

AMERICAN UNIVERSITY OF BEIRUT

THE EFFECT OF INTERACTIVE MUSIC THERAPY ON
BEHAVIOR PROFILE AND SOCIAL SKILLS IN YOUNG
CHILDREN WITH MILD AUTISM

by
GHIDA MAHER SAYESS

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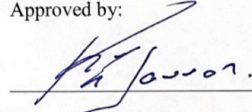
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AN ABSTRACT OF THE THESIS OF

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Title: The Effect of Interactive Music Therapy on Behavior Profile and Social Skills in Young Children with Mild Autism

The purpose of this study was to investigate whether a musical training program based on interactive music therapy sessions enhanced the behavioral profile and the social skills of young children affected by mild autism. This study targeted thirty-two, 6-year and 7-year old male and female young children with ASD. All patients with ASD were chosen from a single community center specifically designed for individuals with Autism (Ahmad Riyad Jawhari Center for Autism, Orphan Welfare Society, Saida). A music intervention program was implemented in order to find its effects on the behavioral profile and social skills of those children affected with mild autism. Data was collected through observations and the use of rating scales (Social Skills Rating System-SSRS and Children Autism Rating Scale-CARS). This study addressed a gap in the Lebanese literature and contributed to better understanding of the issue.

CONTENTS

ACKNOWLEDGEMENTS.....	v
ABSTRACT	vi
LIST OF TABLES	x

Chapter

I. INTRODUCTION.....	1
A. Background.....	1
B. Statement of the Problem.....	2
C. Research Questions.....	3
D. Rationale.....	4
E. Significance	5
II. LITERATURE REVIEW	8
A. Introduction.....	8
B. The Definition and Characteristics of ASD.....	8
C. Common Myths About Autism	10
D. History of Autism—Introducing the Pioneers.....	11
E. The Autism Spectrum Disorders	14
1. Autism.....	14
2. Asperger’s Syndrome and High Functioning Autism (HFA).....	15
3. Pervasive Developmental Disorders (PDD).....	16
4. Pervasive Developmental Disorder Not Otherwise Specified (PDD-NOS) and Atypical Autism.....	16
F. Causes and Treatments.....	17
1. Causes	17

2. Treatments.....	19
G. Music Therapy.....	20
H. Music Therapy and Autism.....	22
I. Research on Autism in Lebanon.....	26
III. METHODOLOGY.....	28
A. Introduction.....	28
B. Research Design.....	28
C. Sampling Procedure.....	29
D. Instruments.....	30
E. Intervention (Data Collection Methodology).....	34
F. Data Analysis.....	47
IV. RESULTS.....	49
A. Introduction.....	49
B. Sample Description.....	49
C. Reporting the Results of the Childhood Autism Rating Scale.....	49
D. Preliminary Analysis.....	50
E. Research Question 1.....	51
F. Research Question 2.....	52
G. Observation Results.....	53
H. Conclusion.....	54
V. DISCUSSION.....	55
A. Introduction.....	55
B. Reflection on the Childhood Autism Rating Scale.....	55

C. The Relationships: Music Therapy and Behavior Profile.....	56
D. The Relationships: Music Therapy and Social Skills.....	61
E. Limitations of the Study	64
F. Conclusion	64
G. Recommendations for Future Research.....	65
H. Recommendations for Practice.....	66
REFERENCES.....	68

Appendix

I. Childhood Autism Rating Scale.....	73
II. Social Skills Improvement System.....	77
III. Observation Behavior Checklist.....	81

TABLES

Table		Page
1	Objectives of the Intervention Sessions Implemented	39
2	Descriptive Statistic for the Experimental and Control Group Pre and Post Intervention.....	51
3	Results of ANCOVA for Behavior Profile and Social Skills.....	53

CHAPTER I

Introduction

Background

Autism is a complex developmental disorder that affects verbal and nonverbal communication and social interaction, and is also associated with restricted and repetitive patterns of behavior, usually evident before the age of 3. Children with autism vary widely in ability and personality, and often demonstrate challenging cognitive, social and linguistic behaviors (American Psychiatric Association, 1994). Because of these deficits in social participation and engagement, a major therapeutic objective for successful inclusion in childcare settings is to enhance the child's social interaction and play with their peers (National Research Council, 2001).

There is no known cure for autism; however, this doesn't mean that nothing can be done to help a person who is on the autism spectrum (The National Autistic Society, 2016). Music therapy, as a therapeutic intervention, has been used with children with autism since the 1940s (Reschke-Hernandez, 2011). The American Music Therapy Association (2005) 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 (AMTA, 2005). Research supports connections between speech and singing, rhythm and motor behavior, memory for song and memory for academic material, and overall ability to learn and interact (Agheană, V., 2017). In addition to that, the American Music Therapy Association (AMTA) believes that music therapy is beneficial for children with autism spectrum disorders (AMTA, 2003). Most importantly, music therapy improves cognitive functioning and behavior, increases socialization, enhances auditory processing and sensory-motor skills, and develops verbal skills in individuals affected with autism spectrum disorder (AMTA, 2003).

Statement of the Problem

Autism is a neurodevelopmental disorder characterized by impaired social interaction, verbal and non-verbal communication, and restricted and repetitive behavior. Symptoms of autism typically appear during the first three years of life. Some children show signs from birth. Others seem to develop normally at first, only to slip suddenly into symptoms when they are 18 to 36 months old. About 1 in 68 children is diagnosed with Autism Spectrum Disorder (ASD) in the United States (Centers for Disease Control and Prevention (CDC), 2015). With respect to Lebanon, recent research reveals that the rate of autism in Beirut and Mount Lebanon has risen to one in 67 and this signals a major problem (The Daily Star, 2014).

Since the 1940s, music therapy, as a therapeutic intervention, has been used with children with autism (Reschke-Hernandez, AE., 2011). In the past 70 years' practice, music therapy research has explored the efficacy of music therapy in improving the multiple areas of children's functioning that is affected by the symptoms of autism. The purpose of this study was to investigate whether a musical training program based on interactive music therapy sessions enhanced the behavioral profile and the social skills of young children affected by mild autism. Repetitive behaviors and problems in social skills are two of the major symptoms of children affected with autism. This is why it is of utmost importance to try to find a way to improve those two problems.

Research Questions

The research questions of this study were:

1. Did the behavior profile of children with mild autism improve when being taught using the interactive music therapy approach?
2. Did the social skills report of children with mild autism show improvement after an interactive music therapy approach?

Rationale

This study built on existing research on the effectiveness of using music therapy approaches with children on the autism spectrum. In a study done on “Emotional, Motivational and Interpersonal Responsiveness of Children with Autism in Improvisational Music Therapy”, it was shown that music therapy improves behavior in children with autism (Kim, Wigram, Gold, 2008). According to Kim, Wigram, and Gold, music therapy has produced markedly more and longer events of ‘joy’, ‘emotional synchronicity’ and ‘initiation of engagement’ behaviors in the children. Also, music therapy interventions have been shown to have positive effects on behaviors including an increase in engagement behavior (Carnahan, C., Musti-Rao, S., & Bailey, J., 2009), and a decrease in autistic-like behaviors (Boso, M., Emanuele, E., Minazzi, V., Abbamonte, M., & Politi, P., 2007). Children with autism don’t readily engage with others in social situations and don’t show any eye contact. Several studies have shown that music therapy used in the treatment of children with autism is an effective intervention addressing levels of communication and social engagement (Lindgren & Doobay, 2011). Specific to social competency, research has indicated that music therapy can increase social skills including joint attention behaviors (Kim, J., Wigram, T., & Gold, C., 2009), social greeting routines (Kern, P. & Aldridge, D., 2007), communication skills (Kaplan, R. & Steele, A.L., 2005), peer interactions (Kern, P. & Aldridge, D., 2006), and cognitive social skills (Ulfarsdottir, L. & Erwin, P., 1999).

Significance

This study explored the benefits of improving behavior and social skills for children with mild autism through the use of music therapy. Music therapy has been recommended as an effective treatment in facilitating communication and social interactions of children with autism. As Wigram indicated: “Music is a medium that involves a complex range of expressive qualities, dynamic form and dialogue, and offers a means by which some form of alternative communication can be established to help achieve engagement, interaction and relationships.” Music therapy interventions have also been demonstrated to improve social behaviors within groups of children. Music therapy improves sustained attention to peers, especially with the use of a musical object in a play-based setting (Sussman, 2009). Furthermore, children’s attraction to music would improve interaction with peers in an outdoor play setting (Kern & Aldridge, 2006). Children with autism will also engage better in group academic learning (interactive reading materials) when paired with music (Carnahan et al., 2009).

As already been mentioned, autism is on the rise in the world and in Lebanon as well (The Daily Star, 2014). More specifically, there are 40 children affected with autism in the Orphan Welfare Society in Saida; and this is a relatively large number. Most of these children have uneducated parents and come from a low socioeconomic disadvantaged background. For this reason, it is important to try and improve the behavioral, communication and social skills of those children. Since children with autism are characterized by social-interaction difficulties, communication challenges, and a tendency to engage in repetitive behaviors, it is crucial to work on those difficulties and try to improve them. Research has shown that children who receive intensive early intervention services are more likely to have improved long-term outcomes. Early intervention services such as screening and assessment, speech

and language therapy, physical and occupational therapy, etc., maximize their learning potential by addressing communication, play, problem behaviors and overall skill development from a very early age. A widely used service in these interventions is music therapy. Music acts as an essentially emotional, relational, and motivational medium, which stimulates ‘interpersonal relatedness’ when administered by a well-measured systematic intervention (Kim, Wigram, & Gold, 2009). These interpersonal and intrapersonal skills are very important to build in children with autism, especially in Lebanon, since most of those children come from an environment where they haven’t been taught most of these skills. Hence, it’s essential to build those skills in all children, particularly those affected with autism. With high incidence rate, there is a need in Lebanon to apply well-researched instruments and interventions.

Research on Autism in Lebanon

There is a lack of data regarding the prevalence of autism and its associated factors in Arab countries, especially in Lebanon (Saab, Chaaya, & Boustany, 2017). Lebanon has witnessed an increase in autism awareness and public visibility; however, little attention has been given to autism research in the medical records, with only 75 English manuscripts on autism from Arab countries published in international journals from 1992 to 2012 (Saab, Chaaya, & Boustany, 2017). Moreover, many studies on autism and music therapy have been conducted in Europe and in the United States. As far as we know, perhaps no studies have been conducted in Lebanon about this issue. This is why this study was significant, as it tackled this specific research.

Assumptions

The purpose of this study was to investigate whether a musical training program based on interactive music therapy sessions enhanced the behavioral profile and the social skills of young children affected by mild autism. It is assumed that the music therapist, Emma Hutchinson, is skilled in teaching music and in music education, which would help her have a greater understanding of the treatment being implemented. Also, for the observer, I assume that he/she would not be biased while recording observations.

Limitations

One of the limitations of this study was that I didn't implement it on all children affected by autism in Lebanon; I only worked on children in a specific school. Therefore, the findings of this study can't be generalized. Also, another limitation is the sample size, as I implemented the study on 32 students only. Last but not least, one of the limitations is the time of treatment, which should have been longer.

CHAPTER II

Literature Review

Introduction

The following section presents the various definitions of Autism Spectrum Disorder, along with its characteristics, symptoms, causes and treatments. Also, it highlights the importance of music therapy as one of the tools to improve the problems in children affected with autism.

The Definition and Characteristics of ASD

Autism Spectrum Disorder, as defined by Individuals with Disabilities Education Act (IDEA), refers to “a developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before age three, that adversely affects a child’s educational performance” (Code of Federal Regulations 1308/1308, 15). This federal definition then continues to name traits commonly related to this condition: “Other characteristics often associated with autism are engaging in repetitive body processes and stereotyped movements, resistance to environmental change or change in daily function, and unusual responses to sensory experiences.”

This disease is a neurological precondition that affects the physical brain mental capacity, and can be a severely devastating life-long developmental disability (Atkins, 2011). It affects several bodily functions and can be associated with a few or many symptoms. Although two children may be diagnosed with the same form of autism; yet, they may have different physiological competencies (Atkins, 2011).

People with ASD may appear as if they are in their own world, having a unique readiness of sensory, physical, and mental harm and in some cases, there may be children who can or can’t speak. Also, individuals with ASD may have difficulty when being put in

social situations since they may present delayed speech with or without meaning, hyperactivity, and repetitive movements.

A person with ASD may have a time-delayed reaction to learning, or may be incredibly good at other skills. One child with the disorder could display severe physical and cognitive impairments; the other child could have incredible acquisition in scientific discipline, art, maths, and memory, but may be deficient in their social skills. Many of those on the autism spectrum have exceptional abilities in visual acquirment, music and academic skills. About 40 percent have normal to above average intellectual abilities. Indeed, many persons on the spectrum take deserved pride in their distinctive abilities and “atypical” ways of viewing the world. About 25 percent of individuals with ASD are nonverbal but can learn to communicate using other means.

Onset and Population of ASD

Autism has its roots in early brain development; however, the most obvious ciphers of autism and symptoms of autism tend to emerge between 12 and 18 months of age. ASD occurs in all racial, ethnic, and socioeconomic groups, but is almost five times more common among boys than among girls. According to Dr. Judith Gould, Consultant Clinical Psychologist and Director at The Lorna Wing Centre for Autism, “Autism is more diverse than originally thought, with new ideas being put forward everyday. In fact, it’s a case of ‘the more we know, the less we know’, particularly in how gender affects individuals with autism.” Other conditions that individuals with ASD can suffer from are: hearing impairments, Down Syndrome, Attention Deficit Hyperactivity Disorder, Epilepsy, etc.

Common Myths about Autism

There are several ideas and information about autism roaming around the Internet that are truly helpful in many ways. On the other hand, there are also many misconceptions and myths about autism. Below are some of the myths about autism, along with the facts.

Myth: Individuals with autism spectrum disorder avoid social contact

Fact: Individuals with autism spectrum disorder are often keen to make friends but may find this difficult.

Myth: People with autism don't have feelings and thus are unable to show affection.

Fact: People with autism can and do give affection. However, due to differences in sensory processing and social understanding, the display of affection may appear different from typical people—understanding and acceptance of these differences is the key.

Myth: Individuals with autism spectrum disorder don't make eye contact.

Fact: When persons with autism feel relaxed and confident with the communication partner, eye contact can be quite spontaneous. It is NEVER a good idea to force a person with autism to have eye contact with you.

Myth: Autism can be cured.

Fact: There is currently no documented cure for autism. Individuals with autism respond very well to structured early intervention, education and vocational placements that focus on the unique learning style of students with autism.

Myth: People with autism can't talk.

Fact: Communication is more than talking. Some students with autism will develop speech seemingly effortlessly, but will require help to communicate appropriately with their peers. Others will require assistance to communicate their basic needs and wants, using a combination of words, gestures, and augmentative communication systems such as PECS (Picture Exchange Communication System).

Myth: Individuals with autism spectrum disorder can't lead independent and successful lives.

Fact: With the appropriate education being given, many students with autism will grow up to be successful contributors to the society.

Myth: Autism is the result of bad parenting.

Fact: Evidence shows that autism is not caused by bad parenting but from a difference in the way the brain develops before the child is born.

History of Autism—Introducing the Pioneers

The word “autism” comes from the Greek word “autos”, which means “self”. It describes conditions in which a person is removed from group interaction; in other words, he becomes an “isolated self”. Eugen Bleuler, a Swiss psychiatrist, was the first person to use the full term. He started using it around 1911 to refer to one cluster of symptoms related to schizophrenia.

In 1943, an American child psychiatrist Leo Kanner, M.S., published a paper describing 11 children who were highly intelligent but displayed “a powerful desire for aloneness” and “an obsessive insistence on persistent sameness.” He later names their state “early infantile autism.” At about the same time, Hans Asperger, an Austrian Pediatrician in

Vienna, identified a similar precondition that's now called Asperger's syndrome. He and Kanner both described similar characteristics of impaired communication and group interaction.

In 1967, psychologist Bruno Bettelheim promotes the theory that "refrigerator mothers," as he called them, caused autism by not loving their children enough. According to *Parents* advisor Fred Volkmar, M.D., director of the Child Study Center at Yale University School of Medicine and editor-in-chief of the *Journal of Autism and Developmental Disorders*, "During Post-World War II, there was a lot of psychoanalytic work done on autism where researchers looked solely at the impact of life experiences. They didn't consider the role of biology or genetics, which we now understand to be the main cause" (Sole-Smith, 2014).

10 years later, in 1977, a research conducted on twins has found that autism is mainly caused by genetics and biological differences in brain development. In 1980, "Infantile Autism" became listed in the *Diagnostic and Statistical Manual of Mental Disorders (DSM)* for the first time; the condition is also officially separated from childhood schizophrenia. And in 1987, the DSM replaces "infantile autism" with a wider definition of "autism disorder", and includes a checklist of diagnostic criteria (Sole-Smith, 2014). The year 1988 was the year of raising public awareness of the disorder with the release of the movie *Rain Man*, which stars Dustin Hoffman as an autistic savant who has a photographic memory and can calculate huge numbers in his head.

In the early 1990s, autism became a special education category in the federal government and public schools began identifying children on the spectrum and offering them special facilities. Also, Asperger's Syndrome was added to the DSM, enlarging the autism spectrum to include milder cases in which individuals tend to be more highly functioning (Sole-Smith, 2014). In 2009, it was estimated that 1 in 110 children have autism spectrum

disorders, up from 1 in 150 in 2007 (CDC, 2014). Last but not least, in 2013, the DSM-V folds all subcategories of the condition into one umbrella diagnosis of autism spectrum disorder (ASD).

The Autism Spectrum Disorders

Autism Spectrum Disorders features a group of diagnoses that are considered clinically separate from each other, but are most of the time grouped together for learning purposes, as their characteristics often overlap. These disorders are: (1) Autism, (2) Asperger's Syndrome and High Functioning Autism (HFA), (3) Pervasive Developmental Disorders (PDD), and (4) Pervasive Developmental Disorder Not Otherwise Specified (PDD-NOS) and Atypical Autism.

Autism

Autistic Disorder is a neurological and growth-related disorder that usually appears during the first three years of life. A child with autism appears to live in their own world, showing little concern in others and a lack of social awareness. The focus of an autistic child is a consistent mundane and includes an interest in repeating odd and unusual behaviors. Also, autistic children often have problems in communication, avoid eye contact and show limited fond in regard to others (Cox, Klein, Charman, Baird, Cohen, Swettenham, Drew, & Wheelwright, 1999).

The main signs and symptoms of autism involve problems in the following areas: social interaction, communication, reasoning and repetitive or persistent behaviors (Cohen & Volkmar, 1997). Children with autism usually display a lack of interest in, or rejection of, physical touch—parents describe autistic infants as “unaffectionate”. Moreover, these children avoid creating eye contact with others—including parents—and fail to develop acquaintances or interact with other children. A child with autism is delayed most of the time or doesn't develop language and even once language is developed, he/she doesn't use language to communicate with others. Also, dangerous or fantasy play inappropriate to developmental level may be displayed. An autistic child may be persistently preoccupied

with certain objects such as a hot coffee cup or poisonous chemicals. In addition to that, one of the symptoms that show a child has autism is the repetitive motor movement such as rocking and hand/finger flapping (Cox, Klein, Charman, Baird, Cohen, Swettenham, Drew, & Wheelwright, 1999).

Asperger's Syndrome and High Functioning Autism (HFA)

Asperger's syndrome was first described in the 1940s by Viennese pediatrician Hans Asperger, who observed autism-like normal intelligence and language growth. Many professionals felt that Asperger's syndrome was simply a milder form of autism and used the term "high-functioning autism" to describe these individuals. What make Asperger's Disorder different from classic autism are its less severe symptoms and the lack of language delays. Children with Asperger's Disorder may be only mildly affected, and they frequently have good language and cognitive abilities. They often like to collect categories of things, such as rocks or bottle caps. They may also have good rote memory skills but encounter difficulties with abstract concepts (Cohen & Volkmar, 1997).

One of the major differences between Asperger's Disorder and autism is that, by definition, there is no speech postponement in Asperger's. In fact, children with Asperger's Disorder frequently have good communication attainment; they simply use language in different ways. Another distinction between Asperger's Disorder and autism concerns cognitive ability. While some individuals with autism have intellectual impairment, a person with Asperger's Disorder, by definition, can't have a "clinically significant" cognitive delay, and most possess average to above-average intelligence. While motor difficulties are not a specific criterion for Asperger's, children with Asperger's Disorder frequently have motor skill delays and may appear gawky or awkward.

Pervasive Developmental Disorders (PDD)

The diagnostic class of pervasive developmental disorders (PDD) refers to a group of disorders characterized by delays in the development of many basic skills, most notably the ability to interact with others, to communicate, and to use imagination. Children with these conditions are often confused in their thinking and generally have problems understanding the world around them. Pervasive Developmental Disorders include Autism, Asperger's Syndrome, Pervasive Developmental Disorder-Not Otherwise Specified (PDD-NOS), Childhood Disintegrative Disorder (CDD), and Rett's Syndrome (American Psychiatric Association, 2000).

When children with autism were said to have PDDs, it meant that those children demonstrate disorganized development. These disorders are referred to as pervasive since the disease affects several areas; learning ability is affected but may improve to other levels. There is a wide spectrum of impairments associated with PDD and ASD, which can range from mild to severe. One can't outgrow PDD and to date there is no cure. The condition is expected to be present for the entire life span.

Pervasive Developmental Disorder Not Otherwise Specified (PDD-NOS) and Atypical Autism

The characteristics of PDD-NOS are presented as they have coinciding symptoms with Atypical Autism. Atypical Autism is the full term used when the person's behavior pattern fits most but not all the criteria for typical autism. What marks it different from classic autism is the age of onset, which in these cases, starts after 3 years of age. It's important to note out that atypical autism is a type of autism that may go undiagnosed for years (American Psychiatric Association, 2000).

The symptom and sternness of Atypical Autism can vary from person to person. Some traits of people with Atypical Autism may be that they have trouble with speech communication skills, whereas they display limited or no verbal aptitude and possess a smaller vocabulary than other children in the same age group. Some people with this disorder may have little or no interest in mingling and may not even attempt to communicate with other people. Others may desire social interaction, but don't know how to communicate effectively.

Individuals with PDD-NOS usually experience an area of damage; however, their overall living skills are more advanced than people with autism. They often don't know how to react in an appropriate manner to other people's emotions. People with this disorder often struggle in understanding non-verbal cues or language that isn't meant to be taken literally. These factors often lead to uncomfortable group interactions, therefore reinforcing the tendency of people with atypical autism to prefer seclusion (American Psychiatric Association, 2000).

Causes and Treatments

Causes

Autism could result from more than one cause, with different indications in different individuals that share common symptoms (Ratajczak, 2011). In order to determine the major causes of autism, it is first important to assess the incidence and prevalence data of autism. For decades, since first described by Leo Kanner in 1943, autism was believed to occur at a ratio of 4-5 per 10,000 children (Kanner, 1943). Perhaps, the cause of autism at that time might have been attributed to genetic factors.

From studies done between 1966 and 1998 in 12 countries (e.g., United States, United Kingdom, Denmark, Japan, Sweden, Ireland, Germany, Canada, France, Indonesia, Norway, and Iceland), the prevalence (i.e., number of existing disease cases in a defined group of

people during a specific time period) ranged from 0.7-21.2/10,000, within a median value of 5.2/10,000 (or 1/1923; Fombonne, 1999). In California, when the 1998 prevalence of autism was compared to that in 1987, 23% increase in autism was noted (Fombonne, 2001). As with prevalence, the incidence (i.e., number of new cases of disease in a defined group of people over a specific time) of autism has also increased sharply. The Center for Disease Control and Prevention states that the prevalence of autism is increasing at epidemic rates (Rice, 2009). The most recent official prevalence for the United States is a norm of 1/110 (Center for Disease Control and Prevention, 2010). By comparison, incidence in the United Kingdom is also increasing, with higher rates than in the United States. In 2006, the prevalence of autism in a cohort of children in South Thames was 1/86 (Baird et al., 2006). Three years later, a school-based study in Cambridgeshire reported a prevalence of 1/64 (Baron-Cohen et al., 2009).

There is irrefutable indication for a genetic component in autism (Rodier, 2000). With identical twins, if one is autistic, the percentage that the other twin will be affected with autism is 90%. In great disparity, for fraternal twins, the percentage that the other twin will be affected with autism is only 2-3% (DeFrancesco, 2001). Relatives of people with autism may have some of its symptoms but fail to meet all the criteria for the disorder. Muhle et al. (2004) confirm DeFrancesco's findings but with different percentages: twin studies reported 60% concordance for classic autism in monozygotic twins vs. 0% in dizygotic twins, the higher monozygotic concordance attesting to genetic inheritance as the predominant causative agent. Reevaluation for a broader autistic phenotype that included communication and social disorders increased concordance remarkably from 60-92% in monozygotic twins and 0-10% in dizygotic pairs. This suggests that fundamental interactions between multiple genes cause "idiopathic" autism, but epigenetic factors and exposure to environmental modifiers may contribute to variable expression of autism-related traits. Data from whole-

genome screens in multiplex families suggest interactions of at least 10 genes in causing autism (Muhle et al., 2004). The fact that the combination of known genes or genetic diseases associated with autism accounts for only 1-2% of the cases points to defining autism as a neurodevelopmental syndrome for which there is no one major genetic cause but rather many relatively rare mutations (DeFrancesco, 2001). Another reason to discount an overall genetic cause is that autism is now considered an epidemic and there is no such thing as a genetic epidemic (Jepson, 2007). To date, there hasn't been one single gene found to be responsible for autism.

In addition to that, aging plays a role in the effect on human genetic traits, especially in early embryonic life (Strickberger, 1968). A multi-dimensional report was conducted on parental age and autism risk. It found increased autism rates among children whose parents have large gaps between their ages (Autism Speaks, 2015). It was also found in this study that older parents are at higher risk of having children with autism (Autism Speaks, 2015). Yet, results are still unclear.

A new theory regarding the cause of autism suggests that it may be due to environmental exposures during pregnancy (London and Etzel, 2000). "Proof of the principle" that early exposures can cause autism comes from studies linking ASD to medications taken in the first trimester of pregnancy—thalidomide, misoprostol, and valproic acid—and to first-trimester rubella infection (Arndt et al., 2005; Daniels 2006). This "proof-of-principle" was further supported with several studies and findings supported by the National Institute of Environmental Health Sciences (NIEHS). These studies have made a link between autistic behaviors and prenatal exposures to phthalates (Miodovnik et al., 2011).

Treatments

Unfortunately, many interventions, treatments, and therapies that are being used with children who are affected with autism might not have experimental evidence that proves their effectiveness (Heflin and Simpson, 1998). However, some of these interventions have been effective with children with ASD. These interventions/therapies include behavioral training and management, specialized therapies (speech, occupational, physical, music), community support and parent training, and medicines (WebMD, 2015).

In behavioral training and management, positive reinforcements, self-help and social skills training are used in order to improve behavior and communication. These treatments also include ABA (Applied Behavior Analysis), which is the use of techniques that increase useful behaviors and reduce those that may cause harm or interfere with learning (Autism Speaks, 2017). Speech therapy can help a child with autism improve language and social skills to communicate more effectively with others (WebMD, 2015). Moreover, occupational and physical therapy can help develop any deficits in fine and motor skills, as well as teach children with autism to process information from the senses (sight, hearing, touch, and smell) in more adaptable ways. Last but not least, medications are being used a lot and they are most commonly used to treat problem behaviors, such as depression, anxiety, hyperactivity, and obsessive-compulsive behaviors (WebMD, 2015).

In addition, one of the treatments used in improving social and behavioral skills in children with autism is music therapy. Music therapy is one of the expressive therapies—a process in which a music therapist uses music and its physical, emotional, mental, social and spiritual facets to help individuals improve their physical and mental health. Improving an individual's health includes improving his/her cognitive functioning, motor skills, emotional development, social skills and the quality of life by using specific music experiences, such as improvisation, singing, dancing, and listening (American Music Therapy Association, 2011).

Music Therapy

Since the 1940s, music therapy has been used with children affected with autism (Reschke-Hernandez, 2011). The American Music Therapy Association (2005) 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 (AMTA, 2005).” Another definition of music therapy states that it is a “type of expressive art therapies that uses music to improve and maintain the physical, psychological, and social well-being of individuals which involves a broad range of activities, such as listening to music, singing, and playing a musical instrument” (Wikipedia, The Free Encyclopedia, 2018).

Historically speaking, music has been used as a therapeutic tool since antiquity (AMTA, 2005). This is evident in biblical scriptures and historical writings of ancient civilizations such as for the Egyptians, Arabs, Chinese, Indians, Greeks and Europeans. Today, the power of music remains the same but music is used much differently than it was in ancient times.

There are various types of music therapy and these include: Receptive Music Therapy, Active Music Therapy, Individual Music Therapy, and Group Music Therapy. Music listening, where an individual is listening to live or recorded music, is considered passive (receptive) because no music engagement or active participation is involved. According to the American Music Therapy Association, music listening is listed as one of the many techniques used in music therapy (AMTA, 2015). In contrast to receptive music therapy, active music therapy techniques include engaging the client in singing, music composition, and instrument playing. The American Music Therapy Association states that a

majority of the techniques that constitute clinical music therapy are active music therapy techniques (AMTA, 2015).

A frequently cited paper on music therapy studied the effects of active and passive group music therapy on 16 pre-adolescents between the ages of 11 and 14 years who were enrolled in a special education program in New York City. After a certain number of music therapy sessions, it has been shown that individuals were able to explore their emotions and selves to a greater extent (Montello & Coons, 1998). Also, individuals with ADHD who are hyper aroused felt more safe and calm after being subject to music therapy sessions (Montello & Coons, 1998).

Music Therapy and Autism

Research results of the effects of music therapy on children affected with ASD are inconsistent. Some research has shown that music therapy has an effect on children with autism, but other research found the evidence is not enough to make that conclusion. For example, LaGasse conducted a research study in 2014 investigating the effects of music therapy on increasing social responses in children with autism. She found that the social response ability of children increased significantly after being subject to the music therapy intervention. Another researcher, Ghasemtabar (2015), also investigated the effects of music therapy on enhancing the social skills of children with autism and his findings corresponded to LaGasse (2014)'s conclusion. On the other hand, Schwartzberg and Silverman (2013) didn't find the same results, stating that the reason behind this was due to the insufficient treatment dose.

Another study was done by Boso, Emanuele, Minazzi, Abbamonte, and Politi in 2007 to explore the effect of interactive music therapy on behavior profile in young children with severe autism. Patients with autism took part in a total of 52 weekly active music therapy

sessions each lasting about 1 hour. The musical sessions included live music experiences with a diverse range of active musical activities aiming to facilitate social engagement, to improve behavioral problems, and to enhance creative music making. The results of this study have shown that there were significant improvements in social skills, behavior, and musical skills of children affected with autism. Kim, Wigram, and Gold (2009) conducted a study to measure emotional, motivational and interpersonal responsiveness in children with autism through improvisational music therapy. Improvisational music therapy occurs when the client and the therapist relate to each other; i.e. the client makes up music while singing or playing, creating a melody, rhythm, song, or instrumental piece. It has been shown that children with autism showed more emotional expression and social engagement during music therapy sessions than in play sessions without music. These children also responded to the therapist's requests more frequently during music therapy than in play sessions without music. Additionally, a skilled therapist can use music with children to increase their social interaction and improve social skills. Passing and sharing instruments, music and movement games, gathering around a central instrument, learning to listen and singing of greetings are just few of the ways music therapy sessions can increase interaction. In addition, in a 2012 study of 41 children with autism over a ten-month period, See (2012) found that weekly music therapy sessions seemed to improve overall behavior, but more specifically, the highest improvement was seen in inattentive behaviors. Children in this study experienced hour-long sessions of music therapy once a week, and their conduct was monitored against a checklist of target behaviors like restlessness, aggression and noisiness. More than half of the group improved by one or two points on the scale after the music therapy sessions. In addition to the above, in a study done on the effect of long-term interactive music therapy on behavior profile and musical skills in young adults with severe autism, it was shown that active music therapy sessions could be of aid in improving the autistic symptoms—mainly

problem behaviors—and the musical skills in those children (Boso, M., Emanuele, E., Minazzi, V., Abbamonte, M., and Politi, P., 2007). Moreover, a literature search was conducted to investigate the effects of music therapy on mood, language, behavior, and social skills in children with autism. After the use of various scales, such as the Clancy Autism Behavior Scale, the Childhood Autism Rating Scale (CARS), the Autism Behavior Checklist (ABC), the Gesell Developmental Scale, and the Autism Treatment Evaluation Checklist (ATEC), it was shown that music intervention was conducive to behavior improvement in children with autism (Shi, ZM., Lin, GH., & Xie, Q., 2016). In another study done on the effect of a musical presentation of social story information on the behaviors of students with autism, the results suggested that the use of a musically adapted version of social stories is an effective and viable treatment option for modifying behaviors with this population (Brownell, M., 2002). Also, Kim, Wigram, and Gold (2008) conducted a randomized controlled study on the effects of improvisational music therapy on joint attention behaviors in autistic children. The study employed a single subject comparison design in two different conditions: improvisational music therapy and play sessions with toys. The overall results indicated that improvisational music therapy was more effective at facilitating joint attention behaviors and non-verbal social communication skills in children than play (Kim, Wigram, & Gold, 2008).

It has been also shown that music therapy sessions can improve communication in children affected with autism. Up to thirty-percent of children with autism are non-verbal, and many low-functioning children have difficulty following verbal commands and understanding body language. Wan et al., (2004), found that music improves the mapping of sounds to actions by connecting the auditory and motor sections of the brain, which may help improve understanding of verbal commands, by pairing music with actions, and with repetitive training, the brain pathways responsible for speaking can be reinforced and improved.

Moreover, it has been shown that music therapy sessions can reduce anxiety. Usually, children with autism are more sensitive to anxiety than the average children, as they are unable to filter out provoking stimuli. A four-week study, conducted at the University of Wisconsin La Crosse in 2006, found preliminary success in reducing anxiety in patients with autism through music therapy. After 16 short, 20-minute sessions, during which the patients listened to rhythmic music, the participants who received the therapy appeared to have decreased anxiety-related behaviors. Classical music or music with a steady rhythm is thought to be the best for alleviating anxiety in children with autism due to the predictability of the beat (Azbell, 2006).

In addition to all the studies mentioned above, Sharda and colleagues conducted a study to show how music therapy affects the brain in Autism (2018). They compared a music intervention to a non-music control intervention in school-aged (6-12) children affected with ASD. 26 children participated in the music intervention and 25 children participated in the non-music intervention. For 8-12 weeks, both groups attended one music therapy session a week for a duration of 45 minutes. Before and after the interventions, the researchers measured behaviors (i.e. social and verbal communication) and brain activity using fMRI, which allows researchers to measure levels of brain activity in various parts of the brain. After music therapy interventions, improvements were seen in communication, social responsiveness, and family quality of life for children who were subject to the intervention (Sharda, M.m Tuerk, C., Chowdhury, R., Jamey, K., Foster, N., Custo-Blanch, M., Tan, M., Nadig, A., & Hyde, K. (2018). Also, improvements in behavioral measures were observed where the strength of the connection between auditory and motor areas was significantly related to improvements in social communication as mentioned above (Sharda, M., 2018).

In conclusion, and as a result of all the studies mentioned above, it has been shown that music therapy may help children with ASD to improve their skills in important areas

such as social interaction and communication. Music therapy can also contribute to increasing social adaptation skills in children with ASD and to promoting the quality of parent-child relationships. Furthermore, music therapy has been shown to improve behavior problems in children affected with autism.

Research on Autism in Lebanon

There isn't an estimate for autism prevalence in Lebanon. A study was conducted to examine the prevalence of Autism Spectrum Disorder (ASD) in toddlers in nurseries in Beirut and Mount-Lebanon. The sample included 998 toddlers—16-48 months—from 177 nurseries. In this study, two instruments for data collection were used: the Modified Checklist for Autism in Toddlers (M-CHAT) as a screening tool for ASD and a short structured questionnaire developed by researchers (Saab, Chaaya, & Boustany, 2018). Out of the 998 toddlers, 26% failed 3 or more items of the 23 items of the M-CHAT, and hence were labeled as possibly having ASD (Saab, Chaaya, & Boustany, 2018). The final prevalence estimate of ASD was 1.53% and the male to female ratio was 1.05 (1 in 65 for males and 1 in 67 for females). In conclusion, results from this cross-sectional study estimated a prevalence of ASD of 153 per 10,000, which is similar to the prevalence of 147 per 10,000 reported by the CDC (CDC, 2014).

According to specialists who attended the second conference held by the OpenMinds Association and AUBMC Special Kids Clinic, the rate of autism in Beirut and Mount Lebanon has risen to 1 in 67. According to Rose-Mary Boustany, director of the Neurogenetics Program and AUBMC Special Kids Clinic, autism has been on the rise, not only in Lebanon, but worldwide.

As a result of the above two studies, the report concluded that the outcomes most likely reflect a high rate of consanguinity in the Lebanese population. This increases the likelihood that the occurrence of autism is a result of genetic factors.

In addition to the above information, another study was conducted to investigate the association of autism with several factors in 86 autism cases from specialized schools for children with developmental disabilities and 172 control children from regular public schools in the same regions (Hamade, A., Salameh, P., Medlej-Hashim, M., Hajj-Moussa, E., Saadallah-Zeidan, N., & Rizk, F., 2013). The factors being investigated were parental age, sex, maternal unhappy feeling during pregnancy, consanguineous marriage, and province of residence. Information concerning potential risk factors was obtained using a questionnaire that was addressed to the parents of the children, through the schools administration and after the approval of the institutions' review boards. Data were entered and analyzed using SPSS. In their study, they used the Chi-square test to compare normal variables and a t-test was done to compare means between two groups, after checking their distribution normality. As a result of this pilot epidemiological study of autism in Lebanon, researchers found several prenatal and perinatal risk factors for autism that could be modified. It was shown that mother's sadness during pregnancy is a risk factor for autism. This may be because of a higher secretion of maternal hormones such as adrenalin causing placental vasoconstriction, which may affect fetal hormone levels, with a negative impact on fetal development. Moreover, exposure to environmental or social stressors including family problems has been associated with increased risk for autism.

In conclusion, autism is on the rise in Lebanon and worldwide and certain solutions should be found regarding this issue. Also, more studies should be conducted with respect to this problem because there isn't enough research about it.

CHAPTER III

Methodology

Introduction

The purpose of this study was to investigate whether a musical training program based on interactive music therapy sessions enhanced the behavioral profile and the social skills of young children affected by mild autism. In this study, a control Group Pretest-Posttest Design was used to determine the effects of treatment by comparing pretest and posttest scores of the behavior profile and social skills of children affected with mild autism in both experimental and control groups. Baseline data was collected by using specific instruments: Childhood Autism Rating Scale (Schopler, Reichier, & Renner, 1966), Social Skills Rating System (Gresham & Elliott, 1990) and Observation. A music therapy intervention was implemented and data was collected after the intervention as well to study the effect of the intervention. Data was analyzed using a pre-post test design.

In this chapter, the research design, sampling procedure, and instruments will be discussed. Later on, the intervention will be discussed in detail followed by data analysis.

Research Design

The design used in this study was a pre-post Experimental-Control Group Design. The experimental design is a blueprint of the procedure that enables the researcher to test his/her hypothesis by reaching valid conclusions about relationships between independent and dependent variables (Oklahoma State University, 1997). It refers to the conceptual framework within which the experiment is conducted. This design was selected to determine the effects of treatment on the experimental group without implementing any intervention on the control group. This design is called the Pre-Post Control Group Experimental Design where the treatment is to be implemented on the experimental group only; pre- and post-test

observation is carried out on both the groups to assess the effect of manipulation. Both the behavior profile and the social skills of children affected by mild autism were studied. A behavior profile indicates how people are likely to approach problems, interact with others, and respond to the pace of the environment and its rules and procedures (Abbertons, 2011). Behavior profile included impulsive behaviors: someone leaving his/her chair spontaneously at any time, moving around the room at various rates of speed, jumping in the air, and vocalizing in a high-pitched manner, and compulsive behaviors: repeating specific words or doing other senseless things to reduce anxiety. Social skills are the skills used to communicate and interact with each other, both verbally and nonverbally, through gestures, body language and one's personal appearance. Social skills included eye contact, following directions and staying on task (Health Topics, 2016).

Sampling Procedure

I was interested in studying the behavior and social skills of autistic children in Lebanon. Since I wasn't able to do the music therapy intervention on autistic children all over Lebanon, I decided to work only with a sample of this population, who are 32 students enrolled in the Orphan Welfare Society in Saida. These children have been diagnosed with mild autism; they have difficulties with communication and social skills, and they also have behavioral problems.

The Orphan Welfare Society in Saida is a Lebanese non-governmental organization that provides all-inclusive services and care to the most vulnerable groups in the community, especially orphans and children who have living parents but face hostile social and economic conditions, including those with special needs and the deaf. The society offers various types of services (educational, instructional, rehabilitation, social, and vocational) to these children through six specialized channels: the Children Residential Unit, the Saida Generations

School, the Vocational Training Section, the Center for Children with Special Needs, the school for the Rehabilitation and Orientation of the Deaf, and the Center for Children with Autism (Daleel Madani, 2018).

The 32 students selected are 6 to 7 years of age and enrolled in the 2nd grade. They were selected based on parents' consents given. The 32 students were randomly divided into two groups: control and experimental. There were 16 students in the control group and 16 students in the experimental group.

Instruments

Two main variables were studied in this research study. The first variable was the "behavior profile" and the second was "social skills". Behavioral profile included compulsive behaviors and impulsive behaviors. Compulsive behaviors happen when someone repeatedly engages in a behavior that doesn't necessarily provide relief or a reward, but rather repeats the behaviors in an effort to make certain obsessions go away (Psychology Today, 2015). An example of a compulsive behavior is getting up and checking the lock 10 or 15 times, constantly worried that the door is open (Psychology Today, 2015). Impulsive behavior is a tendency to act without thinking about the consequences of your actions and these actions usually occur in reaction to some event that has caused the person to have an emotional response (Health, Brain & Neuroscience, 2017). Examples of impulsive behaviors include: someone leaving his/her chair spontaneously at any time, moving around the room at varying rates of speed, jumping in the air, and vocalizing in a high-pitched manner.

Social skills are defined as the skills we use to communicate and interact with each other, both verbally and non-verbally, through gestures, body language and our personal appearance (Skills You Need, 2016). In this study, social skills included introducing one's self, eye contact, following directions and staying on task.

In this study, three main instruments were used. These are: Childhood Autism Rating Scale, Second Edition (CARS-2), Social Skills Rating System (SSRS) (also known as Social Skills Improvement System), and observation.

The Childhood Autism Rating Scale (CARS) is a 15-item behavioral rating scale that helps identify children 2 years of age and older with autism, distinguishing them from developmentally handicapped children who are not autistic. In my study, I used the Childhood Autism Rating Scale in order to identify what symptoms of autism each student had. The CARS examines 15 categories of behaviors, characteristics, and abilities against the expected development of typical children to determine the autistic symptoms that are present. The categories are: relating to people, imitation, emotional response, body use, object use, adaptation to change, visual response, listening response, taste/smell/touch response and use, fear or nervousness, nonverbal communication, activity level, level and consistency of intellectual response, and general impressions. This scale takes 5-10 minutes to be administered and it can be filled by the child's primary healthcare provider, a teacher or a parent by rating the child's behaviors from 1 to 4; 1 being normal for the child's age, 2 for mildly abnormal, 3 for moderately abnormal and 4 as severely abnormal. The scores can range from a low of 15 to a high of 60; scores below 30 indicate that the individual is in the non-autistic range, scores between 30 and 36.5 indicate mild to moderate autism, and scores from 37 to 60 indicate severe autism (Schopler et al., 1988). Its brevity makes it useful for aiding in recognition and classification of autistic children. Moreover, the forms and features of this rating scale help an examiner integrate diagnostic information, determine functional capabilities, provide feedback to parents, and design targeted intervention (Special Learning Inc., 2011). The Childhood Autism Rating Scale (CARS) has been used consistently in ASD diagnosis and research due to its technical adequacy, cost-effectiveness, and practicality (Park, E. & Kim, J., 2015). A study was conducted to identify the factor structure of the

CARS. Participants consisted of children with an ASD diagnosis or who met the criteria for broader autism or emotional/behavior disorder with comorbid disorders. Previous studies used one-, two-, and four-factor models, all of which they examined to confirm the best-fit model on confirmatory factor analysis. As a result, the two-factor model was the most valid and reliable. The inter-item consistency of the CARS was 0.926 and demonstrated adequate reliability, thereby supporting the validity and reliability of the two-factor model of CARS (Park, E. & Kim, J., 2015). Also, the psychometric properties, conceptual relevance, and flexible administration procedures of the CARS support its continued role as a screening device in the diagnostic decision-making process.

The Social Skills Improvement System (SSIS) Rating Scales assists professionals in screening and classifying students suspected of having significant social skills deficits and aids in the development of interventions for those students. It is a norm-referenced assessment tool that focuses on social behavior in pre-school, elementary, and secondary students. The Social Skills Rating Scale focuses on the following measurement areas: social skills, problem behaviors, and academic competence. Social skills represent learned behaviors that promote positive interactions while simultaneously discouraging negative interactions when applied to appropriate social situations. The **Social Skills** scale has seven subscales: Communication, Cooperation, Assertion, Responsibility, Empathy, Engagement and Self-Control. The **Problem Behaviors** scale includes four subscales: Externalizing Problems, Bullying, Hyperactivity/Inattention, and Internalizing Problems. The **Academic Competence** measurement area is a single scale without subscales. It measures reading and math performance, motivation, parental support, and general cognitive functioning. A measure of academic competence is included because poor academic performance and social behavior problems frequently occur together. The Social Skills Rating Scale is a behavior and personality assessment tool that can be used to identify social behavior strengths and students

at-risk for poor academic performance. Also, it is used to differentiate learning impaired behavior disorders, or intellectually impaired children from non-handicapped children and to develop Individualized Educational Plans for students requiring social skills assistance (ECME, 2011). The Social Skills Rating Scale administration phase has separate questionnaire booklets for teachers, parents and the student, all based on the student's current educational level. The rating form can be completed in 15-25 minutes and scoring generally takes approximately 5 minutes per questionnaire booklet. Each SSRS questionnaire contains 46 items that assess the individual's social skills, 30 items that assess the individual's problem behaviors and 7 items that assess the individual's academic competence. Each item in the "social skills" and "problem behaviors" section uses a 4-point scale (N=Never, S=Seldom, O=Often, and A=Almost Always) to describe the individual's typical behavior. Each item in the "academic competence" section uses a 5-point scale (1=Lowest 10%, 2=Next Lowest 20%, 3=Middle 40%, 4=Next Highest 20%, and 5=Highest 10%). Teachers and parents can complete the Social Skills Rating Scale checklists. No overall scores are reports; however, there are three subscores: social skills, problem behaviors and academic competence. Scoring can be done using the scoring manual or using proprietary software available from Pearson. Score reports include standardized scores with percentile ranks, and narrative reports include intervention-planning recommendations to improve social skills and lessen problem behaviors. In a study conducted on examining the psychometric properties of items from the Social Skills Improvement System—Teacher Rating Scale, several reliability and validity measures were obtained (Anthony, C. & DiPerna, J., 2016). These measures were included to evaluate the psychometric adequacy of the scores. Results of the current study provide further reliability and validity evidence for scores as identified by Anthony et al. (2016).

Observation is the most commonly used tool to gather information about a certain child in a classroom environment. It plays an important role in meeting the developmental needs of young learners. Observation is often seen as one of the most simple, yet effective methods of assessing young children as they develop (Spreeuwenberg, 2015). Also, observing the children can help better understand the strengths and weaknesses of each individual child. These observations can guide the teacher and help him/her make adjustments to the environment to improve a child's behavior and facilitate learning (Spreeuwenberg, 2015). Also, and more specifically as related to this study, observation was used for identifying impulsive and compulsive behaviors that the child exhibited. Also, it was used for identifying the social skills of each individual that may not be present in the scale. A checklist was prepared that included the behaviors that the students may exhibit in the classroom (see Appendix B).

Intervention (Data Collection Methodology)

As already been mentioned, both a control group and an experimental group were present in this study. However, only the experimental group was subject to the intervention. Children with autism (experimental group) took part in a total of 4 weekly active music therapy sessions each lasting about 40 minutes for 2 months. Sessions were provided within a group setting and were delivered for rehabilitation purposes in a well-defined, calm environment. The musical equipment in each session consisted of electric keyboards, drums, maracas, tambourines, claves, guiro, and castanets. Musical sessions consisted of live music experiences comprising a diverse range of active musical activities aiming to facilitate social engagement, to improve behavioral problems, and to enhance creative music making. During each session, three different musical activities were consecutively performed (i.e., drumming, piano playing, and singing). Each session was conducted by a music therapist, who actively

engaged participants in their musical performances. Progression was observed from one session to the other where students became more and more excited every time.

Before I started the intervention, parents of 32 students were contacted and informed about the study; all parents granted their consent for their children's participation in the study. Then, the teachers administered the Childhood Autism Rating Scale Second Edition (CARS-2) and the Social Skills Rating System (SSRS) on each of the 32 children in both the control and the experimental group because they are already familiar with the profile of each student in the classroom. These instruments helped me come up with a profile for each child, including his/her autistic symptoms, behavioral problems and social skills (if any). Also, I was observing the students during all sessions prior to the intervention. During these observation sessions, I recorded other impulsive and compulsive behaviors, their duration, and how many times they occurred during a certain session. For instance, one of the behaviors that students usually did, but was not mentioned in the scales is stomping their feet on the grounds. So, I recorded those behaviors and how much they occurred in a behavior checklist done by me, as they added information to the information already gathered from other scales. Moreover, I would be able to compare those behaviors to the behaviors the students will do post the intervention. In addition to that, I was also taking videos of students during the intervention in order to compare their progress, if any, from one session to the other. I used those videos to see if there were any improvements in the students' social skills and problem behaviors between one session and the other. Regarding videotaping, parents signed a paper asking them whether they would accept that their child would be videotaped during the music therapy sessions.

Children in the control group weren't subject to any treatment, yet they were receiving normal instruction in the classroom. The teacher came in to class, said "Good morning", and

started the lesson directly. The teacher gave the lesson through reading stories to the children, giving certain instructions without initiating any kind of music. She asked them questions regarding the story, then asked them to role-play. Also, children in the control group were engaged in activities such as reading stories to each other as partners. All of this took place without the children being subject to any type of treatment.

With respect to the experimental group, a music therapist, Emma Hutchinson, led the 16 children in the experimental group. As a child, Emma was given piano lessons and this led to her life long love with the piano and a fascination with playing all types of instruments. She took her piano diploma at Trinity College of Music and started teaching children. Alongside piano teaching, she became interested in early childhood music, developing her teaching work in nursery groups. This surprisingly led to her dream of having a music house full of children learning different instruments, with her living at the top. The Music House for Children was founded in 1994 as a not for profit music school to provide children in homes, nursery schools with musical learning, performance and training for teachers.

The music therapy approach that was used is the “Nordoff-Robbins (N-R)” approach, also known as “creative music therapy”. It was developed through the partnership of Paul Nordoff, an American pianist-composer, and Clive Robbins, an English special educator. This approach is music-centered, in which music is viewed as the most important feature of the therapy. In practice, this therapy involves both active and creative music-making by therapists and clients; much of it improvised. As a result, gains in areas such as socialization, communication, motor skills, or self-esteem can arise and be mirrored in personal and family life. In recent years, quantitative and qualitative research concerning the efficacy of N-R music therapy with clients with autism has begun to emerge. Edgerton’s (1994) study of the

effects of improvised music “based on Nordoff and Robbins (1977) Creative Music Therapy Approach” concluded that “improvisational music therapy is effective in eliciting and increasing communicative behaviors in autistic children within a musical setting.” Furthermore, Aldridge (1996) in his study of N-R music therapy with children diagnosed as developmentally delayed, reached a more expansive conclusion: “We can say that children, when they partake in improvised creative music therapy, achieve significant developmental milestones in comparison to those children who are not treated. Later, when a comparison of children are treated, they too rapidly achieve developmental goals.” In addition to this, an extensive qualitative research study of N-R group music therapy with clients with autism was undertaken by Aigen (1997). He found that music had a role in facilitating transitions and meeting individual and group needs and helped to enhance emotional expression.

There are two methods used in the N-R approach: realization and group clinical improvisation. Realization relies strongly on the use of precomposed pieces. These pieces involve a piano accompaniment played by a therapist and parts for instruments or voices realized by clients with the facilitation of the co-therapist, who usually has committed the various parts of the piece to memory. The method of realization offers certain benefits: *stimulation*—the realization environment that makes it a unique source of stimulation is that it is a tonal environment, *socialization*—realization provides a basic social awareness of other members of the music therapy group, and *community*—a sense of belonging and cohesion develops with the memory of the successful completion of pieces and the anticipation of new experiences. The person at the piano, designated the therapist, leads the group musically, and the person sitting within the group itself, designated the co-therapist, facilitates musical interactions with the therapist and among the group members themselves. The groups generally begin formally with the “hello song”, a greeting song composed specifically for the group by its leaders. Before the greeting song, music improvised by the therapist can

accompany the arrival of the children, reflecting what is perceived of their moods and energy levels. The greeting song functions to orient group members to time, place, and, to the presence or absence of others.

In the group clinical improvisation, group members are offered the opportunity to choose instruments and play together without a predetermined musical plan. Some benefits of group clinical improvisation are: *internal awareness*—clients become in touch with their inner creative processes, *realization of individual creative impulses*—clients express creative impulses and realize them in some tangible and audible form, *courage and self-esteem*—clients self-express themselves building more and more confidence, and *awareness of the activities of others*—clients will acknowledge the activities of leaders and peers by using them as bases for their own responses. So, whenever possible, the therapists give the clients independence in decision-making regarding choice of music and instruments. As well as being a right, choosing is a skill they need to develop. The therapist plays during this time, reflecting the interactions, movements, and choices of the clients, creating and interweaving themes that may reappear.

A session included several realizations, several improvisations, or a mix of both action methods. It generally concluded with a goodbye song. Each session conducted was videotaped. Before moving on to the following session, the actions and interactions of the clients were noted by the music therapist, as well as their different musical responses. The music therapist would be observing if the children were playing on the rhythm. So, she would be noting the actions made and whether students are improving from one session to the other.

Starting with the intervention, the group met 4 times a week for approximately 40 minutes. Each student has been assessed musically by the music therapist in an individual intake session at the school that ascertains his or her basic abilities to function in a group and

the ways in which music can be of value to him/her in treatment. No scores were recorded; the therapist noted down some comments about the assessment she did and all students were eligible to participate in the music therapy sessions. This assessment didn't affect the intervention in any way. Then, the music therapist grouped the 16 students from the experimental group in a music classroom where she seated them in a U-shape. Both, the music therapist and the co-therapist led the therapy group in each music session. The person at the piano—the music therapist—led the group musically and the person sitting within the group itself—the co-therapist—facilitated the musical interactions with the therapist and among the group members themselves. Below is a table summarizing the objectives of all the sessions implemented.

Table 1
Objectives of the Intervention Sessions Implemented

Sessions	Objectives
1→3	Getting along with the students with music in the background
4→6	The therapist playing the piano along with the taps of students on the guitar
7→8	Tapping on the guitar
9→14	Playing a beat along with the greeting song
15→19	Looking at the therapist and saying "hello" with music in the background
20→22	Using instruments to play whatever comes to the students' minds
23→30	Using the instruments along with the song "If You're Happy and You Know It"
31→32	Reviewing previous tasks after the holiday
33→35	Introducing themselves whenever they hear the song "Introducing One's Self"
36→37	Introducing themselves even when they don't hear the song
38→40	Reviewing all tasks learned during the intervention

The music therapist started the first session by trying to get along with the students since they don't react much with people, at least not all of them. However, she faced some

difficulty keeping them seated and they started doing tantrums, which she was sure will happen. In the second session, the music therapist went in the room and put some music (the “hello”—greeting—song) for the students to listen to. Some students started moving around, others started screaming and some of them started making some dance moves. The music therapist was a bit satisfied with what she saw because she wanted the students to interact with the music they heard. On the next day, and in the third session, the music therapist also started the session by playing the greeting song on the piano and the co-therapist joined her on the guitar. Also, students started moving around and making sounds, but some of them came closer to the co-therapist and started hitting on his guitar while he was playing. This made the music therapist so happy that she stopped playing the piano and whenever she saw the student was about to hit the strings of the guitar, she played a note on the piano along with his tap. This made all the other students calm down and listen to what the music therapist was doing along with the student. The music therapist continued doing this the whole session since she wanted to get the students’ attention and this is what was happening. With this type of students, the music therapist was always repeating the activity being done to keep them on task. Also, she sometimes divided the students into smaller groups where they would be able to perform better and stay on task. Furthermore, the therapist used a lot of reinforcements such as stickers, smiling faces, pieces of candy and a lot more to keep the students engaged during the sessions.

During the fourth session, the music therapist chose another student and made him sit next to the co-therapist and tried to make him do what the other student did in the previous session. She did this activity with 3 students for the whole session. On the fifth session, the music therapist continued doing the same activity with 6 students from the group and on the sixth session, she did it with the remaining 6 students. Moving on to the seventh session, the music therapist also played the greeting song while the students were entering the classroom.

This time, while the music therapist was playing the song, the co-therapist made the students sit in a circle and he sat in the middle of the circle with his guitar. He started with one of the students and taught him how to tap the guitar. For instance, he held the student's hand and tapped the guitar in a specific beat along with the music being played. The student was so excited while tapping on the guitar and he started making sounds with the music. Then, the co-therapist moved on to the students one by one and performed the same activity with all students during this session and the next session (eighth session).

On the 9th session, the music therapist decided to divide the 16 students into 4 groups so that the therapy would be more effective. Also, in her opinion, students would perform better when in smaller groups. So she had the first four students seated in front of her on a table and the rest were in their normal classroom until the next session. During this session, the music therapist started by teaching the 4 students a specific beat. She started with one student at a time until he/she mastered it. Then, she put the greeting song on and started doing the beat with the music. She expected the students to do the beat as well and they did; however, they needed the help of the co-therapist to at least start with the beat and then they continued alone. The music therapist and the co-therapist did this activity with the remaining three groups for the next 3 sessions. After this session, the music therapist put the whole students in one group again and this time she expected them all to do the beat along with the greeting song. Of course, the students needed the help of both the music therapist and the co-therapist to be able to do the beat. The therapists helped each of the students so that all are on the same track. When students were ready, the music therapist went back to the piano and the co-therapist went back to his guitar and the students were doing the beat. The music playing was a bit chaotic; however, it was good for a music therapist to hear the beat. During the next 3 sessions, the music therapist repeated the same activity all over to make sure that the students memorized the beat and were able to do it whenever they heard the greeting song.

Afterwards, the music therapist tried to explain to students that whenever they enter the classroom and the greeting song is on, they should look at the teacher, say “hello” and introduce themselves. The music therapist started with the first task where every time she went in the classroom and the greeting song was on, she looked at the co-therapist and said “hello”. She asked the students to do what she was doing. It was a bit difficult at first because some of the students don’t talk much; however, the music therapist tried her best. She did the activity with each of the students; it took her 2 sessions to do it with the 16 students. Session by session, some of the students were able to say “hello” whenever they entered the classroom; but other students needed some prompting from the therapists and this was expected. After 3-4 sessions, all students were able to look at the teacher and say “hello” whenever they heard the song.

On another day, and before introducing the second task, the music therapist grouped the 16 students and provided them with a big box of instruments. She asked the students to come and choose one of the instruments one by one. After each of the students took an instrument, the music therapist gave them the chance to play in whatever way they want. The music created is spontaneous as each member brings forth self-determined sounds from his/her individual instrument; this music is being created while fellow members are exploring their own instruments to create a group sound. Then, the music therapist started playing some music reflecting their interactions, movements, and choices, creating and interweaving themes that may reappear. The co-therapist, on the other hand, contributed musically by playing instruments or by directing others to create and sustain form and expression. Two sessions passed and the music therapist let the students play whatever they wanted using the instruments they chose.

After those two sessions, the music therapist played a new song on the piano: “If You’re Happy and You Know It” when the children entered the classroom and sat in their

places. Some of the students already knew the song and started clapping their hands and stamping their feet along with the song, but a lot of them didn't. However, the purpose of this task was for the students to use the instruments and play the beat instead of clapping their hands and stamping their feet. So the music therapist and the co-therapist taught the students the song and when to clap their hands and stamp their feet. It took the therapists 3 sessions to teach them the song. In the next session, and after all the students mastered the song and were able to clap their hands and stamp their feet along with it, the music therapist and the co-therapist divided the 16 students into two groups. They started with the first 8 students and provided them with the same instruments they were using in the previous sessions. The purpose of the task was for the students to be able to use the instruments instead of clapping their hands and stamping their feet. The music therapist started playing the song on the piano and the co-therapist was moving around the students to help them with playing the instruments. The co-therapist started with each student one by one and taught him/her how to use the instrument. It was very difficult for the co-therapist because the children needed time to grasp the concept and the class became chaotic. Some of the students were fast learners; other weren't. The co-therapist did this task the whole session and in the next session, he worked with the other group of students. It took the music therapist and the co-therapist 6 sessions to work with both groups on this task (3 sessions for each group alternatively). After this session, the music therapist and the co-therapist put all the 16 students together in one classroom again and provided them with the instruments. The music therapist played the song on the piano and expected the students to use the instruments like the co-therapist taught them. They actually did; however, they needed the help of the co-therapist at the beginning and then they were able to do it alone.

After that, the school was off for one week because of a national holiday and after it, the intervention was resumed. The two sessions directly after the holiday were a revision of

what the students took with the music therapist and the co-therapist before the holiday. First of all, the music therapist played the greeting song and checked whether students still remembered the beat. Some of them actually did; but some of them didn't and needed the help of the co-therapist. So the co-therapist helped the students and made them do the beat again to make sure they mastered it. In the next session, the music therapist reminded the students of the first task she taught them where they had to enter the classroom and say "hello" whenever they heard the greeting song. Of course, most of the students forgot this task because it's been a long time since they did it. So the music therapist and the co-therapist had to repeat the task in front of the students so that they remember it. After this task was mastered, and in the next session, the music therapist played the song "If You're Happy and You Know It" and this is when all students got excited and started dancing along with the song because they remembered it the most. The students started clapping their hands and stamping their feet along with the song. Then, the music therapist and the co-therapist provided the students with the instruments and left them to see whether they would play along with the song. Surprisingly, almost all of them students were able to use the instruments along with the music. The co-therapist helped only a few of the students and then they were able to do it alone. The music therapist did this activity for two sessions to make sure all students have mastered the task.

During the next session, the music therapist wanted to introduce the second task she wanted the students to do and this was to introduce themselves whenever they came into the classroom. So, she played a song about introducing one's self on the piano and she sang along with it. After the song was over, the music therapist stood up, said "hello" and introduced herself: "My name is Emma". While she introduced herself, she put her hand on her chest as if she was pointing to herself because some of the students lack verbal communication and are only able to point to themselves and say their names. Again, she

played the song and reintroduced herself so that the students try to focus on what she was doing and start to imitate her. In the next session, the music therapist divided the 16 students into 2 groups. She started with the first group (8 students) and played the introduction song again and showed them how she introduced herself. She then worked with each student, with the help of the co-therapist, where she showed each student how to point to themselves (putting their hand on the chest) and say his/her name. It was a bit challenging for the therapists, as they had to make the student memorize the move. However, with practice and with the help of the co-therapist, the students were able to introduce themselves by saying their names one by one. Then, during the next session, the therapists did the same activity with the second group (the other 8 students). It was also a bit challenging for them because of the lack of verbal communication in some of the students. But also, with practice and help, the students were able to do it. Then, the music therapist grouped all the students together and tried to do the activity. She played the song on the piano, sang along with it, and started moving around the students one by one so that they introduce themselves. Some of the students needed the help of the co-therapist; but a lot didn't. In the next two sessions, the music therapist and the co-therapist repeated the activity to make sure the students are now able to introduce themselves whenever they hear the song. But also, the music therapist wanted the students to introduce themselves even if the song was not on.

So, in the next session, the music therapist came in and introduced herself without putting the music on and she passed on the students one by one and made them introduce themselves. She tried to explain to the students how important it is to introduce themselves to people. So, she tried the activity again; the co-therapist took all the students outside the classroom and made them go in one by one and check whether they introduced themselves to the music therapist or not. Some of the students did introduce themselves; however some of the students needed the help of the music therapist. The music therapist was okay with what

the students did because she taught them a lot of things during the music therapy sessions and they wouldn't be able to memorize them all. This was the last task that the music therapist wanted to teach the students.

After all of these sessions, the music therapist wanted to do a revision of all the things she taught the students during those music therapy sessions. The next day, while students were entering the music therapy room, almost all of them looked at the music therapist and said "hello". The music therapist and the co-therapist were very surprised that the students learned this task and are able to perform it. Then, the music therapist started playing the greeting song to check whether the students still remembered the beat. Surprisingly, almost all of the students remembered the beat and started tapping it on the table while looking at the music therapist. Some students needed the help of the co-therapist. However, the music therapist was so excited that all students also became very excited while doing the beat. So, the music therapist kept on repeating the same song until all students were able to tap the beat together at the same time and along with the music. During the next session, the music therapist and the co-therapist provided the students with the same instruments they used in previous sessions. The music therapist played the "If You're Happy and You Know It" song on the piano and expected the students to use the instruments on the beat instead of clapping their hands and stamping their feet. The students somehow forgot what they should do; only a few were able to use the instruments properly. The co-therapist moved around the classroom to help the students and remind them of what they should do. After practice, the students started remembering what should be done and were able to use the instruments the right way. In the session after, the music therapist waited for the students to come from their classroom and made them come in the room one by one. Whenever a student came in, the music therapist reminded him/her how to put their hand on the chest and introduce him/herself. As already been mentioned, this task was quiet challenging because not all students have good

verbal communication; however, with a bit of practice and with the help of the music therapist, students were able to mention their names and introduce themselves. The music therapist and the co-therapist did this activity two times during the session. When time was over, the music therapist and the co-therapist took back the students to their classrooms.

After 2 months of music therapy intervention, the Childhood Autism Rating Scale and the Social Skills Rating Scale were administered again in order to come up with posttest scores regarding each child on both his/her behavior profile and social skills. These scales were filled again by the students' teachers. These scores helped me check whether the music therapy intervention has improved the behavior profile and social skills of children affected with mild autism or not.

I also observed the children for one week after the intervention for my results to be more reliable. I observed their impulsive and compulsive behaviors and how much they occurred during the sessions. I recorded them on paper so that I can compare them with their behaviors prior to the intervention.

Data Analysis

I reported pre-post means for both the control group and the experimental group. I ran an ANCOVA to ensure the equivalence of groups on the pre-test and see the effect of the intervention. Analysis of covariance consists of at least one categorical independent variable and at least one interval natured independent variable—the categorical independent variable is termed as a factor, whereas the interval natured independent variable is termed as a covariate.

So, this test was applicable for this study and helped me analyze the scores and data that were collected after the music therapy intervention. With respect to observation, I believe its use was very important because I was able to observe certain behaviors that children do in class that weren't revealed with the different scales. I noted down behaviors, social reactions to intervention, and any changes in behavior. Observations were summarized and were compared to results of quantitative assessment to see to what extent they supported them.

The following statistical procedures were carried out:

- a. Descriptive statistics for the overall scores of social skills and behavioral profile on the pre- and post-tests for the experimental and control groups.
- b. ANCOVA (Univariate) on the pre- and post-tests of the overall scores of social skills and behavioral profile for the experimental and control assessment groups. ANCOVA was used because it accounts for the pre-test scores.

CHAPTER IV

Results

Introduction

This chapter presents the results obtained for the study. First, this chapter begins with sample description, then presents results of the CARS and preliminary analysis, and subsequently, we move on to answering the two research questions.

Sample Description

The study included 23 (71.9%) males and 9 (28.1%) females from Grade 2 with a mean age of 7 years. The children were selected randomly from the students enrolled in the school and who are affected with autism. Students were selected based on whose parents gave consent to participate in the study. Each participant was evaluated a total of two times by his/her teacher. The teacher filled in the Childhood Autism Rating Scale (CARS) and the Social Skills Improvement System (SSIS) for each of the students before intervention and after the intervention. No evaluation was missed by the participants, leading to a total study completion rate of 100%. Every participating child had a pre- and a post-intervention score on CARS and SSIS regardless of the group they were in. However, some items were missing on the subscales of the SSIS; the manual of the scale had a formula for compensating for these missing items and eventually every participant with a missing score on the subscales had an adjusted final score.

Reporting the Results of the Childhood Autism Rating Scale

Before the intervention, the descriptives for the Childhood Autism Rating Scale (CARS) were calculated for each of the experimental and the control group. The study included 32 participants with no missing scores. The mean and standard deviation obtained

on the CARS for the experimental group were ($M= 33.59$, $SD= 1.95$), while for the control group, the descriptives on CARS were ($M= 33.25$, $SD= 2.54$). The midpoint of the CARS is $(15*4)/2 = 30$. The mean on the CARS is at the 56 percentile, which is higher than the actual midpoint of the scale; therefore, these students have high levels of autistic symptoms.

Post intervention, the descriptives obtained on the CARS for the experimental group were ($M=31.09$, $SD=1.58$). The descriptives obtained on the CARS for the control group were ($M=34.53$, $SD=2.11$). The results for the experimental group post intervention showed that the mean for the CARS was ($M=31.09$), decreasing to the 51.81 percentile. This is higher than the midpoint of the scale and consequently the students were still experiencing higher than the average autistic symptoms.

The results for the control group pre intervention showed that the mean for the CARS was ($M = 33.25$). Thus, it is at the 55.41 percentile, which is higher than the actual midpoint of the scale; therefore, these students have high levels of autistic symptoms. The results for the control group post intervention showed that the mean for the CARS was ($M=34.53$), increasing to the 57.55 percentile. This is higher than the midpoint of the scale and consequently the students were still experiencing higher than the average autistic symptoms.

Preliminary Analysis

Prior to the intervention, the descriptives for the subscales of the Social Skills Improvement System (SSIS) were also computed. For the experimental group, the mean of the Social Skills Subscale was ($M=41.68$) and the mean of the Problem Behaviors Subscale was ($M=28.12$). For the control group, the mean of the Social Skills Subscale was ($M=47.25$) and the mean of the Problem Behaviors Subscale was ($M=24.18$).

After the implementation of the intervention, the descriptives for the subscales of the SSIS were also reported. For the experimental group, the mean of the Social Skills Subscale

became ($M=62.62$) and the mean of the Problem Behaviors Subscale became ($M=14.31$). For the control group (Table 2), the mean of the Social Skills Subscale became ($M=46.93$) and the mean of the Problem Behaviors Subscale became ($M=24.31$).

Table 2
Descriptive Statistics for the Experimental and Control Group Pre and Post Intervention

	N	Experimental						Control					
		Pre			Post			Pre			Post		
		Median	M	SD	Median	M	SD	Median	M	SD	Median	M	SD
CARS	16	33.5	33.59	1.95	30.75	31.09	1.58	33	33.25	2.54	34.25	34.53	2.11
Social Skills Scale	16	39.5	41.68	28.88	57.5	62.62	24.07	34.5	47.25	30.3	34.5	46.93	29.88
Problem Behaviors Scale	16	26.5	28.12	6.94	13.5	14.31	4.33	26	24.18	6.68	26	24.31	6.51
Academic Competence Scale	16	10	11.25	9.07	9	11.12	9.09	15	13.25	8.44	15	13.25	8.44
Autism Spectrum Scale	16	30	28.12	8.19	20.5	19.37	5.74	27.5	25.31	9.62	27.5	25.37	9.49

Research Question 1

The first research question of this study was “Did the behavior profile of children with mild autism improve when being taught using the interactive music therapy approach?”. The results for the experimental group pre intervention showed that the mean for the Problem Behaviors Scale was ($M = 28.12$). The midpoint of the Problem Behaviors Scale is $(30*3)/2 = 45$. The mean on the Problem Behaviors Scale is at the 31.24 percentile, which is lower than the actual midpoint of the scale; therefore, these students have low levels of problem behaviors. The results for the experimental group post intervention showed that the mean for the Problem Behaviors Scale was ($M=14.31$), decreasing to the 15.9 percentile. This is lower than the midpoint of the scale and consequently the students experience less than the average problem behaviors.

The results for the control group pre intervention showed that the mean for the Problem Behaviors Scale was ($M = 24.18$). The mean on the Problem Behaviors Scale is at

the 26.86 percentile, which is lower than the actual midpoint of the scale; therefore, these students have low levels of problem behaviors. The results for the control group post intervention showed that the mean for the Problem Behaviors Scale was ($M=24.31$), increasing to the 27.01 percentile. This is lower than the midpoint of the scale and consequently the students experience less than the average problem behaviors.

ANCOVA Test was conducted to check for effect of intervention after controlling for any pre intervention differences, and the results indicated that there was a significant difference in the means after the music therapy intervention between the experimental and control groups at the levels of their problem behaviors after controlling for pre-intervention levels $F(1, 31) = 219.29, p < 0.001$ (see Table 3).

Research Question 2

The second research question in this study was “Did the social skills report of children with mild autism show improvements after an interactive music therapy approach?”. The results for the experimental group pre intervention showed that the mean for the Social Skills Scale was ($M = 41.68$). The midpoint of the Social Skills Scale is $(46*3)/2 = 69$. The mean on the Social Skills Scale is at the 30.20 percentile, which is lower than the actual midpoint of the scale; therefore, these students have low levels of social skills. The results for the experimental group post intervention showed that the mean for the Social Skills Scale was ($M=62.62$), increasing to the 45.37 percentile. This is lower than the midpoint of the scale and consequently the students have lower than the average social skills, however higher than their social skills pre intervention.

The results for the control group pre intervention showed that the mean for the Social Skills Scale was ($M = 47.25$). The mean on the Social Skills Scale is at the 34.23 percentile, which is lower than the actual midpoint of the scale; therefore, these students have low levels

of social skills. The results for the control group post intervention showed that the mean for the Social Skills Scale was ($M=46.93$), becoming at the 34.00 percentile. This is lower than the midpoint of the scale and consequently the students experience less than the average social skills and their social skills decreased in the absence of the music therapy intervention.

ANCOVA Test was conducted and the results indicated that there was a significant difference in the means after the music therapy intervention between the experimental and control groups at the levels of their social skills after controlling for pre-intervention levels $F(1, 31) = 108.82, p < 0.001$ (see Table 3).

Table 3
Results of ANCOVA for Behavior Profile and Social Skills

	Adjusted R ²	F	df	p
Behavior Profile	0.89	219.29	1,31	0.001
Social Skills	0.96	108.82	1,31	0.001

Observation Results

I observed students before, during, and after the intervention. As a result, I was able to compare their problem behaviors and their social skills prior to the intervention and post intervention. Prior to the intervention, students exhibited a lot of problem behaviors such as leaving their seat every now and then, screaming and making inappropriate sounds, hitting each other, etc. On the other hand, students didn't show enough social skills such as eye contact, saying "hello" or introducing themselves to others. Post intervention, the problem behaviors of students decreased, while their

social skills increased. Students exhibited less problem behaviors where they were now able to control their behaviors and not fidget much, and they also stopped hitting each other. Their social skills increased where students were now able to do eye contact, say “hello” when they enter the classroom and introduce themselves to people. Furthermore, I took videos of students during the intervention and progress was shown from one session to the other. Students were more excited every session and they were showing progress in playing beats using the music instruments and in applying the tasks learned from the therapists. They became more aware of how the sessions go and their behaviors changed completely. No more maladaptive behaviors—fidgeting, hitting one another, leaving their seats without permission—were shown. Students started saying “hello” whenever they entered the classroom, as well as introducing themselves to the therapists. Moreover, students started showing eye contact to the therapists and to their classmates.

Conclusion

In conclusion, every student had a pre- and post-intervention score on the CARS and SSIS. The descriptives for the CARS and for the subscales of the SSIS were reported for both the experimental group and the control group. After running the ANCOVA test, results showed that there was a significant difference in the means after the music therapy intervention between the experimental and the control groups at the levels of their problem behaviors and social skills.

CHAPTER V

Discussion

Introduction

As already has been mentioned, the purpose of this study was to investigate whether a musical training program based on interactive music therapy sessions enhanced the behavioral profile and the social skills of young children affected by mild autism. To achieve this purpose, a music intervention program was developed and implemented and data was collected from teachers who completed two scales on autism and social skills. Based on the collected and analyzed data, the research questions will be hereby discussed. Limitations, conclusions, and recommendations for future research and practice are also presented in this chapter.

Reflection on the Childhood Autism Rating Scale

The Childhood Autism Rating Scale (CARS) was administered to check that all students are diagnosed with mild autism. This was proven, as their scores on CARS validated this fact. According to the scale, those who score between 30 and 36 are diagnosed with mild autism (see Appendix A). Before intervention, the mean and standard deviation obtained on the CARS for the control group were ($M= 33.25$, $SD= 2.54$) and for the experimental group were ($M= 33.59$, $SD= 1.95$). Post intervention, the descriptives obtained on the CARS for the control group were ($M=34.53$, $SD=2.11$) and for the experimental group were ($M=31.09$, $SD=1.58$). It is shown that the mean of the control group increased after intervention, although we didn't test for the significance of this change. This means that the autistic symptoms of students increased in the absence of the music therapy intervention. The percentile of the experimental group decreased post intervention (from 56% to 52%), which means that students exhibited less frequently autistic symptoms. This as a result validated the

effectiveness of the music therapy intervention in lessening the occurrence of autistic symptoms. Thus, this decrease in the percentile is significant; the music therapy intervention did significantly lessen the likelihood of their autistic symptoms. The percentile of the control group increased post intervention, meaning that those who didn't receive the treatment regressed. However, we didn't test for the significance of this change.

The Relationships: Music Therapy and Behavior Profile

This study found that music therapy and behavior profile are significantly related. Regarding the first research question of “Did the behavior profile of children with mild autism show improvements after an interactive music therapy approach?”, students differed significantly at the level of their behavior profile. The problem behaviors of these children decreased after being subject to the music therapy intervention. The study's findings of music therapy intervention and behavior profile were further validated by the significant relationships found in other studies among children with autism (Brownell, 2002; Boso, Emanuele, Minazzi, Abbamonte, and Politi, 2007; Kim, Wigram, and Gold, 2008; Kim, Wigram, and Gold, 2009; See, 2012; Shi, Lin, and Xie, 2016). In Boso, Emanuele, Minazzi, Abbamonte and Politi's study, a total of young adults with ASD were recruited from a single farm community center specifically designed for individuals with autism and the diagnosis of ASD was confirmed in all participants jointly by two independent psychiatrists specializing in ASDs. All patients scored more than 30 on the CARS and they didn't have any previous musical training. These patients with autism took part in a total of 52 weekly active music therapy sessions each lasting about one hour and the sessions were provided within a group setting. The musical equipment in each session consisted of a piano, electric keyboards, and drums. Musical sessions consisted of live music experiences comprising a diverse range of active musical activities aiming to facilitate social engagement, to improve behavioral problems, and to enhance creative music making. Clinical and musical ratings were done

three times: at baseline, at 26 weeks, and at the end of the 52-week training period. Clinical ratings included the Clinical Global Impressions—Severity (CGI-S) scale, the Clinical Global Impressions—Improvement (CGI-_I) scale, and the Brief Psychiatric Rating Scale (BPRS). The CGI-S scale was used to assess the patient's symptoms at baseline, and the CGI-_I scale was used throughout the study. The BPRS consists of a 24-item semi structured interview to assess psychiatric symptoms such as: psychomotor agitation, aberrant behavior, and lack of interaction with peers or therapists. Musical ratings included a musical skills questionnaire for each participant. After the music therapy intervention, data analysis was performed. Analysis revealed a significant improvement in patients' BPRS from baseline to after the intervention, which means that their problem behaviors decreased. Similarly significant increases in music skills emerged from baseline to the end of the 52-week music session training. In another study done by Kim, Wigram, and Gold (2009) on emotional, motivational and interpersonal responsiveness of children with autism in improvisational music therapy, children aged between 3 and 5 were recruited from the Department of Child and Adolescent Psychiatry at Seoul National University Hospital (SNUH), Korea. A repeated measures, within-subject comparison design was used, where each child had toy play sessions compared with improvisational music therapy sessions of the same duration consisting of weekly 30 minutes sessions for 12 consecutive weeks in each condition. Children were randomly assigned either to have the music therapy sessions first and the toy play sessions later, or vice versa. The therapists in music therapy were instructed to interact with the child mainly through music, whereas the therapists in the toy play condition were instructed to engage the child by any means, but to avoid any musical media, such as singing or rhythmic playing. Observed behaviors were recorded in terms of both their frequency and their duration. Each target behavior was coded during joint engagement episodes, which were defined as a three-way exchange that involved the child (self), the therapist (another), and objects or events in

either musical form or toy play. During data analysis, a repeated measures analysis of variance (ANOVA) determined the interaction of all variables to establish whether changes were statistically significant. The results of the ANOVAs found a marked difference between the effects of improvisational music therapy and toy play session ($p < 0.05$). The most relevant findings from the analysis of behaviors to ours in the sessions were social-motivational aspects of musical interaction whereby improvisational music therapy produced ‘joy’ and ‘emotional synchronicity’ events that were significantly more frequent and of a longer duration than in the toy play condition, which was linked to the degree of spontaneous ‘initiation of engagement’ behaviors in children. While children with autism are generally found to have impaired perception of linguistic and social auditory stimuli (Boddaert et al., 2004), they are also reported to possess either intact or somewhat superior musical perception compared with their typical and clinical control group of individuals (Thaut, 1988).

So, the study demonstrates a relationship between music therapy and behavior profile of children affected with autism. In line with the hypothesis, music therapy intervention causes an improvement in the problem behaviors of autistic children as the problem behaviors decrease after being subject to the intervention. This has been shown in a lot of studies about the effectiveness of music therapy intervention on the behavior profile of children affected with autism. It has also been shown in the answers of teachers on the Childhood Autism Rating Scale and the Social Skills Improvement System, which included detailed items on social skills and problem behaviors. There was a significant difference in the means before and after the music therapy intervention between the experimental and control groups at the level of their problem behaviors. Before intervention, the results for the experimental group showed that the mean for the Problem Behavior Subscale is ($M=28.12$) and it is at the 31.24 percentile, which is lower than the midpoint of the scale. This means that these students have low levels of problem behaviors; however, they are somehow above

the average problem behaviors because the percentile is closer to the midpoint of the scale. Post intervention, the results for the experimental group showed that the mean for the Problem Behaviors Subscale is ($M=14.31$) decreasing to the 15.9 percentile, which is also lower than the midpoint of the scale; however, students now experience less than the average problem behaviors. This data suggests that music therapy intervention plays an important role in decreasing problem behaviors of children affected with autism.

In the light of the Nordoff-Robbins theory, an improvised music therapy improves the behavior profile of children with ASD (Dimitriadis & Smeijsters, 2011). With respect to Nordoff and Robbins, improvised or “creative” music therapy, by mirroring the core impulses of motivation and emotional states, offering rhythmic coherence, continuity and balance of emotional change, can reach the sensibilities of an autistic client and give form and consistency to motivation (Aldridge, 1996; Robarts, 2000, & Wigram, 2000). In addition to that, improvisational music therapy can improve disturbed autistic client’s alertness, calming excesses of action, and giving coordination to movement. It can aid regulation of emotion and moderate the bodily expression of moods, reducing anxiety and stress. Consequently, when the moods, anxiety and stress of a client are moderated, the problem behaviors of those children would decrease (Nordoff & Robbins, 2004). In our study, findings support Nordoff-Robbins theory during which problem behaviors of children decreased after the improvisational music therapy approach. For instance, children stopped hitting and bullying each other, destroying others’ property and calling each other names. Furthermore, children are now following classroom rules and participating in the classroom.

Similar research showed that interactive music therapy has a positive effect on the behavior profile and musical skills in young children affected with severe autism (Boso, M., Emanuele, E., Minazzi, V., Abbamonte, M., and Politi, P., 2007). Behavior profile included behaviors such as: hitting other classmates, fidgeting in one’s chair, moving out of seat

without permission, etc. Furthermore, another study was conducted on the emotional, motivational, and interpersonal responsiveness of children with autism in improvisational music therapy. The study employed a single subject comparison design in two different conditions; improvisational music therapy and toy play sessions. Improvisational music therapy produced markedly more and longer events of ‘joy’, ‘emotional synchronicity’ and ‘initiation of engagement’ behaviors in the children than toy play sessions (Kim, J., Wigram, T., and Gold, C., 2009). So, the results of this exploratory study found significant evidence supporting the value of music therapy in promoting social, emotional and motivational development in children with autism. Moreover, a literature search was conducted to investigate the effects of music therapy on mood, language, behavior, and social skills in children with autism. After the use of various scales, such as the Clancy Autism Behavior Scale, the Childhood Autism Rating Scale (CARS), the Autism Behavior Checklist (ABC), the Gesell Developmental Scale, and the Autism Treatment Evaluation Checklist (ATEC), it was shown that music intervention was conducive to behavior improvement in children with autism in terms of social skills and problem behavior (Shi, ZM., Lin, GH., & Xie, Q., 2016). In another study done on the effect of a musical presentation of social story information on the behaviors of students with autism, the results suggested that the use of a musically adapted version of social stories is an effective and viable treatment option for modifying behaviors with this population (Brownell, M., 2002).

Other research is not in agreement with the findings of this present study. JAMA (2017) claim that music therapy intervention doesn’t improve the problem behaviors of children affected with autism. Also, Gold and his colleagues (2017) believed that research done on music therapy and autism was still based on multiple small analyses, so they couldn’t be sure that it worked. As a result, Gold and his colleagues divided a randomized sample of 364 children with autism into two cohorts where 182 received routine counseling

with the music therapy intervention and 182 were provided with just routine counseling. After 5 months, both groups improved marginally—the improvement was small—and it was similar whether or not children received music therapy.

The Relationships: Music Therapy and Social Skills

Evidence collected from this study validate the relationship of music therapy with social skills and that they are significantly related. Regarding the second research question of “Did the social skills report of children with mild autism show improvements after an interactive music therapy approach?”, students differed significantly at the level of their social skills. The findings are in agreement with previous research studies on children with autism (Brownell, 2002; Pasiali, 2004; Kim, Wigram, and Gold, 2009; Schwartzberg and Silverman, 2013; Lagasse, 2014; Shi, Lin, and Xie, 2016; McFerran, Thompson, and Bolger, 2016).

In line with the hypothesis, music therapy intervention results in an improvement in the social skills of these children, in which social skills in students increase after being subject to the intervention. This has been shown in the answers of teachers on the Childhood Autism Rating Scale and the Social Skills Improvement System, which included detailed items on social skills and problem behaviors. There was a significant difference in the means before and after the music therapy intervention between the experimental and control groups at the level of their social skills. Before intervention, the results for the experimental group showed that the mean for the Social Skills Subscale is ($M=41.68$) and it is at the 30.20 percentile, which is lower than the midpoint of the scale. This means that these students have low levels of social skills. Post intervention, the results for the experimental group showed that the mean for the Social Skills Subscale is ($M=62.62$) increasing to the 45.37 percentile, which is also lower than the midpoint of the scale, however higher than their social skills pre

intervention. This data suggests that music therapy intervention plays an important role in increasing social skills of children affected with autism.

Results contribute to the discussion on having music therapy and social skills significantly related. Converging to such conclusion aligns the study's findings with those reported in the meta-analysis of Shi, Lin, and Xie (2016) and Li (2016). Despite different demographics (i.e. age group, context of Lebanon, ...), this study still converged to findings confirmed in this meta-analysis, which included all research articles describing randomized controlled trials (RCTs) that evaluated the intervention effects of music therapy on children with autism. The experimental group used music therapy or music therapy in conjunction with other therapies. The control group used non-music therapy. The music therapy included listening to music, singing, playing a musical instrument, performing music, and musical storytelling, among other methods. Mood, language, behavior, sensory perception, and social skills in children with autism were evaluated using the Clancy Autism Behavior Scale, the Childhood Autism Rating Scale, the Autism Behavior Checklist, the Gesell Developmental Scale, and the Autism Treatment Evaluation Checklist. The highest the score was, the more severe the manifestation of symptoms was. Music therapy intervention was implemented and data analysis showed significant findings between music therapy and each of mood, language, behavior, sensory perception, and social skills. Henceforth, those who received the music therapy intervention showed improvements in their social skills. Another study was conducted by Boso, Emanuele, Minazzi, Abbamonte, and Politi in 2007 to explore the effect of interactive music therapy on behavior profile and social skills in young children with severe autism. The results of this study have shown that there were significant improvements in social skills, behavior, and musical skills of children affected with autism. Similar research showed that using a music therapy approach to learning increases communication in children with autism and this increase is encouraging (AMTA, 2002). In addition to that, the results of

the data show that subjects in the study were able to give more eye contact and to give more instances of verbal responses during the music therapy approach (AMTA, 2002).

In the light of the Nordoff-Robbins theory, an improvised music therapy enhances a lot of skills in children with ASD and prominently their communication (Dimitriadis & Smeijsters, 2011). With respect to Nordoff and Robbins, improvised music therapy, which is immediately responsive to any musical “statement” the client may make, can engage pleasure on human contact and promote intimate and developing communication, engendering a relationship of affection and trust, and encouraging more coherent purposefulness, awareness, and memory. Even when verbal communication is severely reduced or impossible, the client is still offered the opportunity to express him/herself (Trevarthen, 2002). In this approach, the therapist uses the intrinsic communicative musicality of the client in order to open awareness for communication and facilitate meaningful speech for those with little language. In our study, findings support Nordoff-Robbins theory during which eye contact, introducing oneself to others and greeting improved after the improvisational music therapy approach.

Other research had contradictory findings. Seaman (2017) claims that music therapy doesn't improve social skills in children affected with autism. Researchers found that children with ASD in nine countries scored similarly on a test of their social skills whether or not they had received music therapy. Furthermore, Gold (2017) stated that: “Music therapy-like many other interventions that have been suggested-doesn't improve autistic symptoms, including problem behaviors and social skills.” In another study, published by JAMA (2017), Norwegian researcher found that children who participated in improvisational music therapy and standard care didn't have an improvement of their symptoms any more than those who received only standard care for autism spectrum disorder (ASD).

Limitations of the Study

This study has its limitations. First, the findings of this study were based on teacher-reported data only and not on the students' parents as well. So, the social skills and problem behaviors of children were only reported in the school setting.

Second, the study was implemented only on students in a specific school and not on a representative sample of children affected with autism in Lebanon. Therefore, the findings of this study can't be generalized to all learners affected with autism in Lebanon.

Third, the study was implemented on 32 students only since those were the ones who were affected with mild autism. So, the sample size is small and more students should have been included in the study.

Fourth, the participation in this study was restricted to 7-year old learners who are enrolled in the school. Thus, it is not possible to claim that the obtained results are applicable to all learners in Lebanon, across the different age groups and grade levels.

Fifth, some participants were not there for all sessions. This may be a limitation to our study since differences in the behavior might be affected by other factors such as time of day and other activities.

Sixth, it is true that the scales used are not validated to the Lebanese population. However, CARS is known to be the gold standard scale used with children with autism.

Conclusion

The current study investigated whether a musical training program based on interactive music therapy sessions enhanced the behavioral profile and the social skills of young children affected by mild autism. The results presented in the study evidently display

that music therapy and social skills are significantly related. Above this, the results also validated that music therapy and behavior profile are significantly related.

The results obtained extended the existing international literature and addressed the gap in the literature studying music therapy, social skills and behavior profile in Lebanon. The study contributed to understanding the relationship between music therapy and social skills, as well as the relationship between music therapy and behavior profile. Accordingly and based on above findings, we can propose the following set of recommendations for future research and practice at the levels of the schools.

Recommendations for Future Research

Just as every end is a new beginning, every concluding study is an invitation for future research; research that accounts for the limitations of previous studies, builds on their findings, and enriches the literature. First, researchers are advised to enlarge their geographical boundaries. They might include children with autism from other cities than Saida and/or reach out to the different governorates of Lebanon. This will make the study and its findings more representative of children with autism. Second, researchers are recommended to account for different demographic factors. This could be done by including children with autism who are enrolled in public schools. This helps draw well-informed conclusions for the sample becoming more representative of the children's population. Other demographical alterations could be engaging participants from various ages, grade levels and levels of autism in order to study similar relationships in the same Lebanese context. Researchers would then compare within these groups and across them as well. Third, researchers are urged to investigate the relationships between music therapy intervention and each of social skills and behavior profile with different methods. Utilizing and triangulating qualitative and quantitative data would help us better understand the existing relationships and their underpinnings. Additionally, studies with larger sample sizes are needed. This

would help us find out whether similar encouraging results can be generalized beyond what occurred in this experimental study. While addressing the sample size, it is important to assess the efficacy of specific applications of music in the treatment of children and adolescents with autism. Last but not least, this study shows how the measurement tools can impact the research results. By increasing the standardization of measurement tools in music therapy clinical work and research, more specific results detailing treatment methods pertaining to clinical practice can be achieved.

Recommendations for Practice

This study sought to enhance practice as much as it sought to contribute to research and the literature. In order to serve practice, the study proposes some recommendations concerning music therapy, autism, social skills and behavior profile. These recommendations are informative for stakeholders and don't intend to present a "cure" for autism.

To improve practice, music therapists may try to use pictures in combination with the adapted songs in order for children with autism to better recall the information. In addition to that, music therapists may use other types of music therapy—other than the "Nordoff-Robbins" approach—to check whether different approaches also improve social skills and behavior profile of children affected with autism.

Furthermore, scientifically based and effective practice methods should be used with children affected with autism. The method chosen should be properly matched to the needs of a particular student and the planning team. The strategy can be expected to work effectively only if it is correctly applied by a knowledgeable professional or group of professionals. The best programs appear to be those that incorporate a variety of objectively verified practices and that are designed to address and support the needs of individual students and the professionals and families with whom they are linked (National Research Council, 2001; Olley, 1999).

In conclusion, and notwithstanding its limitations, this current study provides preliminary evidence demonstrating the beneficial effect of interactive music therapy in a group of children with mild autism. Because music seemed to be of usefulness for certain core domains of autism, a randomized controlled trial of interactive music therapy in autism is warranted.

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Appendix A

I. Childhood Autism Rating Scale-2nd Edition (CARS-2)

C·A·R·S

The Childhood Autism Rating Scale

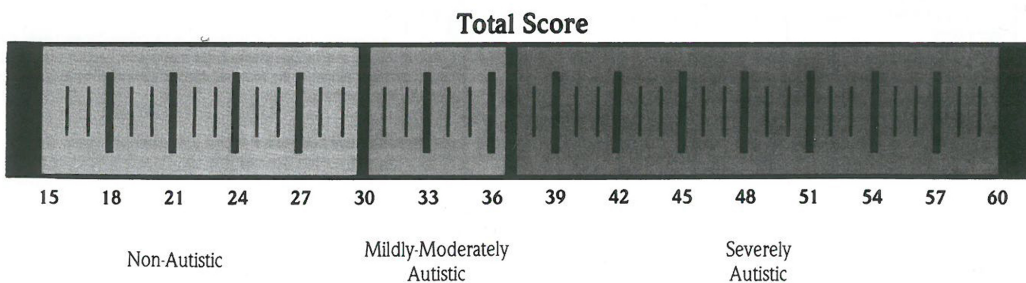
Eric Schopler, Ph.D., Robert J. Reichler, M.D.,
and Barbara Rothen Renner, Ph.D.

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Name: _____	Sex: _____	
ID Number: _____		
Test Date: Year _____	Month _____	Day _____
Birth Date: Year _____	Month _____	Day _____
Chronological Age: Years _____	Months _____	
Rater: _____		

Category Rating Scores															
I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	Total Score



• CARS Rating Sheet •

Directions: For each category, use the space provided below each scale for taking notes concerning the behaviors relevant to each scale. After you have finished observing the child, rate the behaviors relevant to each item of the scale. For each item, circle the number which corresponds

to the statement that best describes the child. You may indicate the child is between two descriptions by using ratings of 1.5, 2.5, or 3.5. Abbreviated rating criteria are presented for each scale. See chapter 2 of the Manual for detailed rating criteria.

I. RELATING TO PEOPLE

- 1** **No evidence of difficulty or abnormality in relating to people** • The child's behavior is appropriate for his or her age. Some shyness, fussiness, or annoyance at being told what to do may be observed, but not to an atypical degree.
- 1.5
- 2** **Mildly abnormal relationships** • The child may avoid looking the adult in the eye, avoid the adult or become fussy if interaction is forced, be excessively shy, not be as responsive to the adult as is typical, or cling to parents somewhat more than most children of the same age.
- 2.5
- 3** **Moderately abnormal relationships** • The child shows aloofness (seems unaware of adult) at times. Persistent and forceful attempts are necessary to get the child's attention at times. Minimal contact is initiated by the child.
- 3.5
- 4** **Severely abnormal relationships** • The child is consistently aloof or unaware of what the adult is doing. He or she almost never responds or initiates contact with the adult. Only the most persistent attempts to get the child's attention have any effect.

Observations:

III. EMOTIONAL RESPONSE

- 1** **Age-appropriate and situation-appropriate emotional responses** • The child shows the appropriate type and degree of emotional response as indicated by a change in facial expression, posture, and manner.
- 1.5
- 2** **Mildly abnormal emotional responses** • The child occasionally displays a somewhat inappropriate type or degree of emotional reactions. Reactions are sometimes unrelated to the objects or events surrounding them.
- 2.5
- 3** **Moderately abnormal emotional responses** • The child shows definite signs of inappropriate type and/or degree of emotional response. Reactions may be quite inhibited or excessive and unrelated to the situation; may grimace, laugh, or become rigid even though no apparent emotion-producing objects or events are present.
- 3.5
- 4** **Severely abnormal emotional responses** • Responses are seldom appropriate to the situation; once the child gets in a certain mood, it is very difficult to change the mood. Conversely, the child may show wildly different emotions when nothing has changed.

Observations:

II. IMITATION

- 1** **Appropriate imitation** • The child can imitate sounds, words, and movements which are appropriate for his or her skill level.
- 1.5
- 2** **Mildly abnormal imitation** • The child imitates simple behaviors such as clapping or single verbal sounds most of the time; occasionally, imitates only after prodding or after a delay.
- 2.5
- 3** **Moderately abnormal imitation** • The child imitates only part of the time and requires a great deal of persistence and help from the adult; frequently imitates only after a delay.
- 3.5
- 4** **Severely abnormal imitation** • The child rarely or never imitates sounds, words, or movements even with prodding and assistance from the adult.

Observations:

IV. BODY USE

- 1** **Age appropriate body use** • The child moves with the same ease, agility, and coordination of a normal child of the same age.
- 1.5
- 2** **Mildly abnormal body use** • Some minor peculiarities may be present, such as clumsiness, repetitive movements, poor coordination, or the rare appearance of more unusual movements.
- 2.5
- 3** **Moderately abnormal body use** • Behaviors that are clearly strange or unusual for a child of this age may include strange finger movements, peculiar finger or body posturing, staring or picking at the body, self-directed aggression, rocking, spinning, finger-wiggling, or toe-walking.
- 3.5
- 4** **Severely abnormal body use** • Intense or frequent movements of the type listed above are signs of severely abnormal body use. These behaviors may persist despite attempts to discourage them or involve the child in other activities.

Observations:

V. OBJECT USE

- 1** **Appropriate use of, and interest in, toys and other objects** • The child shows normal interest in toys and other objects appropriate for his or her skill level and uses these toys in an appropriate manner.
- 1.5**
- 2** **Mildly inappropriate interest in, or use of, toys and other objects** • The child may show atypical interest in a toy or play with it in an inappropriately childish way (e.g., banging or sucking on the toy).
- 2.5**
- 3** **Moderately inappropriate interest in, or use of, toys and other objects** • The child may show little interest in toys or other objects, or may be preoccupied with using an object or toy in some strange way. He or she may focus on some insignificant part of a toy, become fascinated with light reflecting off the object, repetitively move some part of the object, or play with one object exclusively.
- 3.5**
- 4** **Severely inappropriate interest in, or use of, toys or other objects** • The child may engage in the same behaviors as above, with greater frequency and intensity. The child is difficult to distract when engaged in these inappropriate activities.

Observations:

VI. ADAPTATION TO CHANGE

- 1** **Age appropriate response to change** • While the child may notice or comment on changes in routine, he or she accepts these changes without undue distress.
- 1.5**
- 2** **Mildly abnormal adaptation to change** • When an adult tries to change tasks the child may continue the same activity or use the same materials.
- 2.5**
- 3** **Moderately abnormal adaptation to change** • The child actively resists changes in routine, tries to continue the old activity, and is difficult to distract. He or she may become angry and unhappy when an established routine is altered.
- 3.5**
- 4** **Severely abnormal adaptation to change** • The child shows severe reactions to change. If a change is forced, he or she may become extremely angry or uncooperative and respond with tantrums.

Observations:

VII. VISUAL RESPONSE

- 1** **Age appropriate visual response** • The child's visual behavior is normal and appropriate for that age. Vision is used together with other senses as a way to explore a new object.
- 1.5**
- 2** **Mildly abnormal visual response** • The child must be occasionally reminded to look at objects. The child may be more interested in looking at mirrors or lighting than peers, may occasionally stare off into space, or may also avoid looking people in the eye.
- 2.5**
- 3** **Moderately abnormal visual response** • The child must be reminded frequently to look at what he or she is doing. He or she may stare into space, avoid looking people in the eye, look at objects from an unusual angle, or hold objects very close to the eyes.
- 3.5**
- 4** **Severely abnormal visual response** • The child consistently avoids looking at people or certain objects and may show extreme forms of other visual peculiarities described above.

Observations:

VIII. LISTENING RESPONSE

- 1** **Age appropriate listening response** • The child's listening behavior is normal and appropriate for age. Listening is used together with other senses.
- 1.5**
- 2** **Mildly abnormal listening response** • There may be some lack of response, or mild overreaction to certain sounds. Responses to sounds may be delayed, and sounds may need repetition to catch the child's attention. The child may be distracted by extraneous sounds.
- 2.5**
- 3** **Moderately abnormal listening response** • The child's responses to sounds vary; often ignores a sound the first few times it is made; may be startled or cover ears when hearing some everyday sounds.
- 3.5**
- 4** **Severely abnormal listening response** • The child overreacts and/or underreacts to sounds to an extremely marked degree, regardless of the type of sound.

Observations:

IX. TASTE, SMELL, AND TOUCH RESPONSE AND USE

- 1** **Normal use of, and response to, taste, smell, and touch** • The child explores new objects in an age appropriate manner, generally by feeling and looking. Taste or smell may be used when appropriate. When reacting to minor, everyday pain, the child expresses discomfort but does not overreact.
- 1.5**
- 2** **Mildly abnormal use of, and response to, taste, smell, and touch** • The child may persist in putting objects in his or her mouth; may smell or taste inedible objects; may ignore or overreact to mild pain that a normal child would express as discomfort.
- 2.5**
- 3** **Moderately abnormal use of, and response to, taste, smell, and touch** • The child may be moderately preoccupied with touching, smelling, or tasting objects or people. The child may either react too much or too little.
- 3.5**
- 4** **Severely abnormal use of, and response to, taste, smell, and touch** • The child is preoccupied with smelling, tasting, or feeling objects more for the sensation than for normal exploration or use of the objects. The child may completely ignore pain or react very strongly to slight discomfort.

Observations:

X. FEAR OR NERVOUSNESS

- 1** **Normal fear or nervousness** • The child's behavior is appropriate both to the situation and to his or her age.
- 1.5**
- 2** **Mildly abnormal fear or nervousness** • The child occasionally shows too much or too little fear or nervousness compared to the reaction of a normal child of the same age in a similar situation.
- 2.5**
- 3** **Moderately abnormal fear or nervousness** • The child shows either quite a bit more or quite a bit less fear than is typical even for a younger child in a similar situation.
- 3.5**
- 4** **Severely abnormal fear or nervousness** • Fears persist even after repeated experience with harmless events or objects. It is extremely difficult to calm or comfort the child. The child may, conversely, fail to show appropriate regard for hazards which other children of the same age avoid.

Observations:

XI. VERBAL COMMUNICATION	
1	Normal verbal communication, age and situation appropriate.
1.5	
2	Mildly abnormal verbal communication • Speech shows overall retardation. Most speech is meaningful; however, some echolalia or pronoun reversal may occur. Some peculiar words or jargon may be used occasionally.
2.5	
3	Moderately abnormal verbal communication • Speech may be absent. When present, verbal communication may be a mixture of some meaningful speech and some peculiar speech such as jargon, echolalia, or pronoun reversal. Peculiarities in meaningful speech include excessive questioning or preoccupation with particular topics.
3.5	
4	Severely abnormal verbal communication • Meaningful speech is not used. The child may make infantile squeals, weird or animal-like sounds, complex noises approximating speech, or may show persistent, bizarre use of some recognizable words or phrases.
Observations:	

XII. NONVERBAL COMMUNICATION	
1	Normal use of nonverbal communication, age and situation appropriate.
1.5	
2	Mildly abnormal use of nonverbal communication • Immature use of nonverbal communication; may only point vaguely, or reach for what he or she wants, in situations where same-age child may point or gesture more specifically to indicate what he or she wants.
2.5	
3	Moderately abnormal use of nonverbal communication • The child is generally unable to express needs or desires nonverbally, and cannot understand the nonverbal communication of others.
3.5	
4	Severely abnormal use of nonverbal communication • The child only uses bizarre or peculiar gestures which have no apparent meaning, and shows no awareness of the meanings associated with the gestures or facial expressions of others.
Observations:	

XIII. ACTIVITY LEVEL	
1	Normal activity level for age and circumstances • The child is neither more active nor less active than a normal child of the same age in a similar situation.
1.5	
2	Mildly abnormal activity level • The child may either be mildly restless or somewhat "lazy" and slow moving at times. The child's activity level interferes only slightly with his or her performance.
2.5	
3	Moderately abnormal activity level • The child may be quite active and difficult to restrain. He or she may have boundless energy and may not go to sleep readily at night. Conversely, the child may be quite lethargic, and need a great deal of prodding to get him or her to move about.
3.5	
4	Severely abnormal activity level • The child exhibits extremes of activity or inactivity and may even shift from one extreme to the other.
Observations:	

XIV. LEVEL AND CONSISTENCY OF INTELLECTUAL RESPONSE	
1	Intelligence is normal and reasonably consistent across various areas • The child is as intelligent as typical children of the same age and does not have any unusual intellectual skills or problems.
1.5	
2	Mildly abnormal intellectual functioning • The child is not as smart as typical children of the same age; skills appear fairly evenly retarded across all areas.
2.5	
3	Moderately abnormal intellectual functioning • In general, the child is not as smart as typical children of the same age; however, the child may function nearly normally in one or more intellectual areas.
3.5	
4	Severely abnormal intellectual functioning • While the child generally is not as smart as the typical child of his age, he or she may function even better than the normal child of the same age in one or more areas.
Observations:	

XV. GENERAL IMPRESSIONS	
1	No autism • The child shows none of the symptoms characteristic of autism.
1.5	
2	Mild autism • The child shows only a few symptoms or only a mild degree of autism.
2.5	
3	Moderate autism • The child shows a number of symptoms or a moderate degree of autism.
3.5	
4	Severe autism • The child shows many symptoms or an extreme degree of autism.
Observations:	

II. Social Skills Rating Scale

SSiS Social Skills Improvement System

Frank M. Gresham, PhD, and Stephen N. Elliott, PhD

Rating Scales
Teacher
Hand-Scoring
Form

Instructions

This booklet contains statements describing a student's behavior and level of academic performance. It consists of three parts: Social Skills, Problem Behaviors, and Academic Competence.

Social Skills & Problem Behaviors

Please read each item and think about this student's behavior during the past two months. Then, decide **how often** this student displays the behavior.

If this student **never** exhibits the behavior, circle the **N**.
If this student **seldom** exhibits the behavior, circle the **S**.
If this student **often** exhibits the behavior, circle the **O**.
If this student **almost always** exhibits the behavior, circle the **A**.

For each of the Social Skills items, please also rate **how important** you think the behavior is for success in your classroom.

If you think the behavior is **not important** for success in your classroom, circle the **n**.
If you think the behavior is **important** for success in your classroom, circle the **i**.
If you think the behavior is **critical** for success in your classroom, circle the **c**.

Academic Competence (for students from kindergarten through Grade 12)

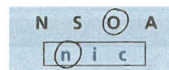
Please assess this student's academic or learning behaviors in your classroom. Compare this student with other students in the same classroom.

Mark all items using a scale of 1 to 5. Mark "1" if this student is in the lowest 10% of the class. Mark "5" if this student is in the highest 10% of the class.

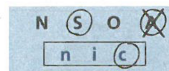
Lowest 10%	Next Lowest 20%	Middle 40%	Next Highest 20%	Highest 10%
1	2	3	4	5

How to Mark Your Responses

When marking responses, use a sharp pencil or ballpoint pen; do not use a felt-tip pen or marker. Press firmly, and be certain to circle completely the letter you choose, like this:



If you wish to change a response, mark an X through it, and circle your new choice, like this:



Please mark every item. In some cases, you may not have observed this student perform a particular behavior. If you are uncertain of your response to an item, give your best estimate. There are no right or wrong answers.

Before starting, be sure to complete the information in the boxes on the right-hand side of page 3.

PEARSON

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PsychCorp

15 A B C D E

Product Number 14101

1

Remember: How Often: N - Never S - Seldom O - Often A - Almost Always
 How Important: n - not important i - important C - critical

Please mark every item.

Social Skills				
1. Asks for help from adults.	N	S	O	A
2. Follows your directions.	N	S	O	A
3. Tries to comfort others.	N	S	O	A
4. Says "please."	N	S	O	A
5. Questions rules that may be unfair.	N	S	O	A
6. Is well behaved when unsupervised.	N	S	O	A
7. Completes tasks without bothering others.	N	S	O	A
8. Forgives others.	N	S	O	A
9. Makes friends easily.	N	S	O	A
10. Responds well when others start a conversation or activity.	N	S	O	A
11. Stands up for herself/himself when treated unfairly.	N	S	O	A
12. Participates appropriately in class.	N	S	O	A
13. Feels bad when others are sad.	N	S	O	A
14. Speaks in appropriate tone of voice.	N	S	O	A
15. Says when there is a problem.	N	S	O	A
16. Takes responsibility for her/his own actions.	N	S	O	A
17. Pays attention to your instructions.	N	S	O	A
18. Shows kindness to others when they are upset.	N	S	O	A
19. Interacts well with other children.	N	S	O	A
20. Takes turns in conversations.	N	S	O	A
21. Stays calm when teased.	N	S	O	A
22. Acts responsibly when with others.	N	S	O	A
23. Joins activities that have already started.	N	S	O	A
24. Says "thank you."	N	S	O	A
25. Expresses feelings when wronged.	N	S	O	A
26. Takes care when using other people's things.	N	S	O	A
27. Ignores classmates when they are distracting.	N	S	O	A
28. Is nice to others when they are feeling bad.	N	S	O	A
29. Invites others to join in activities.	N	S	O	A
30. Makes eye contact when talking.	N	S	O	A
31. Takes criticism without getting upset.	N	S	O	A
32. Respects the property of others.	N	S	O	A
33. Participates in games or group activities.	N	S	O	A
34. Uses appropriate language when upset.	N	S	O	A
35. Stands up for others who are treated unfairly.	N	S	O	A
36. Resolves disagreements with you calmly.	N	S	O	A
37. Follows classroom rules.	N	S	O	A
38. Shows concern for others.	N	S	O	A
39. Starts conversations with peers.	N	S	O	A
40. Uses gestures or body appropriately with others.	N	S	O	A
41. Responds appropriately when pushed or hit.	N	S	O	A
42. Takes responsibility for part of a group activity.	N	S	O	A
43. Introduces herself/himself to others.	N	S	O	A
44. Makes a compromise during a conflict.	N	S	O	A
45. Says nice things about herself/himself without bragging.	N	S	O	A
46. Stays calm when disagreeing with others.	N	S	O	A

Problem Behaviors				
47. Acts without thinking.	N	S	O	A
48. Is preoccupied with object parts.	N	S	O	A
49. Bullies others.	N	S	O	A
50. Becomes upset when routines change.	N	S	O	A
51. Has difficulty waiting for turn.	N	S	O	A
52. Does things to make others feel scared.	N	S	O	A
53. Fidgets or moves around too much.	N	S	O	A
54. Has stereotyped motor behaviors.	N	S	O	A
55. Forces others to act against their will.	N	S	O	A
56. Withdraws from others.	N	S	O	A
57. Has temper tantrums.	N	S	O	A
58. Keeps others out of social circles.	N	S	O	A
59. Breaks into or stops group activities.	N	S	O	A
60. Repeats the same thing over and over.	N	S	O	A
61. Is aggressive toward people or objects.	N	S	O	A
62. Gets embarrassed easily.	N	S	O	A
63. Cheats in games or activities.	N	S	O	A
64. Acts lonely.	N	S	O	A
65. Is inattentive.	N	S	O	A
66. Has nonfunctional routines or rituals.	N	S	O	A
67. Fights with others.	N	S	O	A
68. Says bad things about self.	N	S	O	A
69. Disobeys rules or requests.	N	S	O	A
70. Has low energy or is lethargic.	N	S	O	A
71. Gets distracted easily.	N	S	O	A
72. Uses odd physical gestures in interactions.	N	S	O	A
73. Talks back to adults.	N	S	O	A
74. Acts sad or depressed.	N	S	O	A
75. Lies or does not tell the truth.	N	S	O	A
76. Acts anxious with others.	N	S	O	A

Academic Competence					
77. Compared with other students in my classroom, the overall academic performance of this student is:	1	2	3	4	5
78. In reading, how does this student compare with other students?	1	2	3	4	5
79. In mathematics, how does this student compare with other students?	1	2	3	4	5
80. In terms of grade-level expectations, this student's skills in reading are:	1	2	3	4	5
81. In terms of grade-level expectations, this student's skills in mathematics are:	1	2	3	4	5
82. This student's overall motivation to succeed academically is:	1	2	3	4	5
83. Compared with other students in my classroom, this student's intellectual functioning is:	1	2	3	4	5

(for students from kindergarten through Grade 12)
 Remember: Lowest 10% 1, Next Lowest 20% 2, Middle 40% 3, Next Highest 20% 4, Highest 10% 5

Scoring Instructions Page

Follow the instructions below to calculate scale and subscale raw scores and the F Index. Detailed illustrations of these scoring procedures are provided in Chapter 2 of the SSIS Rating Scales Manual.

Step 1: Determining Adjustment Values for Missing Item Responses

If all test items have a rating response for "How Often," proceed to Step 2. If there are missing item responses, follow the procedures below to determine scale and subscale adjustment values.

- For the Social Skills, Problem Behaviors, and Academic Competence scales, circle the item numbers below of items with missing responses. Count the number of circles and record the total in the Number Missing column. If the number of missing items is equal to or below the maximum number of missing items allowed, multiply the number by the adjustment factor and record the result in the Adjustment Value column. If the number of missing responses exceeds the maximum allowed, do not continue scoring the scale or its subscales.
- For each Social Skills and Problem Behaviors subscale, circle the item numbers below that have missing responses. Count the number of circles for each subscale and record the total in the Number Missing column. Multiply the number by the adjustment factor and record the result in the Adjustment Value column. Note: Item numbers for the Autism Spectrum subscale fall in both the Social Skills (Part A) and Problem Behaviors (Part B) scales.

Determining Adjustment Values

Scale/Subscale	Items	Number Missing (Max. Allowed)	Adjustment Factor	Adjustment Value
Social Skills	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	_____	× 2	= _____
	20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35	_____	× 2	= _____
	36 37 38 39 40 41 42 43 44 45 46	_____	× 2	= _____
	47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62	_____	× 2	= _____
	63 64 65 66 67 68 69 70 71 72 73 74 75 76	_____	× 1	= _____
Problem Behaviors	47 49 51 53 55 57 61 63 67 69 73 75	_____	× 1	= _____
	49 52 55 58 61	_____	× 1	= _____
	47 51 53 57 59 65 71	_____	× 1	= _____
	56 62 64 68 70 74 76	_____	× 1	= _____
	Part A: 10 19 20 29 30 38 39 40 Part B: 48 50 54 56 60 66 72	_____	× 2 = Part A: × 1 = Part B:	= _____
Academic Competence	77 78 79 80 81 82 83	_____	× 2	= _____

numbers for the Autism Spectrum subscale fall in both the Social Skills (Part A) and Problem Behaviors (Part B) scales.

Step 2: Computing Scale and Subscale Raw Scores

- On the Item Scoring Page, calculate item scores in each row for items that are connected by arrows.
- Record each sum in the corresponding box. For example, the value in the first box of the Self-Control column is the sum of items 21, 31, and 41. Record each sum in the corresponding box. Note: Some items in the Problem Behaviors scale are not connected to an arrow.
- For each section (i.e., Social Skills, Problem Behaviors, and Academic Competence), compute the sum of the numbers in boxes within each column and record the sums in the boxes labeled "Sum" at the bottom of each column. Be sure the sums do not exceed the maximum values indicated under each box.
- For the Problem Behaviors scale, also add the item scores in each of the five columns (see the following example), and record the sums in the boxes below each column.



- Add these column sums (following the arrows, right to left), and record the total in the box labeled "PB Scale Sum."
- For the Bullying and Hyperactivity/Inattention subscales, transfer the corresponding item scores from the item grids to the Bullying and Hyperactivity/Inattention boxes found on the left side of the Item Scoring Page. Then, add these two columns of numbers and record the sum in the box at the bottom of each column. Be sure the sum does not exceed the maximum value provided for each subscale.
- For the Autism Spectrum subscale, transfer the corresponding item scores from the item grid to the SSIS Autism Spectrum and the PB Autism Spectrum boxes on the left side of the Item Scoring Page. Then, transfer the Part A and Part B adjustment values to the corresponding boxes. Note: Item numbers in the SSIS Autism Spectrum box refer to the Social Skills scale, and item numbers in the PB Autism Spectrum box refer to the Problem Behaviors scale. For each part, add the item scores and record the sums in the boxes at the bottom of each column. Be sure the sums do not exceed the maximum values provided for each part. Add each sum to its adjustment value and record the total in the Part A and Part B Raw Score boxes.

Step 3: Calculating the F Index

- The F-index items are denoted by an unshaded rating value of either 0 or 3 in the item grid. To calculate the F-index score, count the number of circled unshaded rating values. Record the total count in the F-index section in the upper left area of the Summary Page by circling the range within which this total count falls. If the total is 2 or more, follow the interpretation guidelines in the SSIS Rating Scales Manual.

Step 4: Completing the Summary Table

- Transfer each subscale's sum and adjustment value (from Step 1) to the corresponding section of the Summary Table on the Summary Page.
- Add each subscale sum to its adjustment value, and record the total in the Raw Score column.
- For the Autism Spectrum subscale, transfer the Part A and Part B Raw Scores to the Summary Table in the section titled, "Calculating Part A Reverse Score," subtract the Part A Raw Score from 24, and record the total on the Part A Reverse Score line. Then, transfer this value to the corresponding box in the section immediately below. Add the Part A Reverse Score and the Part B Raw Score, and record the value in the Autism Spectrum Raw Score box.
- For the Social Skills scale, add the subscale raw scores, and record the total in the Social Skills Scale Sum of Raw Scores box.
- For the Problem Behaviors scale, transfer the PB Scale Sum from the Item Scoring Page to the Summary Table. Add the value in the PB Scale Sum box and the adjustment value, and record the total in the Problem Behaviors Scale Raw Score box.
- For the Academic Competence scale, transfer the AC Scale Sum to the Summary Table. Add the value in the AC Scale Sum box and the adjustment value and record the total in the Academic Competence Scale Raw Score box.
- Refer to the appropriate tables in Appendices C and D in the SSIS Rating Scales Manual to obtain the Standard Scores, Percentile Ranks, and Behavior Levels. Record this information in the designated spaces.
- Find the Confidence Interval value (80% or 95%) for each scale. Subtract this value from its corresponding Standard Score and record the total in the Confidence Interval box on the left. Then add the same value to the Standard Score and record the total in the box on the right.

Model of Social Behavioral Strengths and Weaknesses

The Model of Social Behavioral Strengths and Weaknesses provides a framework and guidelines for where and how to intervene. Please refer to this table when completing the Analysis of Social Behaviors. See the SSIS Rating Scales Manual for further detail.

	Conditions	Actions & Interventions
Social Skills Strengths A student knows and uses social skills consistently and appropriately.	• Social Skills subscale is above average. • Item within subscale has a frequency/belief rating of 3 and importance rating of 1 or 2.	• Reinforce to maintain desired social behavior. • Use student as a model for other students.
Social Skills Performance Deficits A student can use the skill but does so infrequently.	• Social Skills subscale is below average. • Item within subscale has a frequency/belief rating of 1 and importance rating of 2 or more.	• Use behavior techniques to increase student practice and performance of desired social behavior.
Social Skills Acquisition Deficits A student does not sufficiently know the skill or how to use it appropriately.	• Social Skills subscale is below average. • Item within subscale has a frequency/belief rating of 0 and importance rating of 1 or 2.	• Direct instruction of the desired social behavior using the SSIS Intervention Guide and/or other interventions.
Competing Problem Behaviors A competing problem behavior interferes with a student's performance of a learned social skill.	• Problem Behaviors subscale is above average. • Item within subscale has a frequency/belief rating of 3.	• Use behavior techniques to reduce interfering behaviors. • Collect further information (e.g., direct observations, interviews, comprehensive assessment of problem behaviors).

PLEASE SHRED THIS SHEET AND DISCARD SECURELY

Item Scoring Page

Part A
 55 Autism Spectrum
 19. _____
 20. _____
 29. _____
 38. _____
 39. _____
 40. _____
 Sum _____
 Maximum 22

Part B
 PB Autism Spectrum
 48. _____
 50. _____
 54. _____
 56. _____
 60. _____
 66. _____
 72. _____
 Sum _____
 Maximum 21

Bullying
 49. _____
 52. _____
 58. _____
 57. _____
 59. _____
 65. _____
 71. _____
 Sum _____
 Maximum 21

Hyperactivity/Inattention
 53. _____
 54. _____
 55. _____
 56. _____
 57. _____
 58. _____
 59. _____
 60. _____
 61. _____
 62. _____
 63. _____
 64. _____
 65. _____
 66. _____
 67. _____
 68. _____
 69. _____
 70. _____
 71. _____
 72. _____
 Sum _____
 Maximum 21

Academic Competence
 (for students from kindergarten through Grade 12)
 77. _____
 78. _____
 79. _____
 80. _____
 81. _____
 82. _____
 83. _____
 Sum _____
 Maximum 21

Social Skills
 11. _____
 12. _____
 13. _____
 14. _____
 15. _____
 16. _____
 17. _____
 18. _____
 19. _____
 20. _____
 21. _____
 22. _____
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 65. _____
 66. _____
 67. _____
 68. _____
 69. _____
 70. _____
 71. _____
 72. _____
 Sum _____
 Maximum 21

Problem Behaviors
 53. _____
 54. _____
 55. _____
 56. _____
 57. _____
 58. _____
 59. _____
 60. _____
 61. _____
 62. _____
 63. _____
 64. _____
 65. _____
 66. _____
 67. _____
 68. _____
 69. _____
 70. _____
 71. _____
 72. _____
 Sum _____
 Maximum 21

Interacting
 71. _____
 72. _____
 Sum _____
 Maximum 21

AC Scale
 Sum _____
 Maximum 13

View Name _____
 Position _____
 School/Center _____
 Birth Date _____
 Student's Name _____
 Date _____

SSIS Rating Scales Teacher Hand-Scoring Form

Summary Page

Analysis of Social Behaviors

Additional Assessment Information

Mark the norm group used:
 Age: Ages 3-5 (preschool) Ages 5-12 (school-age) Ages 13-18
 Sex: Female Male Combined
 F Index: Acceptable 0-1 Caution 2-3 Extreme Caution 4-10

Date: _____
 Teacher's Name: _____
 Position/Class Taught: _____
 Student's Name: _____
 Birth Date: _____
 Sex: Female Male

Social Skills Subscale	Sum	Adjustment Value	Raw Score	Behavior Level		
Communication	_____	_____	_____	Below Average	Average	Above Average
Cooperation	_____	_____	_____	Below Average	Average	Above Average
Assertion	_____	_____	_____	Below Average	Average	Above Average
Responsibility	_____	_____	_____	Below Average	Average	Above Average
Empathy	_____	_____	_____	Below Average	Average	Above Average
Engagement	_____	_____	_____	Below Average	Average	Above Average
Self-Control	_____	_____	_____	Below Average	Average	Above Average

Sum of Raw Scores: _____ Standard Score: _____ Confidence Interval: _____ Percentile Rank: _____

Problem Behaviors Subscale	Sum	Adjustment Value	Raw Score	Behavior Level		
Externalizing	_____	_____	_____	Below Average	Average	Above Average
Bullying	_____	_____	_____	Below Average	Average	Above Average
Hyperactivity/Inattention	_____	_____	_____	Below Average	Average	Above Average
Internalizing	_____	_____	_____	Below Average	Average	Above Average

Calculating Part A Reverse Score: 24 - _____ = _____

Autism Spectrum	Part A Reverse Score	Part B Raw Score	Autism Spectrum Raw Score	Behavior Level		
_____	_____	_____	_____	Below Average	Average	Above Average

Problem Behaviors Scale: PB Scale Sum _____ Adjustment Value _____ Raw Score _____ Standard Score _____ Confidence Interval _____ Percentile Rank _____

Academic Competence Scale: AC Scale Sum _____ Adjustment Value _____ Raw Score _____ Standard Score _____ Confidence Interval _____ Percentile Rank _____

For each section below list one or two behaviors (items) from each subscale that meet the conditions described in the Model of Social Behavioral Strengths and Weaknesses on the Scoring Instructions Page.

Social Skills Strengths

- _____
- _____
- _____
- _____
- _____

Social Skills Performance Deficits

- _____
- _____
- _____
- _____
- _____

Social Skills Acquisition Deficits

- _____
- _____
- _____
- _____
- _____

Competing Problem Behaviors

- _____
- _____
- _____
- _____
- _____

Summarize other assessments of this student.

- Direct observations _____ Date _____
- Interviews _____ Date _____
- Other behavior ratings _____ Date _____
- Previous intervention outcome data _____ Date _____

Intervention Planning Notes

- Summarize possible intervention plans for this student.
- Target behavior(s) _____
- Desired outcome behavior(s) _____
- Critical setting or situations for change _____
- Procedure for maintaining strengths _____
- Procedure for promoting skill acquisition _____
- Procedure for increasing skill performance _____
- Procedure for reducing problem behaviors _____
- Procedure for facilitating generalization _____
- Intervention resources _____
- Intervention evaluation _____
- Refer to the SSIS Intervention Guide and the SSIS Classwide Intervention Program to provide and guide interventions and instruction for individual and small-group sessions, and for classwide and schoolwide instruction, respectively.

Administrator: After the Rating Scales form is completed, detach pages 2 and 3 by carefully tearing along the perforated line.

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III. Observation Behavior Checklist

Before and after intervention, I tallied the behaviors the child exhibits in the classroom on each day.

Observed Behaviors	Monday	Tuesday	Wednesday	Thursday	Saturday
Hits other children					
Bullies other children					
Calls others names					
Destroys others' property					
Refuses to follow classroom rules					
Refuses to participate in class					
Shows eye contact					
Introduces him/herself to others					
Says "hello" when he/she enters the classroom					

