). Currently no consensus exists about either the causes or best treatment of ASD (Akanksha, 2011, Kasari, 2002).

Given the increased diagnosis and interest in autism spectrum disorder, practitioners have a greater need for testing numerous treatments (Odom, Boyd, Hall and Hume, 2009). The majority of current interventions for children with ASD can be described as behaviorally-based and adult-led now mandated by multiple states (Autism Speaks, 2014). These behavioral interventions assess outcomes empirically, with the goal of obtaining skills in specific structured settings. They are often unable to promote skills that may be generalized to everyday functioning, however; nor do they address deficits in social emotional development that generate the core symptoms described in the *Diagnostic and Statistical Manual of Mental Disorders* diagnosis (Solomon, Nechels, Ferch and Bruckman, 2007), (Greenspan & Wieder, 1998), (5th ed.; *DSM-5*; American Psychiatric Association, 2013).

Recent studies suggest that developmental, individual, relationship-based (DIR®) intervention methods for treatment of ASD may have positive, effective outcomes. For example, Solomon, Necheles, Ferch, and Bruckman (2007) found statistically significant progress in children's Functional Emotional Assessment scores after application of the DIR® method. Pajareya and Nopmaneejumrulers' (2011) research study confirmed Solomon's findings. Solomon, Van Egeren, Mahoney, Huber, Zimmerman (2014) longitudinal randomized control trial found decreases in autism symptomologies according to the Autism Diagnostic Observation Scale (ADOS) after the application of a DIR® based play program was implemented.

Treatment via the DIR® method and treatment through creative arts therapy interventions for children with ASD focus on the importance of following the child's lead to develop a relationship in order foster developmental areas such as attachment. Osborne (2003) collected evidence to demonstrate the importance of a child-led approach and the components of art therapy that make it an effective treatment for ASD. Use of creative arts therapies (art, music, dance, and drama) not only provides a vehicle for non-verbal communication; it also provides the ability to tailor engagement to each autistic individual's unique sensory profile, in order to foster the therapeutic relationship. Investigating the integration of the two approaches may be beneficial to the ASD community.

In a Delphi study, ASD is ranked one of the top 3 domains in need of further art therapy research in the United States (Kaiser and Deaver, 2013). Recent studies show that developmental individual relationship-based (DIR®) intervention methods and

creative arts therapies (CAT) may have positive, effective outcomes for treatment of ASD (Martins, 2011, Solomon, Necheles, Ferch, and Bruckman, 2007).

Purpose and Question

The following study evaluates a Developmental Individual Differences Relationship-based (DIR®) Creative Arts Therapy (CAT) program for children with ASD. This study used program evaluation methods including pre- and post-test quantitative standardized measures; Greenspan Social-Emotional Growth Chart (SEGC) (Greenspan, 2004); The Functional Emotional Assessment Scale (FEAS) (Greenspan & DeGangi 2001); The Developmental Assessment for Individuals with Severe Disabilities Third Edition (DASH-3) for data collection and analysis. For the purposes of this study, DIR® is defined as a child-centered framework for intervention, reviewed in detail below. Creative arts therapies are defined as mental health intervention that employ the creative arts, (NCCATA, 2014). The intent of this study was to examine the process and outcomes of the program for evidence that indicated whether the program met its stated goal: to improve and grow the social-emotional skills of children with ASD. The main research question for this study is the following: Do DIR®-based creative arts therapies programs promote social-emotional growth skills of children with ASD? The research examined whether this DIR® based CAT program met its intended purpose of promoting social emotional development measures by reviewing evidence from art-based, quantitative, and qualitative sources.

Programs in which DIR® and CAT are clinically employed in tandem may be relatively unusual. In this case, the program operates in a non-profit, parent-founded

private day school in a large city on the East coast of the United States. While the circumstances are unique, the results of this study may ramify and help researchers improve and/or expand the program and application in other appropriate settings (Cruz, 2012).

Assumptions

The study makes multiple assumptions based on the researcher's clinical experience with the population and method at hand. The assumptions are as follows: First, it is worth studying DIR®-based creative arts therapies deployed in an academic setting for children with ASD; Second, a program evaluation is the appropriate method for examining the quality of social emotional development in CAT interventions in academic settings; Finally, researchers and practitioners have identified a need for refinement, improvement, and growth in CAT programs for children with ASD.

CHAPTER 2 LITERATURE REVIEW

Autism Spectrum Disorder (ASD) affects a subject's ability to engage in social communication and restricts behavior patterns in ways that disrupt everyday functioning. The incidence of ASD diagnosis in the United States increases every year (CDC, 2013). The American Psychological Association reports that across the US and around the world, the frequency of ASD diagnosis is approaching 1% of the population (American Psychiatric Association, 2013). Given the rapid increase in ASD diagnoses, there is a need for researchers and practitioners to study effective treatments. The following literature review focuses on the methods used to treat the various symptoms associated with ASD.

Definition of Autism

The term autism originates from the Greek word “autos,” which means self. Eugene Bleuler originally employed the term to describe patients in the early 1900s (as cited in Kuhn & Cahn, 2004). Kanner (1973) first reported a class of children exhibiting withdrawn social behavior in 1943. Kanner described these children as having “early infantile autism” (p. 94). Around the same time, Hans Asperger, an Austrian pediatrician, observed a similar autistic-type disorder. Though Kanner's reports began in the 1940s, ASD did not enter the *Diagnostic and Statistical Manual of Mental Disorder* (DSM) until its third edition (American Psychiatric Association, 1980). In the 1994 publication of the *DSM-IV*, multiple subtypes were added to the classification of the disorder, including Asperger's syndrome (American Psychiatric Association, 2000). Until 2013, autism spectrum disorders (ASD) referred to a group of developmental disorders:

pervasive developmental disorder-not otherwise specified (PDD-NOS); Asperger's syndrome; and autism spectrum disorder (CDC, 2012). As of the latest edition (the *DSM-5*) all subtypes have been removed from the diagnosis and replaced with a gradation scale. The scale divides by severity levels starting at level one, "requiring support"; level two, "requiring substantial support"; and level three, "requiring very substantial support" (American Psychiatric Association, 2013, p. 52). The levels are classified according to the presence of social communication impairments and restricted, repetitive behaviors.

According to the American Psychiatric Association (2013), "the essential features of Autism Disorder are persistent impairment in reciprocal social communication (Criterion A) and social interaction, and restrictive, repetitive patterns of behavior, interests, or activities (Criterion B)" (p. 53). These essential features must also be present in childhood (Criterion C) and hinder everyday functioning (Criterion D).

Characteristics Associated with ASD

Criterion A: Social Interactions and Communication

According to the *DSM-5* (2013), individuals with ASD suffer from an impaired ability to engage in and sustain reciprocal social interactions (p. 50). For individuals with ASD, social cues such as body language and facial expressions are difficult to process. They also appear to lack an interest in or drive to form relationships. In short, ASD affects an individual's ability to relate to the world outside of him or herself and impairs social, emotional reciprocity (*DSM-5* (2013), p. 53).

The Centers for Disease Control and Prevention (CDC) reports that around half of children diagnosed with ASD either do not develop language or have constraints in their

language capacities (Baio, 2012). In 2015 the CDC reported 40% of children with ASD do not speak at all. The *DSM-5*(2013) describes individuals with ASD as having impaired comprehension of expressive and receptive language. The *DSM-IV-TR* also describes impaired non-verbal communication – inabilities to engage in social imitation and pretend play, for instance. Often, augmentative alternative communication (AAC) systems are used to help foster communication for individuals with ASD. Such interventions can include writing with paper and pencil, sign language, picture exchange systems (Frost & Bondy, 1994), communication boards, and electronic speech generating devices (Ganz et al., 2011).

Criterion B: Restrictive Repertoire of Activities

According to the *DSM-5*(2013), patients with ASD present with overall inflexibility in their daily processes. The manual states that patients are often narrowly preoccupied with or fixated on an inanimate object or subject. This rigidity in routines ramifies to a general resistance to change in other aspects of life, including physical aspects such as “Stereotyped body movements include the hands (clapping, finger flicking) or whole body (rocking, dipping, and swaying)” (p. 71). According to the American Psychiatric Association (2013) these restrictive behaviors may also be present in speech, in the form of echolalia and in a lack of pretend play often lining or spinning in objects. These types of sensory stimulation are called “self-stimulatory behaviors” (Freudlich, Pike, & Schwartz, 1989, p. 51). Like all symptoms, these self-stimulatory behaviors are general to the disorder but differ depending to each individual’s diverse sensory profile.

Criteria C and D

ASD is a developmental, not degenerative disorder (*DSM-5*, 2013) that manifests in childhood. The *DSM-5* (2013) states that symptoms are typically recognized in a child's first 12-24 months—though sometimes sooner as well. The diagnoses of ASD represent a range or spectrum: all individuals diagnosed present constrictions in social, communicational, and behavioral abilities. The spectrum also measures how an individual's sensory systems are affected by the disorder (*DSM-5* (2013), p. 53).

Rate of Occurrence

In 2012, the CDC estimated that one in every 68 children in the United States had been diagnosed with a disorder on the autism spectrum. This represented a dramatic increase from the estimated five per 10,000 cases in the US reported in 1960 (Newschaffer et al., 2006). While ASD seems equally present in all racial, ethnic, and socioeconomic groups, males are 5 times more likely to receive an ASD diagnosis than females (CDC, 2012).

Cost

The average medical cost for individuals with ASD is 4.1 to 6.2 times greater than for those without (Shimabukuro, Grosse, & Rice, 2008). As reported by autism advocacy organization Autism Speaks in 2012, the cost of care for an individual with autism affected by intellectual disability is \$2.3 million over the course of his lifetime, in comparison to a cost of \$1.4 million for a person not affected by intellectual disability. About 75% of individuals diagnosed with ASD require social and educational support

throughout their lifetimes (Mefford, Batshaw, & Hoffman, 2012). In 2005, the CDC reported that the number of individuals diagnosed with ASD enrolled in Medicaid was six times greater than those without ASD. Legislators have stepped in to help address these issues. When he reauthorized the Individuals with Disabilities Education Act (IDEA) in 2004, President Bush ensured that all individuals have the right to free public education, including individuals with special needs. According to Wright (2004), due process hearings began rapidly expanding around this time: in 2005 alone, the New York City Department of Education spent \$53 million on special education lawsuits. In 2006, they budgeted \$824 million for private special education schools, increasing drastically from the \$82 million they had spent a decade before (Katz, 2006). The increased costs to federal and state systems may be due to the expanded coverage guaranteed to the growing number of people diagnosed with ASD.

Causes

Although ASD is widely accepted to be a neurodevelopmental disorder, its cause is still unknown. Many studies have attempted to locate such a cause, and experts have speculated about a variety of possible culprits, including “vaccines, genetics, bad parenting, brain development, immune deficiency problem, food allergies, and poor nutrition” (Nwokeafor, 2009, p. 7). The CDC (2013) reported evidence from Ozonoff et al. (2011) and Sumi et al. (2006) that having one child with ASD increases the likelihood that the second child will be diagnosed by 2-18%.

While unable to establish a cause, some studies have noticed striking correlations. One such study found that individuals with an ASD diagnosis tend to have chemical and

physical brain abnormalities (See table 1). Mosconi et al. (2009) reported cortical volume enlargement in children ages 2 to 4 with ASD, specifically amygdala enlargement. Modahl, Green, Fein, Morris, and Waterhouse (1998) reported abnormal oxytocin processing in some children with ASD. Whitaker-Azmitia (2005) reported higher concentrations of serotonin in the blood of individuals diagnosed with ASD.

Table 1. Neurological and functional differences observed in children with ASD

Structural differences

	Decreased cerebellum size	Wagner 2006
	Altered number of Purkinje cells	Wagner 2006
	Altered hippocampus size and cell number	Wagner 2006
	Overall brain size is greater, with increased neurons in cerebral cortex	Vaccarino 2009
	Decreased activity in temporal lobe	Wagner 2006
	Basal ganglia show structural changes and functional impairment	Wagner 2006
	Reduced connectivity between the cortical ocular motor control network	Kenet 2012
	Reduced neuron recruitment to prepare for task difficulty	Kenet 2012
Neurotransmitter differences	Changes to dopaminergic and serotonergic activity in the striatum	Wagner 2006
	Up to 40% have raised serotonin levels	Kid 2003
	Dopaminergic imbalances are common, with likely dopamine insufficiency in CNS.	Kid 2003

Table 1. Robinson, B. (2013). Autism spectrum disorder: A review of the current understanding of pathophysiology and complementary therapies in children. *Australian Journal of Herbal Medicine*, 25 (128-152).

Evidence suggests that multiple environmental and genetic factors contribute to the manifestation of ASD. A number of studies currently underway explore the genetic components of ASD. However, to date, scientists have not identified any main cause (Akanksha, Sahil, Premjeet, & Bhawna, 2011). Seitler (2011) writes, “As difficult as it has been to pin down the origin of ASD with a high degree of specificity and agreement among researchers, it has been no less of a thorny task to study treatments for autism” (p. 155).

Treatment Methods

Significant debates and divisions exist about ASD treatment. As an author and mother of an autistic son, Amy S.F. Lutz (2013) has been candid: “The autism community is a fractious bunch. We argue over the causes of autism, the best treatments, or even if it should be treated at all” (para. 1). This last question, about the need for treatment, has led to the burgeoning concept of neurodiversity.

Neurodiversity is a controversial movement that challenges contemporary educational and medical models. Born on the Internet in the 1990s, the majority of activists advocating for neurodiversity have received an ASD diagnosis. Harmon (2004) emphasizes that neurodiversity as a concept has the features of a political or civil rights movement. The term neurodiversity is often accredited to Judy Singer and received its first publication by author Harvey Blume (Solomon, 2008). Advocates of the concept argue that atypical neurodevelopment is a natural variation and should be accepted like neurotypical functioning—*not* something that needs to be cured (Kapp, Lynch, Sherman, & Hutmaan, 2013; Jaaarsma & Welin 2011). The introduction of neurodiversity is also

associated with Jim Sinclair’s speech at the 1993 International Conference on Autism in Toronto, entitled “Don’t Mourn for US,” in which Sinclair made a call to parents of individuals with autism not to grieve their child but to accept autism as a way of being.

In 2009, President Obama nominated Ari Ne’eman, a neurodiversity advocate and founder of the nationally recognized Autistic Self-Advocacy Network (ASAN), to the National Council on Disabilities. The nomination was met with protest by well-funded organizations such as Autism Speaks, which view ASD as a terrible sickness and not an identity to be celebrated (Baker, 2011).

Multiple studies focus on the need to rethink, reframe, and reflect upon the ASD diagnosis in order to reconceive of autism culturally (Jaarmsa and Welin, 2011; Fenton and Krahn, 2007; Solomon and Bagatell, 2010). In one such article, Jaarmsa and Welin (2011) emphasize the harms of a DSM diagnosis “because of the disrespect the diagnosis displays for their natural way of being, which is of course contradictory to the Hippocratic principle of ‘*primum non nocere*’” (p. 11).

In his description of the politics and policy of neurodiversity, Baker (2011) states:

Taxonomies of neurological difference remain somewhat theoretical because they commonly rely on behavior-based diagnoses. In other words, most definitions of neurological differences are circular—described as having a neurological difference as a result of engaging in a set of behaviors observed as characteristics of having a neurological difference that is in turn defined by those behaviors. (p. 5)

The most commonly prescribed ASD treatment (applied behavioral analysis) trains individuals to imitate neurotypical actions in order to reduce atypical neurological functioning—communication coping strategies, for example (Boundy, 2008). Brownlow's (2010) research discussion challenged socially formed neurotypical traits with the construction of the "Neurologically Typical (NT) Syndrome" (p. 243). Brownlow joined two online groups made by and for neurotypical individuals as a silent member over a 3-month period. Data acquired from the online group discussions were analyzed, utilizing discourse analysis based on Edley, Potter and Wetherell's guides (Brownlow, 2010).

The study's findings raised concerns central to individuals with ASD, an alternative to the typical medical perspective. Another large-scale online survey (N=657), which included individuals with and without ASD, probed perceptions of autism and neurodiversity. The participants ranging in ages eight to 84 of multiple genders and educational levels were recruited through online advertisements completed a survey on Survey Monkey for no compensation. The findings suggested adopting a "deficit-as-difference concept of autism wherein neurological conditions may represent equally valid pathways within human diversity" (Kapp, Gillespie, Lynch, Sherman, Hutman, 2013, p. 59).

In the exploration of neuro-equality, the Internet has been an important venue for researchers and individuals with ASD. Blume quotes an autistic individual: "Long live the Internet" where "people can see the real me, not just how I interact superficially with other people"(Blume, 1997, para. 3). Blume also compares that the impact of the Internet for the autistic community to American Sign Language for the deaf community (Blume,

1997, para. 13). As a vehicle for communication, the Internet has the benefit of decreasing sensory stimulus. In their dissertation, Benford and Standen interviewed 23 ASD-afflicted adults and found that some features of the Internet, such as “permanence of text, pace of communication, flexibility, control and visual anonymity” (2007, p. 2) were associated with “Liberations, Empowerment and Disinhibition” in the ASD community (Benfors and Standen, 2007, pg7).

Griffin and Pollak conducted a qualitative study of current and previous neurodiverse students of higher education. 27 participants were recruited via the Developmental Adult Neurodiversity Association and UK Universities disability departments. Data was gathered via semi-structured interviews and then assessed utilizing a thematic analysis based on Braun and Clarke’s (2006) definition. Griffin and Pollak (2009) found that individuals commonly hold one of two competing views on neurodiversity: either (a) neurodiversity represents differences, some beneficial and some constricting; or (b) neurodiversity represents a “disadvantageous medical condition” (Griffin and Pollak, 2009, p. 23). Those outside the neurodiversity movement worry about whether the social acceptance of neurodiversity will lead to constraints on individuals with ASD who need and want more support (Jaarsma & Welin, 2011; Jones, Zahl, & Huws, 2001).

As Lutz (2013) has previously emphasized, there is a great deal of conflict between the multiple treatment methods for ASD. This divide over the best treatments may be due to the fact that, in one researcher’s words, “there is no cure for autism, nor is there a standard therapy that works for all people with autism” (Akanksha et al., 2011, p.

1544). In addition, there is no method to predict what type of intervention or therapeutic treatment, and at what intensity, will most benefit a child with ASD (Kasari, 2002).

Helflin and Simpson (1998) presented some 32 interventions for children and youth with ASD and noted the presence of even more interventions that were not reviewed in their article. Bowker, Angelo, Hicks, and Wels (2011) examined 1,034 parental choices of treatment and outcomes across the US and Canada through an online survey. Bowker et. al. (2011) divided treatments according to the following categories: standard therapies; other skill based; applied behavior analysis; medications; physiological; vitamin supplement; alternative diets; alternative therapies and medications; relationship based treatments; combined programs; medical procedure; special education; and other (see Table 2).

Table 2. Categories of treatments for ASD

Category	Example of treatment
Standard therapies	Speech therapy, music therapy, osteopathy
Other skills based	Fast forward, Lindamood bell, social stories, visual schedules
Applied behavior analysis (ABA)	Discrete trial teaching, applied verbal behavior, pivotal response training, picture exchange communication system
Medications	Haldol, risperdal, zoloft, secretin, luvox, tegretal, paxil
Physiological	Auditory integration training, sensory integration, occupational therapy, physical therapy, neuro-feedback
Vitamin supplement	DMG, mega-vitamin therapy, Magnesium
Alternative diets	Gluten free, casein free, Feingold diet, yeast free diet

Alternative therapies and medicines	Craniosacral manipulation, weighted vests, aromatherapy, dolphin therapy, hippo therapy
Relationship based treatments	Holding therapy, gentle teaching, son rise, floor time, play therapy, counseling
Combined programs	TEACCH, giant steps, EdenChelation, clathration, reduced L-glutathione
Detoxification	Chelation, clathration, reduced L-glutathione
Medical procedure	Vagal nerve stimulation
Special education	Specialized preschool or school services
Other	Non-specific responses such as “early intervention”

Table 2. Outline intervention. Bowker et al. (2011) “Treatments for Autism: Parental Choices and Perceptions of Change.” *Journal of Autism and Developmental Disorders*, 41, 1376. Retrieved March, 31, 2015 from Academic Search Premier database.

Research findings show that three out of four children with ASD were engaged in some form of treatment (Bowker et al., 2011). Bowker et al. supported the findings of Green et al. (2006) and Goin-Kochel, Myers, and Mackintosh (2007) that it was common for families to combine at least one or more treatment methods. The spectrum of treatment options – ranging from medical to facilitated communication – mirrors the spectrum of presented symptom options. Most educational interventions for children with ASD can be described as behavioral (adult-led), relationship-based (child-led or child-centered), or, rarely, some combination of the two. (Hilton and Seal, 2006). Hilton and Seal (2006) defined the two approaches: “child-centered models where the child sets the

pace and direction of a session,” and behavioral “task-centered models where an adult determines the focus and goals of the intervention” (p. 1197).

In seeking efficiency characteristics of evidence-based treatment practices, one research team conducted a review of the analyses of 32 controlled studies. Four characteristics were found:

(1) Parent involvement in intervention, including ongoing parent coaching that focused both on parental responsiveness and sensitivity to child cues and on teaching families to provide the infant with interventions; (2) Individualization to each child’s developmental profile; (3) Focusing on a broad rather than a narrow range of learning targets; and (4) Temporal characteristics involving beginning as early as the risk is detected and providing greater intensity and duration to the intervention. (Wallace & Rogers, 2010, p. 1300).

In subsequent sections, specific common treatment interventions will be described.

Behavioral Intervention

Behavioral intervention is one of the most popularly prescribed treatment programs for individuals with ASD (Autism Society Canada, 2005). One of the most commonly prescribed adult-led treatment interventions for ASD is applied behavioral analysis. In 2013, the Association for Applied Behavior Analysis International (ABAI) defined behavior analysis as “the scientific study of behavior” (<http://www.abainternational.org/ba.asp>). Falling under the umbrella of intensive behavioral interventions (IBI) (Leaf, Taubman, McEachin, Leaf, & Tsuji, 2011), Lovass (1987) reported research findings of positive outcomes using ABA with children

diagnosed with ASD. “ABA may be thought of as remedial education for language/communication and social deficits and treatment for behavioral rigidities which define autism” (Reynolds, 2011, p.9).

There are conflicting reports about the effectiveness of ABA, Some reviews state it to be the “most effective” intervention (Leaf et al., 2011, p. 70), yet even these tend to admit that the ABA model is controversial (Gresham & MacMillian, 1998; Howlin, Magiati, Charman, & Maclean, 2009; Mundy, 1993; Schopler & Short, 1989). Echoing this sense, Seitler (2011) boldly states that, “even after 30 years since the ABA was introduced, no study has been able to replicate the ‘dramatic’ results of the original YAP [Lovass] study” (p. 159).

One of the most pervasive criticisms of the behavioral based approach is the lack of evidence for generalization of skills obtained in research and therapeutic settings to then be applied in everyday situations, including social functioning (Matson, Benvidez, Compton, Paclawskyj, & Baglio, 1996; Mudford, Martin, Eikeseth, & Bibby, 2001; Solomon, Nechels, Ferch, & Breckman, 2007). Another criticism of highly structured behavioral interventions found in research is the development of “lack of spontaneity and over dependence on prompts (Schreibman, Dawson,, Stahmer, Landa, Rogers, McGee, Kasari, Ingersoll, Kaiser, Bruinsma, McNerney, Wetherby & Halladay, 2015, p. 2413). ABA can also be expensive and time consuming, with sessions often scheduled for 20 to 30 hours per week (Woloshyn, 2015).

In the American University Center for Human Rights & Humanitarian Law’s Anti-Torture Initiative, which focuses on “Torture in Healthcare Settings,” an entire chapter is dedicated to the ways in which compliance-based intervention violate the rights

of persons with disabilities (Brown, 2013, p. 181). The author of the chapter, Lydia Brown, is also the project assistant for the Autistic Self Advocacy Network. In the initiative, she presents a thematic report containing examples and explanations of common practices, such as “1. Restraints and Seclusion; 2. Aversive Intervention; 3. Lovaasian Applied Behavior Analysis” (Brown, 2013, pp. 181-188). Brown then compares these partitions to the definition of torture as consisting of “Intentional infliction of pain and suffering, pain inflicted for prohibited purposes, acquiescence of a public official and powerlessness of the victims” (p. 181-193).

Elsewhere, Brown (2009) has further questioned the non-human aspects of some behavioral based approaches:

Yet behavioral changes centered on compliance and control are frequently contrary or detrimental to natural forms of movement, communication, and behavior. Unlike person-centered support services or self- directed therapy and care, compliance-based behavioral interventions, which include restraint, seclusion, and aversive procedures, constitute torture as defined in the Convention Against Torture due both to their inertly and systematically abusive nature as their applications and methodology (p. 181).

Relationship-Based Intervention

By contrast, studies have shown that relationship-based approaches that implement child-led interventions resulted in significant effective outcomes. Mahoney and Perales (2003) studied the effectiveness of relationship-focused intervention on 20 children with ASD and its impact on social emotional functioning. The intervention

occurred weekly over an 8-14 month period. Pre- and post-tests using the Maternal Behavior Rating Scale (Mahoney, 1999), Child Behavior Rating Scale (Mahoney & Wheeden 1998), Temperament and Atypical Behavior Scale (Bagnato et al., 1999), and Infant Toddler Social Emotional Assessment (Cater & Briggs- Gowen, 2000) were used to collect data.

The data were analyzed using measures of multivariate analysis of variance (MANOVA). Results suggested that an increase in parent responsiveness corresponded to an increase in the children's social emotional abilities across all scales. There was minimal diversity among the participant sample in regards to demography and family structure. In anticipation of questions about the validity of the study as participants matured, researchers utilized norm referenced standardized assessments to measure social emotional functioning. The researchers use of multiple measurement tools reduced the risk of bias or error among one of the instruments (Mahoney and Perales, 2003).

One common relationship-based method is the DIR® model. In 2013, the Interdisciplinary Council on Developmental and Learning Disorders (ICDL, 2014) defined the DIR® Model as follows:

The DIR® Model provides a framework to understand the functional emotional development and unique profile of every child, and a guide to create emotionally meaningful learning interactions that promote critical functional, emotional and developmental capacities (para. 1).

Greenspan and Wieder developed DIR® as an intervention for children diagnosed with ASD (Wieder & Greenspan, 2003). The DIR® method is a relationship-based approach to therapy as opposed to a behavioral approach. The relationship with the child is fostered

out of an understanding of the child's individual sensory profile, which is used to tailor engagement. Like the ABA behavioral approach, the intervention takes place through sessions provided by a certified trained professional.

The DIR® model is referred to as “Floortime”—“the component that is spontaneous and led by the child, where the caregiver follows the child's lead and promotes the continuous flow of interactions utilizing affect cues that entice, challenge, soothe and encourage the child further” (p. 427). It is based on the principle of following the child's lead and not imposing one's own views upon the child. The goal is to follow the child's interest to further the development of a therapeutic relationship. The element of forming a positive relationship is similar to aspects of Rogers' (1977) humanistic, client-centered approach to therapy. Like Rogers, during the Floortime process, the child is accepted without judgment, and the therapist meets the child at their physical level to express empathy, in order to build a safe therapeutic relationship. Within the ABA sessions, a technique referred to as “pairing” is used to form a relationship. This process contrasts to Floortime in that the relationship is formulated from the child associating with the therapist through positive reinforcement (e.g., a cookie).

The two methods are also distinguished by their developmental focus. DIR® emphasizes developmental stages: Stage 1, self-regulations and shared attention; Stage 2, engagement and relating; Stage 3, two-way intentional communication; Stage 4, purposeful complex problem-solving communication; Stage 5, creating and elaborating ideas; and Stage 6, building bridges between symbols (Wieder & Greenspan, 2003). In theory, each stage builds upon the last: if one cannot obtain a state of calm or regulation,

he or she will not be able to formulate relationships. The DIR® method assumes that positive relationships and interactions will foster positive childhood development.

At its core DIR® and methods like it posit a functional/emotional hypothesis: that the core stages of affect signaling mentioned above lead to and are necessary for cognitive and language development. Shanker and Greenspan's preliminary research study (2007) tests this hypothesis. Data were collected from 1,640 participants across the US. The participants were then divided into eight age groups, ranging from birth to 42 months and spanning the six major functional emotional development milestones defined by Greenspan. The social, emotional growth chart was used to collect data. To test the hypothesis, researchers considered whether: "(1) Functional/emotional (f/e) scores on the first three stages of affective transformation predict f/e scores on the fourth, and (2) F/e scores on the pre-symbolic stages of affect transformation predict f/e scores on the symbolic stages of affect signaling" (p. 137).

The researchers found a moderate to high correlation for all comparisons. The study displayed associations between participants' mastery of the pre-symbolic stages of affect signaling and their language and thinking skills (p. 141). The evidence supported the hypothesis without establishing causal connections. Part of the functional emotional hypothesis is that each stage builds upon the last. This study supports the building block concept; however, further detailed research is needed to examine individual stages. Greenspan and Shanker (2007) believe that neuroscientific studies are needed to deepen their findings, in order to document possible changes to the central nervous system. Currently, research underway at York University in Canada employs event-related

potential (ERP) and electroencephalography (EEG) measurement to analyze the neurophysiological effects of intensive DIR® intervention (Hess, 2012).

Solomon, Necheles, Ferch and Bruckman (YEAR?) reported on another pilot study, “the PLAY Project” (p. 205). In this study, participants were assessed using the Functional Emotional Assessment Scale. Sixty-eight children diagnosed with ASD were assessed before and after 8 to 12 month periods of 15 hours per week DIR®Floortime intervention. The authors found the increase in the participants’ clinical Functional Emotional Assessment Scale scores to be statistically significant. The study also implemented a satisfaction survey to explore the parental perception of the intervention. Out of the 68 families, 74% completed the survey; of the respondents none reported being dissatisfied.

Though this study provides evidence supporting the effectiveness of the DIR®, it was inhibited by several limitations. First, there was an absence of any control group. Second, the participants were also enrolled in traditional special education intervention programs throughout the study, making it difficult to disarticulate various kinds of treatment.

In 2014 Solomon, Van Egeren, Mahoney, Huber and Zimmer reported on a randomized controlled trial of the “PLAY project” (p. 475). This study included 128 children (aged 2-5) diagnosed with ASD or PDD-NOS that were divided into a control and treatment group. Both groups received speech, occupational therapies, and public education services. The treatment group received additional PLAY services, which consisted of 3-hour months in home consulting for twelve months. Pre- and post-intervention measures were used as well. They included: Autism Diagnostic Observation

Schedule (ADOS) (Lord, 2002); The Maternal Behavior Rating Scale (MBRS)(Mahoney, Powell and Finger, 1986); Functional Emotional Assessment Scale (FEAS) (Greenspan & DeGangi 2001); and the Parenting Stress Index (PTI) (Abidin, 1995). The study found children in the experimental group without increasing parental stress ratings improved their “interactions, functional development, and autism symptomology than the children in the control group (Solomon, et al, 2014, p. 484).” One limitation to this study is that the control and experimental group received outside community service interventions therefore the intervention wasn’t being analyzed in isolation. It should also be noted that there were increase in functional development an increase language capacities were not indicated in the post assessments.

Though the above studies differ in their findings, they share data collection tools (Solomon et al., 2003, 2007; Greenspan & Shanker, 2007). The Social Emotional Growth Chart (SEGC) and Functional Emotional Assessment Scale (FEAS) were both designed by Dr. Greenspan, a co-author on both of the articles and the developer of the DIR® model. Yet another pilot study, published by Kingkaew Pajareya and Kaewta Nopmaneejumruslers (2011), utilized the FEAS and Functional Emotional Questionnaires (FEQ), also developed by Greenspan, in conjunction with the childhood autism rating scale developed by Eric Schopler, Robert J. Reichier, and Barbara Roehen Renner in 1986. The multiple measurement tools utilized in the study by Kingkaew Pajareya and Kaewta Nopmaneejumruslers (2011) were used to test the efficacy of DIR®-based home intervention. This pilot study consisted of 32 participants between 2-6 years who were diagnosed with ASD. The intervention group was provided an average of 15.2 hours a week of DIR® intervention over a three-month period. Participants were

assessed before and after the intervention. The study displayed statistically significant gains in all three assessment evaluation methods used, reflecting social and regulatory development progression for the intervention group (Pajareya & Nopmaneejumruslers, 2011). The researchers note some limitations, specifically, variation in the amount of intervention provided to the treatment group as well as reports of various outside treatments used in the control group causing contamination (Pajareya & Nopmaneejumruslers, 2011).

Solomon's et al. (2007) pilot study found statistically significant progress in children's Functional Emotional Assessment scores after application of the DIR® intervention. Kingkaew Pajareya and Kaewta Nopmaneejumruslers' (2011) research study confirmed Solomon's findings. Greenspan and Wieders' (2005) follow-up study ($N=16$) found that children developed out of original core symptoms after long-term application of the DIR® model. The participants were reported to have gained the ability to be creative, empathetic, and engage in positive social interactions. The FEAS was used to collect the original baseline data reflecting the children's ASD symptoms. The outcome information was based on data collected through a parent questionnaire developed by Greenspan: the functional emotional developmental questionnaire (FEDQ). The FEDQ evaluators were the children's parents, a non-neutral party.

Studies by Deway (2012) and Coletti (2012) explored parental perspectives on the effects of the DIR®. Deway reviewed the parent's perspective, a home treatment intervention similar to Solomon's et al. (2007) and Kingkaew Pajareya & Kaewta Nopmaneejumruslers' (2011). Coletti reviewed parents' perspectives of a preschool program based on the model employing a qualitative semi structured interviewed based

analysis. Both studies reported that parents believed the model was a positive, effective treatment for extinguishing negative symptoms presented with ASD.

In 2006, Hilton and Seal reported on a pilot study attempting to compare trial interventions of adult-led ABA and child-led DIR® approaches with twin brothers. One brother received 18 weeks of exclusively DIR®-based intervention while the other received 18 weeks of exclusively ABA-based intervention. Both were assessed before and after the intervention with the Communication and Symbolic Behavior Scales (CSBS). Results were surprising: the researchers even referred to them as “confusing” (p. 1200). According to the authors, “The increases in reciprocity scores that occurred in DIR® were matched with losses in reciprocity in ABA; and conversely, increases in social-affective signaling in ABA were matched with losses in social-affective signaling in DIR®” (Hilton & Seal, 2009, p. 1200).

Some of the confusion may have been caused by deployment of the CSBS as a short-term assessment tool. Both methods are designed to be intensively applied but because the researchers only applied two hours of intervention per week with each child they recommended further comparative research be done. It should be noted that in the last week of the ABA intervention the patient exhibited crying, tantrums, and aggressive behavior. Indeed, the mother ended the trial period and placed both boys in a DIR® based program (Hilton & Seal, 2006).

Creative Arts Therapies and the DIR® Model

Creative arts therapists are defined by the National Coalition of Creative Arts Therapies Associations (2014) as follows:

[H]uman service professionals who use arts modalities and creative processes for the purpose of ameliorating disability and illness and optimizing health and wellness. Treatment outcomes include, for example, improving communication and expression, and increasing physical, emotional, cognitive and/or social functioning (<http://www.nccata.org/>, para. 2).

Multiple modalities travel under the classification of creative arts therapies, including music, art, drama, dance/ movement, sand play, and other creative tools. Malchiodi (2007) points out the many unique components that creative arts therapies can emphasize, including, “self expression, active participation, imagination and mind-body connections” (p. 9). These are domains of behavior with which many individuals diagnosed with ASD struggle. This section will explore the potential of using creative arts therapies to address ASD symptoms.

Creative arts therapies have been hypothesized to “redirect awareness to visual, tactile and auditory channels” (Malchiodi, 2007, p. 11). Individuals with ASD have unique sensory processing systems; creative arts therapies may allow for sensory regulation as well as desensitization in a safe, positive venue. Through sensory experiences and interaction, theoretically, a healthy attachment can be fostered (Malchiodi, 2005). Trevarthen and Delafield-Butt (2013) point out that relational creative arts therapies may also respond to an individual with intimate mirroring based within primal motor movements.

As previously discussed, one symptom of ASD is impairment in forming relationships. One-third (Bryson, 1996) to one-half (Lord & Paul, 1997) of children and

adults with ASD do not use speech functionally (National Research Council, 2001, p. 48). It may therefore be fitting to employ an expressive therapy modality for the psychotherapeutic treatment process. Creative arts therapies deploy multiple facets of the creative arts to create communication and help individuals express themselves using tools – sometimes including words, though not restricted to them (Malchiodi, 2014).

The published piece “Literary Lungs” provides one individual with ASD a process of growth and advocacy through literature. The article references the creative arts domains of drama, preformed writings, art, and poetry as contributors to what the individual calls “artful advocacy” (Savarse and Savarse, 2012, pg. 109) by “utilizing art’s appeal both to the mind and heart as the most effective means of bringing about lasting change in the neurotypicals” (Savarse and Savarse, 2012, pg. 109). The collage piece “Finding our Voices” explores the artist’s goal of giving the younger generations of autistics hope and “an acknowledgement that giving neurotypicals knowledge was and is the autists’ power (Savarse and Savarse, 2012, pg. 109).

Music Therapy

The American Music Therapy Association (2014) defined music therapy as “the clinical and evidence-based use of music interventions to accomplish individualized goals within a therapeutic relationship by a credentialed professional who has completed an approved music therapy program” (<http://www.musictherapy.org>). As Bowker et. al. (2011) pointed out, there is not a great deal known about the effectiveness of combining treatment models. In his 2009 dissertation, Carpeno explored the efficiency of integrating Nordoff-Robbins Music Therapy (NRMT) into the DIR®/ Floortime Goal

Attainment Scaling (GAS) (Kiresuk, Smith, & Cardillo, 1994) and the FEAS were the measurement tools used.

Carpente employed four single case studies testing participants before and after 24 sessions of the integrated therapy and found increases in the participants' functional emotional capacities. Carpente emphasized the historic, positive literature-based connection of music therapy in general as treatment for ASD. Carpente's findings showed improvement in obtaining both musical and non-musical goals (2009, p.1). However, the study suffered from a restricted sample size of participants at the same facility receiving other interventions simultaneously. In addition, the researcher preformed the intervention while an outside observer preformed the assessments.

Art Therapy

The American Art Therapy Association defines art therapy as follows:

[A] mental health profession in which clients, facilitated by the art therapist, use art media, the creative process, and the resulting artwork to explore their feelings, reconcile emotional conflicts, foster self-awareness, manage behavior and addictions, develop social skills, improve reality orientation, reduce anxiety, and increase self-esteem. A goal in art therapy is to improve or restore a client's functioning and his or her sense of personal well-being. Art therapy practice requires knowledge of visual art (drawing, painting, sculpture, and other art forms) and the creative process, as well as of human development, psychological, and counseling theories and techniques

(<http://www.americanarttherapyassociation.org/aata-aboutus.html>).

To date no researchers have studied the effectiveness of DIR® based art therapy intervention. However, there are multiple art therapy publications that incorporate similar relationship-based principals utilized in the DIR®/ Floortime method. Both relationship-based treatments and art therapy interventions for children with ASD emphasize the importance of following the child's lead to develop a relationship.

Osborne (2003) collected evidence from multiple studies to demonstrate the importance of a child-led approach using the components of art therapy to create an effective treatment for ASD. Osborne defined factors to demonstrate and explore the importance of a child-led approach and the components of art therapy that make it an effective treatment for ASD. Notably, art therapy provides a vehicle for communication and relationship-building for populations whose diagnoses are based on deficits in these areas. Osborne also explored why it is not often employed in special education schools, and she made suggestions for future research. In her article Osborne (2003) emphasized the need for further research to be done in order to ensure that art therapy become available in more schools for individuals with ASD. This issue is similar for both treatment models, which may be due in part to the small number of research published on CAT and DIR® methods.

Martin (2009) further theorized art therapy's advantage as an intervention tool for addressing ASD symptoms. Among the specific problem areas she addressed were: imagination/abstract thinking; sensory regulation/integration; emotions/self-expression; developmental growth; visual-spatial skills; and recreation/leisure skills. In Martin's 2011 study, she collected data to analyze trends in children with ASD portrait drawings. Comparing the sessions and drawings of $N=25$ children and adolescents with ASD to

$N=15$ neurotypical children, Martin sought out-group trends. She found that portrait drawing was a successful vehicle for connecting and engaging in relationships with those participant's diagnosis with ASD (Martins, 2011). The study lacked inter-rater reliability, however, as research of this kind requires third party reviewers of the data. The study also included participants from a wide age range, between six and twenty years old – a range that leaves open the possibility of influence from natural maturation.

Dubowski and Evans advocated for a developmental approach to art therapy intervention for children with ASD (Dubowski & Evans, 2001). They source their intervention in the artistic development stages defined by child-centered art education theorist Viktor Lowenfeld (1947). Dubowski and Evans (2001) emphasized the problematic symptomologies in the areas of interaction and communication. Although they believe that art therapy can be a successful intervention for individuals with ASD, they primarily theorized that it promotes the development of representational capacities.

Many case studies have explored art therapy as an intervention for ASD. For example, Kornrieck and Schimmel's (1991) case study examined individual weekly art therapy sessions over a two-year period with an 11-year-old boy diagnosed with ASD. The study engaged both regular psychiatric evaluation as well as parental evaluation of a series of drawing undertaken by the participant throughout his treatment. Through the art-making process, the participant was able to build a relationship with the therapist, and through this relationship the therapist was able to help the participant communicate and organize his inner world. The authors reported that upon termination of art therapy there was a marked decrease in agitation, hand flapping, and vocalizations and an increase in the participant's social awareness (Kornrieck & Schimmel, 1991).

A similar case study outlining an individual art therapy intervention for a 6-year-old boy diagnosed with ASD over a seven-month period was presented by Emery (2011). In this study, Emery reported that the participant consistently made progress in language capacities and development toward objects through the drawing process in therapy (Emery, 2011). Another qualitative case study follows a 12-year-old boy diagnosed with ASD who received a year of art therapy intervention focused on sensory modulation and self-regulation (Durrani 2014). The study reports decreased levels of anxiety and increased attachment capacities. The case study method, while illuminating or suggestive, presents clear limitations to researchers. Researchers may question the subjectivity of study authors, the validity of their constructs, the replicability of the studies themselves, and their generalizability to the population at large.

Researchers have pursued other avenues to study the effects of arts therapies. Lusebrink (2011) employed information gathered from brain imaging techniques to highlight the processing that occurs during art therapy treatment. She specifically emphasized visual, motor, and emotional information processing. Lusebrink stated, “for developmentally impaired children and adults, tactile interaction with art media stimulates new development” (2011, p. 129).

Other Expressive Therapies

Though not outlined in this review, it should be noted that there is evidence-based literature on the application of multiple domains of expressive therapies for treatment of individuals with ASD. For example, Pike and Schwartz (1989) explored the benefits of dance therapy with individuals with ASD. Dance therapy has been documented as an effective treatment for children with ASD, dating from at least Janet Alder’s 1968 film

Looking for Me, in which Alder displays case examples of autistic children forming relationships through movement.

Scharoun, Reinders, Bryden, and Fletcher's 2014 narrative literature review of dance/movement therapy intervention for children with ASD concluded that the treatment has positive effects emotionally and physically for participants. The review also defined the need for further studies and connection of research to public policy (Scharoun, et. 2014 pg. 222). Another example comes from Lu, Peterson, Lacroix and Rousseau's (2010) research study, which found benefits in sand play as an intervention for children with autism. Indeed, volumes have been published about music, drama, dance, and art therapy as interventions for ASD. And it should be noted that there are many theater-based programs dedicated to individuals with ASD currently operating.

Elaine Hall, mother of an autistic child, was inspired by Dr. Stanley Greenspan and started the "The Miracle Project" in 2004. The project is a "multiplatform socialization program that enables children and teens with autism and other special needs to express themselves through music, dance, acting, story, and writing," located in New York and Los Angeles (<http://www.themiracleproject.org/>). Some programs are run by a certified drama therapist, such as the All Community Theatre project in Florida overseen by Loretta Gallo-Lopezand (<http://www.playandcreativetherapy.com/services/actproject>). Dr. Parasuram Ramamoorthi manages the Velvi Theater in South India, seeking to heal individuals with ASD through the arts (<http://www.velvi.org/about.php>). These creative, arts-based programs are groundbreaking and may be making important differences in the mental health and quality of life of individuals with ASD. However, they need to be

studied and research needs to be conducted in order to make these practices evidence-based.

Summary

With increased costs to the federal and state systems that support and educate individuals with autism it is vital that evidence-based interventions improve. There are many existing treatment programs that approach the diagnosis in a variety of ways but all would benefit from more rigorous analysis and examination.

There is a need for appropriate ethical treatment interventions for individuals with ASD. In order to not only define but also adopt the most effective treatment practices, we need more research. In particular, research must move beyond adult-led compliance based verbal communicative focused interventions. The dominant existing research focuses on methods that have not been defined as necessarily effective or even ethically humane. The freedom and acceptance found in creative arts interventions based in the structure of child-led DIR® may promote best treatment practices. Preliminary research supports the DIR® model and creative arts therapies as ASD interventions. However there remains a need for research examining the results of combining the DIR® method with creative arts therapies to treat autism.

Although many researchers have pursued case studies of art therapy interventions for ASD, the field needs empirical and program evaluation based research to determine the most effective art therapy treatments (Martin, 2009). This statement can be applied to all domains of CAT: if creative arts therapists can demonstrate that their practices work, then they can urge the mainstreaming of expressive therapies and DIR®. More

investigative studies must be applied to all relationship-based, child-led interventions for ASD.

CHAPTER 3

Method

Design

The study was conducted in a non-profit, parent-founded private day school in a large city on the East Coast of the United States. The creative arts therapeutic interventions were based on the DIR® model. A summative, longitudinal-type program evaluation research design was used (Cruz, 2012) to examine the program's fidelity and outcomes. The process began by first describing and defining the DIR® based CAT program and its objectives. Results provide a detailed description of the facility, staff, and materials. Results also provide a detailed description of treatment sessions, intended structure, and theoretical rationale. Participant ($N=21$) social emotional assessment data from the beginning of the fall trimester were compared to the end of the winter trimesters. Throughout this six-month period, participants in their preexisting social emotional treatment programs were evaluated with weekly DIR-based CATs. Quantitative assessments included the Greenspan Social-Emotional Growth Chart (SEGC) (Greenspan, 2004); the Functional Emotional Assessment Scale (FEAS) (Greenspan & DeGangi 2001); and the Developmental Assessment for Individuals with Severe Disabilities Third Edition (DASH-3) (Dykes & Erin, 1999). Lastly, treatment logs that consisted of qualitative and quantitative information were also used to help develop the treatment planning and goals.

Site

The school's structure was based on a multi-method approach. The classroom staff were trained in both DIR® and ABA techniques and supervised by behavioral analysis and Floortime specialists. There was a 1-to-1 student to staff ratio allowing for individualization of academic intervention. Each student's team consisted of a speech pathologist, occupational therapists, special education teacher, physical therapist, and creative arts therapist. All therapists had completed formal DIR® Level 101 training or higher. One therapist completed DIR® Level 101 and the other completed DIR® Level 201. It should be noted that ICDL only recognizes DIR® therapist who have completed and passed DIR® Level 201 as DIR® practitioners. All CAT therapists were under direct supervision meeting weekly for 45 minutes with a fully certified DIR® trainer and licensed creative arts therapist.

Participants

Children enrolled in the school in September 2014 and participating in the CAT program were invited to participate in the evaluation via a flyer circulated physically and electronically to parents. All students at the school had autism spectrum diagnoses and were between the ages of 5 and 21 years ($M=11.9$ years, $SD=4.83$). The participants included 5 females and 16 males. Informed consent was obtained from participants' guardians. An approved informed consent form was also obtained from participating staff members. Data collection began once all approved informed consent documents were complete. No participants were required to participate in their therapy sessions at any time during the data collection process. Assent was obtained by means of participants

having the right to remain in class if they physically or verbally refused to go to art or music therapy. This method of assent obtainment was employed due to the participants' cognitive processing abilities.

Measures

For comparative purposes therapists, parents, and classroom teachers completed standardized assessments DASH-3, SEGC, and FEAS. The assessments were conducted in the Fall 2014 school year, providing baseline data, and again in the Spring of 2015. The assessments used for the evaluation were already in use at the school to track treatment progress. The following is a list of assessments that were used: Greenspan Social-Emotional Growth Chart (SEGC) (Greenspan, 2004); The Functional Emotional Assessment Scale (FEAS) (Greenspan & DeGangi 2001); The Developmental Assessment for Individuals with Severe Disabilities Third Edition (DASH-3).

The Greenspan Social-Emotional Growth Chart (SEGC) is a survey instrument (Greenspan, 2004) completed by the parents or guardians of the participants. The questionnaire consists of 35 items with a rating scale from zero to five, and a cutoff score of four. It is designed to identify developmental markers that are normally obtained between birth and 24 months. The SEGC is part of the Bayley Scales of Infant and Toddler Development (BSITD) (Bayley, 2006).

The Functional Emotional Assessment Scale (FEAS) was developed by Greenspan and DeGangi (2001). The FEAS is an age normed (7 months to 4 four years of age), criterion-referenced assessment completed by the creative arts therapists at the school. The FEAS focuses on social emotional development in accordance to the DIR®

defined developmental levels. There are 79 criteria, which are evaluated on a scale from zero to two. Validation of the FEAS was conducted on a sample of 468 infants and toddlers who fell into one of four categories: 197 typical children, 190 with regulatory disorders, 41 with pervasive developmental disorders and 40 with drug exposure in utero. Score ratings can be analyzed by total or by subscales, with cutoff scores indicating domains of “normal,” “at risk,” or “deficient.” There are two domains of interest produced in the FEAS: a caregiver profile and a child profile. For purposes of this study, the therapist is in the role of caregiver throughout the evaluation. This study only examined the child profile scores.

Developmental Assessment for Individuals with Severe Disabilities Third Edition (DASH-Dykes & Erin, 1999) is a criterion-referenced assessment that is completed by therapists and educational staff. For purposes of this study, the creative arts therapists completed the assessments via teacher interview. The DASH- 3 has five scales that examine a range of skills based on numerical age in months. For the purposes of this study, the scale focused on social and emotional development, specifically comprehension of self-awareness and social skills (Dykes & Erin, 1999). There is minimal reporting with regard to the DASH validity. There is reference in the manual to a 1978 study comparing the DASH developmental level findings to the BSITD with an overall correlation of .97 (Dykes & Erin, 1999).

For two of the school’s 24-week trimesters data were collected via clinical observations and reports through the CAT therapists’ treatment session logs. Treatment logs that included quantitative and qualitative components were used in each session.

Procedures

The 21 participants experienced 45 minute DIR®-based music or art therapy sessions at least once weekly throughout the 2014-2015 school year. Participants were assigned to art or music or both by the requests and recommendation of their previous creative art therapists' annual review reports from the year prior. Participants who were new to the program were randomly assigned to modalities by school administration. It should be noted that even returning participants with creative arts modality recommendations might not have received the recommended modality due to the scheduling priorities defined by administration. For example, if a participant was mandated three 45-minute occupational therapy (O.T.) sessions per week, and the group dance therapy session for their class fell during an available O.T. slot, then he would participate in the O.T. session instead of the dance therapy session. All 21 participants received weekly music therapy group. In addition, 16 out of the 21 participants also received weekly art therapy group while 20 also received weekly dance therapy group. In addition, ten participants received individual art therapy weekly, while eleven received individual music therapy weekly. The therapeutic sessions were conducted by a Creative Arts Therapist who had had formal basic level DIR® training through ICDL and board certification in their specific modality of music, art and were also under direct supervision of a board certified creative arts therapist and an ICDL approved expert DIR®/Floortime provider and training leader.

The individual treatment sessions integrated creative arts therapy and Floortime (the DIR® method is referred to as Floortime). Floortime is described as “spontaneous and led by the child, where the caregiver follows the child’s lead and promotes the

continuous flow of interactions utilizing affect cues that entice, challenge, soothe and encourage the child further” (Greenspan, 2003 p. 427). The premise is that each encounter begins with a child-led as opposed to therapist-led focus, based on the principle of following the child’s lead, not imposing one upon the child. The goal is to follow the child’s interest to further the development of a therapeutic relationship while providing opportunities that promote self-regulation, engagement, and reciprocity through a range of experiences.

The element of forming positive relationships is similar to aspects of Rogers’ (1977) humanistic, client-centered approach to therapy. Like that approach, during the Floortime process the child is accepted without judgment and the therapist meets the child at their physical level to express empathy to build a safe therapeutic relationship. The creative arts therapies program defines social emotional development by the obtainment of mastery of the DIR® developmental stages: Stage 1, self-regulation and shared attention; Stage 2, engagement and relating; Stage 3, two-way intentional communication; Stage 4, purposeful complex problem-solving communication; Stage 5, creating and elaborating ideas; and Stage 6, building bridges between symbols (Wieder & Greenspan, 2003) (see Figure 1).

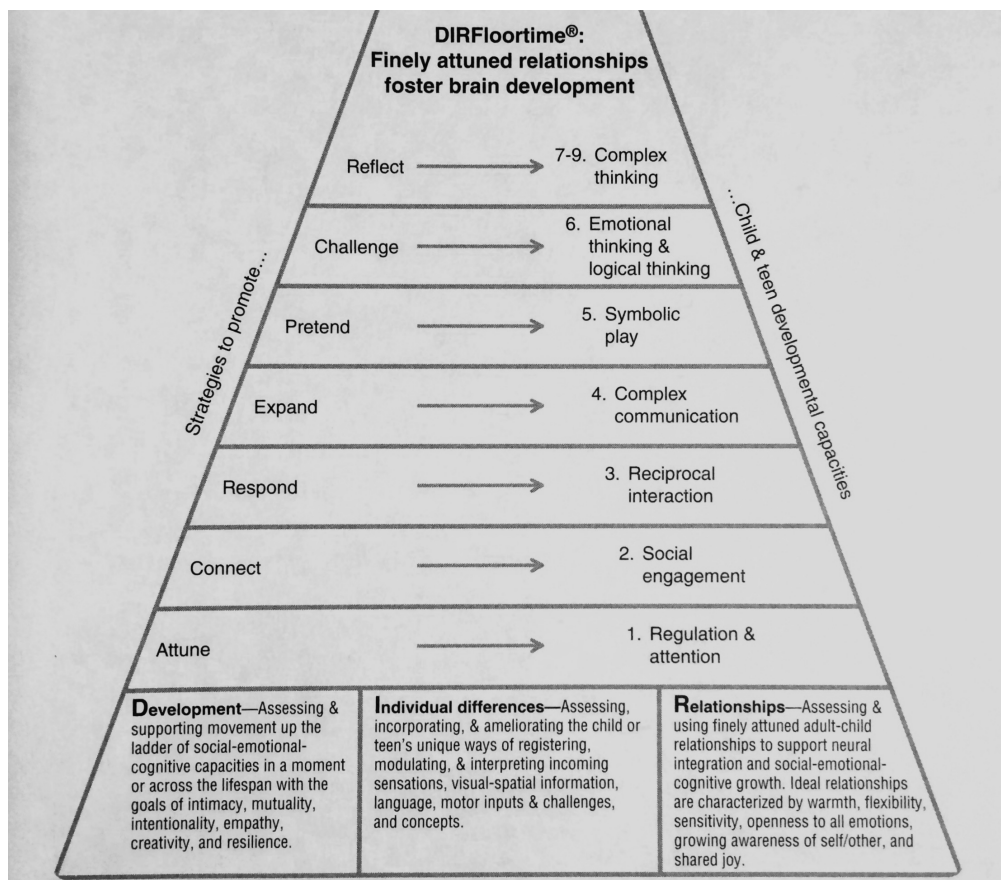


Figure 1. DIR® Strategies. Pyramid is based on description of the DIR model in *The Child with Special Needs* by Stanley Greenspan and Serena Wieder (Da Capo Press: 1998) and *Engaging Autism* by Stanley Greenspan and Serena Wieder (Da Capo Press: 2006) in (Davis, Isaacson, Harwell, 2014, p.1).

CAT therapy sessions were conducted in the school's art, music and/or multipurpose rooms. The school defined the creative art therapies sessions as:

Sessions at ... includes material or concept driven directives to provide a framework for the therapist-child interactions or social interactions among children. Materials are carefully selected to meet the specific needs and interests of each child and can be used in a novel way to promote Art Therapy and DIR®/Floortime goals.

The Art Therapist uses materials and sensory art experiences to gain

access to emotions and drive children to meet fundamental developmental levels. As a means of expression, art can be paramount for children who may not be able to express emotions through spoken language, acting as a tool to ease frustration and anger or to express happiness. In an Art Therapy session, the therapist will use high affect to encourage and increase interaction working toward continuous flow, helping children expand ideas by playfully obstructing familiar patterns, expand peer interactions by using highly motivating themes that require group practice and draw attention to others, and expand creative play and exploration of materials. Through the use of Floortime techniques, the Art Therapist will follow the child's lead and guide the child through the developmental levels in accord with the DIR® model.

Music Therapy is an integral part of treatment at Treatment focuses on the achievement of social and emotional objectives specific to each child. A psychotherapeutic methodology, Music Therapy takes place in a fun and safe environment where students can express themselves, develop social/emotional skills, and explore within a therapeutic relationship. The type of Music Therapy utilized at ...is based on a developmental, improvisational approach.

In a typical Music Therapy session, students will create live music together with their therapist in a meaningful, communicative, fun encounter. Each session is as unique as the child. Children explore different ways of producing sounds while developing their communicative abilities and strengthening their relationship building skills. Specific social skills goals are focused on during group music therapy. Bringing students and faculty together to create live music

facilitates communication, awareness of self and others, and encourages self-confidence. Music Therapy is a vital methodology utilized at ...As with all of our related services, accomplishments and useful techniques gained within Music Therapy are carried over through all parts of the student's day (Imagine Foundation, 2013, p.1).

The art therapist stated the following about the treatment process:

Practicing Art Therapy at ... with children with Autism Spectrum Disorders while utilizing the DIR Floortime approach allows for vivid creative self-expression from the [students]. Art Therapy invites the [student] to engage with a variety of enticing materials, as well as encourages interaction with peers and with the therapist. Sensory exploration of conventional and non-conventional art materials; such as bubble wrap, paintable drum sticks, sand paper, & water beads may benefit those [students] who are not immediately comfortable with art materials to develop flexibility and work through resistance and tactile defensiveness to become more available for interaction. Within the safety of the therapeutic relationship and holding environment (Winnicott, 1965) and by encouraging a healthy form of attachment via affect attunement and mirroring from the therapist (Armstrong, 2013), the [student] may find a safe haven to be able to express their needs, fears, internal chaos, and the need for order and support. These types of expressions may be messy and confusing, yet when met with understanding and validation from the therapist, the [student] may feel safe to reveal such needs. Sometimes the creative process of making art simply offers a chance for the [student] to have a cathartic release of emotion. With guidance

and continual positive affirmation from the therapist, art making can also help the [student] identify and express emotions – especially “negative” emotions which can be challenging or frightening for the [student] to explore (DAS, 2014) (See Appendix E).

The music therapist stated the following about the treatment process:

Music therapy at ... Academy utilizes an improvisational music-centered approach, while adhering to principles of DIR/Floortime. In music-centered music therapy, “the musical process is the clinical process.” Music therapy sessions at ... occur as individual sessions and as classroom groups. The music therapist utilizes clinically directed live music to engage the client in musical-play, using a combination of voice, guitar, bass, piano, and/or percussive instruments. [Students] are encouraged to respond using any of the above stated instruments, their own vocalizations, body movements, or additional clinically-selected instruments, such as pitched horns, drums, or cymbal.

The method of music therapy primarily used at ... is improvisation. Clinical techniques used within sessions are based on Bruscia’s (1987) 64 clinical techniques, which are grouped into categories that include techniques of empathy, structuring techniques, techniques of intimacy, elicitation techniques and redirection techniques. The categories that I have just listed are the most relevant to the [student] population at the school, as the cognitive, social, and verbal capacities of these clients are limited. While using these techniques in sessions, the therapist treats each response that the client offers, whether intentional or

reflexive in nature, as musical offerings to be placed within a musical framework (Carpente, 2013).

There is a protocol to how improvisation can be utilized in these sessions. The interaction at the start of each session will begin with following the child's lead in order to bring them into a "shared world" (Greenspan & Weider, 2006, p. 65), creating an environment that fosters engagement, trust, and intimacy in the session, and utilizes the child's interests in order to facilitate joint attention. To achieve this "shared world" (Greenspan & Weider, 2006, p. 65) in music, the therapist will implement techniques of empathy based on the client's behaviors, such as vocalizations, instrumental play, body movements, or facial expressions (Bruscia, 1987). This will facilitate musical and emotional attunement between therapist and client, providing a framework for shared experiences and social reciprocity in musical-play (Geretsegger et al., 2015). Once joint attention and engagement have been established, the interaction becomes therapist-led, in which the therapist will begin to implement structuring techniques, which will help to organize the client's musical participation and support their expression (Bruscia, 1987). This supports the client in becoming involved in musical-play. Once the client has become involved in musical-play, the therapist will implement elicitation techniques, which will be used to both support and assess two-way purposeful music making (Bruscia, 1987; Carpenete 2013). Throughout this process, the therapist scaffolds the flow of musical interaction, modeling and encouraging ways to be more deeply involved in the musical process (Geretsegger et al., 2015). If the client remains engaged in the musical interaction, therapist

implements redirection techniques or techniques of intimacy, in order to challenge the client with new opportunities of relating both musically and emotionally in the interaction (Bruscia, 1987). At any point during the session, if the client has difficulty remaining engaged in the musical interaction, for instance due to dysregulation, lack of interest, cognitive or motor challenges, emotional difficulties, or the complexity of the music being offered, therapist may return to the earlier steps stated above, or provide extra-musical support (verbal, gestural, partial physical, full physical) as needed. As sessions progress, therapist will “tap into the shared history of musical interaction” (Geretsegger et al., 2015, p. 272) of improvised songs and musical themes between the client and therapist in order to both facilitate safety and predictability as well as provide opportunity for growth in the areas of flexibility and coping with change and other functional emotional developmental capacities (Brady, 2014)(See Appendix F).

Data analysis

At the end of the second trimester of the 2014-15 school year, data were collected from the assessments completed by the therapists, the parents, and the classroom teachers. Data were analyzed using descriptive and inferential statistics. A review of the creative art therapists’ treatment logs, and qualitative and quantitative case note information was examined for individuals and the group of participants. Each participant’s pre- and post-information was compared to earlier results and then viewed in context of the whole program. Findings were then described and compared to the

Academy's CAT program's defined social emotional objectives and also to current literature. In addition, the researcher compared the fidelity of the program's stated mission with the study's findings.

CHAPTER 4

Results

Data were collected over the school's two trimesters, consisting of 24 weeks, beginning in Fall 2014 and ending in Spring 2015. Halfway through the data collection period in January 2015, the school added a third creative arts therapy intervention, weekly group dance therapy. The dance therapist was not formally trained in the DIR® method and held a limited permit Creative Arts Therapy license in the state of New York. Over the course of the study the school staff also transitioned its art therapist during the fourth month of the study. The new art therapist held a New York state license in creative arts therapy and a basic level DIR® certification through the ICDL. There was also a three-week absence of the art therapist during the data collection period.

Over the data collection period there was attrition. One student was removed from the study for medical reasons, i.e. the sudden onset of multiple seizures. The participant continued to be enrolled in the school program and receive creative arts therapies when possible. However, data associated with him were not included in the final analyses.

The following table outlines the means and standard deviations for all standardized assessments, focusing in on the difference over the 2 trimesters. The individual assessment analysis will be examined in detail below.

Table 3. Means and Standard Deviation at Each Assessment

Group	<i>n</i>	Beginning of 1 st trimester <i>M,SD</i>	End of 2 nd trimester <i>M,SD</i>	Difference over 2 trimesters <i>M, SD</i>
SEGC	5	57.20, 20.28	64.00, 20.59	-6.80, 22.08
DASH	21	23.00, 26.27	24.69, 26.56	-1.69, 3.61
FEAS	21	24.19, 10.43	30.14, 12.76	-5.95, 6.70

FEAS ONE	21	8.52, 2.73	10.33, 2.42	-1.81, 2.20
FEAS TWO	21	8.05, 3.23	9.00, 4.48	-0.95, 2.85
FEAS THREE	21	4.71, 1.82	5.05, 1.80	-0.33, 1.35
FEAS FOUR	21	1.33, 1.11	1.76, 1.26	-0.43, 0.68
FEAS FIVE	21	1.48, 2.56	2.76, 3.66	-1.29, 2.10
FEAS SIX	21	0.43, 1.08	0.52, 1.36	-0.10, 0.44

Table Note: FEAS ONE through SIX are subscales of the FEAS assessment. The “after” measurements are higher than the “before” measurements as indicated by the negative difference

Analysis of SEGC

The Greenspan Social-Emotional Growth Chart (SEGC) screening questionnaire was given to each participant’s guardian first in Fall 2014 and again in Spring 2015 (Greenspan, 2004). The questionnaire consists of 35 items with a rating scale from zero to five, and was to be completed by guardians. The chart was intended to gain parents’ or guardians’ perspectives of social emotional developmental markers of the participants over the school year. However, only 10 out of the 21 guardians completed and submitted the fall SEGCs. Only five out of the 10 guardians completed and submitted the spring SEGCs. The five completed pre and post SEGCs were scored by the researcher. Two out of the five parent scores report a decrease in skill scores. Three out of the five parent reports displayed an increase in skill scores over the study period. A paired samples *t*-test was conducted on before ($M= 57.20$, $SD=1.14$) and after SEGC scores ($M= 64$, $SD= 20.59$). Unsurprisingly due to the small n , there was no statistical significance found ($p=.529$). An average mean score of 57.20 and 64 both fall in the domain categorized as possible difficulty for a child 42 months and over.

Analysis of DASH

Developmental Assessment for Individuals with Severe Disabilities Third Edition

(DASH-3 Dykes & Erin, 1999) a criterion-referenced assessment was completed through interviews of the educational classroom staff first in Fall 2014 and again in Spring 2015. The DASH-3 has five scales that examine a range of skills based on numerical age in months: Sensory-Motor; Language; Social-Emotional; Activities of Daily Living; and Academics. It should be noted that the implementation of the DASH, which has the capacity to provide an overall functioning age but not a physical one, coincided with the school year of the study. However, only the mental health and occupational therapy departments completed their DASH sections, while the speech and academics departments deemed the DASH inappropriate and did not complete it because they felt they were unable to administer the questions effectively in their specific academic setting. Therefore, it is not a holistic overall functioning score because the entire treatment team did not complete all sections.

The parts of the scale focused on for purposes of this study were the completed social and emotional development sections, specifically the criteria of comprehension of self-awareness and social skills were used for data analysis (Dykes & Erin, 1999). This did not provide a full comprehensive average score of all scaled domains, but extracted only the social-emotional domain, which the instrument allows for. Pre- and post-data for all 21 participants on the DASH social emotional domain were obtained. A paired-samples *t*-test was conducted to compare pre- and post-DASH scores. There was a significant difference in the scores before DASH ($M=5.4$, $SD=1.14$) and after DASH ($M=9.4$, $SD=1.14$) conditions; $t(20)=-2.14$, $p = 0.045$. These results suggest, that according to the classroom teachers' point of view, the students displayed an increase in their social emotional functioning. The pre score of 5.4 represents the participants on

average were functioning socially and emotional at the age of a 5 month old and post mean score of 9.4 represents an increase in social emotional functioning to nine months.

Analysis of FEAS

The creative arts therapy staff implemented and scored the Functional Emotional Assessment Scale (FEAS) first in Fall 2014 and again in Spring 2015 (Greenspan & DeGangi, 2001) with all participants. Data from the child profile scoring section were reviewed. Pre- and post-FEAS data for all 20 participants were obtained. There was a significant difference in the total before FEAS sores ($M=24.19$, $SD=10.43$) and total after FEAS scores ($M=30.14$, $SD=12.76$) conditions; $t(20)=-4.07$, $p = 0.001$). These results suggest that, according to the creative arts therapists, the participants as a whole increased in their social emotional functioning criteria as defined by the FEAS. The mean score increase from 24.19 to 30.14 though closer to the next category still falls under the category of deficient. The average participant displayed deficient emotional functioning normed for the age of 24 month before and after the six-month period.

Subscale data were also collected and reviewed for all 20 participants. Three out of the 6 FEAS subscales were found to have statistical significance in change when a paired t - test was conducted. FEAS 1 subscale representing the domain of self-regulation and interest in the world before ($M=8.52$, $SD=2.73$) and after ($M=10.33$, $SD=2.42$) showed statistical significance ($t(20)=-3.76$, $p = 0.001$). FEAS 4 subscale representing the domain of behavioral organization and problem-solving and internalization before ($M=1.33$, $SD=1.11$) and after ($M=1.76$, $SD=1.26$) also showed significance ($t(20)=-2.91$, $p = 0.009$). FEAS 5 subscale representing the domain of representational capacity before

($M=1.48$, $SD=2.56$) and after ($M=2.76$, $SD=3.66$; $t(20)=-2.80$, $p = 0.011$) showed significance. These results suggest that, according to the creative arts therapists' interpretation of the FEAS criteria, the participants as a whole increased in their social emotional abilities for self-regulation, problem solving and representational capacity over the two-trimester period. Subscale FEAS TWO attachment, FEAS THREE two-way communication FEAS 6 emotional thinking were found to be not significant.

Table 4. Means and paired t- test results

	Means		<i>t</i>	<i>p</i> -value
	Before	After		
SEGC	57.20	64.00	-0.69	0.529 ^{ns}
DASH	23.00	24.69	-2.14	0.045 *
FEAS	24.19	30.14	-4.07	0.001 *
FEAS 1	8.52	10.33	-3.76	0.001 *
FEAS 2	8.05	9.00	-1.53	0.142 ^{ns}
FEAS 3	4.71	5.05	-1.13	0.273 ^{ns}
FEAS 4	1.33	1.76	-2.91	0.009 *
FEAS 5	1.48	2.76	-2.80	0.011 *
FEAS 6	0.43	0.52	-1.00	0.329 ^{ns}
ns – not significant * significant at 5% level of significance				

General Analysis

Total number of individual and group creative arts therapies sessions attended by each child were calculated and correlated with the difference in pre- and post-standardized assessment scores. Most of the correlations were close to zero between the number of creative arts therapy interventions a participant received and the difference in their pre- and post-FEAS and DASH scores. These results suggest no association between the total number of creative arts therapies sessions a participant received and their difference scores on pre- and post-standardized assessments.

Table 5. Correlation coefficient *p*-values of total number of sessions and differences

Correlation of Total number of sessions with...	Correlation coefficient, <i>r</i>	<i>p</i> -value
SEGC difference	0.79	0.112 ^{ns}
DASH difference	-0.04	0.874 ^{ns}
FEAS difference	-0.03	0.911 ^{ns}
FEAS 1 difference	-0.35	0.131 ^{ns}
FEAS 2 difference	-0.04	0.879 ^{ns}
FEAS 3 difference	0.32	0.176 ^{ns}
FEAS 4 difference	-0.02	0.921 ^{ns}
FEAS 5 difference	0.08	0.729 ^{ns}
FEAS 6 difference	0.07	0.767 ^{ns}
ns – not significant * significant at 5% level of significance		

A substantial correlation was found between the number of sessions a participant had and the difference in their SEGC scores. Larger correlation coefficient scores were found for FEAS 1 and FEAS 3 differences represent CAT-completed assessment scores, subcategory domains of engagement and communication than the other subcategories. A one-way repeated measured analysis of covariance (ANCOVA), with total intervention activities as the covariate, was conducted to evaluate the null hypothesis that there was no change in participants' scores when measured before and after participation in SEGC ($n=5$). As expected because of the low N , the result of the ANCOVA did not indicate a significant time effect, $F(1,3) = 0.123$ $p > .05$. Thus, there was not evidence to reject the null hypothesis. A one-way repeated measured analysis of covariance (ANCOVA), with total arts therapies intervention activities as the covariate, was also conducted to evaluate change in participants' scores when measured before and after participation on FEAS 3 ($n=21$). The result of the ANCOVA indicated no significant time effect, $F(1,19) = 0.531$ $p > .05$. Thus, there is not significant evidence to reject the null hypothesis.

A one-way repeated measured analysis of covariance (ANCOVA), total intervention activities as the covariate, was also conducted to examine change in participants' scores when measured before and after participation in FEAS 1 ($N = 21$). The result of the ANCOVA indicated a significant time effect, $F(1,19) = 6.670$ $p < .05$. Therefore, a relationship was found between the subcategory domain FEAS 1, shared attention and regulation difference in increase scores, and the amount of CAT sessions a participant engaged in.

Analysis of Treatment Logs

Individual session treatment logs were obtained from the creative arts therapy staff. Each participant was assigned either the art or music therapist as their primary therapist in charge of the participants' clinical treatment documentation. One hundred fifty-eight treatment logs were collected in total, a number that represents only 31% of the possible notes that could have been taken over the two trimester period, not accounting for sick or vacation days. The notes consist of a 0 through 3 rating scale: 0 = Not present; 1 = Constricted with maximal support; 2 = Constricted with minimal support; 3 = Mastered. The ratings are applied to attributes found in the first six DIR®-defined functional emotional capacities. The second component of the note was a brief qualitative summary of the session. The creative arts therapy staff did not all complete the treatment notes throughout the two trimesters. One therapist failed to complete notes for some students past the first trimester. Another therapist completed notes by hand but did not input them into the school's electronic system. There was a total of 69% of case notes missing. There was also found to be a great variation in the quality and quantity of

the qualitative summary of sessions between therapists. The researcher transcribed all the hand written case logs.

Quantitative

For all extant notes, each participant's individual session rating score was entered into Excel. The mean scores for each developmental level were calculated by week, and graphed per each individual participant. The individual goals were also extracted and charted into tables with therapists' ratings per trimester. The following graphs display different amounts of data that represent the amount of data taken by the participants' primary creative arts therapist. One therapist may have recorded 15 consecutive session for one participant another may have only recorded one for another participant. The session data are in order by date; however, due to the inconsistency of the record keeping, there may be sequential session notes missing.

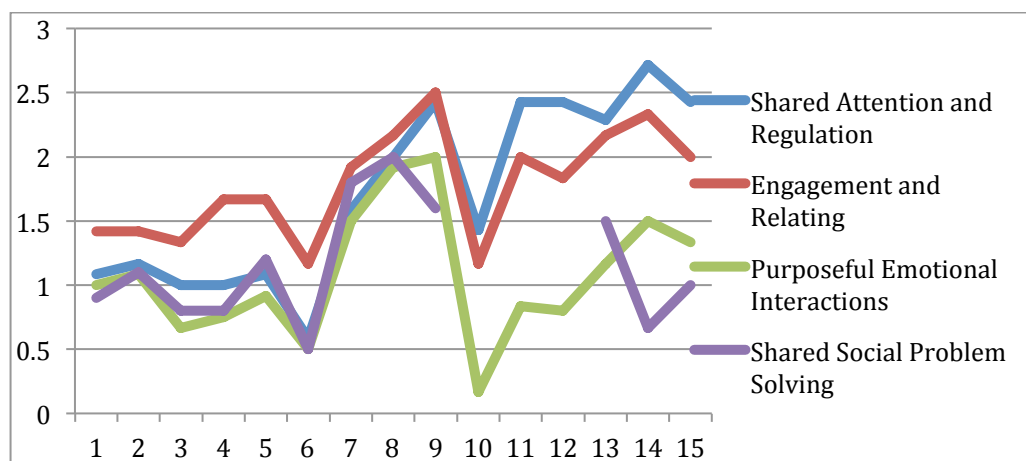


Figure 2. Participant 1 treatment log data. Key: Y Axis represents 0 = Not present, 1 = Constricted with maximal support, 2 = Constricted with minimal support, 3 = Mastered. X Axis represents session number.

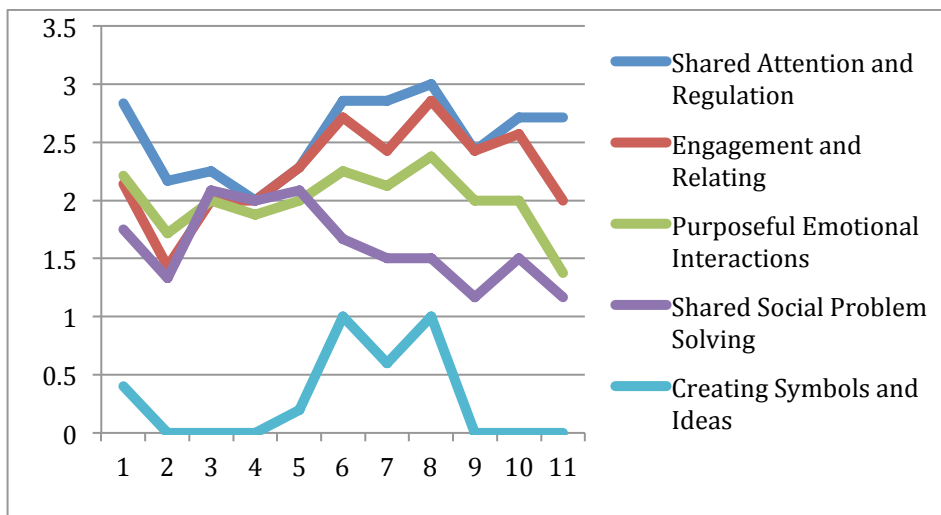


Figure 3. Participant 2 treatment log data. Key: Y Axis represents 0 = Not present, 1 = Constricted with maximal support, 2 = Constricted with minimal support, 3 = Mastered. X Axis represents session number.

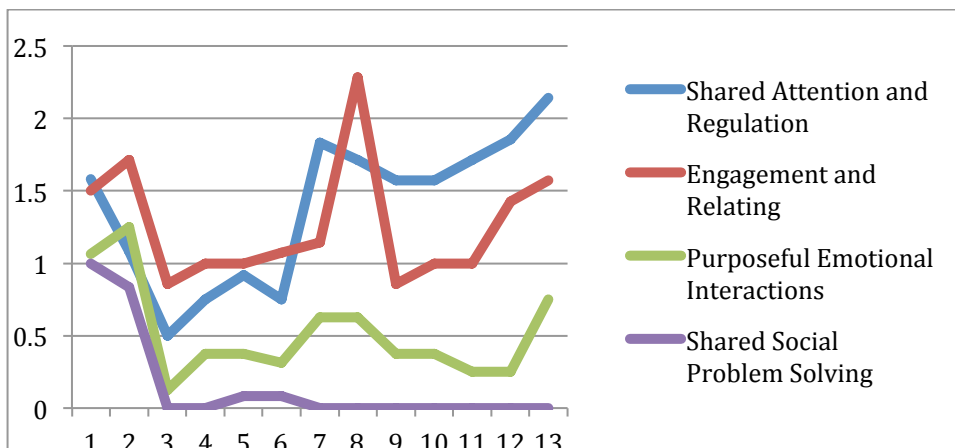


Figure 4. Participant 3 treatment log data. Key: Y Axis represents 0 = Not present, 1 = Constricted with maximal support, 2 = Constricted with minimal support, 3 = Mastered. X Axis represents session number.

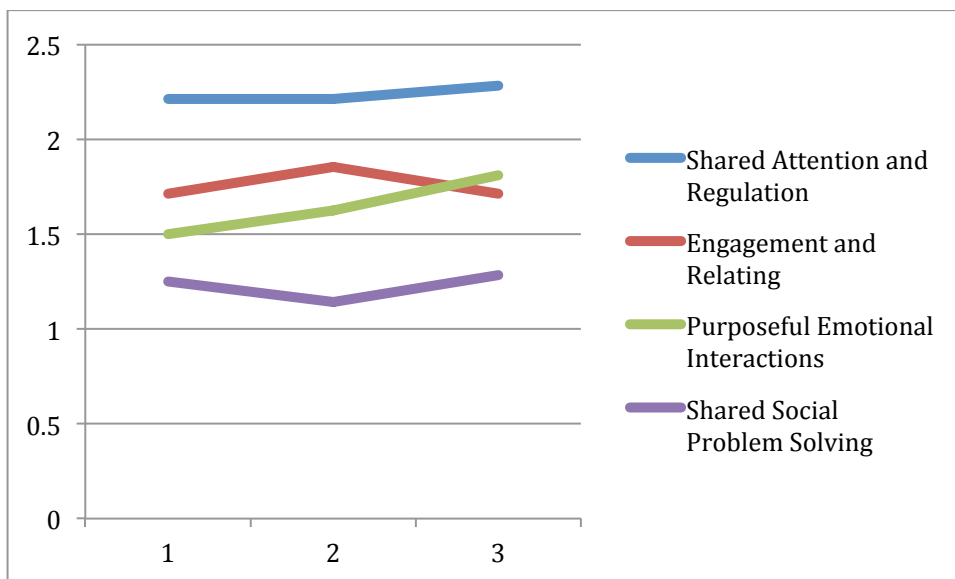


Figure 5. Participant 4 treatment log data. Key: Y Axis represents 0 = Not present, 1 = Constricted with maximal support, 2 = Constricted with minimal support, 3 = Mastered. X Axis represents session number.

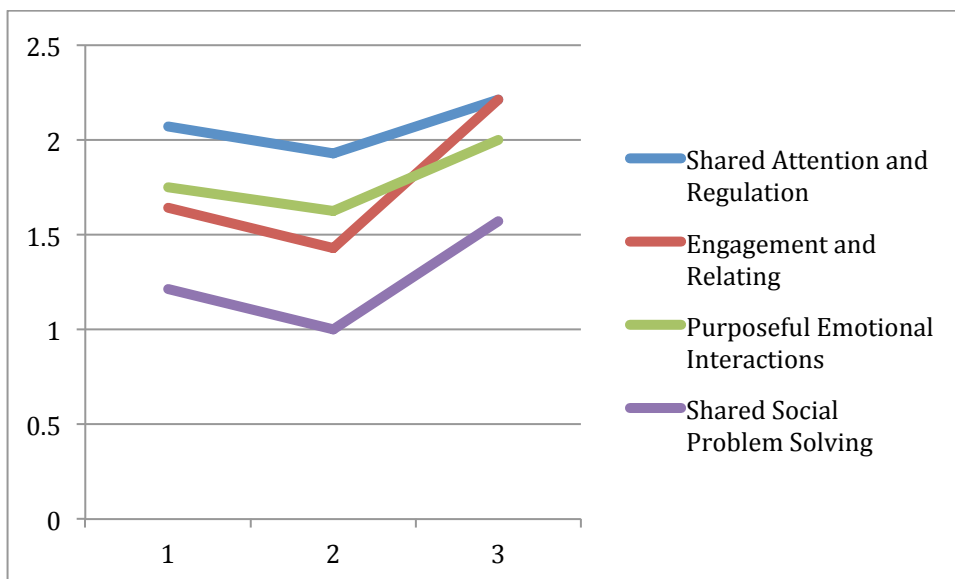


Figure 6. Participant 5 treatment log data. Key: Y Axis represents 0 = Not present, 1 = Constricted with maximal support, 2 = Constricted with minimal support, 3 = Mastered. X Axis represents session number.

Table 8.

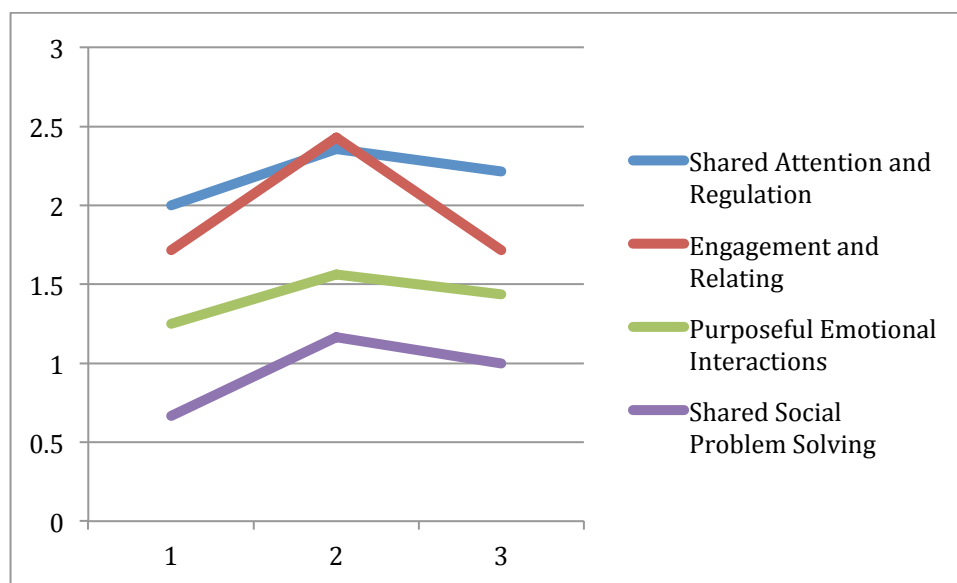


Figure 7. Participant 6 treatment log data. Key: Y Axis represents 0 = Not present, 1 = Constricted with maximal support, 2 = Constricted with minimal support, 3 = Mastered. X Axis represents session number.

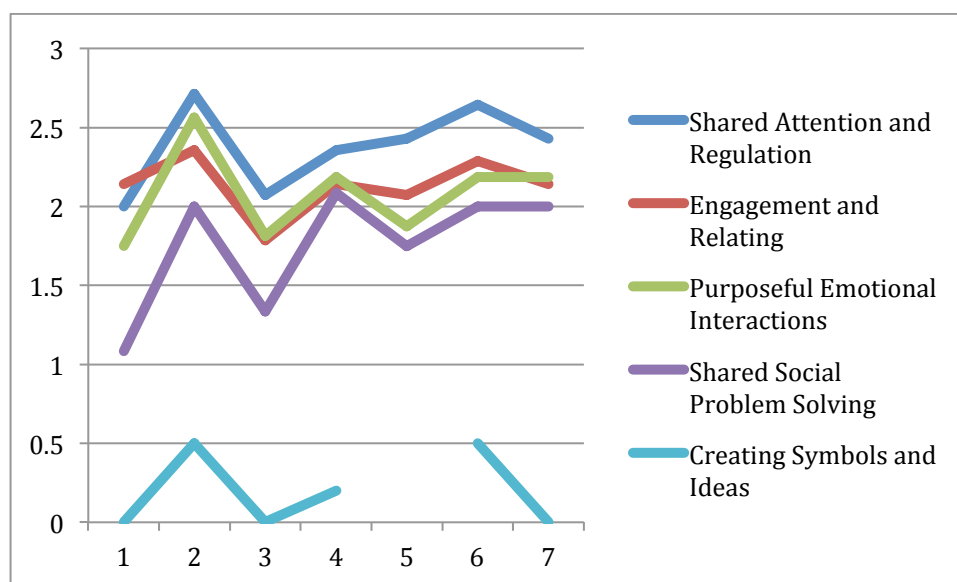


Figure 8. Participant 7 treatment log data. Key: Y Axis represents 0 = Not present, 1 = Constricted with maximal support, 2 = Constricted with minimal support, 3 = Mastered. X Axis represents session number.

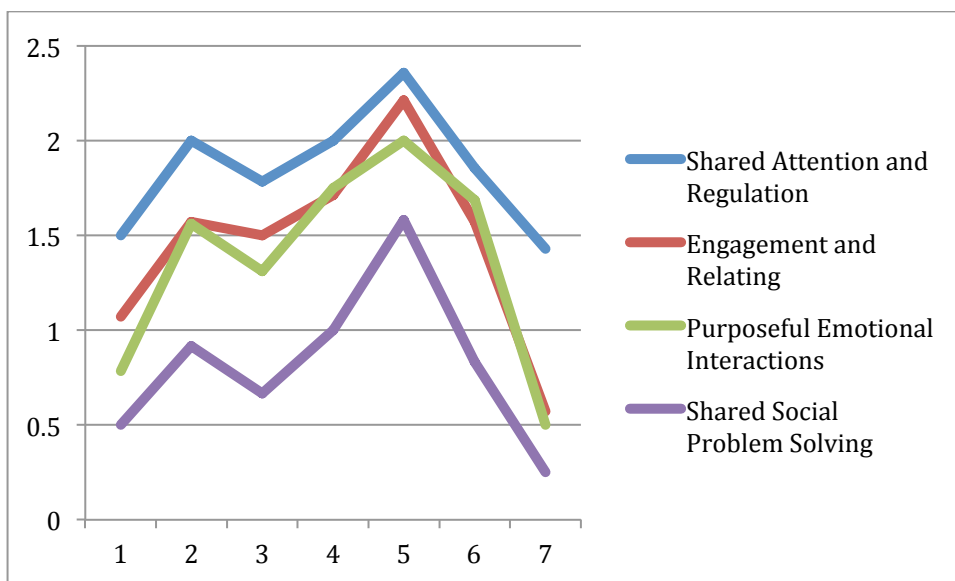


Figure 9. Participant 8 treatment log data. Key: Y Axis represents 0 = Not present, 1 = Constricted with maximal support, 2 = Constricted with minimal support, 3 = Mastered. X Axis represents session number.

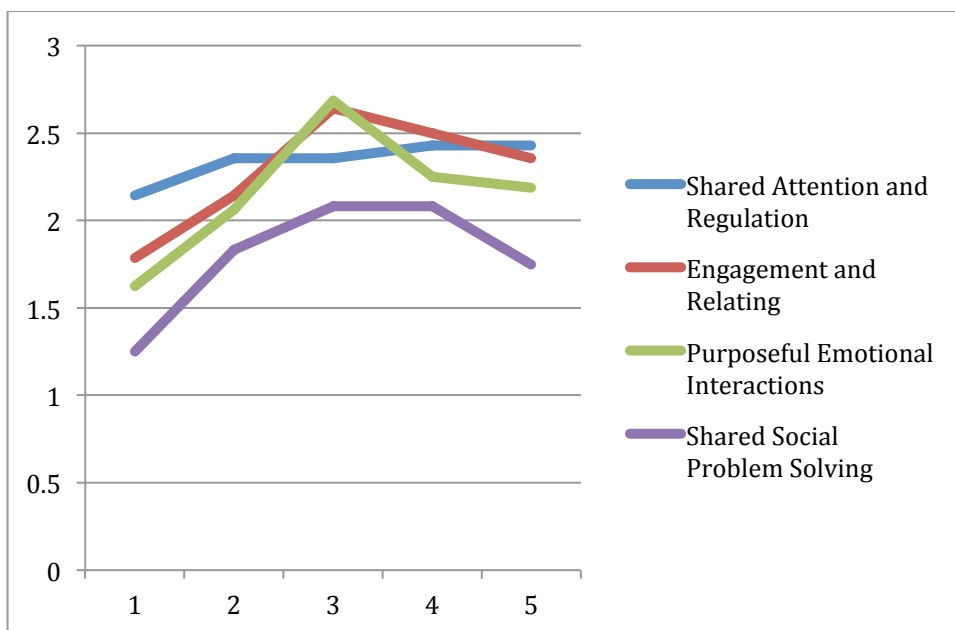


Figure 10. Participant 9 treatment log data. Key: Y Axis represents 0 = Not present, 1 = Constricted with maximal support, 2 = Constricted with minimal support, 3 = Mastered. X Axis represents session number.

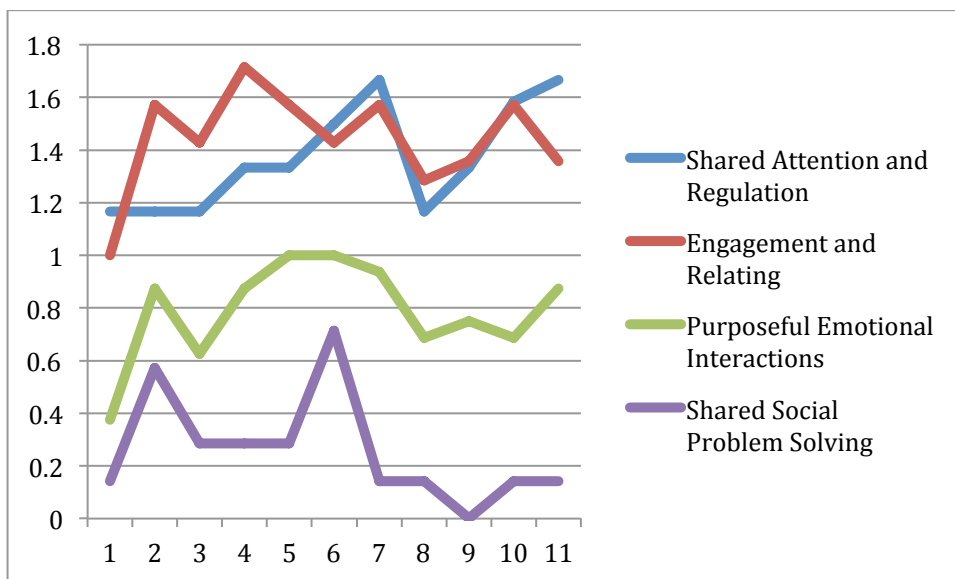


Figure 11. Participant 10 treatment log data. Key: Y Axis represents 0 = Not present, 1 = Constricted with maximal support, 2 = Constricted with minimal support, 3 = Mastered. X Axis represents session number.

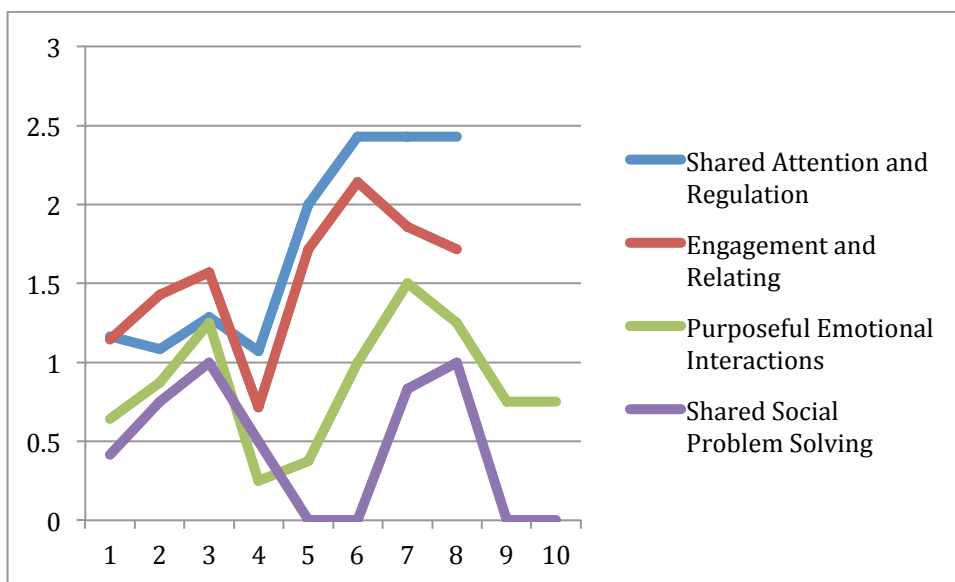


Figure 12. Participant 11 treatment log data. Key: Y Axis represents 0 = Not present, 1 = Constricted with maximal support, 2 = Constricted with minimal support, 3 = Mastered. X Axis represents session number.

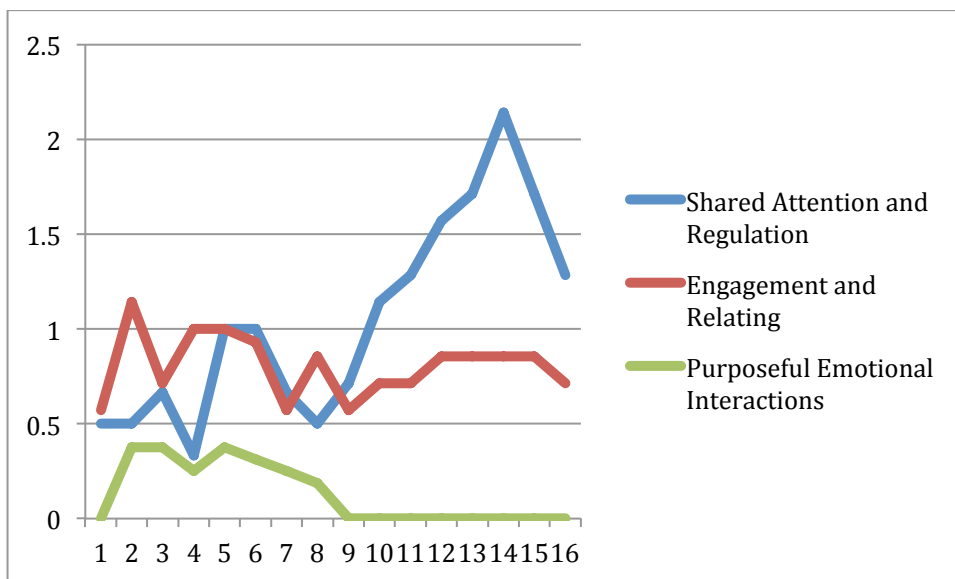


Figure 13. Participant 12 treatment log data. Key: Y Axis represents 0 = Not present, 1 = Constricted with maximal support, 2 = Constricted with minimal support, 3 = Mastered. X Axis represents session number.

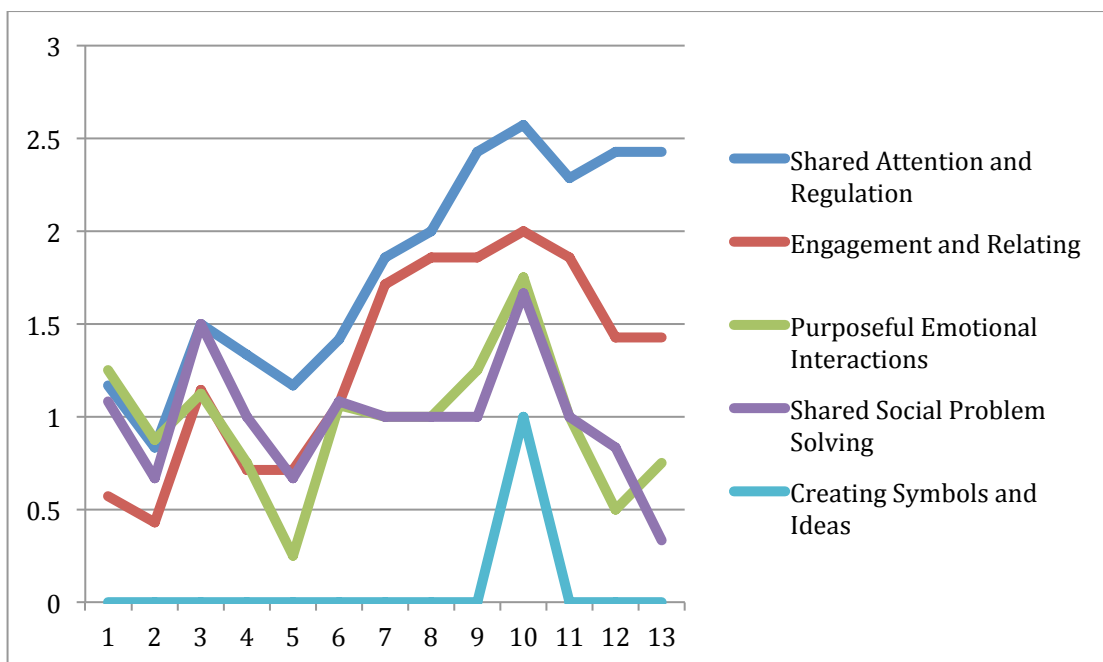


Figure 14. Participant 13 treatment log data. Key: Y Axis represents 0 = Not present, 1 = Constricted with maximal support, 2 = Constricted with minimal support, 3 = Mastered. X Axis represents session number.

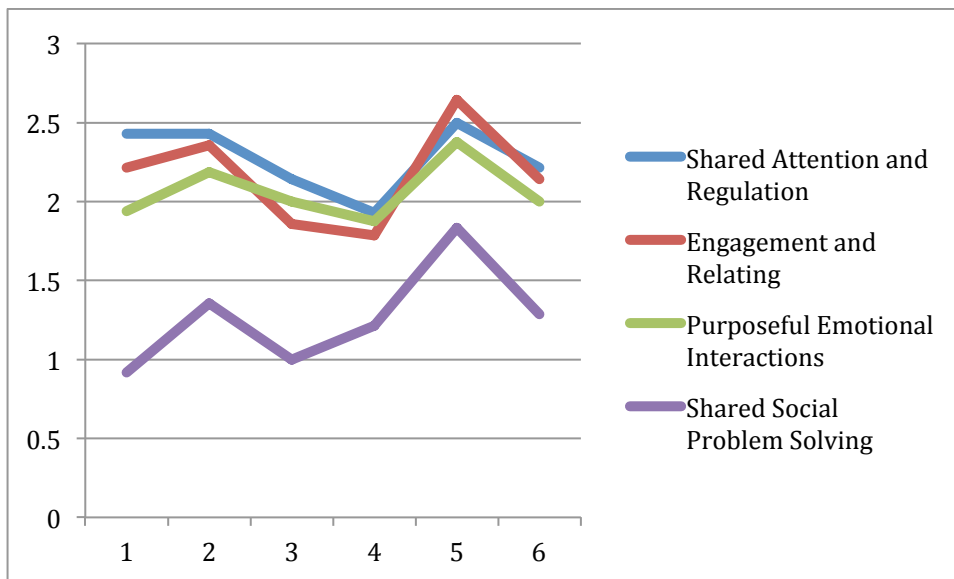


Figure 15. Participant 14 treatment log data. Key: Y Axis represents 0 = Not present, 1 = Constricted with maximal support, 2 = Constricted with minimal support, 3 = Mastered. X Axis represents session number.

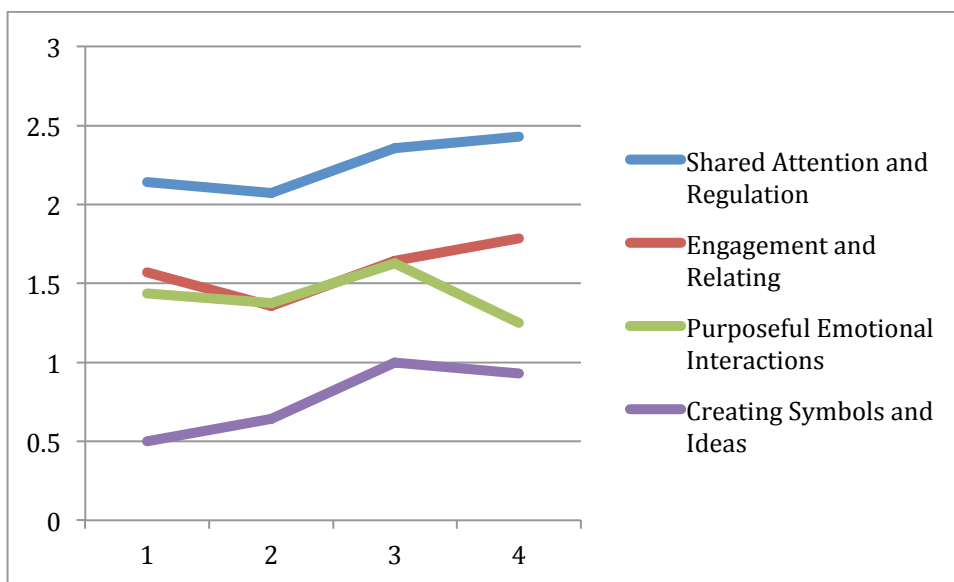


Figure 16. Participant 15 treatment log data. Key: Y Axis represents 0 = Not present, 1 = Constricted with maximal support, 2 = Constricted with minimal support, 3 = Mastered. X Axis represents session number.

Participant 16

Shared attention and regulation M= 2.1

Engagement and relating M= 1.64

Purposeful emotional interactions M= 1.68

Creating Symbols and ideas= 1

Figure 17. Participant 16 treatment log data. Key: Y Axis represents 0 = Not present, 1 = Constricted with maximal support, 2 = Constricted with minimal support, 3 = Mastered. X Axis represents session number.

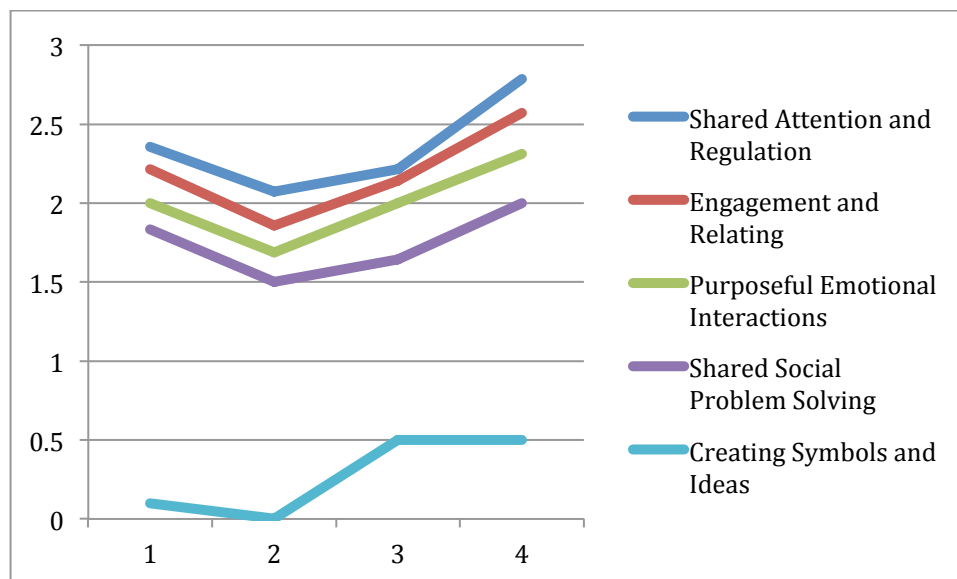


Figure 18. Participant 17 treatment log data. Key: Y Axis represents 0 = Not present, 1 = Constricted with maximal support, 2 = Constricted with minimal support, 3 = Mastered. X Axis represents session number.

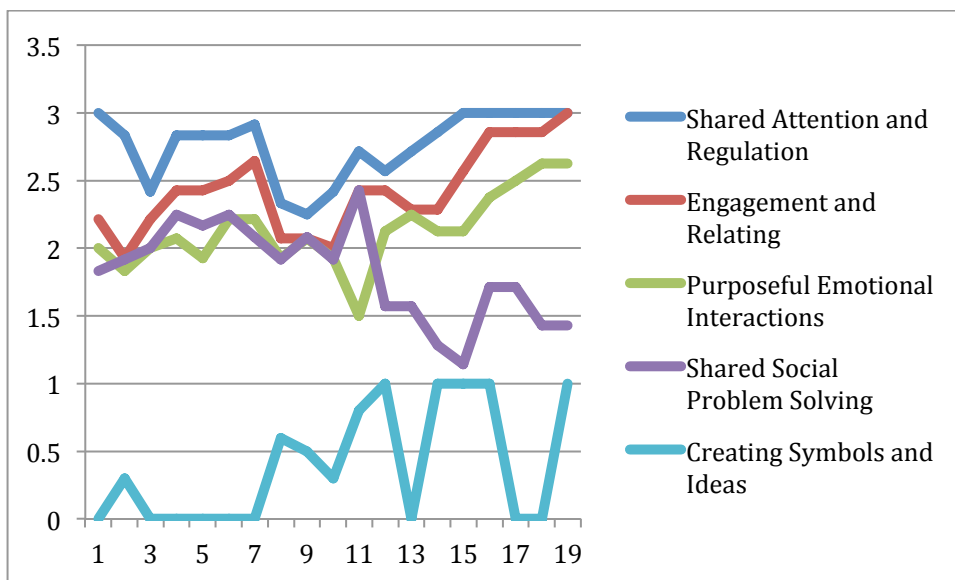


Figure 19. Participant 18 treatment log data. Key: Y Axis represents 0 = Not present, 1 = Constricted with maximal support, 2 = Constricted with minimal support, 3 = Mastered. X Axis represents session number.

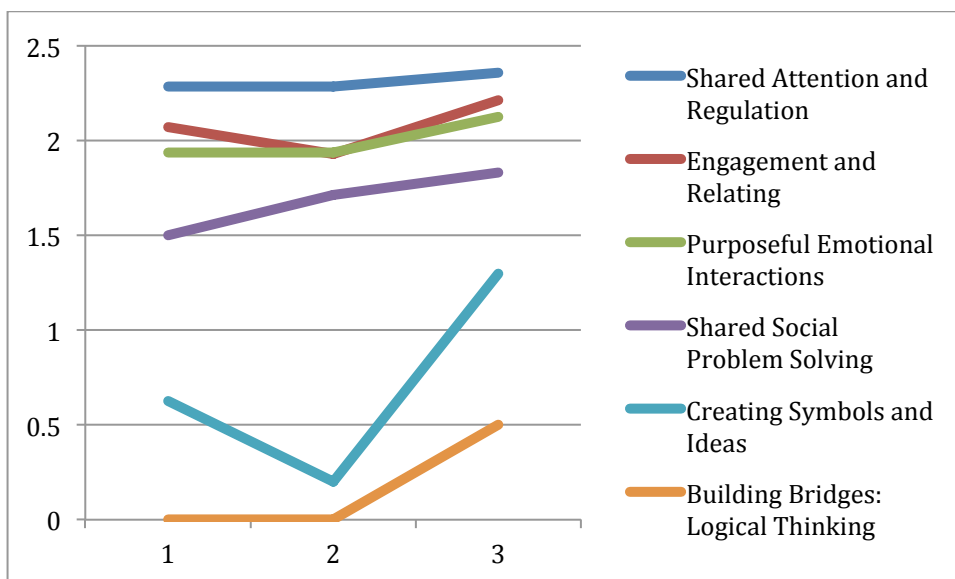


Figure 20. Participant 19 treatment log data. Key: Y Axis represents 0 = Not present, 1 = Constricted with maximal support, 2 = Constricted with minimal support, 3 = Mastered. X Axis represents session number.

Shared attention and regulation M= 2.35

Engagement and relating M= 2.07
 Purposeful emotional interactions M= 2
 Creating Symbols and ideas M= 1.64

Figure 21. Participant 20 treatment log data. Key: 0 = Not present, 1 = Constricted with maximal support, 2 = Constricted with minimal support, 3 = Mastered

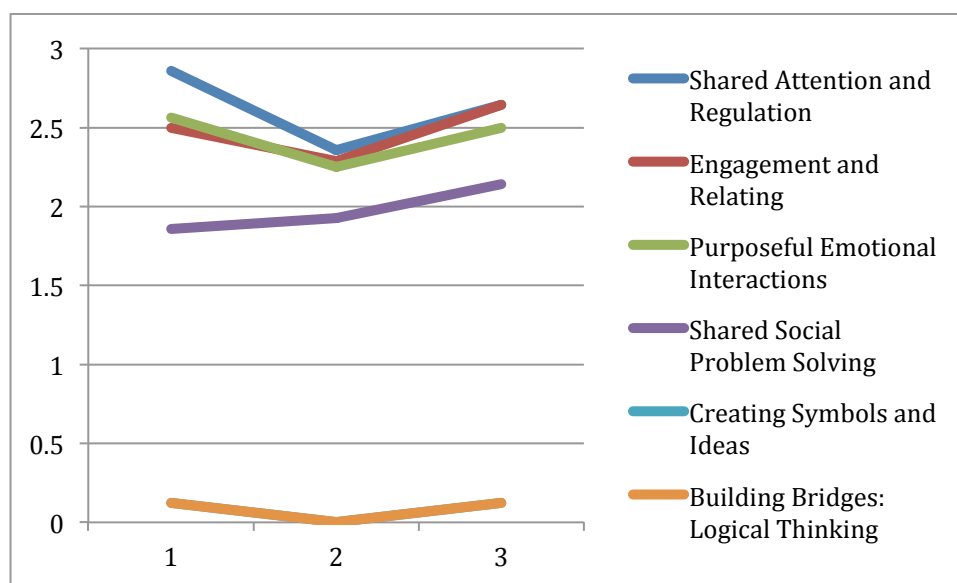


Figure 22. Participant 21 treatment log data. Key: Y Axis represents 0 = Not present, 1 = Constricted with maximal support, 2 = Constricted with minimal support, 3 = Mastered. X Axis represents session number.

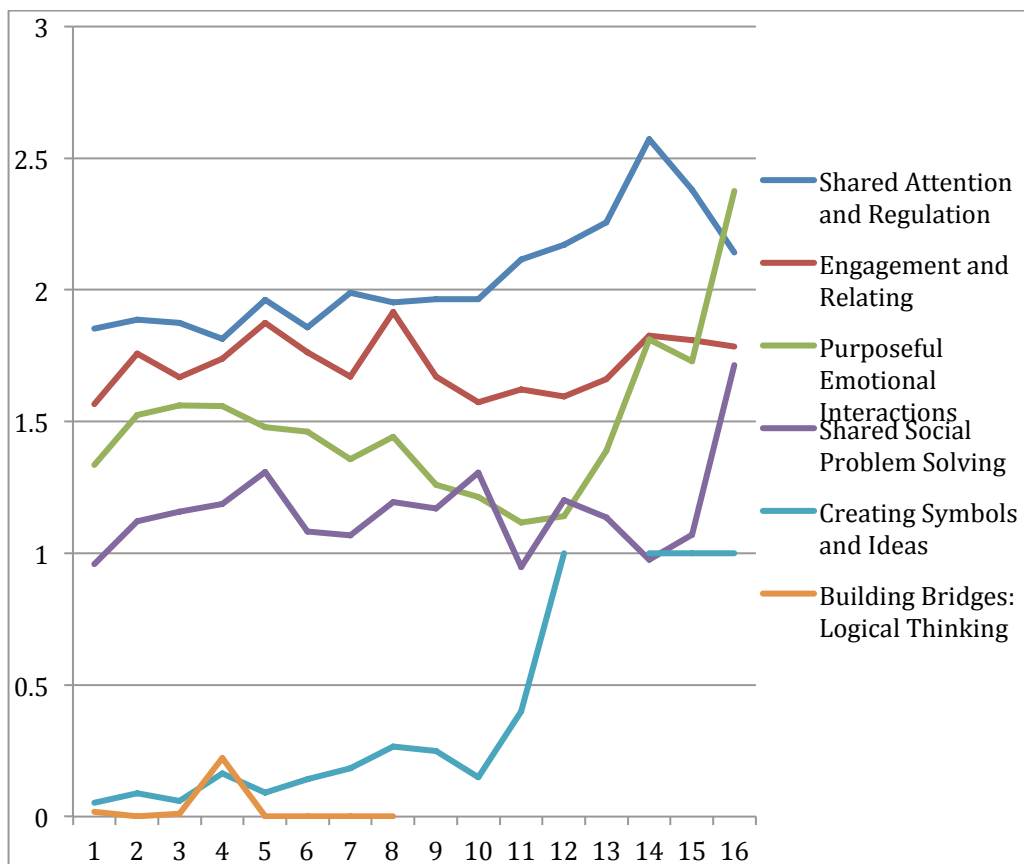


Figure 23. Cumulative Treatment Log Data. Key: Y Axis represents 0 = Not present, 1 = Constricted with maximal support, 2 = Constricted with minimal support, 3 = Mastered. X Axis represents session number.

Due to missing data, two participants' data could not be displayed in line graph form. The average amounts of treatment days documented by therapist were 7.5 with a minimum of 1 and a maximum of 19. Visual data from 18 participants displayed improvement in at least 2 of the goal domains graphed. Visual data found 3 participants displayed a decrease or stayed the same in all goal domains graphed.

Qualitative

Qualitative treatment log data were analyzed using Moustakas modification of the Stevick-Colaizzi-Keen Method of analysis of phenomenological data (Moustakas, 1994).

The raw data from all participants' individual session treatment logs recorded by their primary creative arts therapist were read through multiple times by the researcher. One hundred and fifty-eight treatment logs were gathered in total. Data were reviewed word by word and all statements creating meaning units were extracted. Then the meaning units were recorded into a second document and condensed into related clusters then themes. Next, the themes and invariant meaning were, "synthesized into a description of the textures of the experience" (Moustakas, 1994, p.121). Constructs and description of the structures of the experience were formulated and then defined a textural meaning or essence. Lastly the researchers constructed a "composite textural-structural description of meaning and essence of the experience" (Moustakas, 1994, p.121). Findings were then described and compared to current literature.

Multiple themes emerged from the meaning unit clustering process. The three main themes were Regulation, Engagement, and Communication.

Theme 1 **Regulation**

Theme 1, Regulation, was found 28 times within the data set. Regulation was referenced in the following terms "regulated, dysregulation and co-regulation." For example: "A was able to co-regulate" or "E was unusually well regulated and calm" or "Y had difficulty maintaining interaction beyond these ideas and would begin to show signs of dysregulation."

Therapists referred to the participants' regulatory state throughout each of the sessions; for example "Y was dysregulated when I initially entered the classroom." There was often note made of when the participant was able to obtain a regulated state; for example "Upon arrival she became over stimulated, rocking

back and forth with deregulated laughter, but after several minutes was able to co-regulate within the music created by the therapist.” The theme of regulation obtainment by the participants represented progress for the therapists within a session but also in comparison to past sessions; for example “Started out session more regulated than last time.” The participants’ regulation referenced by the therapists was both emotional and sensory; for example “Came to session very dysregulated. He was upset because he had just been informed he had to go to after school,” or “M found ice to be calming and regulating.”

Theme 2 **Engagement**

Theme 2, Engagement, was found 22 times within the data set. The term engagement was repeated multiple times by all therapists in their description of the participant’s sessions. For example, “Her engagement was limited.” The reference to the participant’s engagement was often paired with a time of engagement obtainment, “after about 15 minutes J was engaged” or “it took her a while to engage.” The theme of engagement was often paired with the participants’ ability to maintain such engagement; for example “J remained engaged for full period,” or “Difficult to engage for extended period of time.”

The engagement was often qualified by whether the participant was engaged with materials; for example “Engaged with clay but it was difficult to engage him in any interactive play” or “She was engaged with materials for much of the session.” The way in which the participants engaged with materials was also referenced; for example “drumming was consistently on the basic beat and occasionally somewhat aggressive in nature.” Engagement with the therapist

was also noted “with max support M was engaged with the art therapist.” A given participant’s engagement with the therapist or materials and through verbal and non-verbal means was a core theme in the therapists’ description of the sessions, thus lending import to the therapist’s view of the engagement quality of the treatment progress.

Theme 3 **Communication**

Theme 3, Communication, was found 13 times within the data set. The communication level of the participants was referenced by the therapists throughout the data. Therapists repeatedly placed emphasis on the quality and the quantity of the participants’ communication throughout the sessions, including the way the participants communicated, “used communication device,” “D. initiated playing on the piano,” and “Initiated singing goodbye.” The communication was also qualified by who initiated it (therapist or participant) and/or who opened the circle of communication (therapist or participant); for example, “He was able to open and close circles of communication throughout” or “She would close circles on the swings, but had difficulty initiating circles.” There were also references to time made repeatedly, including whether the communication circles were continuous; for example “lasting 10 minute circles of communication.”

Summary

In conclusion, quantitative assessments completed by the teachers, the DASH and the FEAS general and subcategories 1, 4 and 5 completed by the creative arts therapists represent statistically significant change in measures of social emotional development. Parental impressions measured by SECG represented a non-significant change in social

emotional development, though it should be noted that only 5 out of the 21 participants' parents completed the assessments. A statistically significant correlation was not found between number of intervention sessions received and increase of assessment scores. When an ANOVA was preformed, a substantial variance was found for number of sessions received and increase in FEAS 1 scores.

To summarize, CAT completed only a portion (31%) of the possible total treatment logs. Out of the 31% portion collected, some evidence of focus on social emotional goals was obtained. Quantitative treatment logs data were graphed finding 18 participants displayed improvement in at least 2 of the goal domains. Visual data found 3 participants displayed a decrease or stayed the same in all goal domains graphed. The anecdotal data from the treatment logs were qualitatively analyzed finding qualitative themes of Regulation, Engagement, and Communication. On average per participant and session, the qualitative and quantitative portions of the treatment correspond to one another. The anecdotal data from the treatment logs were qualitatively analyzed finding qualitative themes of Regulation, Engagement, and Communication. On average per participant and session, the qualitative and quantitative portions of the treatment correspond to one another. Qualitative results will be reviewed in detail within the following chapter.

CHAPTER 5

Discussion

A program evaluation-based study was conducted in a not-for profit private day school for individuals with ASD using DIR®-based creative arts therapy program. The program was examined over a two-trimester period starting in Fall 2014 and ending in Spring 2015. Twenty-one students between the ages of five and 19 participated. Standardized assessments were used to explore the SEGC parent's, FEAS therapists and DASH teacher's views of the participants' social emotional growth, if any. Individual treatment logs were also evaluated for further exploration of possible social emotional growth.

Research Question: *Does this DIR®-based creative arts therapies program promote social-emotional growth skills of children with autism?*

Moderate evidence was found to support the possible development of social emotional skills of children with ASD who participated in a DIR®-based creative arts therapies program. The following section discusses the evidence found in the data collection to support the research question findings and then relates the findings to current literature.

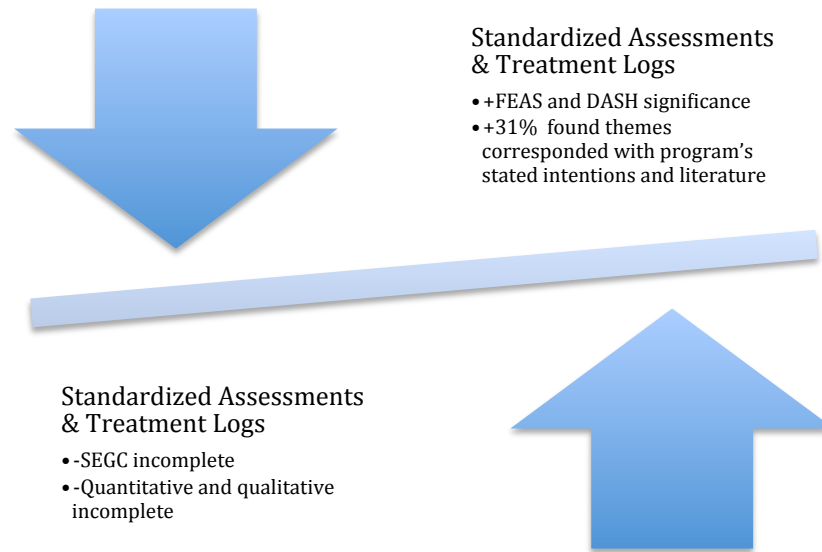


Figure 24. Visual Representation of Findings Discussion.

Standardized Assessments

The parent questionnaire that employed the SEGC did not contain enough completed responses to provide information about the core research question. Out of the 21 participants, data from only five guardians were successfully obtained and analyzed. Three out of those five results reported higher scores after the 24-week period, indicating development in social emotional skills. While Shanker & Greenspan (2007) found the importance of the functional/emotional hypothesis targeted in the SEGC for social emotional development, their thesis cannot be applied to this study without further supporting evidence.

Statistically significant changes were found in the teacher-completed assessment, using both the DASH and the creative arts therapist assessment, the FEAS. The increase in DASH scores over the 24-week period represents a quantifiable increase in social emotional development abilities from the participants' classroom teachers' perspectives.

The increase in post-FEAS scores represents further obtainment of social emotional skills defined by functional emotional levels from the creative arts therapists' perspective. The increase in FEAS scores is consistent with what the literature might predict. Solomon, et al. (2007), Kingkaew Pajareya and Kaewta Nopmaneejumruslers (2011), Greenspan and Wieders (2005), and Carpentre, (2009) all found increased social emotional development reflected in increased FEAS scores after a period of DIR® based interventions. The standardized assessment quantitative data mirrors the quantitative and qualitative components of the treatment logs. On average, the data from treatment logs displayed progress over the treatment period and the assessment data, on average, displayed progress. Therefore, one could hypothesize that the progress therapists recorded in the treatment logs corresponds to the progress made in the quantitative assessment data. Specifically, most quantitative treatment logs displayed the highest ratings in shared attention and regulation, supporting the ANCOVA results where a relationship was found between the subcategory domain FEAS 1, shared attention and regulation difference scores, and the amount of CAT sessions a participant engaged in.

Treatment Logs Qualitative

The three main themes found were Regulation, Engagement, and Communication and relate to current literature in multiple ways. According to the American Psychiatric Association (2013, p.53), “the essential features of Autism Disorder are persistent impairment in reciprocal social communication (Criterion A) and social interaction.” That communication emerged as a theme for the creative arts therapists is appropriate. The creative arts therapy literature (e.g., Kornrieck and Schimmel, 1991) emphasizes the

art-making process as a form of communication for a child with ASD. In 2007 the Centers for Disease Control and Prevention (CDC) reported that about half of children diagnosed with ASD either do not develop language or have constraints in their language capacities (Baio, 2012). Communication as a theme of treatment is thus consistent with the defined areas of deficits of ASD as well as possible domains of treatment that creative arts therapies can promote.

Themes 1 (Regulation) and 2 (Engagement) are both found in Wieder and Greenspan (2003), who defined functional emotional development capacities. DIR® emphasizes developmental stages: Stage 1, self-regulations and shared attention; Stage 2, engagement and relating; Stage 3, two-way intentional communication. The importance of these functional/emotional hypotheses was represented in Shanker and Greenspan's preliminary research study (Shanker & Greenspan, 2007). Theme 1 (Regulation) was defined by Martin (2009) as one of the problem areas for individuals with autism that art therapy has the advantages and ability to address. Durrani's 2014 study also reported focusing on increasing regulations during art therapy treatment of a child with ASD to promote emotional growth. This provided further evidence of the program fulfilling its intended purpose of developing participants' social emotional growth.

The qualitative data themes found were directly related to social emotional domains found in the literature in which individuals with ASD possibly need support. The creative arts therapists' focus on the themes does not necessarily indicate social emotional growth within the participants. However, the focus on these themes represents priority of treatment and fidelity to the treatment model in which the creative arts therapist claim to be working.

Treatment Logs Quantitative

The line graphing individual session scores provided a visual representation of the creative arts therapist subjective experience of the participant's therapeutic process. The graphing produced only a portion of the possible treatment narrative because it was not fully completed due to lack of therapist's proper data collection. The lack of consistency in case treatment note collection was concerning for multiple reasons. End of trimester progress reports are based on not just the formal standardized assessments but also the clinical observations that should be documented in the individual session treatment notes. Second, multiple treatment sessions were being conducted but not recorded by creative arts therapy staff. Last, there is value in the completion of the qualitative and quantitative depictions of sessions that are now missing. The lack of proper note documentation at completion leaves the program evaluations of social emotional development to almost exclusively quantitative data.

Program Fidelity

The creative arts therapy program defined the following intended goals; "Through the use of Floortime™ techniques, the Art Therapist will follow the child's lead and guide the child through the developmental levels in accord with the DIR® model, (Imagine Foundation, 2013, p.1)." "As with all of our related services, accomplishments and useful techniques gained within Music therapy are carried over through all parts of the student's day, and Treatment focuses on the achievement of social and emotional objectives specific to each child" (Imagine Foundation, 2013, p.1).

“Through the use of Floortime™ techniques, the Art Therapist will follow the child’s lead and guide the child through the developmental levels in accord with the DIR® model” (Imagine Foundation, 2013, p.1). The FEAS and treatment logs provide preliminary proof that the creative arts therapists focused the participants functional emotional developmental levels defined by the DIR® model. The majority of the post-FEAS score report increased developmental levels by participants. The qualitative component of the treatment logs reported core themes (Regulation; Engagement; and Communication) which are the main elements of the foundational developmental levels defined in the DIR® model. This gives documentation that the creative arts therapists were focusing on the participants’ progress through the developmental levels.

“As with all of our related services, accomplishments and useful techniques gained within Music Therapy are carried over through all parts of the student’s day” (Imagine Foundation, 2013, p.1). Partial evidence of skill obtainment being generalized throughout the participant’s day was found. This is indicated by the statistically significant post-DASH scores, which reflect development in social emotional abilities. The DASH scores were completed by the classroom teachers, indicating that skills traveled beyond the therapy sessions and into the classroom setting. The other possible source of evidence for skill extension would be the parent-completed pre- and post-comparison of the SEGC. However, there were not enough SEGC completed to run a statistical analysis for further support of generalization of techniques.

“Treatment focuses on the achievement of social and emotional objectives specific to each child” (Imagine Foundation, 2013, p.1). There was confirmation of individualized social emotional and emotional objectives found within the treatment log

data. Creative arts therapists recorded progress on social emotional goals specific to each participant.

Other Reflections

The program as a whole could possibly benefit from the use of an overall functioning measure or ASD severity-rating instrument. The use of physical age for development analyses markers does not necessarily hold value. This is due to the diversity of the manifestation of the ASD symptomology. The lack of appropriate data collection as a whole by staff was an issue. This may be due to many possible reasons, for example: increased need for treatment versus increased need for quantification and documentation of treatment; time management; and/or a lack of optimal efficiency measures implemented. It may also be caused by the logistics of supporting a child who needs one on one attention at all times while simultaneously assessing that child. Regardless of the cause of the inconsistency of data collection by staff, there is room for improvement. The findings of need for better teacher and staff documentation follow through is similar to the findings in Talusan Dunn's 2012 program evaluation of a Daily Life Therapy program for children with ASD (p.105). Other methods for data collection, such as the use of outside evaluators, should be explored for future studies.

Limitations

The author found many limitations in this study. The participants in the study all received the DIR® based creative arts therapies intervention over the two school trimesters. They also did not receive the intervention in isolation of other treatments

families were free to pursue other outside treatments such as educational, medical, or behavioral during the period of the study.

One of the main standardized assessments utilized in pre- and post-comparisons, the FEAS is only age-normed for children up to age four. Despite the lack of validation for use with those over the age of four, in the absence of a more effective alternative the school employed the FEAS as a tool to assess for the social emotional development of students up to age 21. Another large limitation was the personnel transition, with art therapists leaving in the middle of the school year. However, program evaluation should always encompass the reality of the program as that is the intention. Some of the participants' original Fall assessments were completed by a different creative arts therapist than their Spring assessments. Also, the transition to a new therapist in mid-treatment may have had effects on the participants' therapeutic relationships and therefore growth. As is the case with program evaluation, adding research design features that might have addressed the gaps in the process notes such as recording sessions could not be included. It is possible that having to rely on the process notes left a large gap in the qualitative data and affected the intent of the qualitative part of the study

Implications of Findings

This study provides preliminary evidence to support the positive outcomes of creative arts therapy programs implemented within this specific academic setting for individuals with ASD. Employing the non-language based, creative arts modalities such as art and music may allow for regulation, engagement, and communication to be fostered. The implementation of creative arts therapies within other special education

settings may also promote generalization of skills outside the therapeutic space and into the classroom.

The study also suggests that integrating the DIR® method into the creative arts curricula produced positive development of social emotional skills for individuals with ASD in this setting and might be useful in other, similar settings. Employing client-centered approaches like DIR® is not a new contribution to the field of creative arts therapies, but client-led approaches with the ASD population are still somewhat novel. The use of the DIR® method may also provide creative arts therapists with a framework for developmental milestones to support their clinical practices.

This study proposes the recommendation of the benefits of including information about the ASD population, multidisciplinary approaches, and DIR® in creative arts therapies education. Specific training in DIR® and creative arts therapies for children with autism may be of use to a creative arts therapies student's future clinical practice.

The study may also promote the use of program evaluation method research for creative arts therapists. For more creative arts therapies programs to be developed for individuals with ASD there is a need for evidence that they are accomplishing their stated goals and functioning effectively. As this study found, there are also likely areas for improvement for creative arts therapies programs that already exist, for example, around types of documentation and assessment tools used.

Recommendations for future research

It would be ideal to conduct research to investigate similar CAT and DIR interventions with experimental and control groups that do not receive any DIR® based

creative arts therapy intervention, or to possibly explore and compare separate art-based programs in academic settings for individuals with ASD. It would be beneficial to this line of research to have a larger and more diverse samples. It may also be of interest to plan studies with a longer longitudinal span, following participant progress over multiple school years.

Another recommendation would be to employ different social emotional standardized assessment tools, which might include outside impartial assessment raters other than parents, teacher, and therapists. Perhaps the greatest recommendation for future research would be to examine the tools used for assessment and documentation to explore why they were not all successfully or consistently completed by guardians and therapists. Doing so might help ensure a method for evaluations that limits missing data. Another recommendation for future research is the possible use of discipline specific, creative arts therapy-based standardized assessments, which could provide more specific data.

Conclusion

Though there were many limitations on the data, as detailed herein, the quantitative and qualitative evidence supports the conclusion that the DIR®-based CAT program met its intended purpose of promoting social emotional development measures. The findings correspond with current studies showing that developmental, individual, relationship-based (DIR®) intervention methods and creative arts therapies (CAT) may have positive, effective outcomes for treatment of ASD (Martins, 2011, Solomon, Necheles, Ferch, & Bruckman, 2007).

To conclude, for the field of creative arts therapy this study provides a foundation supporting DIR® based creative arts therapies programming with individuals with ASD. With the increase in numbers of children diagnosed with ASD (CDC, 2014), there is a need for further studies questioning the current perspective on the proper course of treatment. More extensive and thorough research on this topic is necessary.

APPENDIX A**Informed Consent Form A**

Informed Consent Form A:
Study of An evaluation of the effects of a Developmental Individualized Relationship (DIR®) based expressive therapies program on social emotional capacities of children diagnosed with autism spectrum disorder (ASD)

Principal Investigator: *Faith Condon, Dr. Robyn Flaum Cruz*, PhD program in Expressive Therapies, Lesley University

You are being asked to volunteer in this study to assist in my doctoral research on *An evaluation of the effects of a Developmental Individualized Relationship (DIR®) based expressive therapies program on social emotional capacities of children diagnosed with autism spectrum disorder (ASD)*.

Students' pre-existing schedules will remain intact: they will receive no more or less or variation of type of DIR® based expressive therapies sessions previously recommended by clinical team. Students' social emotional assessment results will be compared and statistically analyzed pre- and post-trimester of DIR®-based expressive therapies program. Students' daily treatment logs will also be analyzed and compared to initial objectives of treatment.

You will be personally interacting with only myself as the principal researcher. This research project is anticipated to be finished by approximately *August, 2015*.

I, _____, consent to participate in *An evaluation of the effects of a Developmental Individualized Relationship (DIR®) based expressive therapies program on social emotional capacities of children diagnosed with autism spectrum disorder (ASD)*.

I understand that:

1. My students' social emotional assessment results will be compared and statistically analyzed pre- and post-trimester of DIR® based expressive therapies program.
2. My students' pre-existing schedule will remain intact: they will receive no more or less or variation of type of DIR® based expressive therapies sessions previously recommended by their clinical team.
3. My students' identity will be protected.
4. Session materials, including reports, drawings, video or audiotapes will be kept confidential and used anonymously only, for purposes of supervision, presentation and/or publication.
5. This study will not necessarily provide any benefits to me. However, I may experience increased knowledge and other insights that I may be able to use in my daily life. The results of the study may also help to increase public and professional awareness of the needs and experiences of children diagnosed with ASD.
6. The assessments and daily treatment logs will be kept in a locked file cabinet in the investigator's possession for possible future use. However, this information will not be used in any future study without my written consent.
7. The therapist is ethically bound to report, to the appropriate party, any criminal intent or potential harm to self

8. I may choose to withdraw from the study at any time with no negative consequences.

Confidentiality, Privacy and Anonymity:

*You have the right to remain anonymous. If you elect to remain anonymous, we will keep your records private and confidential **to the extent allowed by law**. We will use pseudonym identifiers rather than your name on study records. Your name and other facts that might identify you will not appear when we present this study or publish its results.*

If for some reason you do not wish to remain anonymous, you may specifically authorize the use of material that would identify you as a subject in the experiment. You can contact my advisor Robyn Flaum Cruz, Ph.D., BC-DMT rcruz@lesley.edu or 412-401-1274 with any additional questions. You may also contact the Lesley University Human Subjects Committee Co-Chairs (see below)

You will be given a copy of this consent form to keep.

a) Investigator's Signature:

_____	_____	_____
Date	Investigator's Signature	
	Print Name	

b) Students' Guardians Signature:

I am 18 years of age or older. The nature and purpose of this research have been satisfactorily explained to me and I agree to become a participant in the study as described above. I understand that I am free to discontinue participation at any time if I so choose, and that the investigator will gladly answer any questions that arise during the course of the research.

_____	_____	_____
Date	Guardian's Signature	Print Name

_____	_____	_____
Date	Students Signature	Print Name

There is a Standing Committee for Human Subjects in Research at Lesley University to which complaints or problems concerning any research project may, and should, be reported if they arise. Contact the Committee Co-Chairs Drs. Terry Keeney or Robyn Cruz (include email addresses) at Lesley University, 29 Everett Street, Cambridge Massachusetts, 02138.

APPENDIX B**Informed Consent Form B**

Informed Consent Form B:
Study of An evaluation of the effects of a Developmental Individualized Relationship (DIR®) based expressive therapies program on social emotional capacities of children diagnosed with autism spectrum disorder (ASD)

Principal Investigator: *Faith Condon, Dr. Robyn Flaum Cruz*, PhD program in Expressive Therapies, Lesley University

You are being asked to volunteer in this study to assist in my doctoral research on *An evaluation of the effects of a Developmental Individualized Relationship (DIR®) based expressive therapies program on social emotional capacities of children diagnosed with autism spectrum disorder (ASD)*.

Your pre existing caseload and schedule will remain intact. The social emotional assessment results will be compared and statistically analyzed before and after the trimester of DIR® based expressive therapies program that you will provide. Your student's daily treatment logs will also be analyzed and compared to initial objectives of treatment. You will provide a sample pre- and post- art-based response to the clinical treatment to be analyzed by the researcher.

You will be personally interacting with only myself as the principal researcher. This research project is anticipated to be finished by approximately *August, 2015*.

I, _____, consent to participate in *An evaluation of the effects of a Developmental Individualized Relationship (DIR®) based expressive therapies program on social emotional capacities of children diagnosed with autism spectrum disorder (ASD)*.

I understand that:

9. I will provide a sample pre- and post- art-based response to the clinical treatment.
10. My students social emotional assessment results will be compared and statistically analyzed pre- and post-trimester of DIR® based expressive therapies program.
11. My students' daily treatment logs will also be analyzed and compared to initial objectives of intended treatment.
12. My pre-existing schedule and caseload will remain intact.
13. My identity will be protected.
14. Art-based inquiry and session materials, including reports, drawings, video or audiotapes will be kept confidential and used anonymously only, for purposes of supervision, presentation and/or publication.
15. This study will not necessarily provide any benefits to me. However, I may experience increased knowledge and other insights that I may be able to use in my daily life. The results of the study may also help to increase public and professional awareness of the needs and experiences of children diagnosed with ASD.
16. The assessments and daily logs will be kept in a locked file cabinet in the investigator's possession for possible future use. However, this information will not be used in any future study without my written consent.
17. The therapist is ethically bound to report, to the appropriate party, any criminal intent or potential harm to self
18. I may choose to withdraw from the study at any time with no negative consequences.

Confidentiality, Privacy and Anonymity:

*You have the right to remain anonymous. If you elect to remain anonymous, we will keep your records private and confidential **to the extent allowed by law**. We will use pseudonym identifiers rather than your name on study records. Your name and other facts that might identify you will not appear when we present this study or publish its results.*

If for some reason you do not wish to remain anonymous, you may specifically authorize the use of material that would identify you as a subject in the experiment. You can contact my advisor Robyn Flaum Cruz, Ph.D., BC-DMT rcruz@lesley.edu or 412-401-1274 with any additional questions. You may also contact the Lesley University Human Subjects Committee Co-Chairs (see below)

You will be given a copy of this consent form to keep.

a) Investigator's Signature:

Date	Investigator's Signature	Print Name
------	--------------------------	------------

b) Students' Guardians Signature:

I am 18 years of age or older. The nature and purpose of this research have been satisfactorily explained to me and I agree to become a participant in the study as described above. I understand that I am free to discontinue participation at any time if I so choose, and that the investigator will gladly answer any questions that arise during the course of the research.

Date	Subject's Signature	Print Name
------	---------------------	------------

There is a Standing Committee for Human Subjects in Research at Lesley University to which complaints or problems concerning any research project may, and should, be reported if they arise. Contact the Committee Co-Chairs Drs. Terry Keeney or Robyn Cruz (include email addresses) at Lesley University, 29 Everett Street, Cambridge Massachusetts, 02138.

APPENDIX C**Therapy Treatment Log**

Child's name: _____ **DOB:** _____

LTG:

LTG:

LTG:

N/A = Not Applicable

0 = Not present

1 = Constricted with maximal support

2 = Constricted with minimal support

3 = Mastered

Date				
Shared Attention and Regulation				
Alerts to sound				
Co-regulation				
Self regulation				
Shared attention				
Initial vocalization				
Emotional responsivity				
Arousal modulation				
Engagement and Relating				
Active attunement				
Exploration				
Spontaneous play				
Purposeful gestures				
Affect matches emotion				
Vocal modulation				
Tolerate novel experiences				
Purposeful Emotional Interactions				
Cause and effect				
Intentional communication				
Active play				
Responsive vocal modulation				
Freedom of play				
Emotional modulation				
Reciprocal affective interactions				
Responsive movement modulation				
Shared Social Problem Solving				
Communicative intent				
Sequencing				
Maintain purposeful interactions				
Respond to others emotional signals (adult)				
Respond to others emotional signals (peers)				

Continuous initiation				
Flexibility				
Creating Symbols and Ideas				
Exploration of personally relevant situation				
Experiential representation				
Symbolic play				
Exploration of personally relevant feelings				
Play theme expansion				
Building Bridges: Logical Thinking				
Song writing / story telling(verbal)				
Song writing / story telling (instrumental)				
Guided imagery				
Distinguish fantasy from reality				
Therapy materials				

Session Notes:

APPENDIX D

FEAS

The Functional Emotional Assessment Scale

Administration and Scoring Form

Behaviors: Child

Name of Child: _____ Date of Testing: _____

Age of Child: _____

Person Playing
With Child: _____
Mother: _____ Father: _____
Caregiver: _____ Examiner: _____

General Scoring

Scoring is on a two-point scale for most items, except where indicated, and is:

- 0 = not at all or very brief
- 1 = present some of time, observed several times
- 2 = consistently present, observed many times

Indicate N/O for behaviors that are not observed

Where indicated to convert a score, transform the scoring as follows:

- 0 becomes a 2
- 1 = 1
- 2 becomes a 0

Scores for symbolic play should be entered in the SYM column and scores for sensory play entered in the SENS column. When the examiner facilitates play with the child, enter scores in the EXAM column. The last column may be used for entering scores for additional caregivers (e.g., mother, father, foster parent, babysitter) observed playing with the child.

Scores are interpreted for the primary caregiver playing with the child for the symbolic and sensory play situations. If scores do not differ for symbolic and sensory play, then only one score is interpreted. However, if behaviors differ for the different play situations, then two scores are calculated, one for symbolic play, one for sensory play. These are interpreted using the cutoff scores presented in the profile form.

Key: SYM = Symbolic; SENS = Sensory; EXAM = Examiner Observations

SELF-REGULATION AND INTEREST IN THE WORLD			
1. Is interested and attentive to play with toys.			
2. Explores objects freely without caution.			
3. Remains calm for play period with no signs of distress (crying or whining), showing appropriate frustration.			
4. Is comfortable touching textured toys and in being touched by caregiver.			
Shows happy, content affect. <i>Scoring:</i> 0 = flat, 1 = content but neutral, 2 = happy and content, robust, smiles, warm and engaging affect.			
6. Remains focused on objects or caregiver without being distracted by sights or sounds. <i>Scoring:</i> 0 = distracted frequently; no focused play for more than a few seconds at a time, 1 = distracted some of the time with brief periods of focused play, 2 = remains focused in play most of the with only brief distractability.			
NOTE: SCORE ONLY ITEM 8 OR 9, WHICHEVER APPLIES.			
7. Underreactivity: Appears sluggish or withdrawn <i>Scoring:</i> 0 = withdrawn, difficult to engage; 1 = sluggish or slow-paced in actions but can eventually be aroused or engaged; 2 = shows a bright, alert state with focused play throughout			
8. Overreactivity: Appears overaroused by toys and environment. <i>Scoring:</i> 0 = Very active, moves quickly from one toy to the next or wanders away from caregiver and toys constantly; 1 = Moderately active, occasional bursts of changing activity quickly or wandering away, then settles into play with one toy for short period; 2 = Well-modulated in pace and activity level, focusing on a toy or caregiver for long periods before changing activity.			
Total For Self-Regulation and Interest in the World			
FORMING RELATIONSHIPS, ATTACHMENT, AND ENGAGEMENT			
9. Shows emotional interest and connection with caregiver by vocalizing and smiling at her.			
10. Evidences a relaxed sense of security and/or comfort when near caregiver. If child is active and moves away from caregiver, he references her from across space and shows relaxed security in distill space.			
11. Anticipates with curiosity or excitement when caregiver presents an			

interesting object or game.			
12. Displays signs of discomfort, displeasure, or sadness during interactive play if caregiver should become unresponsive or engage in anticontingent behaviors. <i>(If caregiver is responsive or contingent, note that this was not observed with "N/O", then assign 2 points.)</i>			
13. Initiates physical closeness to caregiver but is not clingy; If child is active and moves away from caregiver, child maintains a visual or verbal connection with caregiver.			
14. Turns head away, averts gaze, moves away, or sits facing away from caregiver without social referencing caregiver. Appears indifferent, aloof, withdrawn, or avoidant of caregiver. <i>Converted Score*</i> Score of 0 converts to 2			
15. Social references caregiver while playing with toys.			
16. After moving away, communicates to caregiver from across space by looking, gestures, or vocalizations.			
Total for Forming Relationships, Attachment, and Engagement			
TWO-WAY, PURPOSEFUL COMMUNICATION			
17. Opens circles of communication: Initiates intentional actions with objects while also engaged in interactions with caregiver (e.g., manipulates object then looks at mother and smiles or vocalizes).			
18. Gives signals: Initiates purposeful and intentional actions in play with objects. <i>Scoring:</i> 0 = Needs considerable help to get started in play or to engage in purposeful actions; no clear gestures or organized intent 1 = Initiates play but engages in stereotypic actions; e.g., lining toys up, mouthing toys for long periods of time, banging toys without engaging in any other actions with the same toy OR initiates play but actions appear aimless or disorganized. 2 = Play shows intentionality and variety, engaging in two or more different behaviors with a given toy or activity. Gestures are specific and activity is functionally tied to objects.			
19. Closes circles: Responds to caregiver's cues in contingent manner (e.g., mother offers toy, baby takes it and puts it in a container). <i>Scoring:</i> 0 = Does not notice caregiver's response; 1 = Notices caregiver's response and looks, but does not respond contingently through actions; instead does something that has nothing to do with what caregiver did (e.g., mother holds toy out for child; child looks at mother and toy, then returns to what he was doing before); 2 = Notices caregiver's response, then responds contingently by elaborating on what caregiver did, by taking toy held by caregiver and examining it, by imitating her, or some other response that is clearly linked to what caregiver did.			
20. Uses language (e.g., sounds, words, and/or gestures) during			

interactions. Circle which ones were used.			
Total for Two-Way, Purposeful Communication			
BEHAVIORAL ORGANIZATION, PROBLEM-SOLVING, AND INTERNALIZATION (A Complex Sense of Self)			
21. Engages in complex patterns of communication stringing together several circles of communication with caregiver (initiated and elaborated on by child) using gestures, vocalizations, and/or words. <i>Scoring:</i> 0 = 0 to 2 circles 1 = 3 to 5 circles 2 = 6 or more circles			
22. Imitates or copies something new that the caregiver introduces, then incorporates idea into play (e.g., caregiver feeds doll; child copies this).			
Total for Behavioral Organization, Problem-Solving, and Internalization			
REPRESENTATIONAL CAPACITY (Elaboration)			
23. Engages in symbolic play with the various toys or equipment (e.g., plays out cars racing), going beyond simple concrete actions (e.g., feeding self with cup).			
24. Engages in pretend play patterns of at least one idea in collaboration with caregiver (e.g., one part of a script or scenario played out).			
25. Uses language or pretend play (e.g., playing out with doll figures) to communicate needs, wishes, intentions, or feelings.			
26. Uses pretend play to express themes around closeness or dependency (e.g., putting dolls to sleep next to one another; feeding caregiver and dolls).			
27. Uses pretend play to express themes around pleasure and excitement around humorous theme (e.g., imitating humorous behaviors).			
28. Uses pretend play to express themes around assertiveness (e.g., cars racing).			
29. Creates pretend drama with two or more ideas that are not related or logically connected.			
Total for Representational Capacity (Elaboration)			
REPRESENTATIONAL DIFFERENTIATION (Building Bridges Between Ideas and Emotional Thinking)			
30. Pretend play, however unrealistic, involves 2 or more ideas, which are logically tied to one another. Child may build on adult's pretend play idea.			
31. Elaborates on pretend play sequence of two or more ideas, which are logically connected and grounded in reality. There is a planned quality and child can elaborate to "how", "why", or "when" questions, giving depth to drama.			
32. Uses pretend play or language to communicate themes containing 2			

or more ideas dealing with closeness or dependency (e.g., doll gets hurt, then gets kiss from daddy, then plays ball together).			
33. Uses pretend play or language to communicate themes containing 2 or more ideas dealing with pleasure and excitement in humorous game (e.g., imitates funny word heard, watches how caregiver reacts, then laughs).			
34. Uses pretend play or language to communicate themes containing 2 or more ideas dealing with assertiveness (e.g., soldiers search for missing person, find her, then battle to save her again)			
Total for Representational Differentiation (Emotional Thinking)			
TOTAL CHILD SCORE FOR SCALE			

APPENDIX E

Art Therapist Statement

Art Therapy Process at ...
Sarah Das, ATR-BC, LCAT

Practicing Art Therapy at ... with children with Autism Spectrum Disorders while utilizing the DIR Floortime approach allows for vivid creative self-expression from the [students]. By following the child's lead, the therapist can help encourage the [students] to bring their ideas and interests to life through the modalities of art making and play. By paying close attention to developmental levels and milestones of each child, the therapist can help the [student] strengthen their skills and expand upon their capacities to achieve greater potential (Greenspan, 2006).

It is incredible to work with [students] who demonstrate clear intention to pursue their interests creatively. The therapist can help the [student] work toward autonomy in their endeavors. Art Therapy invites the [student] to engage with a variety of enticing materials, as well as encourages interaction with peers and with the therapist. It is exciting and inspiring to witness the [student] becoming enthralled and engaged in a continuous flow of interaction with another person as they explore art materials. Sensory exploration of conventional and non-conventional art materials; such as bubble wrap, paintable drum sticks, sand paper, & water beads may benefit those [students] who are not immediately comfortable with art materials to develop flexibility and work through resistance and tactile defensiveness to become more available for interaction. The experience of discovery is delightful when the [student] suddenly becomes attracted to a new material and then problem-solves to figure out how to continue enjoying this newfound fun.

Art Therapy at times offers other psychological benefits that the [student] may experience, but is likely not able to verbally express. Creating artwork often reflects an externalization of internal processes. Within the safety of the therapeutic relationship and holding environment (Winnicott, 1965) and by encouraging a healthy form of attachment via affect attunement and mirroring from the therapist (Armstrong, 2013), the [student] may find a safe haven to be able to express their needs, fears, internal chaos, and the need for order and support. These types of expressions may be messy and confusing, yet when met with understanding and validation from the therapist, the [student] may feel safe to reveal such needs. Sometimes the creative process of making art simply offers a chance for the [student] to have a cathartic release of emotion. With guidance and continual positive affirmation from the therapist, art making can also help the [student] identify and express emotions – especially “negative” emotions which can be challenging or frightening for the [student] to explore.

Art Therapy offers infinite possibilities of creative expression as designed and determined by each unique child’s creative process. The [students] at ...thrive with purpose and intentionality as they explore their strengths, ideas, and potential.

References

- Armstrong, V.G. (2013). Modelling attuned relationships in art psychotherapy with children who have had poor early experiences. *The Arts In Psychotherapy*, 40, 275-284.
- Greenspan, S. I., & Wieder, S. (2006). *Engaging autism: Using the floortime approach to help children relate, communicate, and think*. Cambridge, MA: Da Capo Lifelong Books..

Winnicott, D.W. (1965). *The maturational process and facilitating the environment*

APPENDIX F

Music Therapist Statement

Music Therapy Process at ...
Mathew Brady, MT-BC
Certified DIRFloortime®Practitioner

Music therapy at utilizes an improvisational music-centered approach, while adhering to principles of DIR/Floortime. In music-centered music therapy, “the musical process is the clinical process.” (Aigen, 2005, p. 94). This means that the primary focus is on the client’s experience in music, and presenting clinical concerns are assimilated into musical experiences and processed within the musical relationship (Abrams, 2011).

Music therapy sessions at ... occur as individual sessions and as classroom groups. The music therapist utilizes clinically directed live music to engage the client in musical-play, using a combination of voice, guitar, bass, piano, and/or percussive instruments. Clients are encouraged to respond using any of the above stated instruments, their own vocalizations, body movements, or additional clinically-selected instruments, such as pitched horns, drums, or cymbal.

The method of music therapy primarily used at ... is improvisation. Clinical techniques used within sessions are based on Bruscia’s (1987) 64 clinical techniques, which are grouped into categories that include techniques of empathy, structuring techniques, techniques of intimacy, elicitation techniques and redirection techniques. The categories that I have just listed are the most relevant to the client population at the school, as the cognitive, social, and verbal capacities of these clients are limited. While using these techniques in sessions, the therapist treats each response that the client offers, whether intentional or reflexive in nature, as musical offerings to be placed within a musical framework (Carpente, 2013).

There is a protocol to how improvisation can be utilized in these sessions. The interaction at the start of each session will begin with following the child's lead in order to bring them into a "shared world" (Greenspan & Weider, 2006, p. 65), creating an environment that fosters engagement, trust, and intimacy in the session, and utilizes the child's interests in order to facilitate joint attention. To achieve this "shared world" (Greenspan & Weider, 2006, p. 65) in music, the therapist will implement techniques of empathy based on the client's behaviors, such as vocalizations, instrumental play, body movements, or facial expressions (Bruscia, 1987). This will facilitate musical and emotional attunement between therapist and client, providing a framework for shared experiences and social reciprocity in musical-play (Geretsegger et al., 2015). Once joint attention and engagement have been established, the interaction becomes therapist-led, in which the therapist will begin to implement structuring techniques, which will help to organize the client's musical participation and support their expression (Bruscia, 1987). This supports the client in becoming involved in musical-play. Once the client has become involved in musical-play, the therapist will implement elicitation techniques, which will be used to both support and assess two-way purposeful music making (Bruscia, 1987; Carpentre 2013). Throughout this process, the therapist scaffolds the flow of musical interaction, modeling and encouraging ways to be more deeply involved in the musical process (Geretsegger et al., 2015). If the client remains engaged in the musical interaction, therapist implements redirection techniques or techniques of intimacy, in order to challenge the client with new opportunities of relating both musically and emotionally in the interaction (Bruscia, 1987). At any point during the session, if the client has difficulty remaining engaged in the musical interaction, for instance due to

dysregulation, lack of interest, cognitive or motor challenges, emotional difficulties, or the complexity of the music being offered, therapist may return to the earlier steps stated above, or provide extra-musical support (verbal, gestural, partial physical, full physical) as needed. As sessions progress, therapist will “tap into the shared history of musical interaction” (Geretsegger et al., 2015, p. 272) of improvised songs and musical themes between the client and therapist in order to both facilitate safety and predictability as well as provide opportunity for growth in the areas of flexibility and coping with change and other functional emotional developmental capacities.

References

- Abrams, B. (2011). Understanding music as a temporal-aesthetic way of being: Implications for a general theory of music therapy. *The Arts in Psychotherapy* 38(1), 114-119.
- Aigen, K. (2005). *Music-centered music therapy*. Gilsum, NH: Barcelona.
- Bruscia, K. (1987). *Improvitational models of music therapy*. Springfield, IL: Charles C. Thomas.
- Carpente, J. (2013). *The individualized music-centered assessment profile for neurodevelopmental disorders: A clinical manual*. North Baldwin, NY: Regina.
- Geretsegger, M., Holck, U., Carpent, J., Elefant, C., Kim, J., & Gold, C. (2015). Common characteristics of improvisational approaches in music therapy for children with autism spectrum disorder: Developing treatment guidelines. *Journal of Music Therapy* 52(2), 258-281.
- Greenspan, S. I., & Wieder, S. (2006). *Engaging autism: Using the floortime approach to help children relate, communicate, and think*. Cambridge, MA: Da Capo Lifelong Books.

REFERENCES

- AATA About Us. (n.d.). *American Art Therapy Association*. Retrieved from <http://www.americanarttherapyassociation.org/aata-aboutus.html>
- ACT Project - North Tampa Bay, Hillsborough County, FL, and surrounding cities - Loretta Gallo-Lopez, LMHC. (n.d.). *Tampa Child Therapy/Child Counseling, Family Therapist - Loretta Gallo-Lopez, LMHC*. Retrieved from <http://www.playandcreativetherapy.com/services/actproject>
- Abidin, R. (1995). *Parenting Stress Index: Professional manual* (3rd ed.). Odessa, FL: Psychological Assessment Resources.
- Abrams, B. (2011). Understanding music as a temporal-aesthetic way of being: Implications for a general theory of music therapy. *The Arts in Psychotherapy* 38(1), 114-119.
- Aigen, K. (2005). *Music-centered music therapy*. Gilsum, NH: Barcelona.
- Akanksha, M., Sahil, K., Premjeet, S., & Bhawna, K. (2011). Autism spectrum disorders (ASD). *International Journal of Research in Ayurveda & Pharmacy*, 2, 1541-1546.
- Adler, J. W. (Director). (1968). *Looking for me* [Documentary]. U.S.: University of California, Extension Media Center.
- American Music Therapy Association (AMTA). (n.d.). Retrieved from <http://www.musictherapy.org/>
- American Psychiatric Association. (1980). *Diagnostic and statistical manual of mental disorders: DSM-III-TR*. (3rd ed.). Washington, DC: American Psychiatric Publishing.

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders: DSM-IV-TR*. (4th ed.). Washington, DC: American Psychiatric Publishing.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5-TR*. (5th ed.). Washington, DC: American Psychiatric Publishing.

Armstrong, V.G. (2013). Modelling attuned relationships in art psychotherapy with children who have had poor early experiences. *The Arts In Psychotherapy*, 40, 275-284.

Autism. (n.d.). *Online Etymology Dictionary*. Retrieved from <http://dictionary.reference.com/browse/autism>

Autism Society Canada. (2010). *Welcome to Autism Society Canada's website*. Retrieved from <http://www.autismsocietycanada.ca>

[Autism Speaks. \(2016\). *State Initiatives*. Retrieved from https://www.autismspeaks.org/state-initiatives](https://www.autismspeaks.org/state-initiatives)

[Autism Speaks. \(2016\). *New Research Finds Annual Cost of Autism Has More Than Tripled to \\$126 Billion in the U.S. and Reached £34 Billion in the U.K. \(12, March 28\)*. Retrieved from https://www.autismspeaks.org/about-us/press-releases/annual-cost-of-autism-triples](https://www.autismspeaks.org/about-us/press-releases/annual-cost-of-autism-triples)

Bagnato, S., Neisworth, J., Salvia, J., & Hunt, F. (1999). *Temperament and atypical behavior scale*. Baltimore: Brookes Baio, J. (2012).

Baio, J. (2012). Prevalence of Autism Spectrum Disorder among children aged 8 years—Autism and developmental disabilities monitoring network, 11 sites,

United States, 2010. Morbidity and Mortality Weekly Report. Surveillance Summaries, 63(2), 1-22.

Baker, D. L. (2011). *The politics of neurodiversity: why public policy matters*. Boulder, Colo.: Lynne Rienner Publishers.

Benford, P., & Standen, P. (2009). The internet: a comfortable communication medium for people with Asperger syndrome (AS) and high functioning autism (HFA)? *Journal of Assistive Technologies*, 3(2), 44-53.

Blume, h. (1997, June 30). autistics, freed from face to face encounters are communicating in cyberspace.. *The New York Times*, pp. 1-3.

Boundy, K. (n.d.). An exploration of the neurodiversity movement. Retrieved from <http://radicalpsychology.org/vol7-1/boundy.html>

Bowker, A., Angelo, N., Hicks, R., & Wells, K. (2011). Treatments for autism: Parental choices and perceptions of change. *Journal of Autism and Developmental Disorders*, 41, 1373-1382.

Brown, L. (2009). *Torture in healthcare settings: Reflections on the special rapporteur on Torture's 2013 Thematic Report*. Washington, DC: Center for Human Rights and Humanitarian Law.

Brownlow, C. (210). re-presenting autism: the construction of "NTsyndrome". *J Med Hummanities*, 31, 243-255.

Bruscia, K. (1987). *Improvisational models of music therapy*. Springfield, IL: Charles C. Thomas.

Bryson, S. (1996). Brief report: Epidemiology of autism. *Journal of Autism and Developmental Disorders* 26,165-167.

Capente, A. N. (2009). *Contributions of Nordoff-Robbins music therapy within a developmental, individual-differences, relationship-based (DIR®)/Floortime™ framework to the treatment of children with autism: Four case studies*. (Unpublished doctoral dissertation). Temple University, Philadelphia, PA.

Carpente, J. (2013). *The individualized music-centered assessment profile for neurodevelopmental disorders: A clinical manual*. North Baldwin, NY: Regina.

Carter, A., & Briggs-Gowan, A. (2000). *The infant toddler social emotional assessment manual*. New Haven: Yale University, The Connecticut Early Development Project, Department of Psychology.

CDC Features - New data on autism spectrum disorders. (n.d.). *Centers for Disease Control and Prevention*. Retrieved March 29, 2013, from <http://www.cdc.gov/Features/CountingAutism/>

Coletti, K.C. (2012). *The experiences of parents who implement Floortime™ intervention program for young child with autism spectrum disorder*. (Unpublished doctoral dissertation). The Wright Institute, Berkeley, CA.

Creswell, J. W. (2003). *Research design: qualitative, quantitative, and mixed method approaches* (2nd ed.). Thousand Oaks, CA: Sage Publications.

Davis, A., Isaacson, L., Harwell, M., (2014). *Floortime Strategies: to promote development in children and teens*. Baltimore, Maryland: Paul H Brooks Publishing Co.

DeWaay, R. J. (2012). *Parents' perceptions of treatment effectiveness in a DIR®/Floortime™ home intervention*. (Unpublished doctoral dissertation). Fuller Theological Seminary, Pasadena, CA.

Durrani, H. (2014). Facilitating attachment in children with autism through art therapy: A case study. *Journal of Psychotherapy Integration*, 24(2), 99-108.

Emery, M. (2011). Art therapy as an intervention for autism. *Journal of the American Art Therapy Association*, 21, 143-147.

Evans, K., & Dubowski, J. (2001). *Art therapy with children on the autistic spectrum beyond words*. London: Jessica Kingsley Pub.

Fenton, a., & krahn, t. (2007). autism, neurodiversity and equality beyond the 'Normal'. *Journal of Ethics in Mental Health*, 2, 1-6.

Freudlich, B., Pike, L., & Schwartz, V. (1989). Dance and music for children with autism. *Journal of Physical Education*, 60, 50-53.

Frost, L. A., & Bondy, A. S. (1994). *PECS training manual: The picture exchange communication system*. Cherry Hill, NJ: Pyramid Educational Consultants.

Gallo-Lopez, L. (2014). The All Community Theater (ACT) Project. Retrieved from <http://www.playandcreativetherapy.com/services/actproject>

Ganz, J., Earles-Vollrath, T., Heath, A., Parker, R., Rispoli, M., & Duran, J. (2011). A meta-analysis of single case research studies on aided augmentative and alternative communication systems with individuals with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, 42, 60-74.

Geretsegger, M., Holck, U., Carpentre, J., Elefant, C., Kim, J., & Gold, C. (2015). Common characteristics of improvisational approaches in music therapy for children with autism spectrum disorder: Developing treatment guidelines. *Journal of Music Therapy* 52(2), 258-281.

Goin-Kochel, R. P., Mackintosh, V. H., & Myers, B. J. (2009). Parental reports on the efficacy of treatments and therapies for their children with autism spectrum disorders. *Research in Autism Spectrum Disorders*, 3, 528-537.

Green, A., Pituch, A., Itchon, J., Chol, A., O'Reilly, M., & Sigafoos, J. (2006). Internet survey of treatments used by parents of children with autism. *Research in Developmental Disabilities*, 27, 70-84.

Greenspan, S., & Shanker, S. (2007). The developmental pathways leading to pattern recognition, joint attention, language and cognition. *New Ideas in Psychology*, 25, 128-142.

Gresham, M., & MacMillion, L. (1998). Early intervention project: Can its claims be substantiated and its effects replicated? *Journal of Autism and Developmental Disorders*, 28, 5-13.

Greenspan, S., & Wieder, S. (1998). *The child with special needs: Encouraging intellectual and emotional growth*. Reading, Mass.: Addison-Wesley.

Greenspan, S. & Wieder, S., (2003). Climbing the Symbolic Ladder in the DIR® Model Through Floortime™/ Interactive Play. *The National Autistic Society*, 7, 425-435

Greenspan, S. & Wieder, S., (2005). Can children with autism master the core deficits and become empathetic, creative and reflective? *The Journal of Developmental and Learning Disorders*, 9, 1-29.

Greenspan, S. I., & Wieder, S. (2006). *Engaging autism: Using the floortime approach to help children relate, communicate, and think*. Cambridge, MA: Da Capo Lifelong Books...

Griffin, E., & Pollack D. (2009). Students' experiences of neurodiversity in higher education: *Insights from the BRAINE Project*, 15, 23-44.

Harmon, a. (2004, May 9). neurodiversity forever; the disability movement turns brains. *The New York Times*, pp. 1-4.

Heflin, J., & Simpson, R. (1998). Interventions for children and youth with autism: Prudent choices in a world of exaggerated claims and empty promises. Part II: Legal/policy analysis and recommendations for selecting interventions? *Focus on Autism and Other Developmental Disabilities*, 13(4), 210-219.

Hess, E. (2012). DIR®/Floortime™: Evidence based practice towards the treatment of autism and sensory processing disorder in children and adolescents. *International Journal of Health and Human Development*, 6.

Hilton, J., & Seal, B. (2006). Brief report: Comparative ABA and DIR® trials in twin brothers with autism. *Journal of Developmental Disorders*, 37, 1197-1201.

Howlin, P., Magiati, I., Charman, T., & Maclean, W. (2009). Systematic review of early intensive behavioral interventions for children with autism. *American Journal on Intellectual and Developmental Disabilities*, 114, 23-41.

ICDL - Explained. (n.d.). *The Interdisciplinary Council on Developmental and Learning Disorder*. Retrieved March 28, 2014, from

<http://www.icdl.com/DIR>

IDEA Amendments Act of 2004, Public Law 108-446, 118 STAT. 2647 (2004)

Imagine Foundation. (2013) *The experience*.

Retrieved from <http://imagineacademyforautism.org/The-Experience/The-Curriculum/Art-Therapy.aspx>

Imagine Foundation. (2013) *The experience*.

Retrieved from <http://imagineacademyforautism.org/The-Experience/The-Curriculum/Music-Therapy.aspx>

Jaarsma, P., & Welin, S. (2012). Autism as a natural human variation: Reflections on the claims of neurodiversity movement. *Health Care Analysis*, 20, 20-30.

Jones, R. S., Zahl, A., & Huws, J. C. (2001). First-hand accounts of emotional experiences in autism: A qualitative analysis. *Disability & Society*, 16(3), 393-401.

Kanner, L. (1973). The birth of early infantile autism. *Journal of Autism and Childhood Schizophrenia*, 3, 93-95.

Kapp, S., Gillespie-Lynch, K., Sherman, L., & Hutman, T. (2013). Deficit, difference, or both? Autism and neurodiversity. *Developmental Psychology*, 49, 59-71.

Kaiser and Deaver, (2013). Establishing a Research Agenda for Art Therapy: A Delphi Study. *Journal of the American Art Therapy Association*, 30, 114-121.

Kasari, C. (2002). Assessing change in early intervention programs for children with autism. *Journal of Autism and Developmental Disorders*, 32, 447-458.

Katz, A. (2006, October 30). The autism clause: A handful of new schools charge up to \$140,000 a year to educate an autistic child. Who can pay that much? Anyone with the right lawyer. *New York*. Retrieved from http://www.highbeam.com/doc/1G1-159382295.html?refid=bibme_hf

Kiresuk, T. J., & Lund, S. (1978). Goal Attainment Scaling. In C. Attkisson, W. Hargreaves, M. Horowitz, & J. Sorensen (Eds.), *Evaluation of human service programs*. New York:Academic Press.

Kornreich, T., & Schimmel, B. (1991). The world is attacked by great big snowflakes: Art therapy with an autistic boy. *American Journal of Art Therapy*, 29, 473-480.

Kuhn, R., & Cahn, C. (2004). Eugen Bleuler's concepts of psychopathology. *History of Psychiatry*, 15, 361-366.

Leaf, R., Taubman, M., McEachin, J., Leaf, J., & Tsuji, K. (2011). A program description of a community-based intensive behavioral intervention program for individuals with autism spectrum disorders. *Education and Treatment of Children*, 34, 259-285.

Lord, C. (2002). *Autism diagnostic observation schedule: ADOS : Manual*. Los Angeles, CAT: Western Psychological Services.

Lowenfeld, V. (1987). Therapeutic aspects of art education. *The American Journal of Art Therapy*, 25, 111-146.

Lowenfeld, V. (1947). *Creative and mental growth; a textbook on art education*. New York, NY: Macmillan Co..

Lovass, I. (1987). Behavioral treatment and normal educational intellectual functioning in young autistic children. *Journal of Consulting and Clinical Psychology*, 55, 3-7.

Lord, C., and Paul, R. (1997). Language and communication in autism. In D. Cohen and F. Volkmar (eds.), *Handbook of Autism and Pervasive Developmental Disorders* (pp. 195-225). New York, NY: John Wiley and Sons.

Lu, L., Petersen, F., Lacroix, L., & Rousseau, C. (2010). Stimulating creative play in children with autism through sandplay. *The Arts in Psychotherapy*, 37, 56-64.

Lusebrink, V. (2011). Art therapy and the brain: An attempt to understand the underlying processes of art expression in therapy. *American Art Therapy Association*, 21, 124-135.

Lutz, A. S. (2013, May 22). Autism spectrum diagnoses: *The DSM-5* eliminates Asperger™s and PDD-NOS. *Slate Magazine*. Retrieved from http://www.slate.com/articles/health_and_science/medical_examiner/2013/05/autism_spectrum_diagnoses_the_dsm_5_eliminate_asperger_s_and_pdd_nos.html

Mahoney, G. J. (1999). The maternal behavior rating scale—Revised.

Unpublished manuscript. (Available from the author, Mandel School of Applied Social Sciences, 11235 Bellflower Rd., Cleveland, OH 44106–7164)

Mahoney, G., & Perales, F. (2003). Using relationship-focused intervention to enhance the social-emotional functioning of young children with autism spectrum disorders. *Topics in Early Childhood Special Education*, 23, 77-89.

Mahoney, G., Powell, A., & Finger, I. (1986). The Maternal Behavior Rating Scale. *Topics in Early Childhood Special Education*, 44-56.

Mahoney, G. J., & Wheeden, C. (1998). Effects of teacher style on the engagement of preschool aged children with special learning needs. *Journal of Developmental and Learning Disorders*, 2(2), 293–315.

Malchiodi, C. A. (2005). *Expressive therapies*. New York, NY: Guilford Press.

Malchiodi, C., (2014) Creative arts therapy and expressive arts therapy. Retrieved from <https://www.psychologytoday.com/blog/arts-and-health/201406/creative-arts-therapy-and-expressive-arts-therapy>.

- Martin, N. (2009). *Art as an early intervention tool for children with autism*. London: Jessica Kingsley Publishers.
- Martin, N. (2011). Assessing portrait drawings created by children and adolescents with autism spectrum disorder. *Art Therapy: Journal of the American Art Therapy Association*, 25, 15-23.
- Matson, J., Benavidez, D., Comptom, L., Paclawskyj, T., & Baglio, C. (1996). Behavioral treatment of autistic persons: A review of research from 1980 to the present. *Research in Developmental Disabilities*, 17(6), 433-465.
- McNiff, S. (2013). Introduction: A critical focus on art-based research. *Journal of Applied Arts & Health*, 4(1), 5.
- Modahl, C., Green, L., Fein, D., Morris, M., & Waterhouse, L. (1998). Plasma oxytocin levels in autistic children. *Biological Psychiatry*, 43, 270-77.
- Mefford, H., Batshaw, M., & Hoffman, E. (2012). Genomics, intellectual disability and autism. *The New England Journal of Medicine*, 366, 733-743.
- Mosconi, M., Hazlett, H. C., Poe, M., Gerig, G., Smith, R., & Piven, J. (2009). Longitudinal study of amygdala volume and joint attention in 2 to 4 year old children with autism. *Archives General Psychiatry*, 66, 509-516.
- Moustakas, C. E. (1994). *Phenomenological research methods*. Thousand Oaks, CA: Sage.
- Mudford, O., Martin, N., Eikeseth, N., & Bibby, P. (2001). Parent-Managed Behavioral treatment for preschool children with autism: some characteristics of UK programs. *Research in Developmental Disabilities*, 22, 173-82.

Mundy, P. (1993). Normal versus high-functioning status in children with autism. *American Journal on Mental Retardation*, 97, 381-384.

National Research Council. (2001). *Educating children with autism*. Washington, DC: National Academy Press.

NCCATA. (n.d.). NCCATA. Retrieved from <http://www.nccata.org>

Newschaffer, C., Cohen, L., Reynolds, A., Rice, C., Schendel, D., Windham, G., et al. (2007). The epidemiology of autism spectrum disorders. *Reviews in Advance Annual Reviews*, 21.1- 21.24.

Nwokeafor, C. (2009). Conundrum of autism: A review of its causes and significant impact on the education of a school age child. *Forum on Public Policy*. Retrieved from <http://forumonpublicpolicy.com/spring09papers/learningspr09.html>

Odom, S., Boyd, B., Hall, L., Hume, K. (2009) Erratum to: evaluation of comprehensive treatment models for individuals with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, 437-437.

Osborne, J. (2003). Art and child with autism: Therapy or education? *Early Child Development and Care*, 173, 411-423.

Pajareya, K., & Nopmaneejumruslers, K. (2011). A pilot randomized controlled trial DIR®/Floortime™ for pre-school children with autistic spectrum disorders. *The National Autistic Society*, 15, 563-577.

Prevalence of autism spectrum disorders—Autism and developmental disabilities monitoring network, 14 sites, United States, 2008. *Surveillance Summaries*, 61(SS03), 1-19.

- Ramamoorthi, P. (2014). Velvi Theater. Retrieved from <http://www.velvi.org/about.php>
- Resources from the Association for Behavior Analysis. (n.d.). *Association for Behavior Analysis International*. Retrieved from <http://www.abainternational.org/ba.asp>
- [Reynolds, P. \(2011\). *ABA A Brief Introduction to Teaching Children with Autism*. Lulu.com~.](#)
- Rogers, C. R. (1977). *Carl Rogers on personal power*. New York, NY: Delacorte Press.
- Scharoun, S., Reinders, N., Bryden, P., & Fletcher, P. (2014). Dance/ Movement Therapy as an Intervention for children with Autism spectrum disorders. *American Journal of Dance Therapy*, (36), 209-228.
- Schopler, E., & Short, A. (1989). Home-Based behavioral treatment to “normal functioning”: Comments on Lovas. *Journal of Consulting and Clinical Psychology*, 57, 162-164.
- Schopler.,Reichler & Roehen Renner.(1986). The childhood autism rating scale (CARS) for diagnostic screening and classification of autism (New York: Irvington,).
- Schreibman, L., Dawson, G., Stahmer, A. C., Landa, R., Rogers, S. J., McGee, G. G., Halladay, A. et al. (2015). Naturalistic Developmental Behavioral Interventions: Empirically Validated Treatments for Autism Spectrum Disorder. *Journal of Autism and Developmental Disorders*, 45(8), 2411-2428.
- Seitler, B. N. (2011). Intricacies, Complexities, and Limitations of Research on Autism Treatments. *Ethical Human Psychology and Psychiatry*, 13, 155-168.

Shimabukuro, T. T., Grosse, S. D., & Rice, C. (2008). Medical expenditures for children with an autism spectrum disorder in a privately insured population. *Journal of Autism Developmental Disorders*, 38, 546-52.

Shorter, E. (2005). *A historical dictionary of psychiatry*. New York, NY: Oxford University Press.

Solomon, R., Necheles, J., Ferch, C., & Bruckman, D. (2007). Pilot study of parent training program for young children with autism. *The National Autistic Society*, 11, 205-224.

Solomon, R., Van Egeren, L., Mahoney, G., Quon Huber, M., & Zimmerman, P. (2014). PLAY project home consultation intervention program for young children with autism spectrum disorders: A Randomized controlled trial. *The Journal of Developmental & Behavioral Pediatrics*, 35(8), 475-485.

Solomon, A. (2008, May 25). The Autism rights movement: a new wave of activists wants to celebrate atypical brain function as a positive identity, not a disability. Opponents call them dangerously deluded.. *New York*, ., ..

Solomon, O., & Bagatell, N. (2010). Introduction: Autism: Rethinking the Possibilities. *Ethos*, 38(1), 1-7.

The Miracle Project. (2014). About. Retrieved from <http://www.themiracleproject.org/>

[Taluson Dunn, R. \(2012\). *An art program evaluation of daily life therapy for children with autism*. \(doctorial dissertation\) Retrieved from ProQuest Dissertations and Theses. 126 pages; 3613648.](#)

Trevarthen, C., & Delafield-Butt, J. T. (2013). Autism as a developmental disorder in intentional movement and affective engagement. *Frontiers in Integrative Neuroscience*, 7, 1-16.

Wallace, K. S., & Rogers, S. J. (2010). Intervening in infancy: implications for autism spectrum disorders. *The Journal of Child Psychology and Psychiatry*. 51, 1300-1321.

Wheeler, B. L. (2005). *Music therapy research* (2nd ed.). Gilsum, NH: Barcelona Publishers.

Whitaker-Azmitia, P. W. (2005). Behavioral and cellular consequences of increasing serotonergic activity during brain development: A role in autism? *International Journal of Neuroscience* 23, 75-83.

Wright, P. (2004). The next wave of special education litigation. *Harbor House Law*

Press Inc. Retrieved from

<http://www.harborhouselaw.com/articles/highstakes.litigation.wright.htm>

Woloshyn, E. (2015, April 10). Educating parents of kids with autism lowers therapy costs. Retrieved January 1, 2016, from <http://www.ahchealthenews.com/2015/04/10/educating-parents-of-kids-with-autism-lowers-therapy-costs/>

Winnicott, D.W. (1965). The Maturation Processes and the Facilitating Environment. *Int. Psycho-Anal. Lib.*, 64:1-276. London: The Hogarth Press and the Institute of Psycho-Analysis.

