Music Therapist-Child Interaction for a Child Diagnosed with Autism Spectrum Disorder with Applied Behavior Analysis Prompts and Fading Procedures

by

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ABSTRACT

The purpose of this research study provided observational techniques and Applied Behavior Analysis (ABA) prompts and fading procedures to analyze music therapist-child interaction for child with autism spectrum disorder. Impaired social interaction is the primary symptom of a child with autism spectrum disorder. However, social interaction exists everywhere and throughout human life. Therefore, to improve interaction is the primary and significant goal in music therapy treatment for a child with autism spectrum disorder. The music therapist designs a series of music therapy activity interventions in order to create a therapeutic environment, based on a child's interests and favorite activities. Additionally, the music therapist utilizes the music to build the quality of relationship and interaction with child and support child practicing interaction with the therapist. Then music therapist utilizes the process of interaction to improve child's social interaction. Once the child achieves at desired behavior, he/she has ability to apply the music therapy techniques independently in the real world situations, such as family and schools that the child has learned throughout the process of interaction with therapist.

The participants were three children with autism spectrum disorder and two certified music therapists (MT-BC). The researcher calculated the number of prompts and cues which the therapists provided, and the number of appropriate responses by each child in each activity intervention. Then the researcher utilized Applied Behavior Analysis (ABA), prompt and fading procedure in order to analyze the progress of therapist-child interactions during the sessions. The result showed that the children had improvement in the interactions with their therapist.

DEDICATION

The thesis is dedicated to the three children, their families and their therapists.

To my parents and sister, who always support and encourage me to be a professional music therapist.

And to Jesus Christ, who always strengthen me and make me to be a brave person.

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Thanks for all my friends at church and school in America and Taiwan for their ongoing support in the completion of this thesis and throughout three-year-music therapy master life. Thanks for Penny for assisting my academic writing English in all the time of the research.

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In the end, I am grateful to Jesus Christ. Thanks for supporting me in my life. Especially during the three-year-music therapy life, thanks for giving a lot of challenges and making me stronger and stronger as a result.

"Thanks be to God"

Philippians 4:13, "I can do all things in Him (Jesus Christ) who strengthens me"

TABLE OF CONTENTS

CHAPTER Page

CHAPTER Page

LIST OF TABLES

Table Page

Table Page

Table Page

Table Page

Table Page

Table Page

LIST OF FIGURES

Figure Page

Figure Page

Figure Page

CHAPTER I

INTRODUCTION

Autism Spectrum Disorder (ASD) is developmental disabilities (Autism Society of America, n.d.). The Center for Disease Control (CDC) reports that there were about 1 in 88 children in the United States who had ASD in 2012 (Centers for Disease Control and Prevention, 2012). Autism and Developmental Disabilities Monitoring (ADDM) in CDC reported that there were around 1 in 150 children who had ASD in 2007 and 1 in 110 children with ASD in 2009. In addition, it is found that there are more boys with Autism than girls with 1 in 54 boys having ASD in the United State (Autism Society of America, n.d.). Although no preventative measure has been found for Autism, the Autism Society of America reports that, "ASD is treatable and children do not outgrow autism." Therefore, early treatment and intervention may be beneficial and lead to improved outcome as they mature (Autism Society of America, n.d.).

Autism Spectrum Disorder (ASD)

Autism Spectrum Disorder (ASD) is neurobiological developmental disorders characterized by problems with central nervous system dysfunction (Minshew& Williams, 2007). Neurodevelopment affects brain functions, but abnormal development results in biochemical dysfunction (Minshew& Williams, 2007; Schopler & Mesibov, 1987). As seen in child with ASD, the consequences are impaired social interaction skills, impaired communication skills, and atypical behaviors and related problems or disorders (Schopler & Mesibov, 1987; Sliver & Rapin, 2012; Spence, Sharifi & Wiznitzer, 2004; Raznahan & Bolton, 2008; Tidmarsh & Volkmar, 2003).

Central Nervous System Dysfunction

Child with ASD has developmental neurobiological disorders with deficits in the central nervous system and sensory integration process (Huebner, 2001; Minshew, & Williams, 2007; Schopler & Mesibov, 1987; Sliver & Rapin, 2012). The disorder is associated with cerebral cortex which involves neurons and projections, which cause dysfunctional cognitive and behavioral functions (Minshew & Williams, 2007; Schopler & Mesibov, 1987; Sliver & Rapin, 2012).

Central nervous system (CNS) composes of brain and spinal cords, which connect peripheral nervous system (PNS) through nerves (Marieb & Hoehn, 2010; Shier, Bulter, & Lewis, 2012). CNS and PNS provide sensory, integrative, and motor functions of the brain (Marieb & Hoehn, 2010; Shier, Butler, & Lewis, 2012). The sensory function of CNS and PNS converts information from sensory receptors, which gather information from both external environmental factors, such as sound and light, and internal environment, such as temperature and changes the information into neural message (Marieb & Hoehn, 2010; Shier, Butler, & Lewis, 2012). Sensory receptors have various specific sensory inputs, such as color detectors, pitch detectors, and so forth (Huebner, 2001). Sensory receptors integrate the information and transmit it into PNS and the CNS through the nerve impulses. As the information is transmitted into CNS, the brain creates sensation and adds memory, producing perception (Marieb & Hoehn, 2010; Shier, Butler, & Lewis, 2012). Sensation is the process where the brain receives input from sense organs and prompts a responds to a stimulus (Weiten, 2010) and the brain has awareness of the sensory events (Shier, Bulter, & Lewis, 2012 ; Marieb & Hoehn, 2010; Shier, Butler, & Lewis, 2012; Weiten, 2010). Then the brain integrates, analyzes, selects and

organizes the stimulus and sensory input, which is called perception (Marieb & Hoehn, 2010; Shier, Butler, & Lewis, 2012; Weiten, 2010). Sensation and perception are processed in cerebral cortex of the human brain and causes the awareness (Marieb & Hoehn, 2010; Shier, Butler, & Lewis, 2012). Therefore, from the process of sensation to the process of perception, the whole process is called projection (Figure 1.1), (Shier, Butler, & Lewis, 2012). The projection "allows a person to perceive the region of stimulation; this is how the eyes seem to see, and the ears seem to hear" (Shier, Butler, & Lewis, 2012, p. 263). Then the nervous system transmits the simulation from CNS to PNS with nerves impulse. From this, the individual produces external behavioral responses, such as "a thought, reflex withdrawal from pain, a word and an action" (Huebner, 2001, p. 20). The whole process from receiving the stimulation to producing the behavioral actions, is called sensory integration (Huebner, 2001). Sensory integration is associated with brain-behavior relationship (Figure 1.2), (Huebner, 2001) which is related to learning, memory, responses, and behaviors (Huebner, 2001; Marieb & Hoehn, 2010; Shier, Butler, & Lewis, 2012).

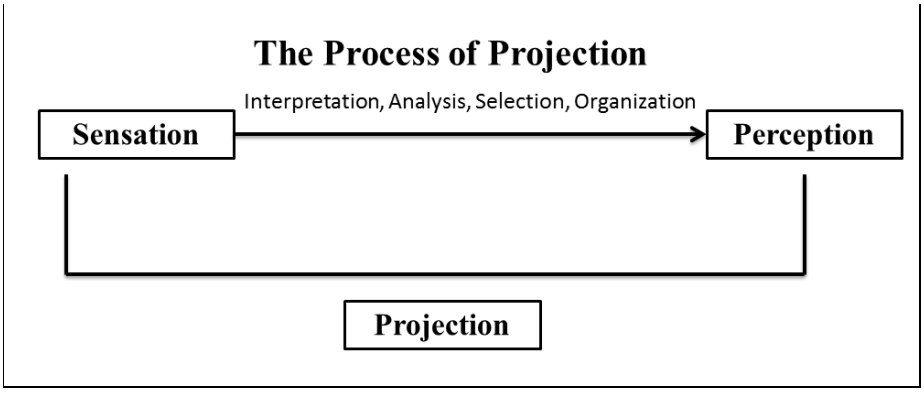

Figure 1.1: The Process of Projection (Shier, Butler, & Lewis, 2012)

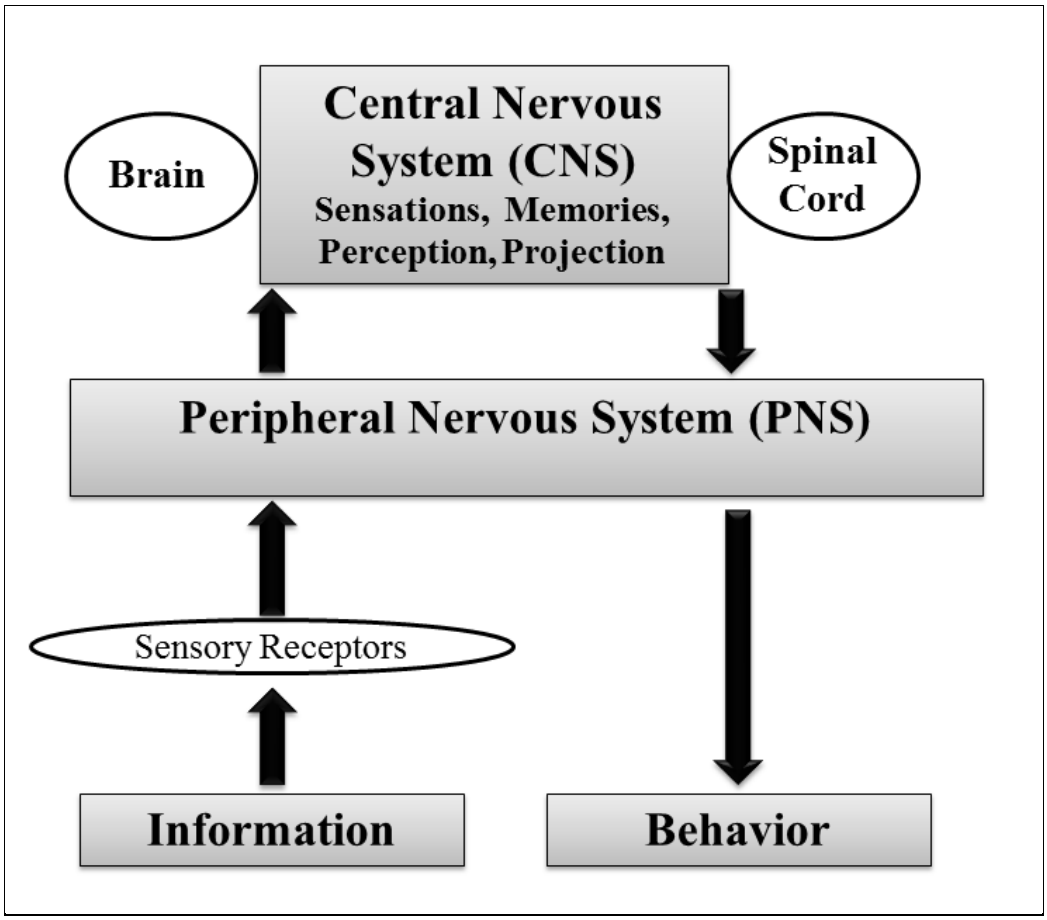

Figure 1.2: Sensory Integration Process (Marieb & Hoehn, 2010; Shier, Butler, & Lewis, 2012)

The dysfunctional sensory integration process is influenced in child with ASD (Huebner, 2001), which results in abnormal external and internal states (Figure 1.3). Table 1.1 documented abnormal sensory processes in child with ASD.

Table 1.1: Abnormal sensory processes in child with ASD (Silver, & Rapin, 2012)

Human Brain		Possible Dysfunction
Cerebrum	Frontal lobe	a) Impaired memory, working, attention b) Impaired expressive language c) Atypical motor skills d) Atypical behaviors
	Temporal lobe	a) Impaired auditory processing b) Impaired language comprehension c) Atypical facial recognition d) Impaired short-term memory e) Impaired verbal, spatial learning
	Parietal lobe	a) Impaired somatosensory perception b) Impaired body image c) Impaired spatial perceptions
	Occipital lobe	a) Impaired visual perception
	Insula	a) Atypical pain perception b) Atypical smell perceptions c) Atypical taste perceptions d) Atypical autonomic perceptions
Diencephalon	Limbic system	a) Abnormal internal status b) Abnormal behaviors
Cerebellum	Cerebellum	a) Atypical balance b) Atypical gait c) Atypical motor coordination d) Atypical learning e) Atypical language f) Impaired cognition

DSM IV-TR

The *Diagnostic and Statistical Manual of Mental Disorders (Fourth Edition–Text Revision, 2012)* defines pervasive developmental disorders as a group of disorders containing Autism Disorder, Asperger's Disorder, Pervasive Developmental Disorder Not Otherwise Specified (PDD-NOS), Childhood Disintegrative Disorder, and Rett's Disorder. These five disorders are referred to as the Autism Spectrum Disorders (ASDs).

They have different titles, but they share similar features and symptoms (Spence, Sharifi, & Wiznitzer, 2004).

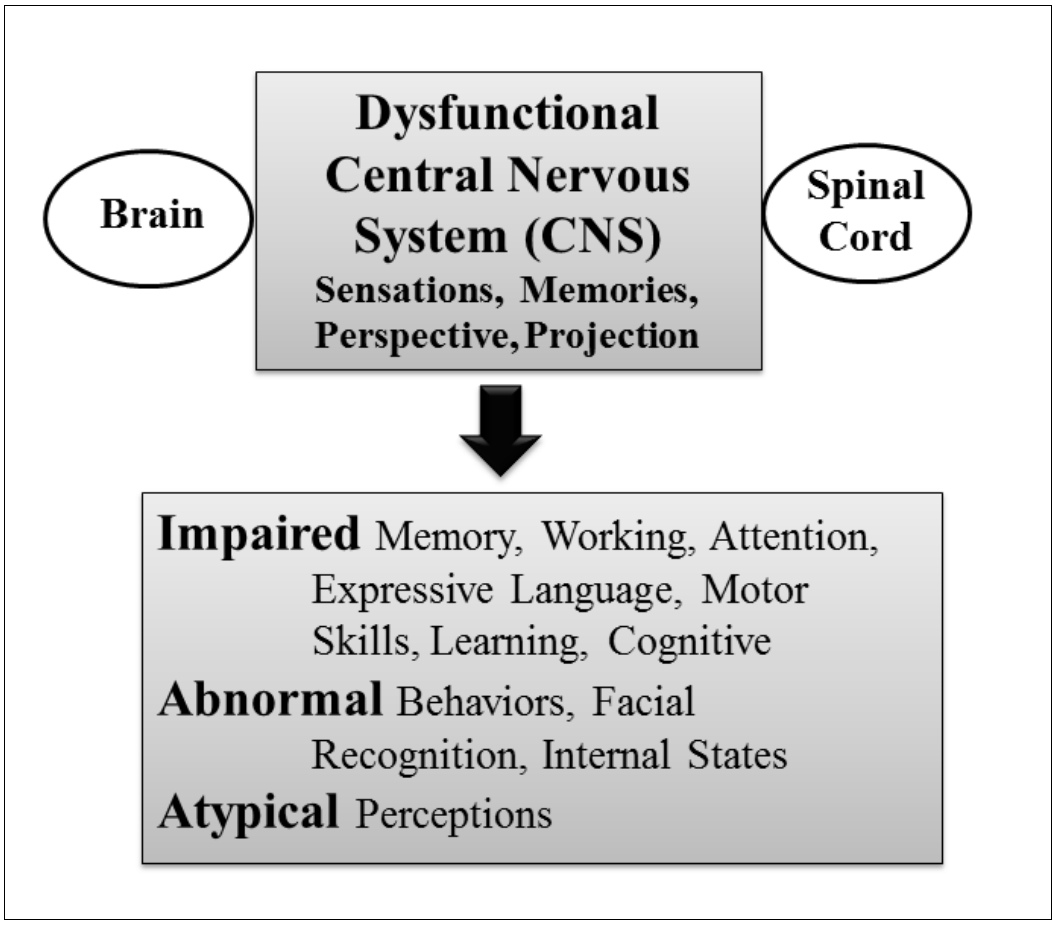

Figure 1.3: Abnormal External and Internal States

Unfortunately, there is no way to prevent autism. The current medical research deems that the possible causes include genetic mutations, viruses, immunization, and toxic chemical (Allgood, 2005; Cowley, 2000). However, if child is diagnosed with ASD, he/she starts therapy and treatment in an early stage, which can help child grow up with fewer problems. Usually if a child has autism, symptoms appear before the child turns three years old.

Symptoms of Autism Spectrum Disorder (ASD)

"Repetition" and "isolation," which are the obvious traits for child with ASD, usually result in the child's having atypical social interaction (Peters, 2000; Spence, Sharifi, & Wiznitzer, 2004; Turnbull, Turnbull, & Wehmeyer, 2010). Child is unable to interact with peers in a group setting and, as a result, influence the child's future social, cognitive, and emotional developments (Figure1.4). In addition, some child with ASD may have cognitive deficits and poor adaptive skills.

According to *Diagnostic and Statistical Manual of Mental Disorders (Fourth Edition, 2012),* there are three characteristics of ASD – impaired social interaction skills, impaired communication skills, and atypical behaviors.

Impaired social interaction skills

There are reveal aspects of impaired social skills in child with ASD. Isolation is an obvious feature among child with ASD as they tend to stay in their own world (Spence, Sharifi,& Wiznitzer, 2004). Child with ASD has deficits in their use of nonverbal social skills to interact with peers and strangers. Besides, they have difficulties initiating an interaction or communication with others. They might have little or no eye-contact and inappropriate facial expression, body postures, and gestures. Moreover, they do not have the ability or desire to share their own enjoyment or interests with others, and lack social or emotional reciprocity. Consequently, they fail to develop peer interactions and establish good relationship with peers.

Impaired communication skills

Impairment in communication is another characteristic of ASD. Child with ASD lacks the ability to develop verbal languages, including expressive and receptive languages. Stereotyped and repetitive languages and incomplete and barren grammatical structures exhibit in child with ASD. These features cause child with ASD to be unable to sustain a conversation with others, resulting in a lower level of social interaction.

Another significant feature is the inability of child with ASD to understand others' feelings, emotions, and meanings, let alone their own. Therefore, child with ASD with impaired communication skills are negatively affected in their peer relationship development.

Atypical Behaviors

Atypical behaviors of child with ASDs include repetitive behaviors, motor stereotypes, and problematic behaviors. Repetitive behaviors include opening and closing doors, water play, manipulating buttons, and so on. "Sameness" is an impaired feature for child with ASD. They resist change in anything that surrounds them and they adhere to their specific interests and activities. Child with ASD likes to line up the objects in the same manner over and over again. Moreover, they seek to increase their self-stimulation; hence, they may clap their hands, wash their hands, and rock, dip, and sway their bodies for no reason. In addition, those with problematic behaviors, such as self-injurious behaviors, aggression, tantrums, and property destruction may need special attention.

These behaviors may be life-threatening to themselves or others (Turnbull, Turnbull, & Wehmeyer, 2010).

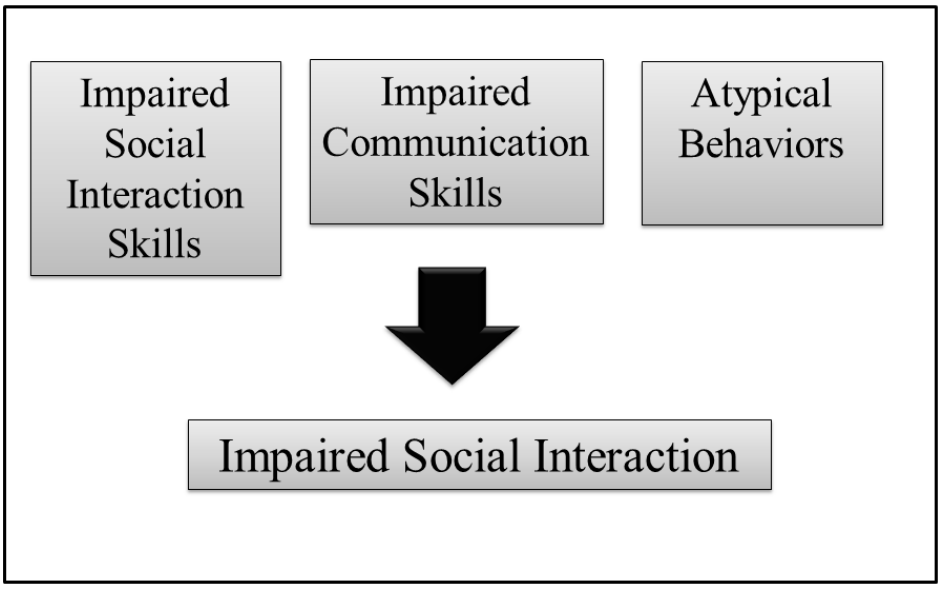

Figure 1.4: The Characteristics of ASD

Comorbidity of disorders

Child with ASD has central nervous system dysfunction, which causes them to be associated with genetic intellectual disability (Figure 1.5). Genetic intellectual disability results in impaired intellectual functioning with an IQ 70 or below, according to DSM-IV-TR (APA, 2012). The comorbidity includes Down syndrome (DS), Fragile X syndrome, Rett syndrome, and attention-deficit/hyperactivity disorder (ADHD) (Kaufmann, Capone, Clarke, & Budimirovic, 2008; Mannion, Leader, & Healy, 2012).

Furthermore, neurologic dysfunction causes child with ASDs to have sensory abnormalities, seizures, epilepsy, landau-kleffner syndrome, gastronintestinal problems

(GI), sleep disturbance, and self-imposed dietary restrictions (Benaron, 2009, Spence, Sharifi, & Miznitzer, 2004; Mannion, Leader, & Healy, 2012).

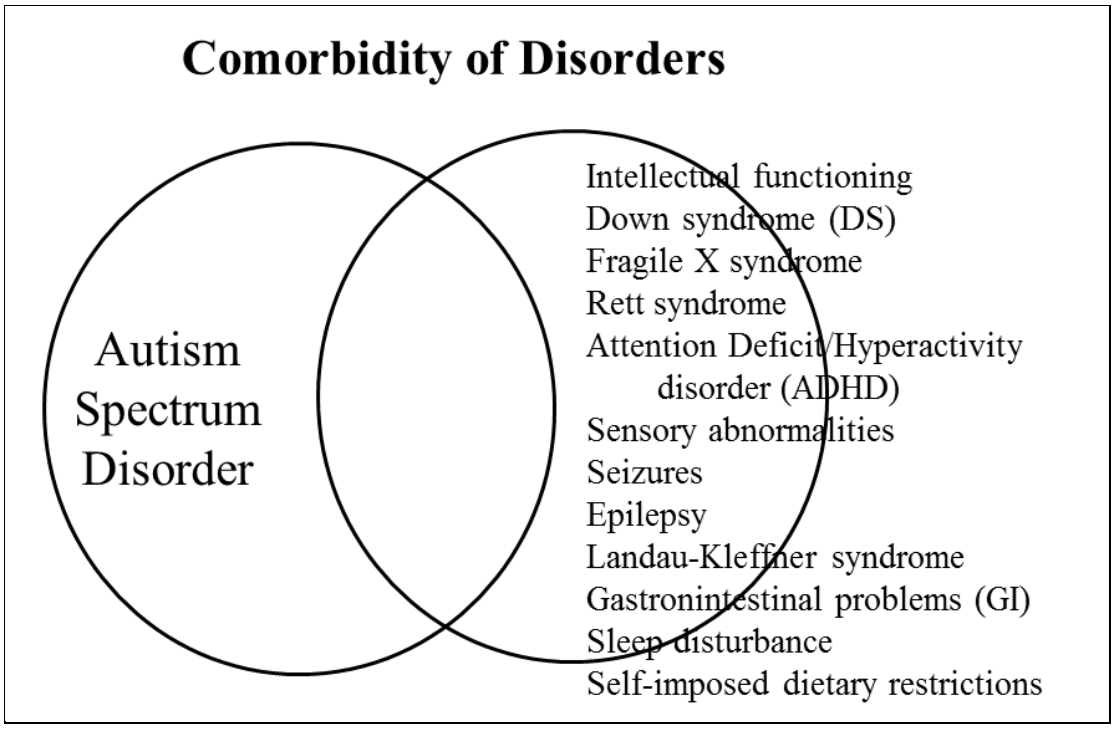

Figure 1.5: Comorbidity of Disorder

Social Interaction

According to *Websters' American English Dictionary*, social means that an individual is of or related to human society and living or growing up in groups. Interaction refers to having, "mutual or reciprocal action or influence" (Websters' American English Dictionary, 2010); moreover, interaction, "takes place in general natural of the situation" (Roucek & Warren, 1902, p 30). The Latin prefix "inter" means between, among, or within a group (Websters' American English Dictionary, 2010). Interaction involves family and society. Therefore, the definition of social interaction is an individual living or sharing mutual influences with others in groups and in human

society. An individual has the mutual topics and starts to share at mutual topic with individual. The second person responds and a two way interaction begins. Thus, the mutual topic connects an individual with others and produces the relationship while sharing the influence produces interaction (Figure 1.6). Relationship refers to "the way in which two or more people or things are connected" (Webster's American English Dictionary, 2010), and "the way in which things are connected or work together" (Cambridge Dictionaries Online, 2013). In addition, Doob (1988) stated that, "social interaction is the basic process through which two or more people use language and gestures to affect each other's thought, expectations, and behavior" (Doob, 1988, p 95). Therefore, relationship is like a line which connects with others while interaction is like an arrow which is going through the mutual topic (Figure 1.7).

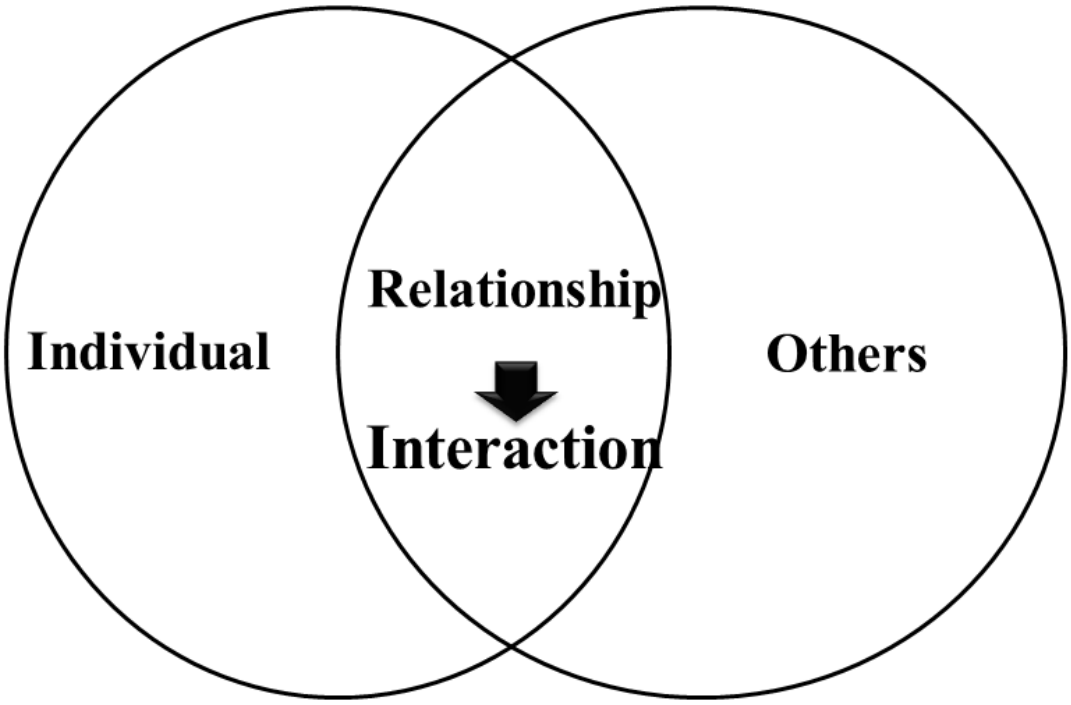

Figure 1.6: Relationship and Interaction

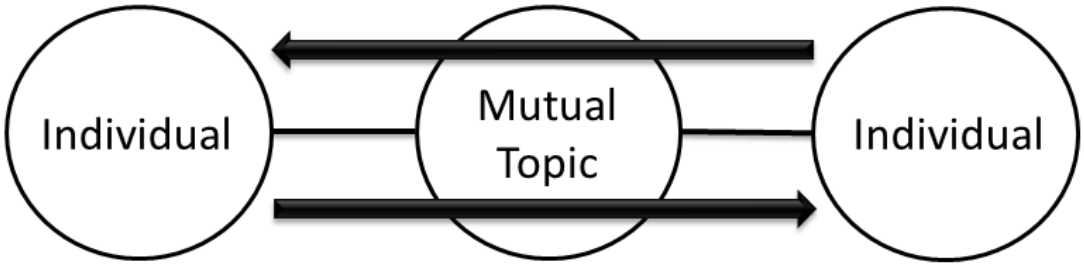

Figure 1.7: Relationship is a Line and Interaction is a Process

Interaction in Life-Span Development

Interaction exists everywhere and throughout human life (Santrock, 2011) and is the foundation of human development (Doob, 1988). Life-span development has eight stages: prenatal, infancy, early childhood, middle childhood, adolescence, early adulthood, middle adulthood, and late adulthood. Interaction exists in each stage, and interaction is very important in all of stages.

Interaction begins with newborn infant-mother relationship in the family and then extends to individual-peer relationships in the society (Doob, 1988; Roucek & Warren, 1902; Santrock, 2011). The newborn infant needs to depend on mother to stay alive, which is called parent-infant bonding (Edwards, 2011). Moreover, in families, individuals establish sibling interactions. Then individuals enter childhood, and attend schools and participate in community. Individuals start to develop their social activity and interaction (Santrock, 2011; Vernon, 2004). Playing and sharing are common activities; furthermore, individuals establish their interaction with peers during childhood. Moreover, interaction with peers continues to be significant during adolescence, and more important than in childhood. Individuals spend more time interacting with peers and even develop intimate

friendships (Santrock, 2011). Peers usually influence individuals' lives more than their family. As physical and cognitive abilities become more mature, individuals become adults. Relationship is more stable than before, and they may get married and establish a family with others (Santrock, 2011). Intimate friendships and interaction are more complex than those in childhood and adolescence (Santrock, 2011; Vernon, 2004). Individuals may have jobs and interact not only with peers but also colleagues. Their range of interaction becomes broader than before. Thus, throughout human development, social interaction is the most important function in each stage (Figure1.7). Figure 7 illustrates development of social interaction from infancy stage to adulthood stages.

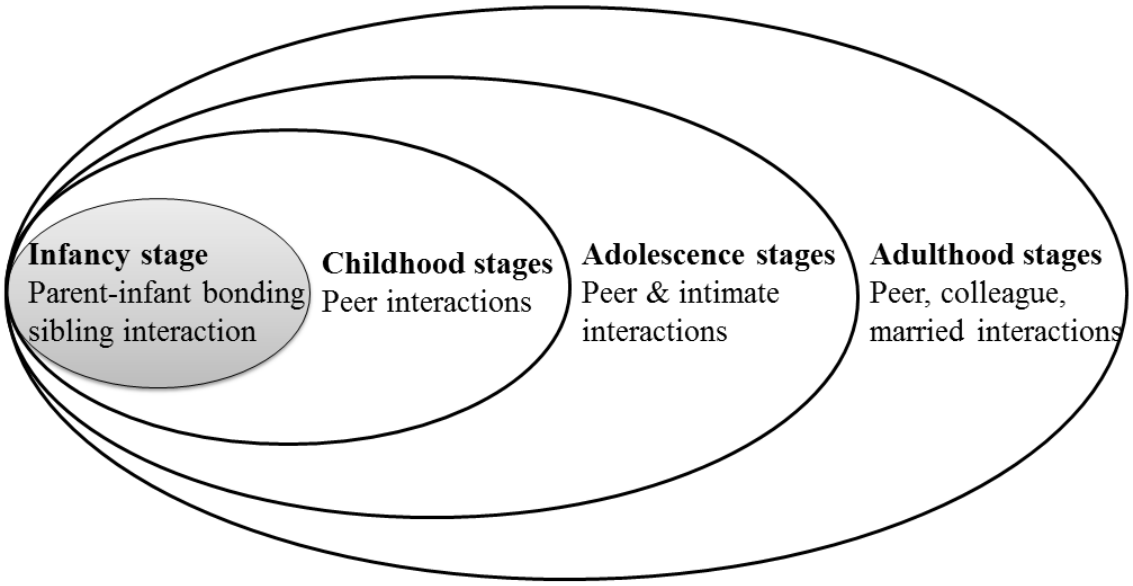

Figure 1.8: Development of social interaction based on Cook (2010).

Social Interaction from Psychologists

Maslow (1968) deems that social, cognitive-physical and self-emotional functions are indispensable in human life (as cited in Vernon, 2004). Moreover, Yalm (2005) documented evidence that social isolation is the primary and major factor of death risk. Among the factors of death risk are divorced, single, and widowed states (Yalm, 2005). Lack of social interaction causes negative emotions and indirectly influences physical risk factors, such as smoking or substance abuse (Yalm, 2005).

In addition, William James (1981), who was an American psychologist-philosopher, stated that the cruelest punishment is to be absolutely unnoticed and isolated by others in society rather than physical pain. From the aforementioned Maslow, Yalm, and James' documents, social interaction is the most significant and vital function in human life.

Social Interaction's Importance

Generally, from the above-mentioned theories of interaction, interaction is very important in society and human life. However, child with ASD have central nervous system problems that result in social interaction dysfunction. Medical treatment cannot improve child's social interactions directly. Moreover, medical treatment may not cure child with ASD completely; however, many therapeutic treatments can address child's needs, including social interaction. Depending on the child with ASD conditions, therapists design a series of interventions and treatments to aid in improving child's functioning. Although the process of therapeutic treatment may be slow and unobvious, child can reduce their symptoms through therapeutic treatments. Moreover, child's

improvements may increase parents' confidence; alternatively, parents may reduce their concerns and negative emotions. Parents understand their child's situations through observing or joining therapeutic treatments and communicating with therapists. Therapists educate parents to support their child outside of therapy in order to help child adapt to various environments and situations. Then parents may aid their child at home and after therapeutic treatments. Moreover, when child exhibits negative reactions, parents may have skills to inhibit child's behaviors. Therapeutic treatments not only improve child's needs, but also reduce parents' concerns. Finally, to improve interaction is helpful for child with ASD to develop and establish their positive social interaction in society.

The general definition of music therapy as a professional discipline is that a qualified, professional music therapist provides music and experiences music therapy activity interventions to address a client's cognitive, physical, emotional, and social needs (American Music Therapy Association, 2012). Music therapists work with individuals of all ages and various disabilities or illnesses in order to improve remediate functional disabilities and improve the quality of life in everyday life (World Federation of Music Therapy, 2011). Moreover, the exact definition of music therapy varies depending on a music therapist's target population, theoretical model, and clinical experiences. Music therapy is a complex subject and difficult to define with few words (Bruscia, 1998; Crowe, 2004), since music therapy involves many disciplines (Figure 1.9) including, music education, music performance, psychology, physiology, sociology, philosophy, neurology, biology, arts, education, social work, psychotherapy, and so forth (Bruscia, 1998; Crowe, 2004).

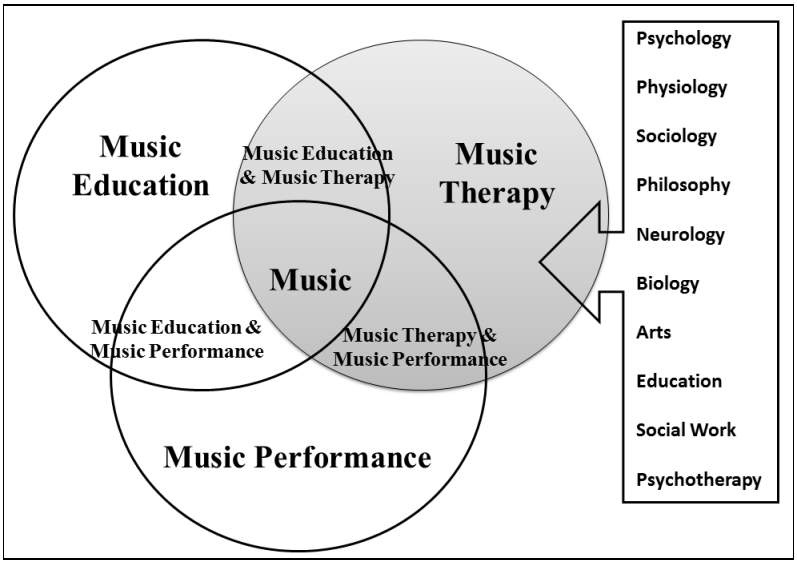

Figure 1.9: Music Therapy Involves Many Disciplines

Barbara J. Crowe[1] deems that "(Music therapy) can make the difference between withdrawal and awareness, between isolation and interaction, between chronic pain and comfort, between demoralization and dignity" (Retrieved from http://www.musictherapy.org/about/quotes/ on December 31, 2012; Crowe, 1999; Figure 1.10). Among them, between isolation and interaction is the primary goal of autism spectrum disorder. This study focused on music therapy as an intervention for child with Autism Spectrum Disorder.

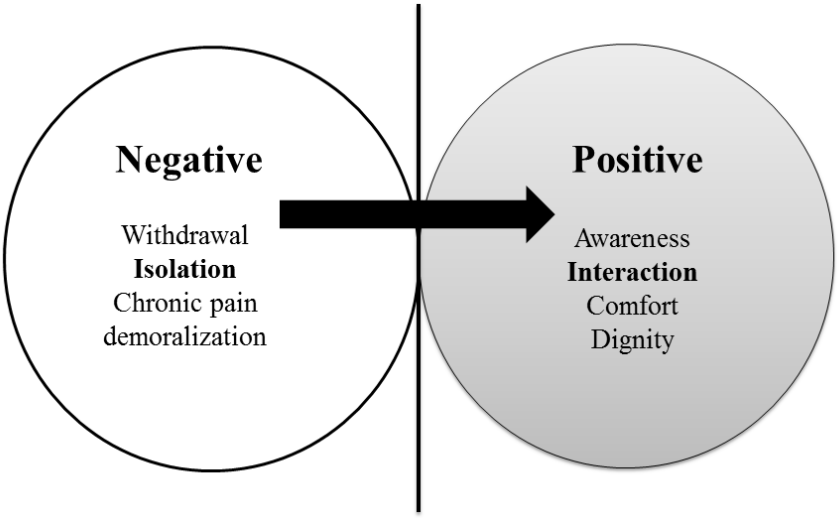

Figure 1.10: Barbara Crowe's Music Therapy Statement (Crowe, 1999)

[1] Barbara J. Crowe, MT-BC has been the director of music therapy at Arizona State University since 1981. Professor Barbara Crowe is the past president of the National Association for Music Therapy.

Music Therapy Philosophy for Autism Spectrum Disorder

Music as a Therapeutic Medium

Music therapy utilizes music as a therapeutic medium to address the child's needs and establish relationship with child (Figure 1.11).

Figure 1.11: Music is a Therapeutic Medium

The music therapist creates a musical environment for child. Familiarity of the music and story rhythmic structures helps clients feel secure and comfortable. Music becomes a bridge between a music therapist and the child, connecting music therapists and the child.

One way to engage the client in the therapeutic interaction is to use music which they prefer and enjoy. People are always interested in their favorite activities, and of course, child is no exception. Favorite, preferred music activities may include songs, musical instrument playing and musical game. Music therapists provide child's favorite activities as the basis of therapeutic interaction to produce mutual connection and establish a relationship. In addition, when a music therapist utilizes the client's musical preferences, they become motivations for engagement in the activity interventions,

supporting the child's progress more effectively. Hence, musical preferences are an important factor in music therapy. Music therapists establish relationships and understand child through their participation in music activity interventions.

Music Therapist-Child Interaction with Music as a Therapeutic Technique

Music therapist utilizes music to establish a therapeutic technique and generates music therapy interactions with child. Music therapist provides the process of music therapy interaction with child to addresses child's needs. The interaction of music therapist, music and the child with ASD is like a triangle (Figure 1.12). The three roles are related to each other inseparably. Figure 12 illustrates the interaction among music therapist, music and child. Music therapist is the most significant among them. Music therapist is put in the summit of the equilateral triangle. The equilateral triangle has a height which is from the point of music therapist to the line of music and child. Music therapist intervenes music-child interaction to promote child to arrive at desired changed behaviors.

As mentioned previously, child with ASD have social, cognitive, emotional, and physical needs. Music therapist improves child's needs throughout the process of interaction in activity intervention. Music therapist changes music depending on child's behaviors, conditions and environmental situations. For example, in music performance activity intervention, music therapist and child play the instrument. Music therapist intervene the process of playing the instrument to modify child's behaviors, and improve child's cognitive functioning, physical functioning and communication skill (Adamek, Thaut, & Furman, 2008; Alvin, 1981; Peters, 2000). Therefore, the goal of music

performance activity intervention is to improve child's functioning rather than to education child's musical skills. Music therapist provides therapist-child interaction to prompt child arrive at effective improvement and positive outcomes of music therapy.

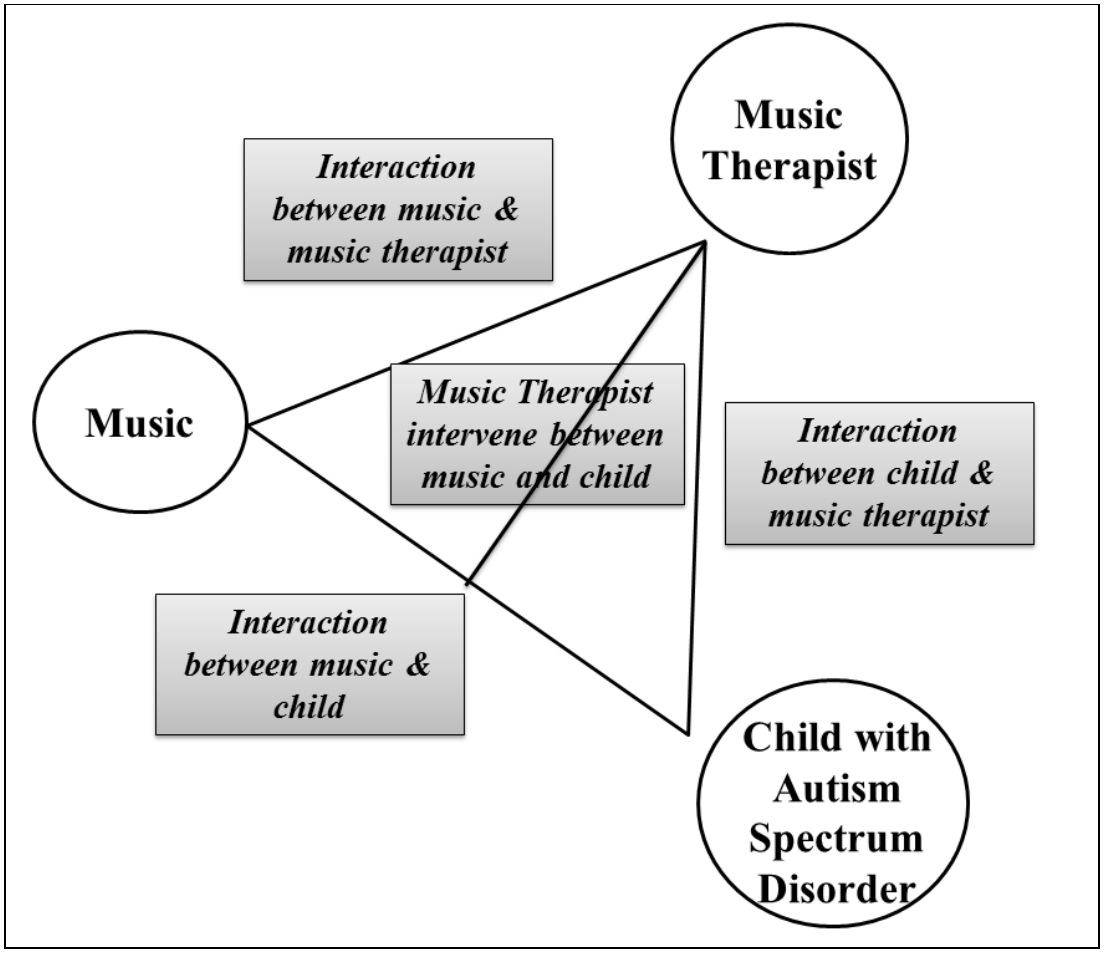

Figure 1.12: Music Therapist-Child Interaction with Music as a Therapeutic Technique

Music is a Non-Verbal Communication

Music is a form of non-verbal communication, which bridges an individual's external and internal states (Gaston, 1968). Some child is unable to communicate verbally with others or to express their internal experiences and emotions. Music acts as a communication bridge between external and internal states of the child. Through music

therapy sessions, a child's internal status is manifested. Depending on child's own personality, background, situation, condition, and experience, he/she has different styles of musical expression. For example, playing or singing loudly does not just refer to anger and being mad such playing has an individual subjective expression depending on the child. Therefore, music can connect child's unique external and internal thoughts and emotions and invoke child's awareness of their conscious and unconscious minds (Figure 1. 13). Natalie Rogers (1993, 2011), the founder of expressive arts therapy, stated that creative expressions, such as music, writing, improvisation, drawing, and painting, can symbolize deep, inaccessible feeling and emotional states (Corey, 2009) and give clients a means of nonverbal expression.

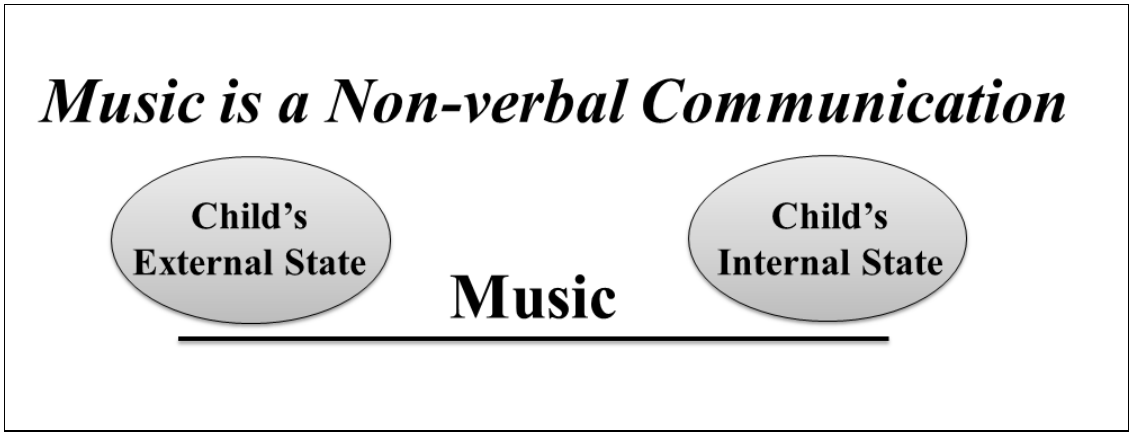

Figure 1.13: Music is Non-verbal Communication

Music as a Channel for Sensory Stimulation

From the above-mentioned symptoms, child with ASD have central nervous system dysfunction, which is associated with the cortex, neurons, and neural projections (Minshwe, & Williams, 2007; Shier, Butler, & Lewis, 2012). Therefore, child with ASD

may have sensory abnormalities. Of each therapy treatment, music therapy is more complete in increasing child's sensory stimulation than other medium. It activates hearing, but also involves other senses. Touch, movement and body position in space.

The physical vibration also stimulates skin and bone (Crowe, 2004).The human senses include hearing, sight, touch, smell and taste. These five senses are innate abilities because no formal training is needed to perceive these sensations. Humans apply these five senses to comprehend the environment and to gain knowledge. For example, seeing can help humans understand information in a book. According to the *Webster's American English Dictionary*, sense refers to faculty of perceiving information.

One of the five senses, hearing, is the most important in terms of brain development, cognitive functioning and environmental orientation (Jourdain, 1997). Hearing transmits information from the environment to the brain. For example, when a student learns a foreign language, the teacher reads a word first and the student hears the word through the ear. Then the sound enters into the brain to become knowledge. Next, the student starts to communicate and learn the information. Auditory awareness is the first awareness and is lasting: humans hear sounds from the time as a fetus until death (Crowe, 2004). The ear is the most important organ structure in transmitting the sound to the brain. "We cannot close our ears; we have no ear lids" (Erickson, 1975, p.1). Erickson (1975), who is American composer, states that in daily life, people always hear different sounds from everywhere, such as a telephone ringer or an automobile horn. We cannot control our ears and stop listening to any sound from the environment (Erikson, 1975; Fales, 2002; Jourdain, 1997).

The ear is the organ that perceives sounds as information from the external environment. Sound is composed of an acoustic wave, which is a mechanical movement. Sound is the smallest musical element[2] (Crowe, 2004; Jourdain, 1997). The function of the ear is as a receptor and transducer of energy from mechanical energy of the acoustic wave into the electro-chemical energy of the brain and nervous system (Jourdain, 1997). Therefore, the ear communicates between the external environment to the internal environment of the human brain.

Human Brain and Music

Music stimulates the human brain. Music is inseparably related to physiology and psychology. Music is invisible and transmits into the brain and affects human behavior and psychological emotions. Moreover, listening to music stimulates human senses. Human senses are first receptors. The human senses have a wide range of effects on humans since each sense has different functions. Once a sound enters the brain through the auditory nerve bundle, the effects occur. The first effect is the perception of the vibration, including frequency (pitch), amplitude (loudness), duration (rhythm and tempo), and complexity of the vibration (timbre). The second effect is the various physiological reactions due to various brain structures directly innervated by sound input. This includes changes in heart rate and respiration and alteration of brain waves (Radocy & Boyle, 2000). These physiological effects occur by involving the Reticular Activating System (RAS). RAS affects alertness and arousal and is important for human perceptual and behavioral alertness. It helps humans realize body position and helps maintain

[2] Musical elements include rhythm, tempo, timbre, and pitch.

internal stability. In addition, RAS connects with sleep, emotion and attention (Crowe, 2004). Thus, as sound transmits through the RAS, "the brain creates many specific physiological effects and responses" (Crowe, 2004, p.110). Physiological affect the autonomic nervous system, which affects heart rate, pupil dilation, sweat response, and respiration. As the autonomic nervous system is impacted by the sound, it affects the rhythm of bodily functions (Crowe, 2004).

Another effect is the generation formation. Music generates human affect or emotions. "Affect is an organized pattern of changes comprising several physiological and psychological systems…..These changes include arousal systems (increased blood pressure), suppression of systems (decrease of gastrointestinal movement), or steering of the function of a system in a specific direction (imagination of anger, such as fantasies of revenge)" (Crowe, 2004, p. 238).

The structure of the human brain is divided into three primary portions – cerebrum, mid-brain and cerebellum (Figure 1.14). Each portion has many complex and differing functions (Marieb, & Hoehn, 2010; Shier, Butler, & Lewis, 2012). Each portion of the human brain reacts differently to music (Table 1.2). Music stimulates and strengthens each portion and increases sensory stimulation and sensory integration. As child hear music, the frontal lobe makes them move in tempo and rhythm; the parietal lobe makes people move to the music while the temporal lobe allows people to hear and evokes memories associated with music. As music impacts the diencephalon, music helps it stimulate memory processing and increase emotional responses. Moreover, music changes the heart rate, blood vessel diameter, and respiratory rate regulated by the brain

stem. In addition, the cerebellum changes child's emotions and makes them want to dance (Crowe, 2004). Evidently, music impacts the human brain and then affects the internal status and the external status of the individual.

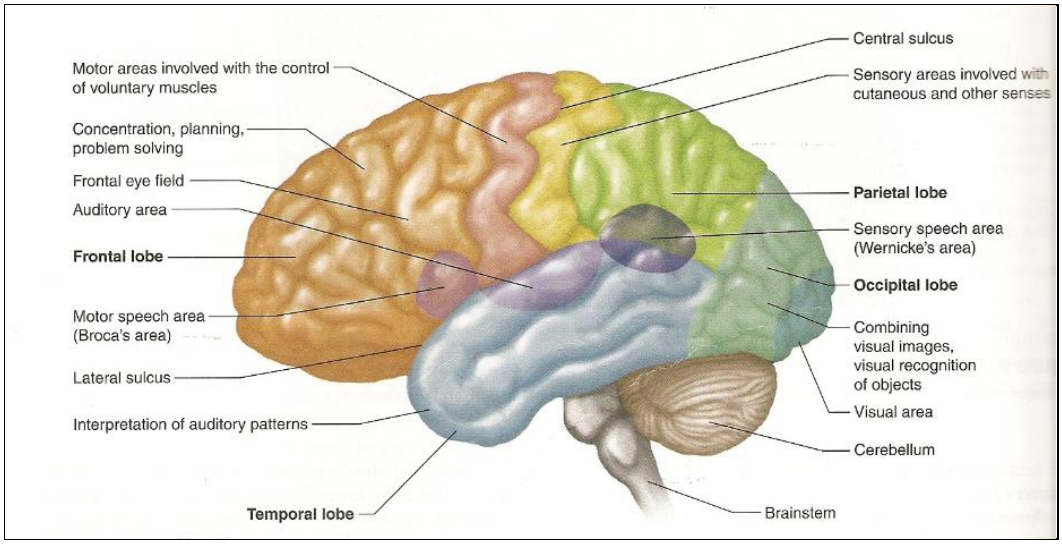

Figure 1.14 : Anatomy of the left cerebral cortex (Shier, Butler, & Lewis, 2012, p. 238).

Table 1.2 music with human brain

Human Brain		Music stimulates the human brain
Cerebrum	Frontal lobe	To move with tempo and rhythm
	Temporal lobe	1) To stimulate auditory processing 2) To evoke memory
	Parietal lobe	To dance/move with music
Mid Brain	Diencephalon	1) To increase internal responses 2) To stimulate memory process
	Brain Stem	To change heart rate, blood vessel, diameter, and respiratory rate
Cerebellum	Cerebellum	1) To change emotional responses 2) To organize to move/dance with music 3) To stimulate language development

Music therapy cannot cure child with ASD completely and directly, but music therapy indirectly impact various aspects client's functions due to the extensive impact on the brain. Music is as a chance to connect physical and psychological aspects (Figure

1.15). Figure 1.16 illustrates the hearing process which affects the functions of human body, internal status, and external status (Figure 1.16).

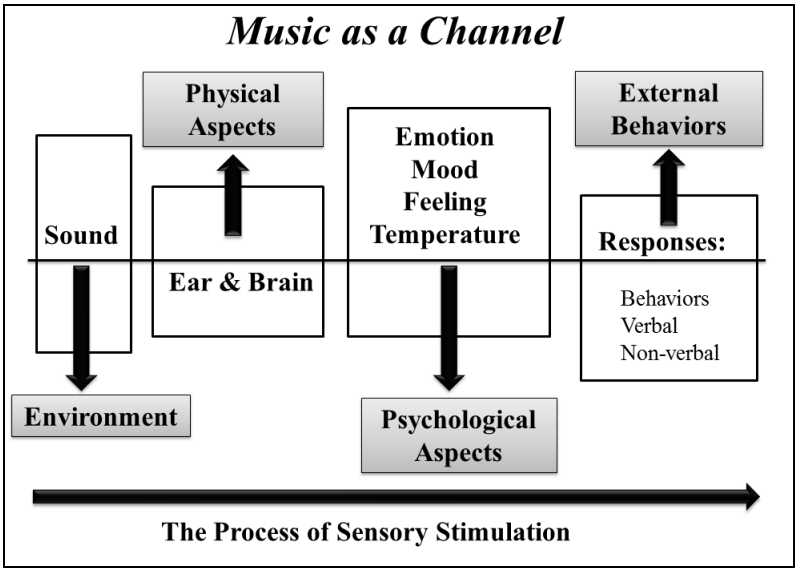

Figure 1.15: Music as a Channel– The Process of Sensory Stimulation

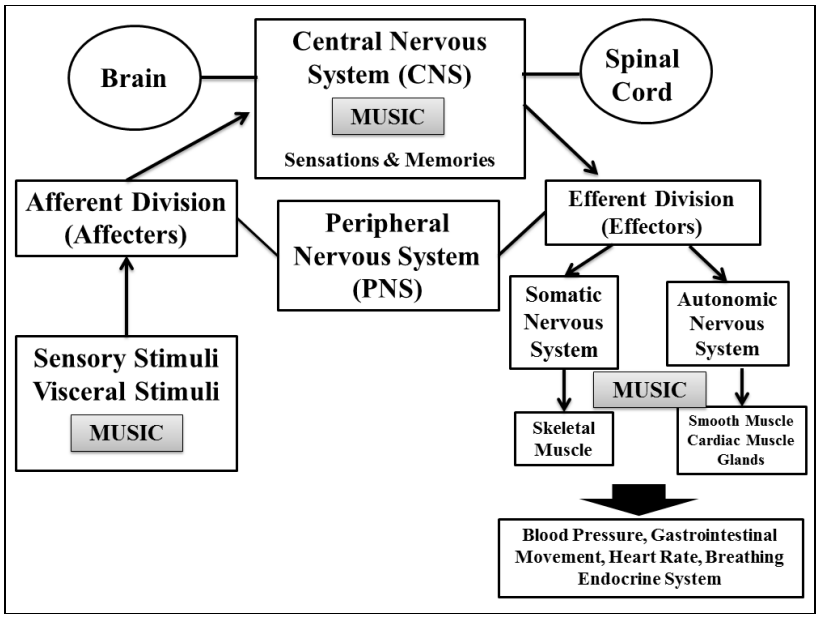

Figure 1.16: Music Transmitting Process (Crowe, 2004; Marieb & Hoehn, 2010; Shier, Bulter, & Lewis, 2012)

Music Therapy Treatment for Autism Spectrum Disorders

Music therapy treatment is to design a method by integrating the four aspects of music's impact on human functioning: music as a therapeutic medium, music as a non-verbal communication, music therapist-child interaction as a therapeutic technique and music as a channel.

The method is an arrangement of units and a series of regular orders, which aim at individuals' needs, to form into an organized structural process (Bruscia, 1998; Crowe, 2004; Dictionary.com, 2013; Hanser, 1999; Webster's American English Dictionary, 2011) and constitutes is a therapeutic technique that deals with child and addresses their needs. The organized structural process is a treatment. The structure of music therapy treatment is composed of an assessment process and a series of treatment sessions (Figure 1.20).

Assessment, which is the beginning process of music therapy treatment, is when music therapist analyze and determine individual's strengths and weaknesses in order to establish effectiveness and planned interventions and activities, (Dictionary.com, 2012; Hanser, 1999; Wenster's American English Dictionary, 2011). For example, music therapist plays the drum. The music therapist asks child, "How many sounds did you hear?", and the therapist leads child to play the drum. Throughout the asking and playing process, the therapist can assesses child's communication skills, speech ability, cognitive functioning and auditory ability. Then the music therapist to designs various activity interventions to address child's needs based on child's age, preferences and personality (Figure 1.17).

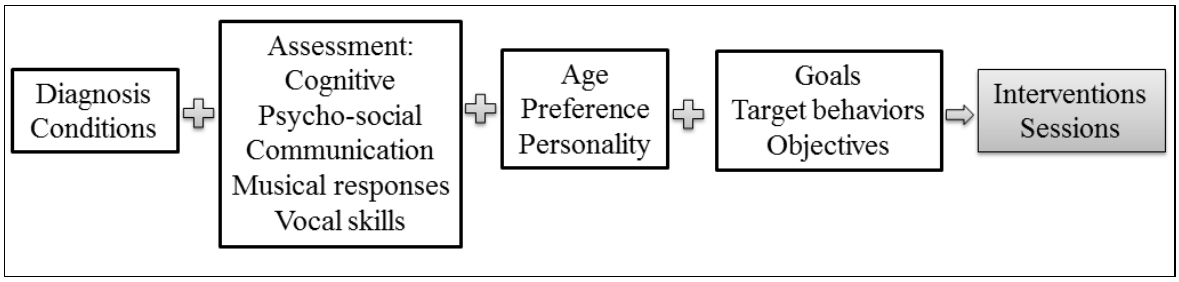

Figure 1.17: Process of Designing a Music Therapy Treatment

Additionally, the assessment period is an important period for therapist to establish relationship with the child with music. After establishing relationship, music therapist starts to improve the interaction with child. Firstly, music therapist utilizes therapeutic techniques, involving active music making with a music instruments, singing and improvisation, to create the therapeutic environment for child. Then based on the therapeutic situation, child responds to the therapist. Hence, it produces music therapist-child interaction (Figure 1.18). Finally, music therapist will utilize the process of child's responses to address child's areas of needs in social interaction, thus leading to increased social interactions (Figure 1.19).

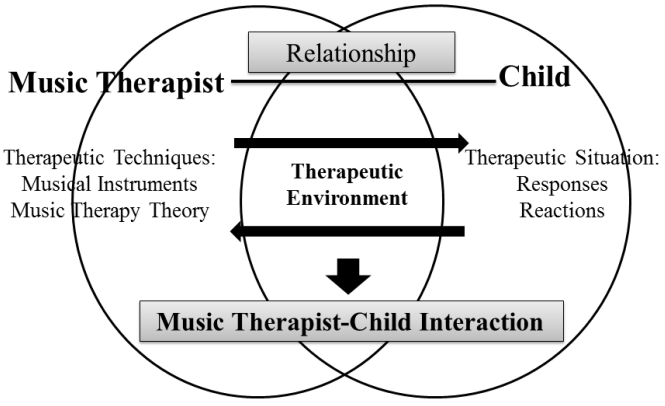

Figure 1.18: Music Therapist-Child Interaction in Music Therapeutic Environment

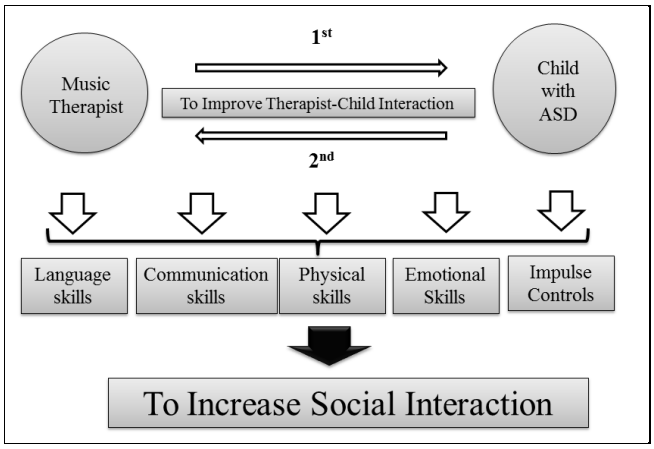

Figure 1.19: Music Therapist-Child Interaction

Assessment and sessions involve various therapeutic music therapy activity interventions, which have specific goals and purposes that are based on child's level of functioning and needs. Various interventions include many categories of activity (Figure1. 20).

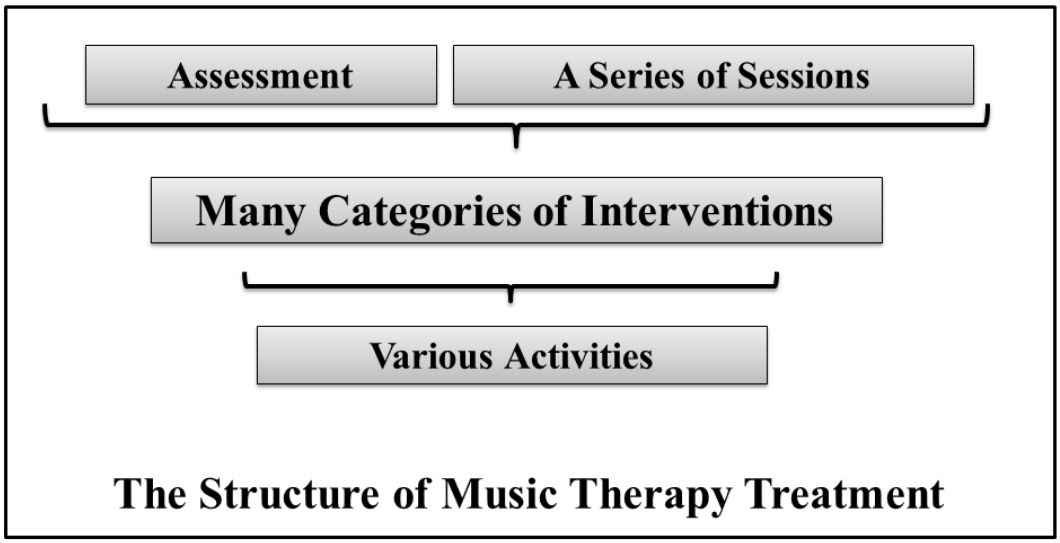

Figure 1.20: The Structure of Music Therapy Treatment

The Function of Music Therapy Treatment

Music therapy treatment affect child physically and psychologically in order to produce child' desired changed behavior. Therefore, to achieve the desired change behavior is one of significant goals. As child takes music therapy treatment unceasingly, child's negative behaviors will reduce piece by piece. Music therapy treatment is a virtuous circle (Figure 1.21), and music therapist intervenes four times during a virtuous circle of music therapy treatment.

In the first intervention of music therapist, music therapist provides child's musical preferences with musical instrument or vocal sound. Music enters human body, ear and brain, which affect physical aspects and produced stimulate sensory.

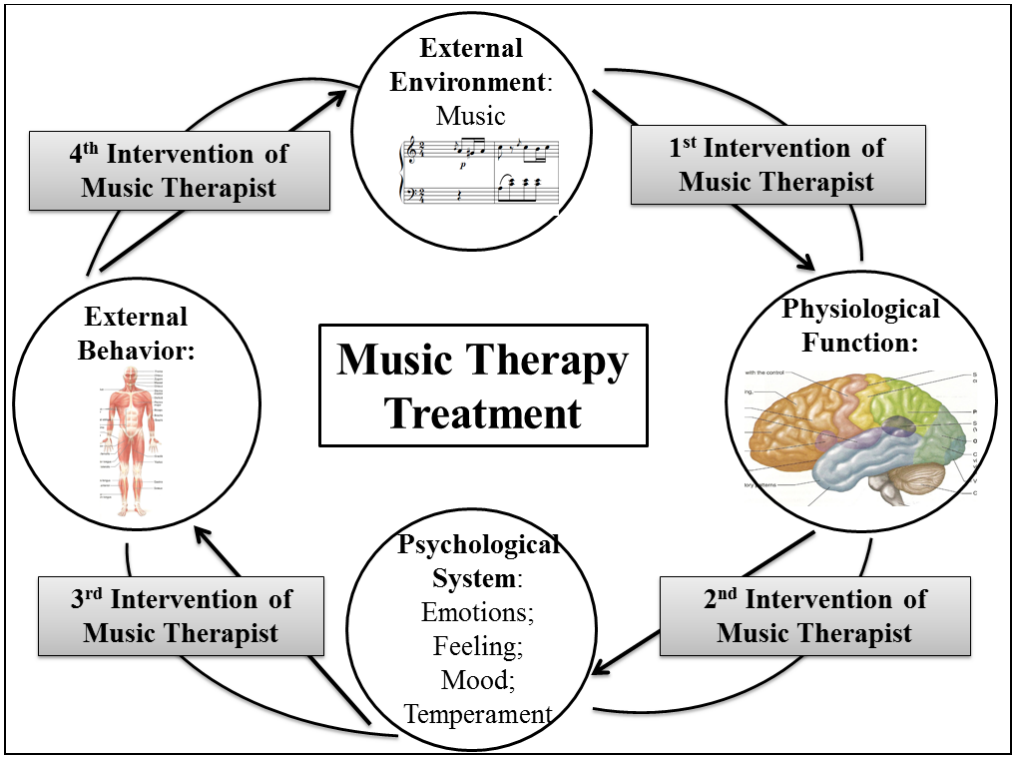

Figure 1.21: A Virtuous Circle of Music Therapy Treatment

Then music affects psychological system indirectly resulting in psychological production. During the second intervention of music therapist, child has awareness of music. Child has ability of thinking with music, such as lyric and reminisces about memories, which increase child's not only psychological system but also cognitive functioning. Moreover, during this process, therapist changes the tempo of music and the lyrics, depending on child's conditions. Next, therapist engages child in showing internal states with verbal and non-verbal communication. Music therapist understands child's internal states with the behavior since "behavior is activity and response to internal and external cues" (Crowe, 2004, p.139). Finally, in the last intervention of music therapist, music therapist intervene the process of behavioral responses to modify child's maladaptive behaviors and responses to arrive at desired changed behaviors (Clarke & Debar, 2010; Peters, 2000).

Music therapist modify child to use appropriate behaviors to express internal states. In addition, during the process of modification of behavior, child will be able to increase problem solving skill and cognitive ability.

Throughout the cycles of music therapy treatment, music therapy activity intervention is a topic. Music therapist intervenes the musical process to increase individual's strengths and decrease individual's weaknesses. In the cycle of music therapy treatment, as music therapist intervenes the process less and less, music therapy treatment outcome increases, and individual arrives at desired changed behaviors. Indirectly, child is able to apply therapeutic factors in the real world (Corey, 2009; Yalm,

2008). Therefore, music therapist creates a musical environment in music therapy treatment to become a practice space for child in order to practice improving child's need.

Music Therapy Treatment Studies for Autism Spectrum Disorders

Recently, many music therapy researches are related to music therapy treatment for child with ASD to reduce the child's impairments and increase desired changed behaviors (Allgood, 2005; Peters, 2000). Each researcher provides different goals and approaches to increase quality of child's life. Allgood (2005) stated that family involvement in the music therapy treatment will promote a parent relationship and carry out the generalization of skills in the home. Bull (2008) documented that family group music therapy has positive impacts of child with ASD and the family. Lim (2011) studied that music therapy in applied behavior analysis verbal behavior approach is effective in child's speech. Each music therapy research showed that music therapy treatment is effective for child with ASD.

This research study focuses on music therapy treatment for child's interaction. The researcher collected three music therapy for child with ASD based on the approaches of Alvin (1980), Peters (2000) and Adamek, Thaut & Furman (2008). The process of music therapy treatment for child with ASD is usually very slow and may last for several months or even years (Peters, 2000). Their treatment processes for child with ASD are divided into three steps. Each stage is closely linked and inseparable (Table 3; Figure 1.22).

Social Interaction throughout the Treatment

Table 1.3 is the analysis of each of these methods of music therapy for child with ASD related to increase social interaction. Obviously, in each method and at each stage, the goals are very similar. Relationships and interactions are addressed throughout each stage and each author's approach. The first stage is to establish a relationship with the child. When the therapist has a good relationship with child then the relationship enters a higher level, which is interaction. Once child's interaction improves, music therapist starts to improve child's self-expression, cognitive skills and language development. Finally, music therapy enhances the range of interaction, so child can apply the social interaction skills in the community in the real world, such as families and schools.

Impaired social interaction influences a child's deficits in communication, language, and atypical behavior, which impacts on the child's future life because improvement in social interaction appears to be important for language, social, and cognitive development (Adamek, Thaut, & Furman, 2008; Koegel, Koegel, Vernon, & Brookman-Frazee, 2010; Peters, 2000). Therefore, in music therapy treatment, improving and increasing social interaction is the most important goal.

Table 1.3: The Autism Spectrum Disorder therapeutic approaches

	Alvin (1981)	Peters (2000)	Adamek, Thaut, & Furman (2008)
The First Stage	a) To establish relationship and interaction b) To support child awareness of new environments with human senses, such as tactile and auditory c) To improve child's limited expressions	a) To establish relationship and interaction b) To improve and support the child's limited responses with music c) To create a safe environment for child and begin musical communication	a) To establish musical relationships between therapists and child b) To improve communication c) To improve social interactions d) To improve behaviors
The Second Stage	a) To increase musical and human interaction b) To increase their self-expression c) To improve cognitive and language development	a) To improve language, social cognitive skills, and motor skills b) To improve awareness c) To improve interaction and cooperation d) To prepare child for the "my turn you turn" concept	a) To improve academic skills b) To improve physical skills c) To improve leisure skills
The Third Stage	a) To enhance self-knowledge b) To enhance child's awareness of everyday environment c) To support child control of their own behaviors d) To reinforce social interaction in the real world	a) To increase integration skills b) To increase appropriate social behavior and skills c) To reinforce interaction with others d) To reinforce cooperation with others	a) To support child enhance social interaction in order to apply in society and community

The First Stage

The first stage of these three therapeutic approaches is adaption and establishment of relationship and interaction through musical experiences. Moreover, the other goal of the first stage is to help child get used to "new" music to improve child's limited responses. Child with ASD is afraid of new elements in the environment and often feels insecure when changes occur. Child also resists change in anything that surrounds them. Moreover, they adhere to child specific interests and activities. Therefore, music

therapists provide child with new music and help child face the new musical environment. The child increases the duration of contact with the musical stimulus and as a result, child decrease the limited responses gradually and naturally over time (Franklin, Freeman, & March, 2010).

The Second Stage

Next, in the second stage, in addition to developing and responding to new environments, music therapist starts to strengthen child's interaction and cooperation skills. From the above-mentioned symptoms, child with ASD have deficits in social interaction. Child with ASD do not have the ability or desire to share his/her own enjoyment or interest with others, so it causes child to has impaired academic skills, language, communication and so forth. Hence, once the child improves his/her interactions, music therapists start to reinforce their behaviors, increase musical relationships, develop the perceptual processes, and gain in his/her self-expression and self-control (Alvin, 1981; Peters, 2000; Weiten, 2010; Wade & Tavris, 2008).

In addition, therapists prepare child for the concept of "My Turn, Your Turn" as part of entering the final stage. The definition of turn is "change", and "place, time, or opportunity to do something in order" (*Webster's American English Dictionary*, 2011). "My Turn, Your turn" is an interacting action between therapists and child, which have an order and steps. Child has to practice waiting patiently until their turns. Therapists establish the concept of order and step for child and educate child in appropriate attitudes and respect for others.

The Final Stage

The final stage involves reinforcing and enhancing their social interactions, self-confidence, and self-expression. It is the highest level of treatment where child's improvements from the previous two stages are integrated. Usually, the final stage of treatment is based on group music therapy experiences. Child's social interaction is more advanced and enhances the range of interaction from one by one to two or more interactions, emphasizing child's social interaction with others. Child improves the higher level of social interaction through group music therapy treatment, because child socially interacts not only with therapist, but also with others in the group. Child may have challenges and conflicts with others that he/she learns to reactive. Throughout the process of conflict, music therapists educate child in problem solving solutions in order to increase their cognitive development and reinforce social interaction in the real world. Hence, music therapists' primary goal is to help child adapt to everyday environments and identify with the real world.

Music therapist utilizes child's musical preferences and favorite activity interventions to increase therapist-child interaction in music therapy treatment. As above indicated, interaction exists in human life. Interaction has impact of child's learning and working ability in school and society. Interaction is the one of the important goal for child with ASD. Therefore, in music therapy treatment, child practices how to interact with therapist in order to apply the interaction skills to the community and school.

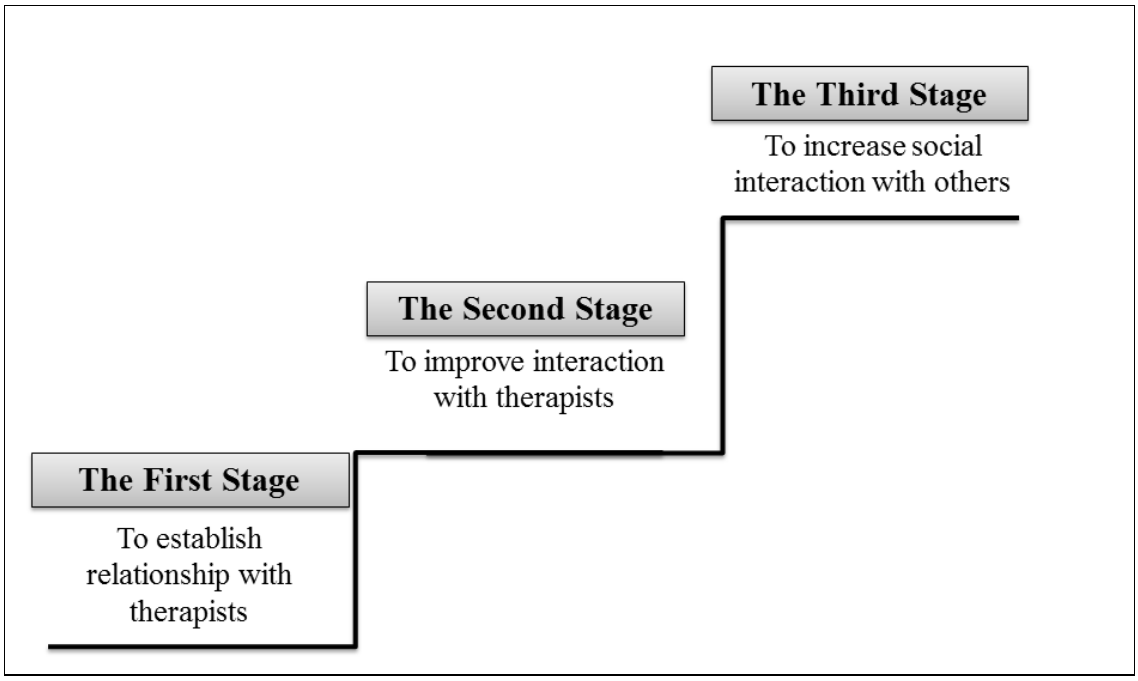

Figure 1.22: The Stage of Music Therapy Treatment for Child with ASD.

Applied Behavior Analysis

The methodology of applied behavior analysis (ABA) utilizes analysis of children's behavior of with ASD various approaches including music therapy treatment.

Applied Behavior Analysis (ABA) is a methodology to observe and analyze the interaction between child's behavior and environmental condition (Alberto, & Troutman, 2009; Fisher, Groff, & Roane, 2011; Mathur, 2011).

ABA describes and analyses external behaviors rather than internal structures, individuals rather than groups, physical aspects rather than psychological aspects, continual observable behaviors rather than separable observable behaviors, and behaviors with environments rather than single behaviors. Hence, applied behavior analysis directly describes structural characteristics of behaviors and functions of behaviors during the timing process of observable behaviors. The goal of ABA is to analyze and modify children's behaviors (Alberto, & Troutman, 2009; Bailey, & Burch, 2002; Fisher, Groff, & Roane, 2011).

Applied Behavior Analysis in Music Therapy

A music therapist can utilize applied behavior analysis model in music therapy sessions. Music becomes a stimulation to reinforce child's behaviors and support child to achieve and maintain desired behaviors. That is, therapist provides music to reinforce behaviors, known as positive reinforcement (Hanser, 1998). Positive reinforcement in music therapy includes continuing singing, playing and listening. For example, the child sings "If You Are Happy" with the therapist. When the child does not pronounce "Happy"

correctly, the therapist asks the child stop to singing. Then the therapist leads the child to pronounce “Happy” until the child has ability to pronounce the word correctly and independently. After that, the therapist will ask the child to continue singing the song. Therefore, positive reinforcement is a stimulation to lead the child to achieve the appropriate behaviors and increased desired behaviors. Additionally, once a child achieves the appropriate behavior, the child can continue to complete the activity which the child likes. Thus, positive reinforcement is not only a simulation but also a reward (Hanser, 1998).

Statement of the Problem

People's interaction with others is the vital foundation in life-span development. However, impaired social interaction is the primary symptom for child with ASD. This thesis research focuses on therapist-child interaction and analyzes the music therapy technique, prompts and cues, outcome for promoting the interaction.

Research question one:

Based on the music therapists' evaluation, how does the music therapy treatment help improve the clients' social interaction?

Research question two:

What strategies do music therapist use to engage the client in therapeutic interventions (musical experiences) in order to maintain clients' attention?

Research question three:

What clients' behaviors demonstrate that the clients are maintaining attention to task?

Research question four:

What prompts/cues do music therapists use to engage the clients' attention/ engagement/ concentration?

CHAPTER II

REVIEW OF RELATED LITERATURES

Introduction

This literature review addresses research studies since 2002 to 2012 on music therapy treatment for child with Autism Spectrum Disorders. Thirty-three articles were found in *Journal of Music Therapy (JMT),* and *Music Therapy Perspective (MTP)* through the *ProQuest* database of the *Arizona State University Library Researching System*, using keyword search: *music therapy with autism spectrum disorder* and *social interaction for child with autism spectrum disorder* (Appendices A).

Music Therapy Studies for Autism Spectrum Disorder (ASD)

In those thirty-three studies, there are five categories of music therapy research: communication, social behavior, peer development, emotion, music therapy treatment outcomes, and a variety of other (Figure 2.1). The journal articles are reviewed and analyzed with the view of music therapy treatments for child with ASD; moreover, they are summarized to render comparisons and contrasts to the purpose of this thesis on how music therapy technique, prompting and cuing, improves child's social interaction with prompt and fading procedures in applied behavior analysis (ABA). Each study concludes that music therapy treatment is effective for child with ASD. Most of the studies mention that addressing child's communication, social behaviors, language, emotion and social behavior improves child's social interactions (Gadery, 2011; Gooding, 2011; Hooper, Wigram, Carson, & Lindsey, 2008; Katagiri, 2009; Pasiali, 2012; Rainey Perry, 2003; Register & Humpal, 2007; Schubert, 2007; Silverman, 2006; Walwort, 2007; Walwort &

Register, 2009). Hence, emotion, language, and behavior provide the foundation of improvement in child's social interaction.

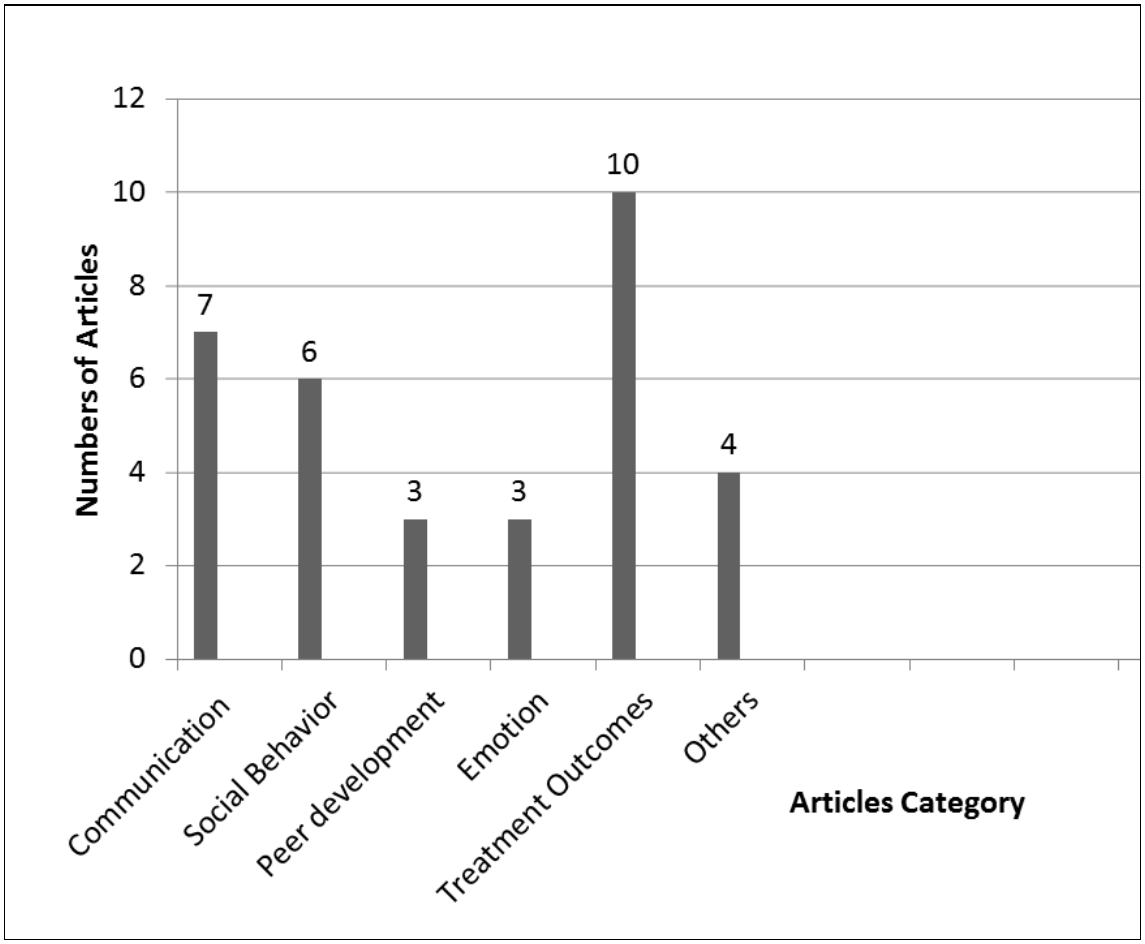

Figure 2.1: Category and number of articles

Communication

Communication is a process between two or more people exchanging their thoughts, opinions, messages, attitudes, beliefs, information, and emotional states through speech, signs, writing, non-language symbols, behavior , and so on (Doob, 1988; Dictionary.com, 2013; Roucek, & Warren, 1902; Websters' American English Dictionary,

2010). Moreover, communication refers to "interpersonal rapport" (Dictionary.com, 2013; Websters' American English Dictionary, 2010) and is, "an essential area of growth and progress" (Gadery, 2011, p 85). Therefore, communication is one of the basic and significant elements of social interaction (Doob, 1988; Roucek, & Warren, 1902). The primary goal of improvement for 41% of child with ASD was language and communication (Kaplan, & Steele, 2005). Rainey Perry (2003) documented that communication problems related to many difficulties, based on are the lack of interest in interaction and outside activities. Impaired communication, which is one of the symptoms of ASD, has a negative effect the social interaction of child with ASD. Therefore, to improve communication is one of the essential goals for child with ASD. In addition, child at different levels of communication development vary on their abilities to participate and engage in activities and maintain the level of attention in the interaction (Rainey Perry, 2003, p 227). Rainey Perry (2003) stated that talking and playing are the important communication interventions. Gadery (2011) and McCarth, Geist, and Schock (2008) utilized augmentative and alternative communication (ACC) to promote the goal of learning communication through visual pictures and symbols for child with ASDs.

Furthermore, Walwort (2007) mentioned that music therapy provides an interacting environment for children with ASDs, which elicits communication skills. In music therapy treatment for children with ASDs, Walwort deemed that the SCERTS model not only can enhance communication and socio-emotional functioning but also provide increased family interaction (Walwort, 2007; Walwort & Register, 2009). The acronym SCERTS that stands for Social Communication, Emotional Regulation, and Transactional Support areas (Walwort 2007; Walwort & Register, 2009), represents six

music therapy goals which focus on social interaction. SCERTS emphasizes sharing attention, understanding non-verbal cues, learning to interact, learning support and interpersonal support, and so on. In music therapy intervention, music therapists engage child with ASD to promote eye contact, facial expression, gestures, verbalization, and communicative function. Moreover, Walwort (2007) documented information from Bartak and Rutter (1973) that skills learned in an adult-child interaction are difficult for child with ASD to generalize to their peers; therefore, it is important to incorporate peer-to-peer intervention techniques in intervention to increase the generalization of these skills. Hence, interaction is significant and its primary goal is to increase the generalization of the skills.

Social behavior

Social behavior is the reciprocal behavior of an individual with others and exists in social interaction (Roucek & Warren, 1902). Social behavior, which includes eye contact, gesture, body posture, and facial expression, is involved in social skills (Gooding, 2011). Kolb & Hanley-Maxwell (2003) stated that social skills include communication, problem-solving solution, decision-making, assertion, interaction among peer and group, and self-management (as cited in Gooding , 2011), (Figure 2.2). There are five studies which studied the effect of child's social behavior on social interaction.

A social skill deficit impacts child's social interaction, peer and family interaction, academic skills, and leisure activities (Gooding, 2011). Gooding provided cognitive-behavioral techniques and active interventions to address two target objectives: peer relationship and self-management. Moreover, Demers, Tincani, Norman, and Higgins

(2009) analyzed child's behavior to determine the effect of music therapy on child's negative behaviors. Their study indicates that through music therapy interaction, child with ASD showed improvement in their behavior and social skill. (Brown & Jellison, 2012; Demers, Tincani, Norman, & Higgins, 2009; Gooding, 2011; Kern, 2006; Kern, Wakefor, & Aldridge, 2007). Because child with ASDs usually have a great interest in music (Kern, 2006), Register and Humpal (2007) mentioned that music stimuli can support child' positive behavior and reduce the negative. As described above, music engages child to participate in order to increase social competence and social interaction (Brown & Jellison, 2012; Gooding, 2011; Kern, Wakefor, & Aldridge, 2007).

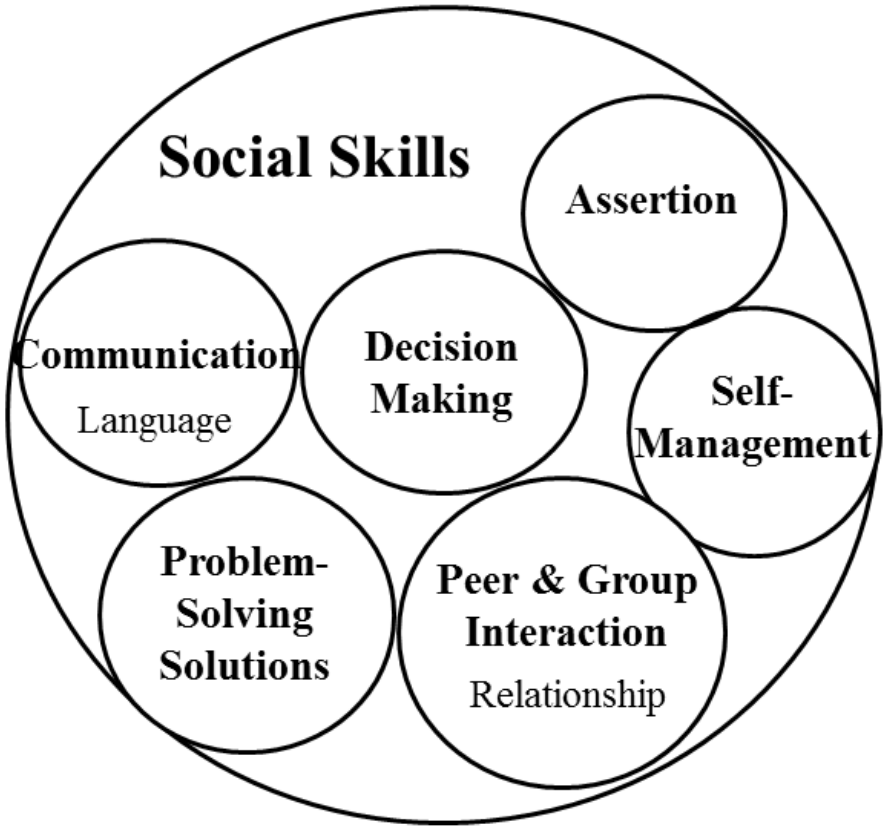

Figure 2.2: Social Skills (Gooding, 2011; Kolb & Hanley-Maxwell, 2003)

Peer Development

Peers play a significant role on the development of social interaction throughout one's life, especially during child development (Doob, 1988; Roucek & Warren, 1902; Santrock, 2011; Sussman, 2009). Specifically, child's behavior gets influenced by their peers at school (Santrock, 2011), because they spend a large amount of time with their peers when they are at school (Santrock, 2011). Hence, peer development is very important for child (Kern, 2006; Santrock, 2011). Peers can be used as a medium to support child with ASD to develop social interaction in school (Kern, 2006).

Kern (2006) documented the data from Anerson and Gonzalez (1984) that music, which is stimulation, effectively engages child with ASD to participate and be involved in activities to achieve therapeutic goals. For example, playing musical instruments help increase child's involvement, participation, interaction, and attention (Brown & Jellison, 2012; Kern, 2006; Sussman, 2009). In addition, song interventions help child interact and collaborate with peers. Peers support child in developing social interaction (Brown & Jellison, 2012; Cook, 2010; Doob, 1988; Kern ,2006; Sussman, 2009; Vernon, 2004). This helps teachers establish daily routines for child with ASD (Kern, 2006).

Emotion

Emotion refers to that, "mental state that arises spontaneously rather than through a conscious effort and is often accompanied by physiological changes" (Dictionary.com, 2013). Emotion is one of the psychological factors of healing (Crowe, 2004; Roucek & Warren, 1902) and is present in every culture and every person including newborns, the

deaf, the blind (as cited in Goleman, 1995; Pinker, 1997), and ASD (Katagiri, 2009). In addition, emotion is also an important factor when examining human's psychological development and mental health condition (Crowe, 2004). Goleman (1995) stated that the primary core of emotions, which appear on human's facial expression, includes anger, sadness, fear, enjoyment, surprised, disgust (as cited in Crowe, 2004; Pinker, 1997). In addition to facial expression, Gabrielsso (1995) documented that emotion can be expressed by gesture, tone of voice, motor movement, or musical phrase (as cited in Crowe, 2004). For example, when a child is happy, he/she smiles and claps his/her hands, indicating that emotion influences child behavior and social interactions (Crowe, 2004; Dictionrary.com, 2013; Roucek & Warren, 1902).

Music is a channel and a powerful technique to express, communicate, evoke, recognize and express emotion (Crowe, 2004; Gilboa, Bodner, & Amir, 2006; Schubert, 2007). Music is a non-verbal communication particularly to expression of emotional messages (Crowe, 2004) with musical instrument, drawing and forth. Giboa, Bodner and Amir (2006) deemed that music therapy musical improvisation is an efficient technique to express emotion. Moreover, music affects the human brain and behavior (Berger, 2001; Crowe, 2004). Since emotion is expressed through external behavior and expression (Adamek, Thaut, Furman, 2008; Alvin, 1981; Nielsen & Moe, 1999;), child express their emotions through music therapy interventions, which include musical improvisation (Peters, 2001; Wigram, 2004), song singing, and instrument playing (Gilboa, Bodner, & Amir, 2006; Katagiri, 2009; Schubert, 2007).

Child with ASD lacks the ability to express emotion (DSM-IV-TR, 2012) and they are unable to display emotion in an appropriate manner. Therefore, child with ASD have limited social interaction (Katagiri, 2009). Bauminger (2002) stated that impaired social and emotional understanding creates a vicious circle in social interaction (as cited in Kategiri, 2009), since child with ASD have problems providing facial expression at the appropriate moment (McGee & Morrier, 2003; Snow et al., 1987). In order to improve their social interaction, teaching them how to express emotion is very significant (Katagiri, 2009).

Treatment Outcomes

The research of music therapy treatment outcomes supports the idea that music therapist provides a model and interventions that are effective and based on their populations and goals. In addition, the research examines the effect of music therapy treatment on the improvement of child with ASD.

Kaplan and Steele (2005) examined music therapy treatment outcomes for child with ASD through music therapy interventions, session types, and session formats, which involve goal setting, assessing the level of functioning of clients, and generalization of skills in music therapy environment. According to statistical inferences from Kaplan and Steele (2005), the treatment goals for child with ASD consist of 41 % Language/communication, 39% behavioral/ psychosocial areas, 8% cognitive area, 7% musical area, and 5% perceptual/motor areas. The interventions that are most frequently utilized, "were interactive instrument playing, musical instrument instruction, interactive singing, instrument choices, and song choices" (Kaplan & Steele, 2005, p.2). Session

types include individual and group session. Session formats include activity-based, client-led/shadow, and ensemble format. Results from parents/caregivers reported that their child with ASD had generalized, applied, and used the skills outside of music therapy sessions. Evidently, the interventions for child with ASD are related to interaction. Like the interactive instrument playing, the intervention helps the client learn the concept of "my turn, your turn," which helps child apply the concept in their everyday environment in order to improve their social interaction (Adamek, Thaut, & Furman, 2008; Alvin, 1981; Peters, 2000). As a result, music therapy treatment for child with ASD shows an increasing social interaction.

Whipple (2004) organized treatments for child with ASD from disciplines including psychology, education, music therapy, and occupational therapy and compared music to no-music conditions. Results showed that the benefits of music in interventions include improvement in appropriate social behavior, attention to task, vocalization, verbalizations, gesture, vocabulary comprehension, interaction, communication, engagement with others, coordination, self-care skills, symbolic play, and emotional regulation. Moreover, Reschke-Hernande (2011) and Whipple (2004) utilized a historical approach to analyze music therapy treatment outcomes. The purpose of the research of Reschke-Hernande was to improve clinical efficacy and inform future research based on the historical analysis. Reschke-Hernande arranged and analyzed the historical periods of music therapy treatment for child with ASD. He showed that music therapy treatment improves child's need areas, including social interaction.

In addition, music therapy treatment increases family support and improves family interaction (Pasiali, 2012; Reschke-Hernande, 2011; Williams, Berthelse & Nicholso, Walker & Abad, 2012). When family member participates in the music therapy treatment and observes their child's progress, increasing in child's confidence and understanding of their child's situation. Moreover, music therapy treatment provides for family education, which improves parental mental health, parental engagement with child, and overall sensitivity (Pasiali, 2012; Williams, Berthelse, Nicholso, Walker, & Abad, 2012).

Others Related Literature

Some articles on the efficacy of music therapy interventions topics are not related to child with ASD and social interaction specifically. However, those studies demonstrated that music therapy treatment or intervention has positive effects on social interaction indirectly.

Jones (2006) examined the relationship between songwriting practice of music therapists and clinical goals. The results were that songwriting intervention does address clinical goals (Jones, 2006). There were 11 clinical goals, which include emotional-expression, cognitive-academic-learning, behavioral-attentional-task-directed, social-communication, speech-communication, social-interaction, physical-movement, creativity, spirituality goals, and musical goals. Music therapists report that songwriting interventions address these five clinical goals.

Ropp, Caldwell, Dixon, Angell, and Vogt (2006) studied music therapy administration in special education settings. The aim of the study was to assist music therapists in seeking employment in special education. However, in the article, the authors mention that music therapy is beneficial in addressing students with disabilities and is a helpful service through special education (Brown & Jellison, 2012; Ropp, Caldwell, Dixon, Angell, & Vogt, 2006). According to the data reported, 82.9 % of participations agreed that music therapy was an effective technique for child with ASD in special education.

Summary

From the aforementioned reviewed literature, a large body of research focuses on music therapy outcomes with social behaviors and social interaction. These studies use social behavior, music therapy treatment and outcomes, music therapy interventions, music stimuli and communication to examine music therapy's effects on child's behavior. Alternatively, some studies observed only child's social interactive skills, communication, and social behavior to analyze the music therapy outcomes. There is no study that observes changed in interaction between a music therapist and a child. This thesis research study emphasizes music therapist-child interaction. The author observed child's behavior and interactions with music therapists and analyzed child's improvement in social interaction with prompt and fading procedures in applied behavioral analyses approach.

CHAPTER III

METHODOLOGY

Introduction

Interaction is the most significant issue in life-span development. However, social interaction dysfunction is the primary condition for children with autism spectrum disorder, who are unable to interact with others, which adversely affects the children in improving their communication and behavioral skills. Increasing social interaction is one of the most significant issues in development, especially for children with Asperger's syndrome. From the aforementioned definition, music therapy treatment creates a space for children with autism spectrum disorder to practice interacting with therapist. The children then apply these interaction skills in the real world. Furthermore, music therapist occupies a significant role in supporting children to practice interacting with others.

The purpose of this study was to observe and analyze children's interaction with music therapists using the Applied Behavior Analyses (ABA), prompts/cues and fading procedure to determine the progression of children's interactions with music therapists. In this study, the researcher observed the therapists' prompt and fading procedures to assist with the three children with Autism Spectrum Disorder. To that end the following research questions were established.

The Research Questions were established as follows:

Research question one:

Based on the music therapists' evaluation, how does the music therapy treatment help improve the clients' social interaction?

Research question two:

What strategies do music therapist use to engage the client in therapeutic interventions (musical experiences) in order to maintain clients' attention?

Research question three:

What clients' behaviors demonstrate that the clients are maintaining attention to task?

Research question four:

What prompts/cues do music therapists use to engage the clients' attention?

Methods

This research studied the behavioral interaction between music therapist and children with autism spectrum disorder during sessions. The researcher observed each music therapy session and took notes. Each session was video recorded for later analysis. Furthermore, informal interviews of the children's therapists were utilized in order to combine the therapist's perspectives with the researcher's and assess the children's improved social interaction. This research used prompts/cues and fading procedural approach, decreasing frequency of prompts and cues to analyze the interactions between the therapist and the child.

An anecdotal report is provided to report research data. Anecdotal report analyzes the process of interaction between therapist and child in each intervention and provides written a description which analyzes and determines behavioral interactions between therapist and client during each intervention. The anecdotal report of interactions has three portions: antecedent, behavior, and consequence (Table 3.1), (Alberto & Troutman, 2009). Antecedent in the interaction process refers to the therapist's cues and prompts. Behavior represents the client's responding actions in this research, which include the number of seconds passed before the client responds to the therapist, and the client's reacting behaviors. Additionally, "O" and "X" indicate the client's appropriate and inappropriate responses. Finally, consequence refers to the time period in which the client maintained the social interaction skills. Moreover, time lapse after cues and prompts were recorded. Table 3.1 illustrates the structure of an anecdotal report in this research.

Table 3.1: Structure of an Anecdotal Report

The Process of Therapist-Client Interaction					
Antecedent	Behavior			Consequence	
The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	Client's responses (appropriate: O; inappropriate: X)	Client's responding actions	Client's time maintained (seconds)	Positive Reinforcement (Yes: Y; No: N)

Subjects

There are many clients with ASDs being served by Higher Octave Healing (HOH), a private music therapy agency in Tempe, AZ. These clients have differing levels of

functioning. This research focused on client/therapist interaction. Among the children with ASDs, in the agency, three clients were selected for this research after consulting with Kymla J. Eubanks, MT-BC. They were chosen because of a stated music therapy goal of improving their interaction with others. These goals were based on the therapist's profile of each client and reviewed as the baseline information for research results.

These three clients with ASD were initially referred to HOH by their parents for general music therapy services to address delays in communication, social interaction, cognitive functioning, and motor and emotional skills. They received weekly individual music therapy treatments from a Board Certified Music Therapist. The therapists designed various music therapy activity interventions to address the clients' needs and promote stated goals. Two of the clients worked with the same therapist, while the third client works with another therapist. Therefore, there were five participants in this study– three clients and two music therapists.

Board Certified Music Therapists

The music therapists in this study received the Bachelor's degree music therapy training completing educational degree requirements in music therapy in the USA. Both music therapists have at least two years of clinical experience. Additionally, they are Board Certified Music Therapists, having passed the national certification exam and been re-certified through the continuing educational process.

Three Children with ASD

The three children with ASD have been receiving ongoing music therapy treatment for at least three months. Based on the music therapist's assessment, they were classified as having mild to moderate impairments in social interaction skills, language and communication skills, emotional skill, and psychomotor skill. Their primary deficits in maintaining eye contact when communicating and interacting with others. In addition, two of the three clients have deficits in language and communication skills. However, the music therapy goal for these three children is first to increase their social interaction skills, followed by improving their language and communication skill with some attention to emotional and psychomotor skill development.

Client Case One

Music Therapist: (ES), MT-BC; Client: (SU)

The client, SU, was a four-year-old female with the diagnosis of an Autism and cerebral palsy. The client had significant delays in communication and overall physical development. Currently, SU attends a language pre-school at Arizona State University (ASU) in Tempe along with her twin sister. SU was receiving music therapy treatment at Higher Octave Healing (HOH) once a week since November 14th, 2011 to address delays in communication, social interaction, cognitive functioning, motor functioning, and emotional skills. In addition, the client received occupational therapy, physical therapy, and speech therapy.

According to the Individualized Service Plan (ISP) report on April 28, 2011, SU had difficulty with verbal communication, reading comprehension, social interaction, and sharing while playing with others. SU needed her mother to provide her daily needs and self-care skills. Additionally, she was unable to walk alone due to a tendency to stumble of fall, putting her safety in question.

Client Case Two

Music Therapist: (ES), MT-BC; Client: (AP)

Client two, AP, was a four-year-old boy with the diagnosis of autism. AP started in October 2012 at HOH receiving music therapy treatment once a week to address delays in communication impairments for social interaction, below normal cognitive functioning, support of motor functioning, and lacks of emotional skills. In addition, AP received habilitation services and speech therapy.

Client Case Three

Music Therapist: (LH), MT-BC; Client: (FL)

Client three, FL, was a four-year-old boy with the diagnosis of autism. FL started in June 2012 at HOH receiving music therapy treatment once a week to address delays in communication and social skills. From June 13, 2012 to January 31, 2013, FL received eight months of music therapy treatment. In addition to music therapy, FL received occupational and speech therapy once a week. Currently, he attends school at Arizona State University Infant Children Research Program (ICRP).

According to the Individualized Service Plan (ISP) report of February 23, 2012, FL was unfriendly and had many negative behaviors, including hitting things, screaming, and whining. FL had deficits in sharing his belongings and showed no empathy. FL was unable to address his friends by name. He had no ability to ask his mother for help due to his communication deficits. He also had a deficit in awareness of consequences of his behavior. FL was unable to manipulate buttons and zippers. He needed his mother to help him with his daily needs.

According to the Individualized Service Plan (ISP) report of June 4, 2012, FL had the ability to redirect his fixation with certain items such as clocks and things with numbers. FL's speech and behavior had also improved tremendously. Moreover, his self-help skills were improving.

Setting

Music Therapy Session Room

In this research, two different session rooms were used. Based on the activity interventions employed, the specific furnishings in the rooms and musical instrument arrangements were different. However, basically, the furnishings were similar. The two room arrangements are illustrated below.

Session Room # 1

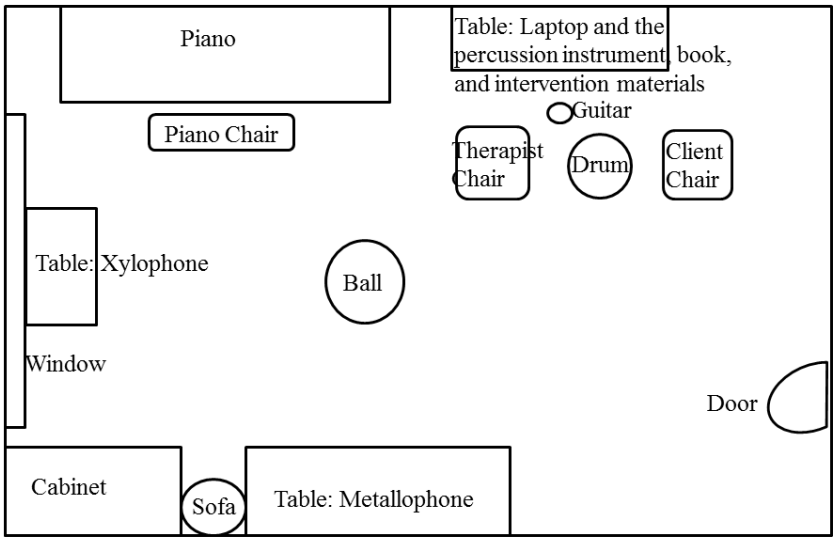

Figure 3.1: Session Room #1

Session Room #2

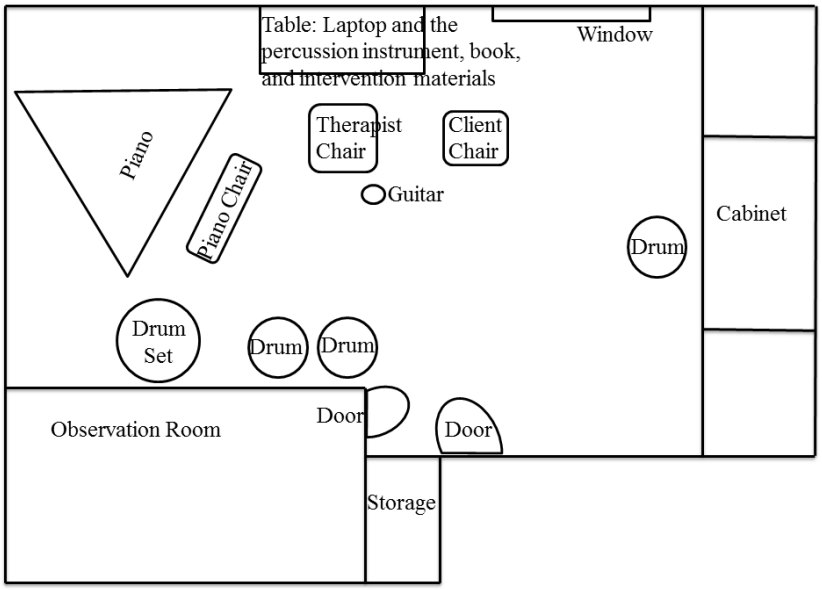

Figure 3.2: Session Room # 2

Equipment

Musical Instruments

Musical instruments included guitar, piano, xylophone, metallophones, claves, wood block, drum and mallets, palm drum, sound shapes, tambourine, triangle, temple blocks, and bells. Music instruments were important tools for therapist in the music therapy experience. Guitar and piano were most significant in the music therapy treatment for this study. Musical instruments in each intervention produced various sounds and activities, increasing client's interests and engagement.

Music Therapy Activity Intervention Procedures

There were no constant procedures for the music therapy activity interventions. The music therapist provided various activity interventions that varied somewhat from client to client and therapist and therapist. Based on each client's functioning, needs, and situation, the therapist adjusted the procedures of interventions and songs; however, basically the procedures were the same or similar for each client from session to session. The opening and closing interventions were not changed or switched in the intervention procedures. The primary goal in each intervention was to increase the client's interaction with the therapist. As indicated above and in Chapter One, the interaction between the therapist and the client was the primary and most significant matter addressed during an intervention. To accomplish this, the therapist must establish a good relationship and appropriate interactions with the client. Therefore, to establish good interactions, engagement in the activity and attention to task were an important therapeutic focus. Once the client achieved engagement and attention in music therapy intervention, the

therapist worked toward other goals to address the client's needs throughout the interventions. All of the interventions utilized in this research are described and analyzed below. Table 3.2 documents music therapy intervention procedures.

Opening of the Session

At the beginning of the session, the music therapist invited the client to the session room and asked them to sit down in a specific chair. The therapist sang a "hello song" with vocal and guitar accompaniment (Appendixes B). At the same time, the therapist provided musical cues and verbal prompts to engage the client in repeating sections of the lyrics and the therapist's and the client's name. Sometimes the client played a rhythm on a musical instrument, while the therapist sang the hello song. Throughout the hello song intervention, the client practiced saying hello and interacting with the therapist using appropriate eye contact, behaviors, and responses in order to increase the client's social interaction skill.

Main Interventions

The second portion of the session involved one or more of the following interventions: movement time, musical instrument playing, book time, piano time, xylophone/ metallophone time, "My Turn, Your Turn," card time, and an animal board game. Each intervention category was divided into various activities.

Movement Time Intervention

The movement time intervention involved four activities: scarf, bubble, ball, beanbag, and movement with music. The therapist provided a song at the laptop or vocal

and guitar accompanies. The songs came from “Sandra Boynton”, “Shake Your Body Down”, “Really Love Dance”, “Octopus’s Garden”, and “Shoemaker”. Some songs were by “Owl City” which is an American electronica musical project. The therapist led the client to move with scarf, such as up and down and up and jump. In addition, the therapist blew bubbles while the client played with the bubbles. The goals of scarf and bubble activities were to improve physical skill and attention. In the ball activity, the therapist sang a song and tossed the ball to the client. As the therapist stopped singing the song, the therapist/client had to ask a question to the therapist/ client. Moreover, the therapist engaged the client in playing with the beanbag while providing the directions, such as put the beanbag on your head, hands, and back. The goals of ball and beanbag activities were to improve attention.

Musical Instrument Playing Intervention

The musical instrument playing intervention consisted of four activities playing an instrument: loud and quiet/ fast and slow, an instrument movement game, a stop and go exercise, music and number game, Old McDonald, and music and color. The music therapist sang a song with vocal and guitar accompanies while the client played the various percussion instruments and followed the directions. Moreover, sometimes the therapist sang different songs, but the songs were still familiar to the client. The primary goal of the four activities was to improve the client’s attention and awareness. Both in the loud and quiet and fast and slow activities, the therapist provided prompts and cues to engage the client in playing the instrument loudly or quietly and fast or slowly. The instrument movement game involved the therapist providing verbal prompts to lead the

client to copy the movements. Both the stop and go activity and the music and number activity were related to a timing process. The client stopped or kept playing the instrument based on musical continuation. In the music number activity, the client said a number then the therapist counted from one to that number. As soon as that number was spoken, the therapist and the client played the instrument together. In addition to improving attention and awareness, the goal of the music number activity was to improve the client's cognitive skill. Moreover, the therapist sang "Old McDonald" with guitar and vocal accompanies. At the same time, the therapist utilized musical cue to engaging the client in saying the animal's name while leading the client playing on the drum. In music and color activity, the therapist led the client to play various color bells or sound shapes while engaging the client in saying the color of the bell/sound shapes. These two activities, "Old McDonald" and music and color, were to improve the client's cognitive skill.

Book Time Intervention

The book time intervention involved spelling animal names, using a number book, a rhythmic animal name game, or animal story. The music therapist provided various children's books and sang various songs, which involved songwriting improvisation.. Accompaniment was provided with vocal sounds, guitar, or percussion instruments based on the needs of the story and the situations. Each activity in the book time intervention had different goals. The animal spelling name activity and the number book activity were more appropriate for the clients with mild ASD. In the animal spelling name activity, the therapist sang songs while asking questions that were related to the story book, using

vocal cues or musical cues. The client had to respond to the therapist by saying the animal names and imitating the animal sounds. In order to help increase the client's cognitive skill, the number book activity utilized books that were related to number order. The therapist sang songs with lyrics that were related to numbers while the client played a designated number of beats on a percussion instrument. The purpose of the number book activity was to improve the client cognitive skill. In rhythmic animal name activity, the therapist provided vocal improvisation while engaging the client in playing the rhythm of animal names together on the percussion instrument. Sometimes the therapist engaged the client in saying the animal names in order to improve the client's language skill. Additionally, in animal story activity, the therapist provided a series of Herper Collins Children's books which was by Eric Litwin. The therapist provided some questions, such as "What is the animal?" while singing the songs in order to engaged the client in reading the books. The animal story activity was to improve the client's language.

Piano/ Guitar Time Intervention

The piano/guitar time intervention had two activities: piano/guitar sound activity and piano with number. The music therapist and the client played a musical improvisation on the piano or guitar. The music therapist played a note on the piano/guitar and engaged the client in singing the note as a pronunciation exercise. Alternatively, the therapist asked the client question while singing the song. The piano/guitar sound activity was to improve language skills. Moreover, the music therapist

played the piano with the client while speaking the number order in the piano with a number activity, which improved the client's cognitive skill.

Xylophone/ Metallophone Time Intervention

The xylophone/ metallophone time intervention only had one activity: alphabet sound activity. The music therapist utilized xylophone/ metallophone keys to improve the client's pronunciation and speech. First of all, the therapist took away most of the keys and only kept the "A" key on the xylophone. The therapist played the "A" key while engaging the client in pronouncing the "A" sound. Then the therapist added the "B" key and provided the same patterns to engage the client in pronouncing different sounds. The activity was to improve and increase the client's pronunciation and speech.

Card Time Intervention

The card time intervention involved the alphabet card activity, number card activity and "Can you fine?". Alphabet cards and number cards were provided. In both activities, the therapist spoke the alphabet or number on the card while playing the rhythm of that letter or number on percussion instrument (Appendix C). Then the therapist engaged the client in speaking the alphabet or number while playing the rhythm. The two interventions were to improve client's language skills. In addition, in "Can you fine?" activity, the therapist gave the client many cards. Each one card had one pattern, including people, food, books, animals and forth. The therapist sang a song with guitar and vocal accompanies while singing the patterns in the lyric. Then the client had to find

the patterns which the therapist sang. This activity was to increase the cognitive skill and attention.

My Turn, Your Turn

The "My Turn, Your Turn" activity was an advanced intervention to educate the clients who had already learned a general concept. This intervention was conducted in the second stage of music therapy treatment for clients with ASD. The goal was to increase the client's social interaction. The therapist played a percussion instrument first while the client had to wait with positive behavior. If the client had a negative attitude and made no eye contact with the therapist, they were corrected. The instrument was played again until the client displayed positive behaviors. After the therapist played, the client was asked to play. Then the therapist said, "Stop! My turn." This intervention repeated the patterns two or three times.

Animal Board Game Intervention

The animal board game time had two activities: five frog board activity and five dog board activity. The therapist sang "Five Little dogs" and "Five Green Speckled Frogs" based on a frog activity or a dog activity. On the board, there were five frogs or dogs. The therapist sang the song five times. After the therapist sang one time, the client took one frog or dog away from the board and identified the new number of animals now on the board. During singing, the client made eye contact with the therapist until finishing the singing. The two activities were to increase the client's impulse control and promote eye contact.

Session Closure

At the end of the session, the therapist asked the client to clean up instruments used in the session. Then the therapist invited the client to the chair where the client sat during the opening intervention. The therapist sang a goodbye song with vocal and guitar accompaniment (See Appendixes D). While singing the goodbye song, the therapist provided musical cues and verbal prompts to engage the client in repeating portions of lyrics and the client's names. The closing intervention was to improve interaction between the client and the therapist. In addition, the client was asked to clean up equipment used during the session in order to educate the client about the concept of, "I have started, so I will finish." The concept of "I have started, so I will finish" educated the client in responsibility for himself/herself directly.

Dependent Variable and Measurement Procedures

The dependent variable was the therapist-child interaction while the independent variable was prompts and cues. The number of interaction formed appropriately the client's responding actions over the total times of prompts and cues which the therapist provided during the 45-minute-music therapy session. The baseline data was reviewed from the previous reports of the therapist. In addition, the researcher collected or assed data during 3 to 4 days in January, February and March, 2013.

Table 3.2: Music Therapy Intervention Procedures

Interventions	Activities	Goals
Opening of the session	Check in & Hello Song	To improve social interaction skill
Main Interventions		
Movement Time	Scarf	To improve physical skill and attention
	Bubble	To improve physical skill and attention
	Ball	To improve physical skill and attention
	Beanbag	To improve physical skill and attention
	Movement with Music	To improve physical skill and attention
Musical Instrument Playing	Loud and Quiet	To increase attention and awareness
	Fast and Slow	To increase attention and awareness
	Instrument Movement Game	To increase attention and awareness
	Stop and Go	To increase attention and awareness
	Music and Number	To increase attention and awareness To increase cognitive skill
	Old McDonald	To improve language skill
	Music and Color	To increase cognitive skill
Book Time	Spelling Animal Names	To improve cognitive skill
	Using a Number Book	To improve cognitive skill
	Rhythmic Animal Names	To improve language skill
	Animal Story	To improve language skill
Piano/ Guitar Time	Piano/ Guitar Sound	To improve language skill
	Piano with Number	To improve cognitive skill
Xylophone Time	Alphabet Sound	To improve language skill
Card Time	Alphabet Card	To improve language skill
	Number Card	To improve language skill
	"Can You Find?"	To increase attention To improve cognitive skill

"My Turn, Your Turn"	"My Turn, Your Turn"	To increase social interaction To increase eye contact
Animal Board Game Time	Five Frogs Board	To increase impulse control
	Five Dogs Board	To increase impulse control
Session Closure	Clean up	To educate "I have started, so I will finish."
	Goodbye Song	To improve social interaction skill

Experimental Procedures

The research involved observation of two music therapists working with three children diagnosed with autism spectrum disorder. The research observation s were done over 3 to 4 sessions to assess the three children's target behavior, which is interaction with the therapist, in music therapy treatment. The music therapy treatment was 45 minutes once a week. During session, the therapists used prompts and cues and external environmental factors to determine children's increase in interactions. During the interaction, the therapist provided prompts and cues to increase the three children's responding actions. The three children had to utilize appropriate reactions to respond to the therapists.

The multiple baseline design case study (Kazdin, 2011; Park, Weber & McLaughlin, 2013) was utilized for this research study (Figure 3.3). The experimental procedures had three phases: baseline assessment, prompts, and fading to analyze music therapy techniques effect on children's social interaction with therapist. Figure 3.3 is an example of the experimental procedures.

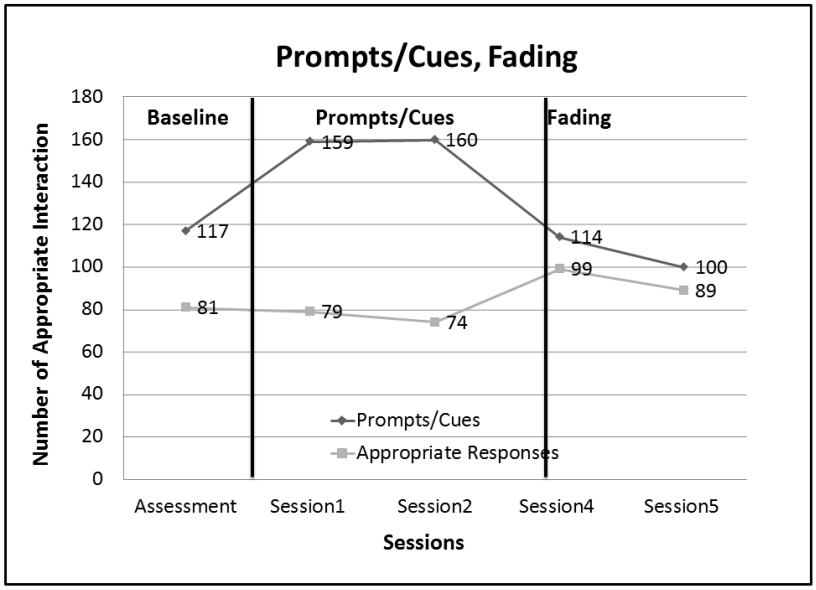

Figure 3.3: The Example of Experimental Procedures

During the research observations, the researcher observed the process of therapist-child interaction in each intervention. The music therapists used a process of promoting interaction involving two steps in the music therapy treatment for the research project (Figure 3.4). First of all, the therapist provided prompts and cues to increase the child's activity participation. The goals of prompts and cues were to increase the children's activity participation, including engagement, attention, and concentration. Next, the child had to utilize appropriate reactions to respond to the therapist, including eye contact, communication, and speech. Figure 3.4 illustrates the process of interaction. If the client did not utilize appropriate responding actions, the therapist kept providing prompts and cues until the client had appropriate reactions.

After the client provided appropriate reactions, the therapist utilized positive reinforcement. Positive reinforcement included verbal encouragement, favorite choices

and keeping playing or singing. Verbal encouragements involve “Good job,” “Nice,” “Thank you,” and “Give five.” The therapist gave the client two choices, and the client chose his/her favorite activity interventions. Alternatively, if the client responded to the therapist with appropriate eye contact and responses, the therapist engaged the client in keeping playing or singing. The purpose of positive reinforcement was to reward and encourage the client to perform the desired changed behaviors.

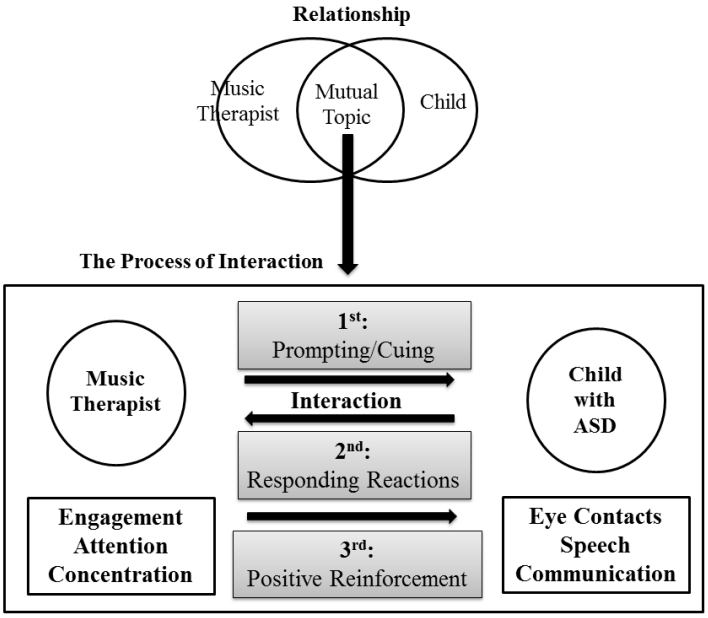

Figure 3.4: The Process of Interaction

As the client improved the social interaction skills, the therapist gradually removed the times of prompts and cues to assistant the clients. The purpose of fading was to assist with the client to perform independently the social interaction skills without prompts and cues in order to support the client apply the social interaction skills, which they learned in the music therapy treatment, in the real world.

Baseline

The baseline data came from the child's assessment and history profiles, which were recorded by their music therapist. Based on the child's weakness and strengths, the therapist divided goals into different categories, including physical skills, communication/social interaction skills, cognitive skills, and emotional skills/self-regulation skills. In the research observation, the researcher utilized the data of communication/social interaction skills to be the baseline data. Moreover, based on each child has different levels of functioning; the anticipative outcome of communication/social interaction skills was different.

The therapists assessed and measured the child's weakness and strengths based on the therapists' theoretical knowledge, general intuition, and working experiences. The researcher's analyzing and measuring method was different with the therapist. The researcher calculated and recorded the times of prompts and cues to analyze the progression of the client's interaction with the therapist. The therapists' and researcher's measuring methods were different.

The researcher deduced that the therapists' general intuition and working experiences build on theoretical knowledge. The therapists and researcher's theoretical knowledge was the same, music therapy. Therefore, the researcher assumed that the therapists and the researcher's methods were consistent (Figure 3.5). Figure 3.5 illustrated that the assumption of the therapist and researcher's methods.

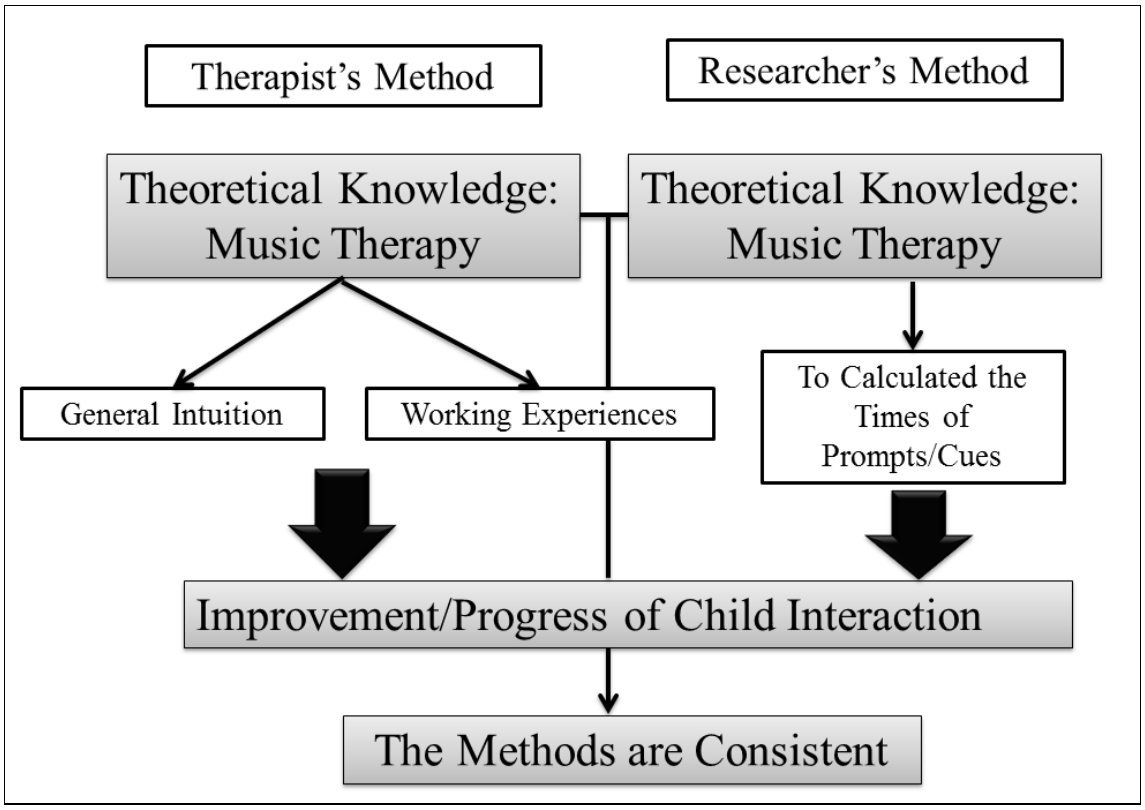

Figure 3.5: The Research Assumption of the Therapist and the Researchers' Methods Prompts/Cues

Prompt and cue are additional stimulus (Alberto & Troutman, 2009) which increase and improve the desired changed behaviors. The therapist promoted the client's active participation using prompting and cuing. The prompting and cuing included verbal cuing, musical cuing, vocal cuing, verbal prompting, physical prompting, and visual prompting. A cue refers to a signal (Webster's American English Dictionary, 2011) such as words or actions (Dictionary, 2013). Cuing had four styles, visual cuing, verbal cuing, vocal cuing and musical cuing. Cuing was used as an indirect prompt to give the client the directions. Verbal cuing was a signal expressed in words (Dictionary.com, 2013; Webster's American English Dictionary, 2011). For example, when the therapist asked

the client a question and to say "Hi," with eye contact, the therapist used the verbal prompt, "Where are my eyes?" Eye contact refers to, "direct visual contact with another's eyes" (Dictionary. com, 2013; Webster's American English Dictionary, 2011). Communication refers to, "exchange information or opinion" (Webster's American English Dictionary, 2011). Speech is "act of speech" (Dictionary.com, 2013; Webster's American English Dictionary, 2011). Moreover, the therapist provided vocal cuing, "What should we play next?" (Appendix E) to get the child's attention. Music Cuing was a signal of sounds on instrument (Dictionary.com, 2013; Webster's American English Dictionary, 2011). The therapist played the instrument, and the intensity was suddenly changed to quiet or loud. Visual cuing was a signal of hand gesture. For example, the therapist tried to engage the client in saying "Hi", and make eye contact, the therapist waved his/her hand.

In addition to cuing, prompting involved verbal, physical, and visual prompting. A prompt is an "assist to remind" (Dictionary.com, 2013). It was used to directly provide directions to the client. Verbal prompting was reminding the client using expressed words (Dictionary.com, 2013; Webster's American English Dictionary, 2011). When the client did not make eye contact with the therapist, the therapist said, "Look at me." Physical prompting was reminding with touching (Dictionary.com, 2013; Webster's American English Dictionary, 201). The therapist touched the client's physical body to arouse the client's attention and participation. In addition, visual prompting was reminding with sight (Dictionary.com, 2013; Webster's American English Dictionary, 2011). The therapist pointed to the therapist's eyes to give a reminder for the client to provide eye contact. Thus, cuing was indirect directions, while prompting was direct directions. After

the therapist provided prompting and cuing, the client responded to the therapist appropriately. The responding actions included eye contact, communication, and speech. Depending on the client's level of functioning, their either responded quickly, slowly or continued with the reaction.

Fading

Generally, as the child gradually improved the interaction with the therapist, the session entered fading phase. That is, the child had improvement of interaction with the therapist, and the therapist's techniques, prompts, and cues affected the child's interaction. The therapist started to decrease the frequencies of prompts and cues to assist the child had appropriate responding actions while interacting with the therapist. During the fading phase, the therapist decreased the times and frequencies of prompts and cues for the child while the child was able to respond to the therapist independently and appropriately. Then the researcher recorded the child's times and frequencies of appropriate responding reactions to analyze the child's improvement of interaction with the therapist.

Research Materials

Video equipment was provided which involved videotapes and a microphone during the research observations in HOH session room. The clients' names are omitted in this research and on the videotapes. Only the researchers, Yin-Chun Liao and Barbara J. Crowe, are permitted to watch them for the purpose of analyzing data for this research. The researcher was present in the observation room for each session to take notes throughout the sessions. Following the sessions, an informal interview was conducted by the researcher of the music therapists working with the particular client. Additionally, the

music therapists supplied the researcher with the clients' previous treatment profiles, which involved assessment reports and three-month-quarterly music therapy progress notes.

The parents of these three clients agreed to have their children be the subjects in this research and accepted the video recording of the sessions. The parents signed the parent agreement permission form, which was approved by Arizona State University Human Resources in November, 2012 (Appendix F; Appendix G). The signed parent agreement permission forms are locked in Arizona State University Music Therapy Program. The videotapes and the clients' profiles will be deleted in May, 2013.

Summary

Prompting and cuing were music therapist's techniques to support the client to improve the interaction skill and interaction with therapist in music therapy treatment. However, as Chapter 1 mentioned, the purpose of music therapy treatment was to assist the child to apply the therapist-child interaction in the real world such as in school. As the child had improvements in their behaviors, the frequency of prompts and cues was decreased by the therapists during the therapist. In addition, to decrease the prompts and cues was to assist the child improve interaction independently. In the research, the researcher measured that the times of prompts and cues, which the therapist provided, to analyze the progress of the child interaction with the therapist with Applied Behavior Analysis (ABA), prompts and fading procedures.

CHAPTER IV

DATA COLLECTION AND ANALYSIS

Impaired social interaction is one of the conditions of children with Autism Spectrum Disorder. To increase interaction was primary and significant goal in music therapy treatment. In music therapy treatment, music therapist provided various activity interventions to improve social interaction skill in order to increase child's interaction. Moreover, as the child increases interaction with the therapist, the therapist then addresses the child's physical functioning and cognitive functioning. Therefore, to increase interaction was the most significant goal for child with autism spectrum disorder.

The Research Questions were established as analyzed:

Research question one:

Based on the music therapists' evaluation, how does the music therapy treatment help improve the clients' social interaction?

Research question two:

What strategies do music therapist use to engage the client in therapeutic interventions (musical experiences) in order to maintain clients' attention?

Research question three:

What clients' behaviors demonstrate that the clients are maintaining attention to task?

Research question four:

What prompts/cues do music therapists use to engage the clients' attention?

The research observed the therapist-child interaction in music therapy session to determine the number of prompts and cues which the therapist provided in each activity interaction in the session. Then the researcher utilized prompt and fading procedure to analyze the child's responses in order to analyze the improvement of their interaction.

The chapter provided an anecdotal report to analyze the process of therapist-child interaction in each activity interaction in every session. There were three children and two therapists in this study. Table 4.1 to 4.101 contains the research data about each child's process of therapist-child interaction. The researcher observed 3 to 4 sessions in January, February and March, 2013. Then the researcher analyzed the process of interaction based the research observation data and the child's previous therapy reports to analyze prompt fading procedures with multiple baseline single case design (Kazdin, 2011; Park, Weber & McLaughlin, 2013).

The Research Observation Data– Case One

Client: SU

Music Therapist: ES, MT-BC

Session 1

Date: February 18, 2013

1. Opening of the session

Activity: Check in and Hello Song

Table 4.1: Check in and Hello Song Activity Anecdotal Report on February 18, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	SU's responses (appropriate: O; inappropriate : X)	SU's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Prompt	1	O	Eye contact and responded to the therapist	1	Y
2	Verbal Prompt	1	O	Eye contact and responded to the therapist	2	Y

2. Musical Instrument Playing Intervention

Activity: Drum – Loud and Quiet

Table 4.2: Loud and Quiet Anecdotal Report on February 18, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	SU's responses (appropriate: O; inappropriate : X)	SU's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Prompt	1	O	Eye contact and responded to the therapist	1	Y
2	Verbal Prompt	0	X	No response	0	N
3	Verbal	1	O	Eye contact	1	Y

	Prompt			and responded to the therapist		
4	Verbal Prompt	0	X	No response	0	N
5	Verbal Prompt	1	O	Eye contact and responded to the therapist	2	Y
6	Musical Cue	0	X	No response	0	N
7	Musical Cue	1	O	Eye contact and responded to the therapist	2	Y
8	Verbal Prompt	1	O	Eye contact and responded to the therapist	1	Y
9	Verbal Prompt/ Visual Prompt	0	X	No response	0	N
10	Physical Prompt	1	O	Eye contact and responded to the therapist		

3. Card Time Intervention

Activity: Alphabet Card

Table 4.3: Alphabet Card Activity Anecdotal Report on February 18, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	SU's responses (appropriate: O; inappropriate	SU's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)

			: X)			
1	Verbal Prompt	1	O	Eye contact and responded to the therapist	2	Y
2	Verbal Prompt	0	X	No response	0	N
3	Verbal Prompt	1	O	Eye contact and responded to the therapist	7	Y
4	Verbal Prompt/ Visual Prompt	0	X	No response	0	N
5	Physical Prompt/ Verbal Prompt	1	O	Eye contact and responded to the therapist	4	Y
6	Verbal Prompt/ Physical Prompt	1	O	Eye contact and responded to the therapist	1	Y
7	Musical Cue	1	O	Eye contact and responded to the therapist	1	Y
8	Visual Prompt	0	X	No response	0	N
9	Visual Prompt	1	O	Eye contact and responded to the therapist	3	Y
10	Verbal Prompt	1	O	Eye contact and responded to the therapist	2	Y
11	Visual	1	O	Eye contact	4	Y

	Prompt/ Musical Cue			and responded to the therapist		
12	Visual Prompt/ Musical Cue	1	O	Eye contact and responded to the therapist	1	Y
13	Visual Prompt/ Musical Cue	2	O	Eye contact and responded to the therapist	1	Y
14	Visual Prompt/ Musical Cue	2	O	Eye contact and responded to the therapist	2	Y
15	Physical Prompt/ Verbal Prompt	2	O	Eye contact and responded to the therapist	4	Y
16	Verbal Prompt/ Visual Prompt	2	O	Eye contact and responded to the therapist	2	Y
17	Verbal Prompt/ Visual Prompt	2	O	Eye contact and responded to the therapist	1	Y
18	Musical Cue	1	O	Eye contact	1	Y
19	Visual Prompt	1	O	Eye contact and responded to the therapist	1	Y
20	Visual Prompt/ Verbal Prompt	1	O	Eye contact and responded to the	1	Y

				therapist		
21	Visual Prompt/ Verbal Prompt	1	O	Eye contact and responded to the therapist	1	Y
22	Visual Prompt/ Physical Prompt	1	O	Eye contact and responded to the therapist	1	Y

4. Book Time Intervention

Activity: Animal Story

Table 4.4: Animal Story Activity Anecdotal Report on February 18, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	SU's responses (appropriate: O; inappropriate : X)	SU's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Prompt	1	O	Eye contact and responded to the therapist	2	Y
2	Verbal Prompt	1	O	Eye contact and responded to the therapist	1	Y
3	Musical Cue	1	O	Eye contact and responded to the therapist	1	Y
4	Verbal Prompt	0	X	No response	0	N
5	Verbal	1	O	Eye contact	2	Y

	Prompt/ Visual Prompt			and responded to the therapist		
6	Musical Cue	0	X	No response	0	N
7	Verbal Prompt/ Visual Prompt	1	O	Eye contact and responded to the therapist	1	Y
8	Vocal Cue	0	X	No response	0	N
9	Vocal Cue/ Visual Prompt	1	O	Eye contact and responded to the therapist	1	Y
10	Vocal Cue	1	O	Eye contact and responded to the therapist	1	Y
11	Vocal Cue/ Visual Prompt	2	O	Eye contact and responded to the therapist	4	Y
12	Vocal Cue/ Visual Prompt	1	O	Eye contact and responded to the therapist	2	Y
13	Verbal Prompt	1	O	Eye contact and responded to the therapist	11	Y
14	Verbal Prompt/Visual Prompt	0	X	No response	0	N
15	Verbal Prompt/ Visual Prompt	0	X	No response	0	N

16	Vocal Cue/ Visual Prompt	0	X	No response	0	N
17	Vocal Cue/ Visual Prompt	2	O	Eye contact and responded to the therapist	4	Y
18	Verbal Prompt/ Visual Prompt	1	O	Eye contact and responded to the therapist	1	Y
19	Verbal Cue	2	O	Eye contact and responded to the therapist	3	Y
20	Visual Prompt/ Vocal Cue	1	O	Eye contact and responded to the therapist	1	Y
21	Verbal Prompt	1	O	Eye contact and responded to the therapist	1	Y

5. Movement Time Intervention

Activity: Scarf

Table 4.5: Scarf Activity Anecdotal Report on February 18, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	SU's responses (appropriate: O; inappropriate : X)	SU's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal	1	O	Eye contact	1	Y

	Prompt			and did the correct movement		
2	Verbal Prompt	2	O	Eye contact and did the correct movement	3	Y
3	Verbal Prompt/ Visual Prompt	1	O	Eye contact and did the correct movement	1	Y
4	Visual Prompt	0	X	No response	0	N
5	Verbal Prompt/ Visual Prompt	1	O	Eye contact and did the correct movement	1	Y
6	Visual Prompt/ Verbal Prompt	1	O	Eye contact and did the correct movement	1	Y
7	Physical Prompt/ Visual Prompt	1	O	Eye contact and did the correct movement	3	Y
8	Visual Prompt/ Verbal Prompt	0	X	No response	0	N
9	Visual Prompt/ Verbal Prompt	0	X	No response	0	N
10	Visual Prompt/ Verbal Prompt	0	X	No response	0	N
11	Verbal Prompt/ Physical Prompt	1	O	Eye contact and did the correct movement	4	Y
12	Visual Prompt	0	X	No response	0	N
13	Physical Prompt	1	O	Eye contact and did the	1	Y

				correct movement		
14	Visual Prompt	0	X	No response	0	N
15	Visual Prompt	2	O	Eye contact and did the correct movement	3	Y
16	Visual Prompt/ Verbal Prompt	0	X	No response	0	N
17	Visual Prompt/ Verbal Prompt	0	X	No response	0	N
18	Visual Prompt/ Verbal Prompt	2	O	Eye contact and did the correct movement	4	Y

6. Musical Instrument Playing Intervention

Activities:

a. Bell – Music and Color

Table 4.6: Music and Color Activity Anecdotal Report on February 18, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	SU's responses (appropriate: O; inappropriate : X)	SU's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Prompt	1	O	Eye contact and responded to the therapist	1	Y
2	Verbal Prompt/	1	O	Eye contact and	1	Y

	Visual Prompt			responded to the therapist		
3	Musical Cue	1	O	Eye contact and responded to the therapist	1	Y
4	Vocal Cue/ Musical Cue	0	X	No response	0	N
5	Vocal Cue	0	X	No response	0	N
6	Musical Cue/ Vocal Cue/ Visual Prompt	1	O	Eye contact and responded to the therapist	3	Y
7	Musical Cue/ Vocal Cue/ Visual Prompt	1	O	Eye contact and responded to the therapist	2	Y
8	Vocal Cue	0	X	No response	0	N
9	Vocal Cue	0	X	No response	0	N
10	Verbal Prompt	0	X	No response	0	N
11	Verbal Prompt	0	X	No response	0	N
12	Verbal Prompt	1	O	Eye contact and responded to the therapist	1	Y
13	Verbal Prompt	1	O	Eye contact and responded to the therapist	2	Y
14	Vocal Cue	1	O	Eye contact and responded to the therapist	4	Y
15	Vocal Cue	1	O	Eye contact and	1	Y

				responded to the therapist		
16	Verbal Prompt	1	O	Eye contact and responded to the therapist	2	Y
17	Vocal Cue/ Physical Prompt	0	X	No response	0	N
18	Vocal Cue/ Physical Prompt	2	O	Eye contact and responded to the therapist	5	Y

b. Shakers – Instrument Movement Game

Table 4.7: Instrument Movement Game Activity Anecdotal Report on February 18, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	SU's responses (appropriate: O; inappropriate : X)	SU's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Prompt	1	O	Eye contact and did the correct movement	6	Y
2	Musical Cue	2	O	Eye contact and did the correct movement	2	Y
3	Musical Cue/ Verbal Prompt	0	X	No response	0	N
4	Musical Cue/	1	O	Eye contact and did the	1	Y

	Visual Prompt			correct movement		
5	Musical Cue/ Visual Prompt	0	X	No response	0	N
6	Verbal Prompt/ Physical Prompt	1	O	Eye contact and did the correct movement	5	Y
7	Verbal Prompt/ Visual Prompt	0	X	No response	0	N
8	Verbal Prompt/ Visual Prompt	0	X	No response	0	N
9	Verbal Prompt/ Visual Prompt	1	O	Eye contact and did the correct movement	1	Y
10	Visual Prompt/ Verbal Prompt	0	X	No response	0	N
11	Verbal Prompt/ Visual Prompt	1	O	Eye contact and did the correct movement	1	Y
12	Verbal Prompt/ Physical Prompt	1	O	Eye contact and did the correct movement	1	Y
13	Verbal Prompt	0	X	No response	0	N
14	Musical Cue	0	X	No response	0	N
15	Verbal Prompt/ Musical Cue	1	O	Eye contact and did the correct movement	1	Y
16	Visual Prompt/ Verbal	1	O	Eye contact and did the correct	1	Y

	Prompt			movement		
17	Verbal Prompt/ Physical Prompt	1	O	Eye contact and did the correct movement	1	N
18	Verbal Prompt	0	X	No response	0	N
19	Verbal Prompt/ Physical Prompt	1	O	Eye contact and did the correct movement	3	Y
20	Vocal Cue/ Musical Cue	0	X	No response	0	N
21	Vocal Cue/ Musical Cue	0	X	No response	0	N
22	Vocal Cue/ Musical Cue	0	X	No response	0	N
23	Vocal Cue	0	X	No response	0	N
24	Vocal Cue	1	O	Eye contact and did the correct movement	2	Y

7. Closing of the session

Activity: Goodbye Song

Table 4.8: Goodbye Song Activity Anecdotal Report on February 18, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	SU's responses (appropriate: O; inappropriate : X)	SU's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Musical Cue	1	O	Eye contact and responded to the	1	Y

				therapist		
2	Musical Cue	1	O	Eye contact and responded to the therapist	1	Y

Session 2

Date: February 25, 2013

Opening of the session

Activity: Check in and Hello Song

Table 4.9: Check in and Hello Song Activity Anecdotal Report on February 25, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	SU's responses (appropriate: O; inappropriate: X)	SU's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Prompt/ Physical Prompt	1	O	Eye contact and responded to the therapist	1	Y
2	Visual Prompt/ Musical Cue	1	O	Eye contact and responded to the therapist	1	Y
3	Visual Prompt	1	O	Eye contact and responded to the therapist	1	Y
4	Visual Prompt/ Musical Cue	1	O	Eye contact and responded to the therapist	1	Y

1. Musical Instrument Playing Intervention

Activities:

a. Drum –Loud & Quiet and Stop & Go

Table 4.10: Loud & Quiet and Stop & Go Activity Anecdotal Report on February 25, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	SU's responses (appropriate: O; inappropriate: X)	SU's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Visual Prompt/ Vocal Cue	1	O	Eye contact and responded to the therapist	1	Y
2	Verbal Prompt/ Physical Prompt	1	O	Eye contact and responded to the therapist	6	Y
3	Musical Cue	1	O	Eye contact and responded to the therapist	2	Y
4	Verbal Prompt	1	O	Eye contact and responded to the therapist	1	Y
5	Musical Cue/ Visual Prompt	0	X	No response	0	N
6	Musical Cue/ Visual	1	O	Eye contact and responded	1	Y

	Prompt			to the therapist		
7	Musical Cue/ Visual Prompt	1	O	Eye contact and responded to the therapist	1	Y
8	Physical Prompt/ Verbal Prompt	1	O	Eye contact and responded to the therapist	4	Y
9	Musical Cue	0	X	No response	0	N
10	Verbal Prompt/ Physical Prompt	1	O	Eye contact and responded to the therapist	3	Y
11	Verbal Prompt	1	O	Eye contact and responded to the therapist	1	Y
12	Verbal Prompt	1	O	Eye contact and responded to the therapist	7	Y
13	Verbal Prompt	0	X	No response	0	N
14	Verbal Prompt	1	O	Eye contact and responded to the therapist	1	Y
15	Visual Prompt	1	O	Eye contact and responded to the therapist	3	Y
16	Verbal Prompt	0	X	No response	0	N
17	Verbal Prompt	1	O	Eye contact and	3	Y

				responded to the therapist		
18	Verbal Prompt	0	X	No response	0	N
19	Verbal Prompt	1	O	Eye contact and responded to the therapist	5	Y
20	Verbal Prompt	0	X	No response	0	N
21	Verbal Prompt/ Visual Prompt	1	O	Eye contact and responded to the therapist	5	Y
22	Verbal Prompt	0	X	No response	0	N
23	Verbal Prompt	0	X	No response	0	N
24	Verbal Prompt	1	O	Eye contact and responded to the therapist	2	Y
25	Verbal Prompt	0	X	No response	0	N
26	Verbal Prompt	1	O	Eye contact and responded to the therapist	3	Y
27	Verbal Prompt	0	X	No response	0	N
28	Verbal Prompt/ Physical Prompt	1	O	Eye contact and responded to the therapist	4	Y

b. Bell – Music and Color

Table 4.11: Music and Color Activity Anecdotal Report on February 25, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	SU's responses (appropriate: O; inappropriate : X)	SU's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Musical Cue	1	O	Eye contact and responded to the therapist	1	Y
2	Verbal Prompt	0	X	No response	0	N
3	Verbal Prompt/ Physical Prompt	1	O	Eye contact and responded to the therapist	1	Y
4	Verbal Prompt	0	X	No response	0	N
5	Verbal Prompt/ Visual Prompt/ Physical Prompt	3	O	Eye contact and responded to the therapist	3	Y
6	Visual Prompt/ Vocal Cue	0	X	No response	0	N
7	Visual Prompt/ Vocal Cue	2	O	Eye contact and responded to the therapist	1	Y
8	Verbal Prompt	0	X	No response	0	N
9	Verbal Prompt	2	O	Eye contact and	5	Y

				responded to the therapist		
10	Verbal Prompt	1	O	Eye contact and responded to the therapist	1	Y
11	Verbal Prompt/ Visual Prompt	0	X	No response	0	X
12	Verbal Prompt/ Visual Prompt	0	X	No response	0	X
13	Verbal Prompt/ Physical Prompt	2	O	Eye contact and responded to the therapist	7	Y
14	Vocal Cue/ Visual Prompt	0	X	No response	0	N
15	Vocal Cue/ Visual Prompt	0	X	No response	0	N
18	Verbal Prompt	0	X	No response	0	N
19	Visual Prompt	1	O	Eye contact and responded to the therapist	1	Y
20	Visual Prompt/ Vocal Cue	0	X	No response	0	N
21	Visual Prompt/ Vocal Cue	0	X	No response	0	N
22	Visual Prompt/ Vocal Cue	0	X	No response	0	N
23	Visual Prompt/	0	X	No response	0	N

	Vocal Cue					
24	Visual Prompt/ Physical Prompt/ Vocal Cue	2	O	Eye contact and responded to the therapist	8	Y
25	Physical Prompt	1	O	Eye contact and responded to the therapist	1	Y
26	Vocal Cue/ Visual Prompt	0	X	No response	0	N
27	Visual Prompt/ Vocal Cue	0	X	No response	0	N
28	Verbal Prompt/ Physical Prompt	0	X	No response	0	N
29	Verbal Prompt/ Visual Prompt/ Physical Prompt	0	X	No response	0	N
30	Verbal Prompt/ Visual Prompt/ Physical Prompt	1	O	Eye contact and responded to the therapist	1	Y
31	Visual Prompt/ Verbal Prompt	0	X	No response	0	N
32	Visual Prompt/ Verbal Prompt	1	O	Eye contact and responded to the therapist	5	Y
33	Verbal Prompt/ Visual	0	X	No response	0	N

	Prompt					
34	Visual Prompt/ Verbal Prompt	0	X	No response	0	N
35	Verbal Prompt/ Physical Prompt	2	O	Eye contact and responded to the therapist	7	Y

2. Book Time Intervention

Activity: Animal Story

Table 4.12: Animal Story Activity Anecdotal Report on February 25, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	SU's responses (appropriate: O; inappropriate : X)	SU's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Prompt	1	O	Eye contact and responded to the therapist	1	Y
2	Verbal Prompt	1	O	Eye contact and responded to the therapist	1	Y
3	Musical Cue	1	O	Eye contact and responded to the therapist	1	Y
4	Visual Prompt/ Verbal Prompt	1	O	Eye contact and responded to the	1	Y

				therapist		
5	Visual Prompt/ Verbal Prompt	1	O	Eye contact and responded to the therapist	1	Y
6	Verbal Prompt	0	X	No response	0	N
7	Verbal Prompt/ Visual Prompt	2	O	Eye contact and responded to the therapist	1	Y
8	Musical Cue	0	X	No response	0	N
9	Musical Cue/ Verbal Prompt	1	O	Eye contact and responded to the therapist	1	Y
10	Verbal Prompt	0	X	No response	0	N
11	Verbal Prompt/ Visual Prompt	1	O	Eye contact and responded to the therapist	2	Y
12	Verbal Prompt	1	O	Eye contact and responded to the therapist	1	Y
13	Verbal Prompt	0	X	No response	0	N
14	Verbal Prompt/ Visual Prompt	1	O	Eye contact and responded to the therapist	1	Y
15	Verbal Prompt	0	X	No response	0	N
16	Verbal Prompt/ Visual Prompt	0	X	No response	0	N

17	Verbal Prompt/ Visual Prompt	1	O	Eye contact and responded to the therapist	1	Y

3. Movement Time Intervention

Activity: Scarf

Table 4.13: Scarf Activity Anecdotal Report on February 25, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	SU's responses (appropriate: O; inappropriate : X)	SU's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Prompt	1	O	Eye contact and did the correct movement	1	Y
2	Verbal Prompt	0	X	No response	0	N
3	Verbal Prompt/ Visual Prompt	0	X	No response	0	N
4	Verbal Prompt	0	X	No response	0	N
5	Verbal Prompt/ Physical Prompt	1	O	Eye contact and did the correct movement	1	Y
6	Verbal Prompt	0	X	No response	0	N
7	Verbal Prompt	0	X	No response	0	N
8	Verbal Prompt/ Visual Prompt	0	X	No response	0	N
9	Verbal Prompt/	0	X	No response	0	N

	Visual Prompt					
10	Verbal Prompt/ Visual Prompt	1	O	Eye contact and did the correct movement	1	Y
11	Verbal Prompt/ Visual Prompt	0	X	No response	0	N
12	Verbal Prompt/ Visual Prompt	0	X	No response	0	N
13	Verbal Prompt/ Visual Prompt	1	O	Eye contact and did the correct movement	1	Y
14	Physical Prompt	1	O	Eye contact and did the correct movement	1	Y

4. Card Time Intervention

Activity: Alphabet Card

Table 4.14: Alphabet Card Activity Anecdotal Report on February 25, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	SU's responses (appropriate: O; inappropriate : X)	SU's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Prompt	1	O	Eye contact and responded to the therapist	1	Y
2	Verbal Prompt	0	X	No response	0	N

3	Verbal Prompt/ Visual Prompt	1	O	Eye contact and responded to the therapist	1	Y
4	Verbal Prompt/ Visual Prompt	0	X	No response	0	N
5	Verbal Prompt/ Visual Prompt	0	X	No response	0	N
6	Verbal Prompt/ Visual Prompt	0	X	No response	0	N
7	Verbal Prompt/ Visual Prompt	1	O	Eye contact and responded to the therapist	1	Y
8	Musical Cue	0	X	No response	0	N
9	Musical Cue	1	O	Eye contact and responded to the therapist	1	Y
10	Verbal Prompt/ Visual Prompt	0	X	No response	0	N
11	Verbal Prompt/ Visual Prompt	2	O	Eye contact and responded to the therapist	1	Y
12	Verbal Prompt/ Visual Prompt	0	X	No response	0	N
13	Verbal Prompt/ Visual	2	O	Eye contact and responded	3	Y

	Prompt			to the therapist		
14	Verbal Prompt/ Visual Prompt	2	O	Eye contact and responded to the therapist	4	Y
15	Musical Cue	1	O	Eye contact and responded to the therapist	1	Y
16	Verbal Prompt/ Musical Cue	0	X	No response	0	N
17	Verbal Prompt/ Visual Prompt	1	O	Eye contact and responded to the therapist	2	Y
18	Verbal Prompt/ Visual Prompt	1	O	Eye contact and responded to the therapist	2	Y
19	Verbal Prompt/ Visual Prompt	0	X	No response	0	N
20	Verbal Prompt/ Visual Prompt	1	O	Eye contact and responded to the therapist	1	Y
21	Musical Cue/ Verbal Prompt/ Visual Prompt	1	O	Eye contact and responded to the therapist	3	Y
22	Verbal Prompt/ Visual Prompt	0	X	No response	0	N

23	Verbal Prompt/ Visual Prompt	2	O	Eye contact and responded to the therapist	4	Y
24	Verbal Prompt/ Visual Prompt	0	X	No response	0	N
25	Verbal Prompt/ Visual Prompt	0	X	No response	0	N
26	Verbal Prompt/ Visual Prompt	2	O	Eye contact and responded to the therapist	6	Y
27	Musical Cue/ Visual Prompt	0	X	No response	0	N
28	Musical Prompt/ Visual Prompt	1	O	Eye contact and responded to the therapist	3	Y
29	Verbal Prompt	0	X	No response	0	N
30	Verbal Prompt/ Visual Prompt/ Physical Prompt	1	O	Eye contact and responded to the therapist	5	Y
31	Verbal Prompt/ Visual Prompt/ Physical Prompt	1	O	Eye contact and responded to the therapist	2	Y
32	Musical Cue	1	O	Eye contact	1	Y

5. Guitar Time Intervention

Activities:

a. Guitar Sound

Table 4.15: Guitar Sound Activity Anecdotal Report on February 25, 2013

	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	SU's responses (appropriate: O; inappropriate: X)	SU's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Prompt/ Visual Prompt/ Musical Cue	0	X	No response	0	N
2	Verbal Prompt/ Visual Prompt/ Musical Cue	0	X	No response	0	N
3	Verbal Prompt/ Visual Prompt/ Musical Cue	0	X	No response	0	N
4	Verbal Prompt/ Visual Prompt/ Musical Cue	0	X	No response	0	N
5	Verbal Prompt/ Visual Prompt/ Musical Cue	2	O	Eye contact and responded to the therapist	3	Y

6	Verbal Prompt/ Visual Prompt/ Musical Cue	0	X	No response	0	N
7	Verbal Prompt/ Visual Prompt/ Musical Cue	2	O	Eye contact and responded to the therapist	2	Y
8	Verbal Prompt/ Physical Prompt	0	X	No response	0	N
9	Verbal Prompt/ Physical Prompt	2	O	Eye contact and responded to the therapist	4	Y
10	Verbal Prompt	0	X	No response	0	N
11	Verbal Prompt/ Physical Prompt	1	O	Eye contact and responded to the therapist	1	Y
12	Verbal Prompt/ Musical Cue/ Visual Prompt	1	O	Eye contact and responded to the therapist	1	Y

6. Card Time Intervention

Activity: “Can You Fine?”

Table 4.16: “Can You Fine?” Activity Anecdotal Report on February 25, 2013

	Antecedent	Behavior			Consequence	
	The therapist’s cues and prompts	Time lapse after cues and prompts (seconds)	SU’s responses (appropriate: O; inappropriate : X)	SU’s responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Prompt	1	O	Eye contact and responded to the therapist	1	Y
2	Verbal Prompt/ Physical Prompt	0	X	No response	0	N
3	Verbal Prompt/ Physical Prompt	1	O	Eye contact and responded to the therapist	1	Y

7. Musical Instrument Playing Intervention

Activity: Shakers – Instrument Movement Game

Table 4.17: Instrument Movement Game Activity Anecdotal Report on February 25, 2013

	Antecedent	Behavior			Consequence	
	The therapist’s cues and prompts	Time lapse after cues and prompts (seconds)	SU’s responses (appropriate: O; inappropriate : X)	SU’s responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal	1	O	Eye contact	1	Y

	Prompt			and did the correct movement		
2	Vocal Cue	1	O	Eye contact and did the correct movement	1	Y
3	Verbal Prompt	1	O	Eye contact and did the correct movement	1	Y
4	Vocal Cue	1	O	Eye contact and did the correct movement	2	Y
5	Musical Cue	1	O	Eye contact and did the correct movement	1	Y
6	Musical Cue	0	X	No response	0	N
7	Verbal Prompt	0	X	No response	0	N
8	Verbal Prompt	1	O	Eye contact and did the correct movement	1	Y
9	Verbal Prompt	1	O	Eye contact and did the correct movement	1	Y
10	Verbal Prompt	1	O	Eye contact and did the correct movement	1	Y
11	Verbal Prompt	1	O	Eye contact and did the correct movement	1	Y

8. Closing of the session

Activity: Goodbye Song

Table 4.18: Goodbye Song Activity Anecdotal Report on February 25, 2013

	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	SU's responses (appropriate: O; inappropriate: X)	SU's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Prompt	1	O	Eye contact and responded to the therapist	1	Y
2	Verbal Prompt/ Musical	0	X	No response	0	N
3	Verbal Prompt/ Musical Cue	1	O	Eye contact and responded to the therapist	1	Y

Session 3

Date: March 4, 2013

1. Opening of the session

Activity: Check in and Hello Song

Table 4.19: Check in and Hello Song Activity Anecdotal Report on March 4, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	SU's responses (appropriate: O; inappropriate: X)	SU's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Musical	1	O	Eye contact	1	Y

	Cue			and responded to the therapist		
2	Musical Cue	2	O	Eye contact and responded to the therapist	1	Y
3	Visual Prompt	1	O	Eye contact and responded to the therapist	1	Y
4	Verbal Prompt	1	O	Eye contact and responded to the therapist	1	Y
5	Musical Cue	1	O	Eye contact and responded to the therapist	1	Y

2. Musical Instrument Playing Intervention

Activities:

a. Drum – Instrument Movement Game

Table 4.20: Instrument Movement Game Activity Anecdotal Report on March 4, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	SU's responses (appropriate: O; inappropriate : X)	SU's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Musical Cue	1	O	Eye contact and did the correct	1	Y

				movement		
2	Musical Cue	2	O	Eye contact and did the correct movement	1	Y
3	Musical Cue	1	O	Eye contact and did the correct movement	1	Y
4	Musical Cue	1	O	Eye contact and did the correct movement	1	Y
5	Musical Cue	0	X	No response	0	N
6	Musical Cue	1	O	Eye contact and did the correct movement	1	Y

b. Old McDonald

Table 4.21: Old McDonald Game Activity Anecdotal Report on March 4, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	SU's responses (appropriate: O; inappropriate : X)	SU's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Musical Cue	1	O	Eye contact and responded to the therapist	1	Y
2	Musical Cue	0	X	No response	0	N
3	Musical Cue	0	X	No response	0	N
4	Verbal Prompt	1	O	Eye contact and	4	Y

				responded to the therapist		
5	Musical Cue	1	O	Eye contact and responded to the therapist	3	Y
6	Verbal Prompt	1	O	Eye contact and responded to the therapist	2	Y
7	Musical Cue	0	X	No response	0	N
8	Musical Cue/ Visual Prompt	0	X	No response	0	N
9	Musical Cue/ Visual Prompt	0	X	No response	0	N
10	Musical Cue/ Visual Prompt	1	O	Eye contact and responded to the therapist	1	Y
11	Musical Cue	1	O	Eye contact and responded to the therapist	1	Y
12	Musical Cue	0	X	No response	0	N
13	Musical Cue/ Visual Prompt	1	O	Eye contact and responded to the therapist	3	Y
14	Musical Cue	1	O	Eye contact and responded to the therapist	1	Y

15	Musical Cue	0	X	No response	0	N
16	Verbal Prompt/ Musical Cue	2	O	Eye contact and responded to the therapist	2	Y
17	Verbal Prompt	2	O	Eye contact and responded to the therapist	1	Y
18	Musical Cue	0	X	No response	0	N
19	Verbal Prompt	1	O	Eye contact and responded to the therapist	1	Y
20	Verbal Prompt/ Musical Cue	1	O	Eye contact and responded to the therapist	1	Y
21	Musical Cue	1	O	Eye contact and responded to the therapist	1	Y
22	Vocal Cue	0	X	No response	0	X
23	Vocal Cue	0	X	No response	0	X
24	Verbal Prompt/ Visual Prompt	2	O	Eye contact and responded to the therapist	1	O
25	Musical Cue/ Verbal Prompt	0	X	No response	0	X
26	Verbal Prompt	0	X	No response	0	X
27	Verbal Prompt	0	X	No response	0	X
28	Visual	1	O	Eye contact	1	O

	Prompt/ Musical Cue			and responded to the therapist		
29	Verbal Prompt/ Visual Prompt	1	O	Eye contact and responded to the therapist	1	O

3. Movement Time Intervention

Activity: Bubble

Table 4.22: Bubble Activity Anecdotal Report on March 4, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	SU's responses (appropriate: O; inappropriate : X)	SU's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Prompt	1	O	Eye contact and did the correct movement	1	Y
2	Verbal Prompt	1	O	Eye contact and did the correct movement	1	Y
3	Verbal Prompt	0	X	No response	0	N
4	Verbal Prompt/ Visual Prompt	1	O	Eye contact and did the correct movement	1	Y
5	Verbal Prompt	0	X	No response	0	N
6	Verbal Prompt	1	O	Eye contact and did the correct movement	1	Y

7	Verbal Prompt	1	O	Eye contact and did the correct movement	1	Y
8	Verbal Prompt	1	O	Eye contact and did the correct movement	1	Y
9	Verbal Prompt	1	O	Eye contact and did the correct movement	1	Y
10	Verbal Prompt/ Visual Prompt	1	O	Eye contact and did the correct movement	1	Y

4. Card Time Intervention

Activity: Alphabet Card

Table 4.23: Alphabet Card Activity Anecdotal Report on March 4, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	SU's responses (appropriate: O; inappropriate : X)	SU's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Vocal Cue/ Visual Prompt	3	O	Eye contact and responded to the therapist	1	Y
2	Vocal Cue/ Visual Prompt	2	O	Eye contact and responded to the therapist	1	Y
3	Visual Prompt/ Verbal	1	O	Eye contact and responded	1	Y

	Prompt			to the therapist		
4	Musical Cue	0	X	No response	0	N
5	Musical Cue	0	X	No response	0	N
6	Musical Cue	0	X	No response	0	N
7	Musical Cue/ Physical Prompt	1	O	Eye contact and responded to the therapist	1	Y
8	Musical Cue/ Physical Prompt	1	O	Eye contact and responded to the therapist	1	Y
9	Visual Prompt/ Vocal Cue	0	X	No response	0	N
10	Visual Prompt/ Vocal Cue	0	X	No response	0	N
11	Visual Prompt/ Vocal Cue	0	X	No response	0	N
12	Visual Prompt/ Vocal Cue	0	X	No response	0	N
13	Visual Prompt/ Verbal Prompt	0	X	No response	0	N
14	Musical Cue/ Visual Prompt	1	O	Eye contact and responded to the therapist	3	Y
15	Musical Cue/ Verbal Prompt	0	X	No response	0	N
16	Musical Cue/	0	X	No response	0	N

	Verbal Prompt					
17	Musical Cue/ Verbal Prompt	0	X	No response	0	N
18	Musical Cue/ Verbal Prompt	0	X	No response	0	N
19	Musical Cue/ Verbal Prompt/ Physical Prompt	1	O	Eye contact and responded to the therapist	1	Y
20	Musical Cue	0	X	No response	0	N
21	Musical Cue/ Physical Prompt	1	O	Eye contact and responded to the therapist	1	Y
22	Visual Prompt	0	X	No response	0	N
23	Visual Prompt	1	O	Eye contact and responded to the therapist	1	Y
24	Visual Prompt/ Verbal Prompt	0	X	No response	0	N
25	Verbal Prompt	1	O	Eye contact and responded to the therapist	1	Y
26	Verbal Prompt	1	O	Eye contact and responded to the therapist	1	Y
27	Verbal	0	X	No response	0	N

	Prompt/ Musical Cue					
28	Verbal Prompt/ Musical Cue/ Visual Prompt	0	X	No response	0	N
29	Verbal Prompt/ Musical Cue/ Visual Prompt	3	O	Eye contact and responded to the therapist	2	Y
30	Verbal Prompt/ Visual Prompt	4	O	Eye contact and responded to the therapist	2	Y
31	Verbal Prompt/ Musical Cue	1	O	Eye contact and responded to the therapist	1	Y

5. Musical Instrument Playing Intervention

Activity: Shakers – Instrument Movement Game

Table 4.24: Instrument Movement Game Activity Anecdotal Report on March 4, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	SU's responses (appropriate: O; inappropriate : X)	SU's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Prompt	2	O	Eye contact and did the correct movement	5	Y

2	Vocal Cue	1	O	Eye contact and did the correct movement	1	Y
3	Musical Cue	1	O	Eye contact and did the correct movement	1	Y
4	Vocal Cue	2	O	Eye contact and did the correct movement	1	Y
5	Musical Cue	2	O	Eye contact and did the correct movement	1	Y
6	Verbal Prompt/ Physical Prompt	1	O	Eye contact and did the correct movement	1	Y
7	Vocal Cue	0	X	No response	0	N
8	Musical Cue/ Vocal Cue	2	O	Eye contact and responded to the therapist	3	Y
9	Visual Prompt	0	X	No response	0	N
10	Visual Prompt/ Physical Prompt	3	O	Eye contact and did the correct movement	3	Y
11	Verbal Prompt/ Physical Prompt	2	O	Eye contact and did the correct movement	1	Y
12	Vocal Cue	1	O	Eye contact and did the correct movement	1	Y
13	Visual Prompt/ Vocal Cue	1	O	Eye contact and did the correct movement	1	Y
14	Musical	0	X	No response	0	N

	Cue					
15	Verbal Prompt	0	X	No response	0	N
16	Vocal Cue/ Physical Prompt	1	O	Eye contact and did the correct movement	1	Y
17	Vocal Cue	0	X	No response	0	N
18	Vocal Cue/ Visual Prompt	1	O	Eye contact	1	Y

6. Animal Board Game Time Intervention

Activity: Five Frogs Board

Table 4.25: Five Frogs Board Activity Anecdotal Report on March 4, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	SU's responses (appropriate: O; inappropriate : X)	SU's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Prompt	1	O	Eye contact and responded to the therapist	1	Y
2	Verbal Prompt	1	O	Eye contact and responded to the therapist	1	Y
3	Vocal Cue/ Visual Prompt	2	O	Eye contact and responded to the therapist	2	Y
4	Verbal Prompt/ Visual Prompt	1	O	Eye contact and responded to the therapist	1	Y

5	Vocal Cue	0	X	No response	0	N
6	Vocal Cue	1	O	Eye contact and responded to the therapist	1	Y
7	Vocal Cue/ Physical Prompt	1	O	Eye contact and responded to the therapist	1	Y
8	Verbal prompt/ Physical Prompt	1	O	Eye contact and responded to the therapist	1	Y
9	Verbal Prompt/ Physical Prompt	1	O	Eye contact and responded to the therapist	1	Y
10	Visual Prompt/ Vocal Cue	0	X	No response	0	N
11	Visual Prompt/ Vocal Cue	1	O	Eye contact and responded to the therapist	1	Y

7. Book Time Intervention

Activity: Animal Story

Table 4.26: Animal Story Activity Anecdotal Report on March 4, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	SU's responses (appropriate: O; inappropriate: X)	SU's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)

1	Vocal Cue	1	O	Eye contact and responded to the therapist	1	Y
2	Vocal Cue	1	O	Eye contact and responded to the therapist	1	Y

8. Closing of the session

Activity: Goodbye Song

Table 4.27: Goodbye Song Activity Anecdotal Report on March 4, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	SU's responses (appropriate: O; inappropriate : X)	SU's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Musical Cue	1	O	Eye contact and responded to the therapist	1	Y
2	Musical Cue	1	O	Eye contact and responded to the therapist	1	Y

Result – Case One

Case Two – (SU)

Therapist: (ES), MT-BC

Diagnosis: Autism Spectrum Disorder and Cerebral Palsy

Assessment of Baseline Behavior Data

Assessment

SU's music therapist, ES, provided parental interview and informal assessment procedures for six weeks of music therapy assessment sessions from November 14, 2011 to December 19, 2011. During the six weeks of assessment session, SU received multiple interventions. SU's attitude was cooperative and engaged. She showed happy affect as evidenced by smiling and laughing. The interventions included movement time activity intervention, instrument playing activity intervention, book time activity intervention, and an animal board game activity intervention. SU showed that most interest in playing instrument and movement interventions.

Strength

SU's receptive communication skills are classified by the level of high functioning, as evidenced by understanding the one and two step directions. SU was able to produce and imitate simple sounds. In addition, SU had the ability to maintain attention in an intervention for 5 minutes and longer sometimes. SU had high social skills as evidenced by attending and engaging an intervention for 5 minutes without prompts and cues.

Improvement

SU was classified by the level of low functioning of physical skills and showed poor motor planning skills as reported by her mother and observed by the therapist. SU had braces on her feet to support her walk correctly. She was unable to cross midline without turning her entire body. SU was unable to place objects and failure to manipulate simple instruments. Moreover, she felt hard to make her muscles to understand and her breathing was shallow. Therefore, her vocal quality was often soft and unsupported. SU requires work on basic motor planning and spatial awareness, so she needed to work on imitating more advanced movements.

Objectives

As indicated above, SU's condition is classified as mild to moderate with cognitive, communication, social, emotional, physical skills. SU's therapist measures SU's target behaviors and improvements to expect outcome or accomplishment of goals by December 2012.

Progression Anticipative Objective Outcome:

Objectives #1: To increase expressive communication, SU will correctly articulate a speech sound with no more than 4 prompts to do so, for 80% of opportunities by December 2012.

Objectives #2: To increase gross motor function, SU will demonstrate the ability to cross midline with each hand with minimal assistance, for 80% of opportunities by December 2012.

Objectives #3: To increase cognitive functioning and receptive communication, SU will follow a 2 step direction with no more than 4 prompts to do so, for 80% of opportunities by December 2012.

Objective #4: To increase motor planning skills, SU will throw an object underhand or overhand hitting a target area with minimal assistance, for 80% of opportunities by December 2012.

As above indicated mentioned, the therapist assessed SU's need to establish four objectives for SU: expressive communication/social skills, gross motor functioning, cognitive functioning/ receptive communication, and motor planning skills. The therapist evaluated SU's improvements through three-month progression. In research study, the researcher focused on SU's expressive communication/ social skills. Therefore, the research utilized the outcomes of social skills to be the baseline data to analyze SU's interaction with the therapist.

December 2011 to April 2012

SU presented with different songs and to practice saying syllables. SU showed more consistency with all syllables and was able to say "hello" and "goodbye" with no articulation problems. In SU's physical functioning skills, SU was more able to cross midline, such as playing the drum, passing bean bags and twirling ribbons. However, SU still needed moderate supports for most of the time during the movement time and musical instrument playing interventions.

Objective #1: SU had achieved expressive communication/social skills with 68% of accuracy.

Objective #2: SU had achieved gross motor functioning with 55% of accuracy.

Objective #3: SU had achieved cognitive functioning and receptive communication with 58% of accuracy.

Objective #4: SU had achieved motor planning skills with 96% of accuracy.

April 2012 to July 2012

During the April 2012 to July 2012 month quarterly therapy progress report, SU had no obvious improvement on social skills/expressive communication, physical functioning and cognitive functioning. SU present with different songs to practice her speech. During the three month, SU's expressive communication and social skills decreased 11% of accuracy. SU had not shown progress with her cognitive functioning and receptive communication. However, SU had showed that she had improvement on physical functioning. SU had achieved at 80% which was the therapist's anticipative objective outcome.

Objective #1: SU had achieved social skills/expressive communication with 57% of accuracy.

Objective #2: SU had achieved gross motor functioning with 78% of accuracy.

Objective #3: SU had achieved cognitive functioning and receptive communication with 25% of accuracy.

Objective #4: Su had achieved motor planning skills with 80% of accuracy.

July 2012 to October 2012

During July 2012 to October 2012 quarterly therapy progression report, SU had improvement on each functioning. SU was able to say syllable sounds and multi-syllable words. SU started to practice saying articulating words rather than just syllables. SU had ability to speak in more phrases and initiating conversation. In physical functioning, SU was able to cross midline and less assistance during playing the instrument through the interventions. Moreover, SU had ability to follow the therapist's directions within 2 prompts. Especially, in movement time intervention, SU was able to engage in movement activities without prompts and cues. During these three month therapy progression, SU had achieved at the therapist's anticipative objective outcome. Therefore, the therapist re-established the new anticipative objective outcome on social skills/expressive communication, cognitive functioning, and motor planning skills for SU. Only gross motor functioning had to continue to follow up.

Objective #1: SU had achieved social skills/expressive communication with 75% of accuracy.

Objective #2: SU had achieved gross motor functioning with 75% of accuracy.

Objective #3: SU had achieved cognitive functioning and receptive communication with 80% of accuracy.

Objective #4: SU had achieved motor planning skills with 100% of accuracy.

Progression Anticipative Objective Outcome:

Objectives #1: To increase expressive communication, SU will correctly articulate a word or phrase with a maximum of 4 corrections/prompts by the therapist, for 80% of opportunities, by March 2013.

Objectives #2: To increase gross motor function, SU will demonstrate the ability to cross midline with each hand with minimal assistance, for 80% of opportunities by December 2012.

Objectives #3: To increase cognitive functioning and receptive communication, SU will follow a 3 to 4 step direction with no more than 4 prompts to do so, for 80% of opportunities by March 2012.

Objective #4: The motor planning skills will discontinue.

October 2012 to December 2012

In the three month therapy progression, SU had new anticipative objective outcomes. The therapist started to engage SU in saying the comprehensible words and learned to read letter words. In addition, the therapist started to try to decrease the prompts and cues for SU to compete 3 to 4 step directions. In physical functioning, SU had to continue to work on her gross motor functioning and tried to achieve at cross midline with hands with minimal assistances. SU' motor planning skills had arrived at 100% of accuracy in last three month therapy progression. Therefore, SU's motor planning skills discontinued to follow up.

Progression outcome:

Objective #1: SU had make progress with expressive communication/ social skills and was articulating many words and phrases with minimal correction. SU was starting to work on blending sounds together to form more comprehensible words and even learning to read 3 letter words as she learns the sounds of each word.

Objective #2: SU had achieved gross motor functioning with 78% of accuracy. Multiple interventions have been used to help SU become more able to cross midline.

Objective #3: SU was making progress with cognitive functioning and receptive communication and requires less prompting to compete 3 or 4 stop directions. SU complete movement and instrument playing interventions to practice the skills.

The research utilized the outcomes of social skills to be the baseline data to analyze SU's interaction with the therapist. As above baseline data indicated mentioned, the therapist assessed SU's need to establish four objectives for SU: expressive communication/social skills, gross motor functioning, cognitive functioning/receptive communication, and motor planning skills. The therapist evaluated SU's improvements through three-month progression. The researcher utilized the outcomes of social skills to be the baseline data to analyze SU's interaction with the therapist. SU had improvement in social skills/expressive communication which enhanced from 68.000% of accuracy, 57.000% of accuracy, and 75.000% of accuracy. During the baseline phase, SU decreased 9% of accuracy from Jan. to Mar. 2012 to Apr. to Jun. 2012. Then SU increase 10% of

accuracy from Apr. to Jun. 2012. Figure 4.1 illustrates the baseline of SU's interaction progress.

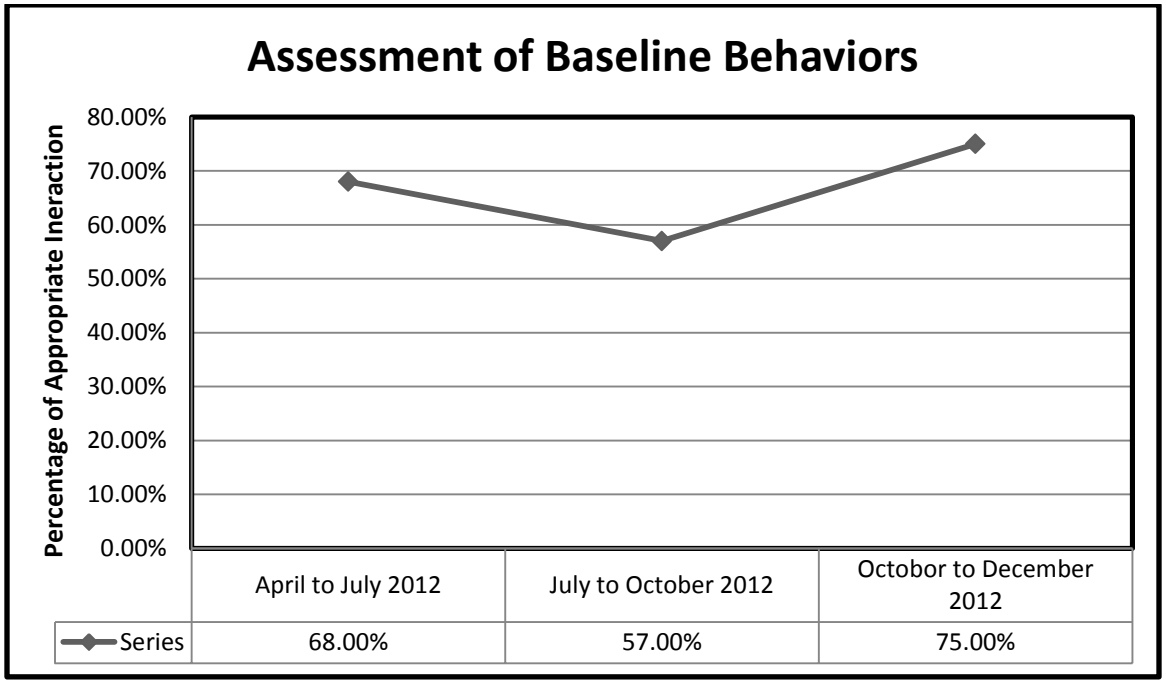

Figure 4.1: The Baseline Data of SU's Interaction Progress

Prompts/Cues and Fading Data

Session 1

Date: February 18, 2013

The therapist provided 117 times of prompts and cues, and the client had 81 times of the appropriate reactions in the Session 1. The appropriate percentage of prompts and cues was 69.231%.

Table 4.28: Music Therapy Session on February 18, 2013

	Intervention/Activity	Times of Prompts/Cues & Appropriate Responses	Percentage of Prompts/Cues
1	Opening of the session: Check in and Hello Song	2/2	100.000%
2	Musical Instrument Playing Intervention: Drum – Loud & Quiet	10/10	100.000%
3	Card Time Intervention: Alphabet Card	22/19	86.364%
4	Book Time Intervention: Animal Story	21/15	71.429%
5	Movement Time Intervention: Scarf	18/10	55.556%
6, a.	Musical Instrument Playing Intervention: Bell – Music and Color	18/11	61.111%
6, b.	Musical Instrument Playing Intervention: Shakers – Instrument Movement Game	24/12	50.000%
7	Closing of the session	2/2	100.000%

Session 2

Date: February 25, 2013

The therapist provided 159 times of prompts and cues, and the client had 79 times of the appropriate reactions in the Session 2. The appropriate percentage of prompts and cues was 49.686%.

Table 4.29: Music Therapy Session on February 25, 2013

	Intervention/Activity	Times of Prompts/Cues & Appropriate Responses	Percentage of Prompts/Cues
1	Opening of the session: Check in and Hello Song	4/4	100.000%
2, a.	Musical Instrument Playing Intervention: Drum – Loud & Quiet and Stop & Go	28/10	35.714%
2, b.	Musical Instrument Playing Intervention: Bell – Music and Color	35/13	37.142%
3	Book Time Intervention: Animal Story	17/11/	64.706%
4	Movement Time Intervention: Scarf	14/5	35.714%
5	Card Time Intervention: Alphabet Card	32/18	56.250%
6, a.	Guitar Time Intervention: Guitar Sound	12/5	41.667%
7	Card Time Intervention: “Can You Find?”	3/2	66.667%
8	Musical Instrument Playing Intervention: Shakers – Instrument Movement Game	11/9	81.818%
9	Closing of the session: Goodbye Song	3/2	66.667%

Session 3

Date: March 4, 2013

The therapist provided 114 times of prompts and cues, and the client had 74 times of the appropriate reactions in the Session 2. The appropriate percentage of prompts and cues was 64.912%.

Table 4.30: Music Therapy Session on March 4, 2013

	Intervention/Activity	Times of Prompts/Cues & Appropriate Responses	Percentage of Prompts/Cues
1	Open of the session: Check in and Hello Song	5/5	100.000%
2, a.	Musical Instrument Playing Intervention: Drum –Instrument Movement Game	6/5	83.333%
2, b.	Musical Instrument Playing Intervention: Old McDonald	29/16	55.172%
3	Movement Time Intervention: Bubble	10/8	80.000%
4	Card Time Intervention: Alphabet Card	31/14	45.161%
5	Musical Instrument Playing Intervention: Shakers – Instrument Movement Game	18/13	72.222%
6	Animal Board Card Time Intervention: Five Frogs Board	11/9	81.818%
7	Book Time Intervention: Animal Story	2/2	100.000%
8	Closing of the session: Goodbye Song	2/2	100.000%

The Result of the Research

The researcher recorded the number of prompts and cues which were provided by the therapist in the sessions, and the number of prompts and cues which the client responded appropriately. Then based on this data, the researcher calculated the percentages in order to analyze the progress of the client's interaction with the therapist (Table 4.31). As above analyzed, in Session 3, the number of prompts and cues was 114 times, which was few than the previous session. Obviously, Session 3 was fading session.

Table 4.31: The Result of SU's Interaction with the Therapist

Research Data	The Process of Therapist-Client Interaction			The Outcome
	The Therapist	The Client	The Therapist	
	1st: Number of prompts and cues	2nd: Number of appropriate responses	3rd: Number of positive reinforcement	Percentage of appropriate interaction
Baseline				
January to March 2012	N/A	N/A	N/A	68.000%
April to June 2012	N/A	N/A	N/A	57.000%
July to September 2012	N/A	N/A	N/A	75.000%
Prompts/Cues				
Session 1 January 24, 2013	117	81	81	69.231%
Session 2 January 30, 2013	159	79	79	49.686%
Fading				
Session 3 February 28, 2013	114	74	74	64.912%

Discussion

The results of this research observation showed that SU had improvement in interaction since the assessment phase to the last day of the research observation, March 4, 2013. The curve was irregular shapes, which went up and down from baseline, prompts/cues to fading phases, and ends at 64.912%.

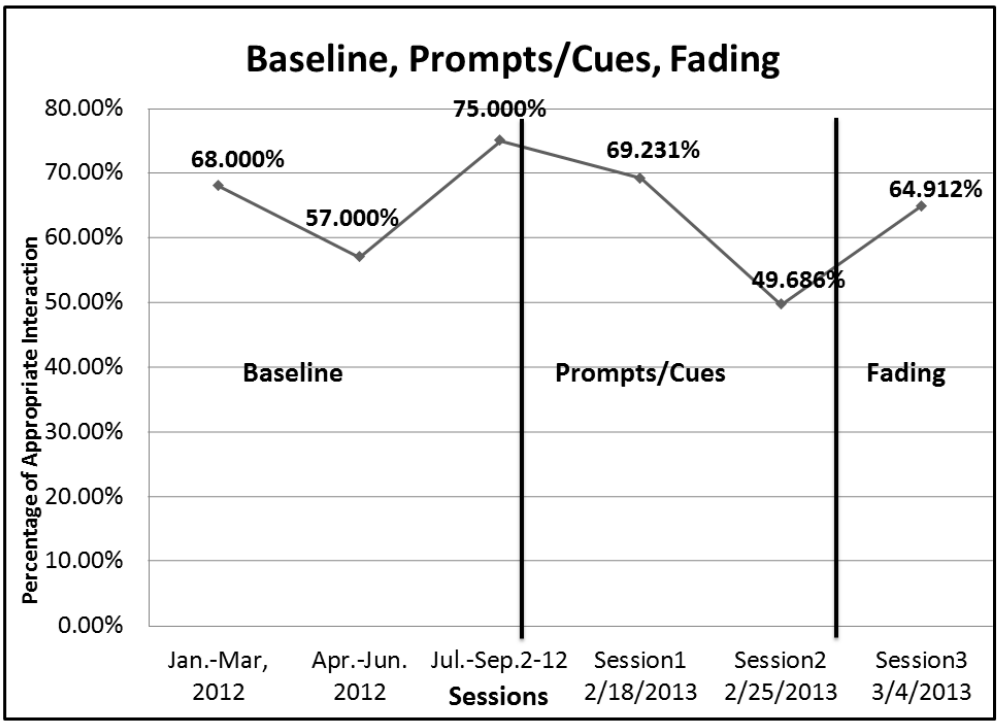

Figure 4.2: The Percentage of SU's Appropriate Interaction with the Therapist

Prompts/Cues Phase

During the prompts/cues phase, in Sessions 1 and 2, overall the therapist increased the number of prompts/cues (Figure 4.3). In Session 1, the therapist provided prompts and cues 117 times while SU had appropriate responses 81 times. The percentage of appropriate interaction was 69.231%. In Session 2, the therapist increased

the number of prompts and cues to 159 times while SU had appropriate responses 79 times. That is, SU had achieved 49.686% of accuracy. Therefore, SU progressed and entered the fading procedure. During the prompts/cues phase, from Session 1 to Session 2, the therapist increased the number of prompts and cues by 42. Moreover, the percentage of SU's appropriate interactions with the therapist decreased from Session 1 and Session 2 by 19.545%.

Fading Phase

The results showed that the therapist decreased the times of prompts and cues. In Session 3, the therapist provided prompts/cues 114 times which is fewer 45 times than SU did in Session 2. SU had appropriate responses 74 times. In Session 3, during the fading phase, the percentage of appropriate responses was 64.912%. SU increased the percentage of appropriate responses increased 15.226% of accuracy, which jumped the percentage from 49.686% of accuracy to 64.912% of accuracy.

In summary, as the baseline-prompts/cues-fading phase (Figure 4.2) displayed that, an irregular curve for SU's progress. SU's behaviors were different in each session. However, during the prompts/cues and fading phases, the data indicated that the curve went up at the last day of research observation, Session 3. The therapist decreased prompts and cues since SU had improvement in therapist-client interaction in eye contact, communication and speech in the last day of research observation.

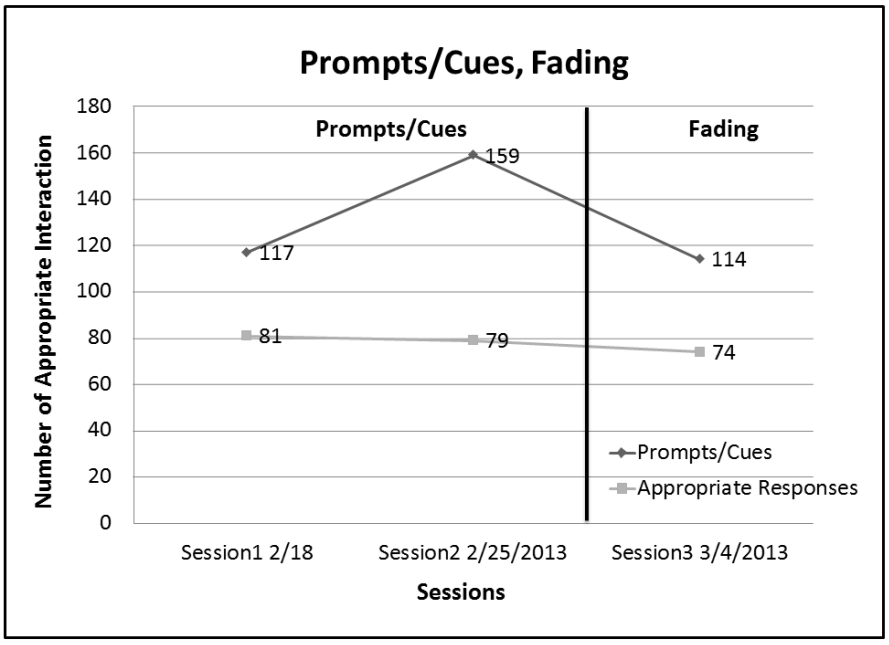

Figure 4.3: SU's Number of Prompts/Cues & Appropriate Responses

The Research Observation Data – Case Two

Client: AP

Music Therapist: ES, MT-BC

Session 1

Date: January 24, 2013

1. Opening of the session

Activity: Check in and Hello Song

Table 4.32: Check in and Hello Song Activity Anecdotal Report on January 24, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate: X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Cue	3	O	Eye contact and	3	Y

				responded to the therapist with a simile		
2	Verbal Cue		X	Looked around the session room		N
3	Verbal Prompt	1	O	Eye contact and smiling	3	Y
4	Verbal Cue	1	O	Eye contact and smiling	3	Y
5	Verbal Cue/ Visual Cue	4	X	Looked around the session room		N
6	Verbal Cue/ Visual Cue	3	X	Looked around the session room		N
7	Verbal Cue & Musical Cue	2	X	Looked around the session room		N
8	Verbal Cue	1	O	Eye contact and responded to the therapist with a simile	22	Y

2. Musical Instrument Playing Intervention

Activities:

a. Drum – Loud and Quiet

Table 4.33: Loud and Quiet Activity Anecdotal Report on January 24, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and	Time lapse after cues and	AP's responses (appropriate:	AP's responding actions	Time responding actions	Positive Reinforcement

	prompts	prompts (seconds)	O; inappropriate : X)		(seconds)	(Yes: Y; No: N)
1	Musical Cue	1	O	Eye contact and playing	20	Y
2	Verbal Cue	1	O	Eye contact and playing the drum	12	Y
3	Musical Cue	1	O	Eye contact and playing the drum.	8	Y
4	Verbal Cue	1	O	Eye contact and playing the drum.	4	Y
5	Verbal Cue	1	O	Eye contact and playing the drum.	4	Y

b. Claves – Fast and Slow

Table 4.34: Fast and Slow Activity Anecdotal Report on January 24, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate : X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Cue	1	O	Eye contact and playing	4	Y
2	Verbal Cue	1	O	Eye contact and playing	2	Y
3	Musical Cue	1	O	Eye contact and playing	12	Y
4	Musical Cue	0	X	No eye contact but playing	0	N
5	Physical Prompt	1	O	Eye contact and playing the drum.	3	Y
6	Musical	0	X	No eye		N

	Cue			contact but playing		
7	Musical Cue	3	O	Eye contact but playing	11	Y
8	Musical Cue	2	O	Eye contact and playing	13	Y
9	Musical Cue	1	O	Eye contact and playing	7	Y

c. Egg Shakers – Stop & Go and Loud & Quiet

Table 4.35: Stop & Go and Loud & Quiet Activity Anecdotal Report on January 24, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate: X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Cue	1	O	Eye contact and playing	3	Y
3	Verbal Cue	0	X	Eye contact, but no playing	0	N
4	Verbal Cue	1	O	Eye contact and playing	10	Y
7	Verbal Cue	0	X	Eye contact but no playing	0	N
5	Verbal Cue	1	O	Eye contact and playing	4	Y
8	Verbal Cue	0	X	Eye contact but no playing		N
6	Verbal Cue	1	O	Eye contact and playing	12	Y

d. Plastic Maracas – Instrument Movement Game

Table 4.36: Instrument Movement Game Activity Anecdotal Report on January 24, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate : X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Musical Cue	1	O	Eye contact and playing	7	Y
2	Verbal Prompt	1	O	Eye contact and playing	3	Y
3	Musical Cue	1	O	Eye contact and playing	4	Y
4	Musical Cue	1	O	Eye contact, smiling and playing	4	Y
5	Verbal Prompt	1	O	Eye contact	7	Y

3. Piano Time Intervention

Activity: Piano Sound

Table 4.37: Piano Sound Activity Anecdotal Report on January 24, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate : X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Prompt	3	O	Eye contact and playing	9	Y
2	Musical Cue	0	X		0	N
3	Musical	0	X		0	N

	Cue					
4	Musical Cue	3	O	Eye contact and playing	8	Y
5	Musical Cue		X	No eye contact and no playing	0	N
6	Physical Prompt	9	O	Eye contact and playing	9	Y
7	Musical Cue	3	O	Eye contact and playing	7	Y
8	Musical Cue		X			N
9	Musical Cue		X			N
10	Musical Cue	1	O	Eye contact and playing	3	Y
11	Verbal Prompt	1	O	Eye contact and playing	3	Y
12	Verbal Prompt	1	O	Eye contact and playing	5	Y
13	Musical Cue	1	O	Eye contact and playing	3	Y

4. Xylophone Time Intervention

Activity: Alphabet Sound

Table 4.38: Alphabet Sound Activity Anecdotal Report on January 24, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate : X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Cue& Physical Prompt	2	O	Eye contact, playing, pronounced the sounds	2	Y
2	Musical Cue	1	O	Eye contact, playing, pronounced	3	Y

				the sounds		
3	Musical Cue	1	O	Eye contact, playing, pronounced the sounds	3	Y
4	Physical Prompt & Musical Cue	1	O	Eye contact, playing, pronounced the sounds	5	Y

5. "My Turn, Your Turn" Intervention

Activity: "My Turn, Your Turn"

Table 4.39: "My Turn, Your Turn" Activity Anecdotal Report on January 24, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate: X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Prompt	0	X	No eye contact	0	N
2	Verbal Prompt	1	O	Eye contact and smile	4	Y
3	Verbal Prompt	1	O	Eye contact and smile	3	Y
4	Verbal Prompt	0	X	No eye contact	0	N
5	Verbal Prompt	1	O	Eye contact and smile	4	Y
6	Verbal Prompt	0	X	No eye contact	0	N
7	Verbal Prompt	1	O	Eye contact and smile	5	Y
8	Verbal Prompt		X	No eye contat	0	N
9	Verbal Prompt	1	O	Eye contact and smile	4	Y

6. Book Time Intervention

Activity: Animal Names Game

Table 4.40: Animal Name Game Activity Anecdotal Report on January 24, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate : X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Cue	1	O	Eye contact and smile	4	Y
2	Verbal Cue	1	O	Eye contact and smile	3	Y
3	Verbal Cue	1	O	Eye contact and smile	4	Y
4	Verbal Cue	1	O	Eye contact and smile	4	Y

7. Closing of the session

Activity: Goodbye Song

Table 4.41: Goodbye Song Activity Anecdotal Report on January 24, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate : X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Musical Cue	1	O	Eye contact and smile	2	Y
2	Musical Cue	2	X	Looked around the session room	0	N

3	Verbal Prompt & Physical Prompt	1	O	Eye contact and smile	4	Y

Session 2

Date: January 31, 2013

1. Opening of the session

Activity: Check in and Hello song

Table 4.42: Check in and Hello Song Activity Anecdotal Report on January 31, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate: X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Cue& Visual Prompt	1	O	Eye contact and responded to the therapist with a smile.	3	Y
2	Verbal Prompt	1	O	Eye contact and responded to the therapist with a smile	2	Y
3	Verbal Prompt	1	O	Eye contact and responded to the therapist with a smile	3	Y

2. Musical Instrument Playing Intervention

Activities:

a. Drum – Loud & Quiet

Table 4.43: Loud & Quiet Activity Anecdotal Report on January 31, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate : X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Musical Cue	1	O	Eye contact, smiling, and playing	20	Y
2	Musical Cue	1	O	Eye contact, smiling, and playing	12	Y
3	Physical Prompt	1	O	Eye contact, smiling, and playing	3	Y
4	Musical Cue	0	X	No eye contact	0	N
5	Musical Cue	1	O	Eye contact, smiling, and playing	4	Y
6	Musical Cue	1	O	Eye contact, smiling, and playing	11	Y

b. Maraca & Egg Shakers – Instrument Movement Game

Table 4.44: Instrument Movement Game Activity Anecdotal Report on January 31, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate : X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Cue	1	O	Eye contact, smiling, and playing	11	Y
2	Verbal Cue	0	X	No response	0	N
3	Verbal Cue	1	O	Eye contact, smiling, and playing	3	Y
4	Verbal Cue	0	X	No eye contact	0	N
5	Verbal Cue	0	X	No eye contact	4	Y
6	Verbal Cue	1	O	Eye contact, smiling, and playing	6	Y

c. Claves – Instrument Movement Game

Table 4.45: Instrument Movement Game Activity Anecdotal Report on January 31, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate : X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Musical Cue	1	O	Eye contact, smiling, and playing	17	Y

2	Music Cue	1	O	Eye contact, smiling, and playing	10	Y
3	Musical Cue	1	O	Eye contact, smiling, and playing	13	Y

3. Piano Time Intervention

Activity: Piano Sound

Table 4.46: Piano Sound Activity Anecdotal Report on January 31, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate: X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Prompt	1	O	Eye contact and followed the direction	4	Y
2	Musical Cue & Physical Prompt	1	O	Eye contact and playing	16	Y
3	Musical Cue & Physical Prompt	1	O	Eye contact and playing	8	Y
4	Musical Cue & Physical Prompt	1	O	Eye contact and playing	8	Y
5	Verbal Prompt & Physical Prompt	1	O	AP used elbow to play the piano for 6 seconds. After prompts, AP	6	Y

				had eye contact and playing with appropriate behavior		
6	Musical Cue		X		9	N
7	Musical Cue	1	O	Eye contact and followed the therapist's direction to play quietly playing	31	Y
8	Musical Cue & Physical Prompt	1	O	Eye contact and playing	20	Y
9	Musical Cue	1	O	Eye contact and playing	10	Y
10	Musical Cue		X			N
11	Musical Cue	3	O	Eye contact and playing	7	Y
12	Musical Cue & Verbal Cue	1	O	Eye contact, smiling, and playing	4	Y
13	Musical Cue & Physical Prompt		X	Looked around the session room for 10 seconds		N
14	Music Cue & Physical Prompt		X	Looked around the session room for 20 seconds; in addition, AP used his elbow to play the piano for 4 seconds.		N
15	Physical		X	Looked		N

	Prompt			around the session room		
16	Physical Prompt	4	O	Eye contact and playing	22	Y

4. Metallophone Time Intervention

Activity: Alphabet Sound

Table 4.47: Alphabet Sound Activity Anecdotal Report on January 31, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate: X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Physical Prompt		X	Inappropriate playing behavior for 12 seconds		N
2	Physical Prompt	1	O	Eye contact and playing	28	Y
3	Physical Prompt	1	O	Eye contact and playing	20	Y
4	Musical Cue		X	No eye contact and looked around the session room for 12 seconds		N
5	Musical	3	O	Eye contact and playing	60	Y

5. "My Turn, Your Turn" Intervention

Activity: "My Turn, Your Turn"

Table 4.48: “My Turn, Your Turn” Activity Anecdotal Report on January 31, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist’s cues and prompts	Time lapse after cues and prompts (seconds)	AP’s responses (appropriate: O; inappropriate : X)	AP’s responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Prompt	1	O	Eye contact	12	Y
2	Verbal Cue		X		0	N
3	Verbal Cue	1	O	Eye contact	8	Y
4	Verbal Cue		X		6	N
5	Verbal Cue	1	O	Eye contact and smile	8	Y

6. Book Time Intervention

Activity: Animal Name Game

Table 4.49: Animal Name Game Activity Anecdotal Report on January 31, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist’s cues and prompts	Time lapse after cues and prompts (seconds)	AP’s responses (appropriate: O; inappropriate : X)	AP’s responding actions	Time maintained (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Cue	1	O	Eye contact and smile	3	Y

7. Animal Board Game Intervention

Activity: Five Frogs Board

Table 4.50: Five Frogs Board Activity Anecdotal Report on January 31, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate : X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Musical Cue	1	O	Eye contact and smile	155	Y

8. Closing of the session

Activity: Goodbye Song

Table 4.51: Goodbye Song Activity Anecdotal Report on January 31, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate : X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Musical Cue	1	O	Eye contact	25	Y

Session 3

Date: February 7, 2013

1. Opening of the session

Activity: Check in and Hello Song

Table 4.52: Check in and Hello Song Activity Anecdotal Report on February 7, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate: X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Musical Cue	1	O	Eye contact and smiling. After 2 seconds, AP looked around the session room.	2	Y
2	Musical Cue	1	O	Eye contact and smiling.	3	Y
3	Visual Prompt	1	O	Responded to the therapist with eye contact and a smile	3	Y
4	Musical Cue	1	O	Eye contact and smiling.	2	Y
5	Verbal Prompt	1	O	Eye contact and smiling	4	Y

2. Card Time Intervention

Activities:

a. Number Card

Table 4.53: Number Card Activity Anecdotal Report on February 7, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate: X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Prompt	1	O	Responded to the therapist appropriately	4	Y
2	Verbal Prompt	1	O	Responded to the therapist appropriately	3	Y
3	Verbal Prompt	1	O	Responded to the therapist appropriately	2	Y
4	Verbal Prompt	1	O	Responded to the therapist appropriately	3	Y
5	Verbal Prompt	1	O	Responded to the therapist appropriately	4	Y
6	Musical Cue	1	O	Eye contact and responded to the therapist with a smile	7	Y
7	Verbal Prompt/ Visual	1	O	Eye contact and smiling	3	Y

	Prompt					
8	Musical Cue	2	O	Eye contact and smiling	4	Y
9	Musical Cue	1	O	Eye contact	6	Y

b. Alphabet Card

Table 4.54: Alphabet Card Activity Anecdotal Report on February 7, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate: X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Vocal Cue	1	O	Responded to the therapist with eye contact	4	Y
2	Visual Prompt/Vocal Cue	1	O	Responded to the therapist	5	Y
3	Visual Prompt	1	O	Responded to the therapist	3	Y
4	Visual Prompt	1	O	Eye contact and responded to the therapist	3	Y
5	Vocal Cue	1	O	Eye contact and responded to the therapist	3	Y
6	Visual Prompt	1	O	Eye contact and responded to the	3	Y

				therapist		
7	Visual Prompt	1	O	Eye contact and responded to the therapist	2	Y

3. Piano Time Intervention

Activity: Piano Sound

Table 4.55: Piano Sound Activity Anecdotal Report on February 7, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate: X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Musical Cue	0	X	No responses	0	N
2	Musical Cue	1	O	Eye contact	5	Y
3	Musical Cue	0	X	No responses	0	N
4	Musical Cue/ Physical Prompt	1	O	Eye contact	10	Y
5	Musical Cue/ Physical Prompt/ Visual Prompt	2	O	Eye contact and responded to the therapist appropriately	3	Y
6	Musical Cue	0	X	No response	0	N
7	Musical Cue/ Physical Prompt/	1	O	Eye contact and responded to the	7	Y

	Visual Prompt			therapist		
8	Visual Prompt/ Physical Prompt	1	O	Eye contact and responded to the therapist appropriatel y	4	Y
9	Musical Cue	0	X	No response	0	N
10	Verbal Prompt/ Musical Cue	1	O	Eye contact and responded to the therapist appropriatel y	3	Y
11	Musical Cue/ Visual Prompt	0	X	No response	0	N
12	Musical Cue/ Visual Prompt	1	O	Eye contact and responded to the therapist	5	Y
13	Musical Cue/ Visual Prompt	0	X	No response	0	N
14	Visual Prompt/ Physical Prompt/ Musical Cue/ Verbal Prompt	1	O	Eye contact and responded to the therapist	8	Y
15	Musical Cue	0	X	No response	0	N
16	Musical Cue	0	X	No response	0	N
17	Musical Cue	0	O	No response	0	Y

18	Musical Cue	0	X	No response	0	N
19	Musical Cue	2	O	Eye contact	4	Y
20	Musical Cue/ Visual Prompt	1	O	Eye contact	3	Y
21	Musical Cue	0	X	No response	0	N
22	Musical Cue	0	X	No response	0	N
23	Musical Cue	0	X	No response	0	N
24	Musical Cue	1	O	Eye contact	5	Y
25	Musical/ Visual Prompt/ Verbal Prompt	2	O	Eye contact and responded to the therapist	8	Y
26	Visual Prompt	1	O	Eye contact	4	Y
27	Musical Cue	0	X	No response	0	N
28	Visual Prompt	1	O	Eye contact	7	Y
29	Musical Cue/ Physical Prompt	1	O	Eye contact and responded to the therapist	12	Y
30	Musical Cue	0	X	No response	0	N
31	Musical Cue/ Verbal Prompt	1	O	Eye Contact	5	Y
32	Musical Cue	0	X	No response	0	N
33	Musical Cue	0	X	No response	0	N
34	Musical Cue/ Physical	1	O	Eye contact and responded	7	Y

	Prompt			to the therapist		
35	Musical Cue	0	X	No response	0	N
36	Musical Cue	1	O	Eye contact	3	Y
37	Musical Cue	1	O	Eye contact	4	Y
38	Musical Cue	0	X	No response	0	N
39	Musical Cue/ Physical Prompt	1	O	Eye contact	3	Y
40	Musical Cue	0	X	No response	0	N
41	Musical Cue/ Physical Prompt	1	O	Eye contact	7	Y
42	Musical Cue	2	O	Eye contact	3	Y
43	Musical Cue	1	O	Eye contact	6	Y
44	Verbal Prompt/ Musical Cue	1	O	Eye contact and responded to the therapist	9	Y
45	Musical Cue	0	X	No response	0	N
46	Musical Cue/ Physical Prompt	1	O	Eye contact and responded to the therapist	3	Y
47	Musical Cue	1	O	Eye contact	5	Y

4. Musical Instrument Playing Intervention

Activities:

a. Shakers – Instrument Movement Game

Table 4.56: Instrument Movement Game Activity Anecdotal Report on February 7, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate : X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Prompt	3	O	Eye contact and followed the therapist's directions	2	Y
2	Verbal Prompt	1	O	Eye contact and responded to the therapist	5	Y
3	Verbal Prompt	1	O	Eye contact and responded to the therapist	3	Y
4	Vocal Cue	1	O	Eye contact	4	Y
5	Vocal Cue	2	O	Eye contact	3	Y
6	Vocal Cue	1	O	Eye contact	2	Y
7	Musical Cue	1	O	Eye contact and followed the therapist's directions	7	Y
8	Vocal Cue	1	O	Eye contact and followed the therapist's directions	10	Y
9	Vocal Cue	0	X	Looked around the session room	0	N
10	Verbal Prompt	1	O	Eye contact	3	Y

11	Vocal Cue	1	O	Eye contact and followed the therapist's directions	8	Y
12	Vocal Cue	1	O	Eye contact and responded to the therapist	5	Y

b. Drum – Old McDonald

Table 4.57: Old McDonald Activity Anecdotal Report on February 7, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate: X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Musical Cue	1	O	Eye contact	2	Y
2	Musical Cue	1	O	Eye contact	2	Y
3	Musical Cue	1	O	Eye contact and responded to therapist	3	Y
4	Musical Cue/ Verbal Prompt	1	O	Eye contact and followed the therapist's direction2	6	Y
5	Musical Cue	1	O	Eye contact	3	Y
6	Vocal Cue	1	O	Eye contact	2	Y
7	Vocal Cue	1	O	Eye contact and responded	5	Y

				to the therapist		
8	Musical Cue	0	X	No eye contact	0	N
9	Musical Cue	0	X	Looked around the session room	0	N
10	Musical Cue	0	X	Looked around the session room	0	N
11	Verbal Prompt	1	O	Eye contact and responded to the therapist	4	Y
12	Verbal Prompt	0	X	No eye contact	0	N
13	Verbal Prompt	1	O	Eye contact and responded to the therapist	3	Y
14	Musical Cue	1	O	Eye contact and responded to the therapist	4	Y
15	Musical Cue	0	X	No eye contact	0	N
16	Verbal Prompt	0	X	No response	0	N
17	Verbal Prompt/ Visual Prompt	1	O	Eye contact and responded to the therapist	4	Y
18	Musical Cue	0	X	No eye contact	0	N
19	Musical Cue	0	X	No eye contact	0	N
20	Musical Cue	0	X	No eye contact	0	N
21	Verbal	1	O	Eye contact	5	Y

	Prompt			and responded to the therapist		
22	Verbal Prompt/ Visual Prompt	1	O	Eye contact and responded to the therapist	3	Y
23	Musical Cue	0	X	No eye contact	0	N
24	Visual Prompt/ Musical Cue	1	X	Eye contact and responded to the therapist	6	Y
25	Musical Cue	1	O	Eye contact and responded to the therapist	4	Y
26	Visual Prompt	0	X	No eye contact	0	N
27	Visual Prompt	0	X	No eye contact	0	N
28	Musical Cue	1	O	Eye contact and responded to the therapist	5	Y
29	Musical Cue/ Visual Prompt	1	O	Eye contact and responded to the therapist	4	Y
30	Musical Cue	1	O	Eye contact and responded to the therapist	4	Y
31	Visual Prompt	1	O	Eye contact and responded to the therapist	3	Y

32	Verbal Prompt	1	O	Eye contact and responded to the therapist	5	Y
33	Musical Cue	0	X	No eye contact	0	N
34	Musical Cue	0	X	No eye contact	0	X
35	Musical Cue	0	X	No eye contact	0	X
36	Musical Cue	0	X	No eye contact	0	X
37	Musical Cue	1	O	Eye contact and responded to the therapist	3	Y
38	Musical Cue	1	O	Eye contact and responded to the therapist	4	Y
39	Verbal Prompt/ Visual Prompt	0	X	No eye contact	0	N
40	Verbal Prompt/ Visual Prompt	1	O	Eye contact and responded to the therapist	3	Y
41	Verbal Prompt/ Visual Prompt	0	X	No eye contact	0	N
42	Verbal Prompt/ Visual Prompt	1	O	Eye contact and responded to the therapist	3	Y
43	Musical Cue	0	X	No eye contact	0	N
44	Musical Cue	2	O	Eye contact and	3	Y

				responded to the therapist		
45	Musical Cue	0	X	No eye contact	0	N
46	Musical Cue	1	O	Eye contact and responded to the therapist	4	Y
47	Musical Cue	0	X	No eye contact	0	N
48	Musical Cue	1	O	Eye contact and responded to the therapist	5	Y

5. Animal Board Game Intervention

Activity: Five Frogs Board

Table 4.58: Five Frogs Board Activity Anecdotal Report on February 7, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate: X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Prompt	1	O	Eye contact and followed the therapist's directions	5	Y
2	Vocal Cue	1	O	Eye contact and responded to the therapist	9	Y
3	Vocal Cue	1	O	Eye contact	8	Y
4	Verbal	1	O	Eye contact	7	Y

	Prompt					
5	Visual Prompt/ Verbal Prompt	1	O	Eye contact	8	Y
6	Vocal Cue	1	O	Eye contact	7	Y
7	Vocal Cue	1	O	Eye contact and responded to the therapist	11	Y
8	Vocal Cue	1	O	Eye contact and responded to the therapist	6	Y
9	Visual Prompt/Verbal Cue	1	O	Eye contact and responded to the therapist	8	Y

6. Movement Time Intervention

Activity: Movement with Music

Table 4.59: Movement with Music Activity Anecdotal Report on February 7, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate: X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Prompt	1	O	Eye contact	6	Y
2	Visual Prompt	1	O	Followed the therapist's movements	8	Y
3	Visual Prompt/	1	O	Followed the	11	Y

	Verbal Prompt			therapist's movements		
4	Verbal Prompt	1	O	Followed the therapist's movements	9	Y
5	Verbal Prompt	1	O	Followed the therapist's movements	8	Y
6	Visual Prompt	1	O	Followed the therapist's movements	7	Y
7	Visual Prompt/ Verbal Prompt	1	O	Followed the therapist's movements	7	Y
8	Verbal Prompt	1	O	Followed the therapist's movements	6	Y
9	Verbal Prompt	1	O	Followed the therapist's movements	9	Y
10	Verbal Prompt/ Visual Prompt	1	O	Followed the therapist's movements	8	Y
11	Visual Prompt	1	O	Followed the therapist's movements	9	Y
12	Visual Prompt	1	O	Followed the therapist's movements	7	Y

7. Book Time Intervention

Activity: Spelling Animal Names

Table 4.60: Spelling Animal Name Activity Anecdotal Report on February 7, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate: X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Prompt	1	O	Eye contact	4	Y
2	Visual Prompt/ Vocal Cue	0	X	No eye contact	0	N
3	Visual Prompt/ Vocal Cue	0	X	No eye contact	0	N
4	Visual Prompt/ Vocal Cue	0	X	No eye contact	0	N
5	Visual Prompt/ Vocal Cue	0	X	No eye contact	0	N
6	Physical Prompt	1	O	Eye contact and responded to the therapist	4	Y
7	Visual Prompt/ Vocal Cue	0	X	No eye contact	0	N
8	Visual Prompt/ Vocal Cue	0	X	No eye contact	0	N
9	Verbal Prompt	1	O	Eye contact and responded to the therapist	5	Y
10	Verbal Prompt	1	O	Eye contact and responded to the therapist	4	Y
11	Vocal Cue	1	O	Eye contact and	4	Y

				responded to the therapist		
12	Visual Prompt/ Verbal Prompt	1	O	Eye contact and responded to the therapist	3	Y
13	Visual Prompt/ Vocal Cue	1	O	Eye contact and responded to the therapist	7	Y
14	Verbal Prompt	0	X	No eye contact	0	N
15	Verbal Prompt	1	O	Eye contact and responded to the therapist	4	Y
16	Visual Prompt	0	X	No eye contact	0	N
17	Verbal Prompt/ Visual Prompt	1	O	Eye contact and responded to the therapist	6	Y
18	Verbal Prompt/ Visual Prompt	1	O	Eye contact and responded to the therapist	5	Y
19	Verbal Prompt/ Visual Prompt	1	O	Eye contact and responded to the therapist	6	Y
20	Visual Prompt	0	X	No eye contact	0	N
21	Verbal Prompt/ Physical Prompt	0	X	No eye contact	0	N
22	Verbal Prompt/	0	X	No eye contact	0	N

	Physical Prompt					
23	Verbal Prompt/ Physical Prompt	1	O	Eye contact and responded to the therapist	5	Y
24	Vocal Cue/ Visual Prompt	0	X	No eye contact	0	N
25	Vocal Cue. Visual Prompt	1	O	Eye contact and responded to the therapist	4	Y
26	Vocal Cue	1	O	Eye contact and responded to the therapist	4	Y
27	Visual Prompt	1	O	Eye contact and responded to the therapist	5	Y
28	Visual Prompt	1	O	Eye contact and responded to the therapist	4	Y
29	Verbal Prompt/ Visual Prompt	1	O	Eye contact and responded to the therapist	4	Y
30	Visual Prompt	1	O	Eye contact and responded to the therapist	4	Y
31	Verbal Prompt	1	O	Eye contact and responded to the therapist	8	Y

8. Closing of the session

Activity: Goodbye Song

Table 4.61: Goodbye Song Activity Anecdotal Report on February 7, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate : X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Musical Cue	1	O	Eye contact and responded to the therapist	3	Y
2	Musical Cue	1	O	Eye contact and responded to the therapist	2	Y
3	Musical Cue	0	X	No response	0	N
4	Musical Cue	1	O	Eye contact and responded to the therapist	2	Y
5	Musical Cue	0	X	No response	0	N
6	Visual Prompt/ Verbal Prompt	0	X	No response	0	N
7	Visual Prompt/ Verbal Prompt	1	O	Eye contact and responded to the therapist	2	Y
8	Visual Prompt/ Verbal	1	O	Eye contact and responded	2	Y

	Prompt			to the therapist		
9	Visual Prompt/ Verbal Prompt	1	O	Eye contact and responded to the therapist	2	Y
10	Musical Cue	0	X	No response	0	N
11	Musical Cue/ Visual Prompt	0	X	No response	0	N
12	Musical Cue/ Visual Prompt	1	O	Eye contact and responded to the therapist	2	Y
13	Visual Prompt	1	O	Eye contact	1	Y

Session 4

Date: February 28, 2012

1. Opening of the session

Activity: Check in and Hello Song

Table 4.62: Check in and Hello Song Activity Anecdotal Report on February 28, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate : X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Musical Cue	1	O	Eye contact and responded to the therapist	1	Y

				with a simile		
2	Visual Prompt/ Verbal Prompt	1	O	Eye contact and responded to the therapist	1	Y
3	Visual Prompt	1	O	Eye contact and responded to the therapist	1	Y
4	Musical Cue	1	O	Eye contact and smiling	1	Y
5	Visual Prompt/ Vocal Cue	1	O	Eye contact and responded to the therapist	1	Y

2. Card Time Intervention

Activity: Alphabet Card

Table 4.63: Alphabet Card Activity Anecdotal Report on February 28, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate : X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Prompt	1	O	Eye contact and responded to the therapist with a simile	2	Y
2	Verbal Prompt	1	O	Eye contact and responded	2	Y

				to the therapist		
3	Visual Prompt/ Verbal Prompt	1	O	Eye contact and responded to the therapist	4	Y
4	Visual Prompt/ Verbal Prompt	1	O	Eye contact and responded to the therapist	6	Y
5	Visual Prompt	1	O	Eye contact and responded to the therapist	4	Y
6	Physical Prompt	1	O	Eye contact and responded to the therapist	4	Y
7	Musical Cue	0	X	No eye contact	0	N
8	Physical Prompt	1	O	Eye contact and responded to the therapist	7	Y
9	Verbal Prompt/ Physical Prompt	1	O	Eye contact and responded to the therapist	5	Y
10	Physical Prompt	0	X	No eye contact	0	N
11	Physical Prompt	1	O	Eye contact and responded to the therapist	7	Y
12	Verbal Prompt	1	O	Eye contact and responded to the	3	Y

				therapist		
13	Visual Prompt	1	O	Eye contact and responded to the therapist	2	Y
14	Verbal Prompt	0	X	No eye contact	0	N
15	Physical Prompt	1	O	Eye contact and responded to the therapist	3	Y
16	Visual Prompt/ Verbal Prompt	1	O	Eye contact and responded to the therapist	7	Y
17	Visual Prompt/ Verbal Prompt	1	O	Eye contact and responded to the therapist	4	Y
18	Visual Prompt	1	O	Eye contact and responded to the therapist	8	Y
19	Physical Prompt	0	X	No eye contact	0	N
20	Physical Prompt	1	O	Eye contact and responded to the therapist	7	Y
21	Visual Prompt/ Verbal Prompt	1	O	Eye contact and responded to the therapist	4	Y
22	Musical Cue	0	X	No eye contact	0	N
23	Physical Prompt	1	O	Eye contact and responded	3	Y

				to the therapist		
24	Physical Prompt	1	O	Eye contact and responded to the therapist	6	Y
25	Musical Cue	0	X	No eye contact	0	N
26	Musical Cue/ Physical Prompt	1	O	Eye contact and responded to the therapist	7	Y
27	Musical Cue	0	X	No eye contact	0	N
28	Musical Cue/ Physical Prompt	1	O	Eye contact and responded to the therapist	4	Y
29	Musical Cue/ Visual Prompt	1	O	Eye contact and responded to the therapist	7	Y
30	Visual Prompt/ Musical Cue	1	O	Eye contact and responded to the therapist	2	Y
31	Visual Prompt/ Verbal Prompt	1	O	Eye contact and responded to the therapist	5	Y
32	Visual Prompt	1	O	Eye contact and responded to the therapist	3	Y
33	Musical Cue	0	X	No eye contact	0	N
34	Musical Cue/	1	O	Eye contact and	7	Y

	Physical Prompt			responded to the therapist		
35	Vocal Cue	1	O	Eye contact and responded to the therapist	3	Y
36	Visual Prompt	0	X	No eye contact	0	N
37	Physical Prompt	1	O	Eye contact and responded to the therapist	4	Y
38	Physical Prompt	1	O	Eye contact and responded to the therapist	7	Y
39	Physical Prompt	0	X	No eye contact	0	N
40	Physical Prompt	1	O	Eye contact and responded to the therapist	9	Y
41	Physical Prompt	0	X	No eye contact	0	N
42	Physical Prompt/ Visual Prompt	1	O	Eye contact and responded to the therapist	8	Y
43	Physical Prompt	1	O	Eye contact and responded to the therapist	9	Y

3. Musical Instrument Playing Intervention

Activities:

a. Drum – Old McDonald

Table 4.64: Old McDonald Activity Anecdotal Report on February 28, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate: X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Musical Cue	0	X	No eye contact	0	N
2	Musical Cue/ Visual Prompt	1	O	Eye contact	2	Y
3	Musical Cue	1	O	Eye contact and responded to therapist	4	Y
4	Verbal Prompt/ Visual Prompt	1	O	Eye contact and followed the therapist's direction	4	Y
5	Verbal Prompt	4	O	Eye contact	4	Y
6	Musical Cue	0	X	No eye contact	0	N
7	Musical Cue	1	O	Eye contact and responded to the therapist	4	Y
8	Musical Cue/ Vocal Cue	1	O	Eye contact and responded to the therapist	4	Y
9	Verbal Prompt	2	O	Eye contact and responded to the therapist	4	Y

10	Verbal Prompt	1	O	Eye contact and responded to the therapist	7	Y
11	Verbal Prompt	0	X	No eye contact and looked around the session room	0	N
12	Verbal Prompt	1	O	Eye contact and responded to the therapist	3	Y
13	Verbal Prompt	1	O	Eye contact and responded to the therapist	3	Y
14	Verbal Prompt	0	X	No eye contact	0	N
15	Verbal Prompt	1	O	Eye contact and responded to the therapist	3	Y
16	Physical Prompt	1	O	Eye contact and responded to the therapist	4	Y
17	Musical Cue/ Vocal Cue	1	O	Eye contact and responded to the therapist	2	Y
18	Vocal Cue	0	X	No eye contact	0	N
19	Verbal Prompt	0	X	No eye contact	0	N
20	Verbal Prompt	1	O	Eye contact and responded	4	Y

				to the therapist		
21	Musical Cue	2	O	Eye contact and responded to the therapist	3	Y
22	Physical Prompt	1	O	Eye contact and responded to the therapist	2	Y
23	Musical Cue	1	O	Eye contact and responded to the therapist	3	Y
24	Musical Cue	0	X	No eye contact	0	N
25	Musical Cue	1	O	Eye contact and responded to the therapist	3	Y
26	Visual Prompt/ Musical Cue	0	X	No eye contact	0	N
27	Visual Prompt/ Musical Cue	1	O	Eye contact and responded to the therapist	4	Y
28	Musical Cue	0	X	No eye contact	0	N
29	Physical Prompt	0	X	No eye contact	0	N
30	Musical Cue	1	O	Eye contact and responded to the therapist	1	Y
31	Physical Prompt	1	O	Eye contact and responded	3	Y

				to the therapist		
32	Musical Cue	1	O	Eye contact and responded to the therapist	1	Y
33	Verbal Prompt	1	O	Eye contact and responded to the therapist	2	Y
34	Verbal Prompt	0	X	No eye contact	0	X
35	Verbal Prompt	1	O	Eye contact and responded to the therapist	2	Y
36	Verbal Prompt	0	X	No eye contact	0	X
37	Verbal Prompt	0	X	No eye contact	0	X
38	Verbal Prompt	3	O	Eye contact and responded to the therapist	3	Y
39	Verbal Prompt	1	O	Eye contact and responded to the therapist	3	Y
40	Musical Cue	1	O	Eye contact and responded to the therapist	4	Y
41	Verbal Prompt	1	O	Eye contact and responded to the therapist	2	Y
42	Verbal Prompt	0	X	No eye contact	0	N

43	Verbal Prompt	0	X	No eye contact	0	N
44	Verbal Prompt/ Visual Prompt	0	X	No eye contact	0	N
45	Verbal Prompt/ Physical Prompt	0	X	No eye contact	0	N
45	Visual Prompt/ Physical Prompt	0	X	No eye contact	0	N
46	Physical Prompt/ Visual Prompt	0	X	No eye contact	0	N
47	Physical Prompt/ Visual Prompt	0	X	No eye contact	0	N
48	Physical Prompt/ Visual Prompt	0	X	No eye contact	0	N
49	Physical Prompt/ Visual Prompt	0	X	No eye contact	0	N
50	Physical Prompt/ Visual Prompt	1	O	Eye contact and responded to the therapist	3	Y
51	Physical Prompt	1	O	Eye contact and responded to the therapist	2	Y
52	Physical Prompt	0	X	No eye contact	0	N
53	Musical Cue	1	O	Eye contact and responded	6	Y

				to the therapist		
54	Vocal Cue/ Musical Cue	0	X	No eye contact	0	N
55	Vocal Cue/ Musical Cue	0	X	No eye contact	0	N
56	Vocal Cue/ Musical Cue	0	X	No eye contact	0	N
57	Vocal Cue/ Musical Cue	1	O	Eye contact and responded to the therapist	2	Y
58	Physical Prompt	1	O	Eye contact and responded to the therapist	2	Y

b. Bell – Music and Color

Table 4.65: Music and Color Activity Anecdotal Report on February 28, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate: X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Visual Prompt/ Verbal Prompt	1	O	Eye contact and responded to the therapist	2	Y
2	Verbal Prompt	1	O	Eye contact and responded to the	2	Y

				therapist		
3	Verbal Prompt	1	O	Eye contact and responded to therapist	5	Y
4	Musical Cue	1	O	Eye contact and followed the therapist's direction	5	Y
5	Vocal Cue/ Visual Prompt/ Musical Cue	1	O	Eye contact and responded to the therapist	3	Y
6	Physical Prompt	0	X	No eye contact	0	N
7	Physical Prompt	1	O	Eye contact and responded to the therapist	2	Y
8	Vocal Cue	0	X	No eye contact	0	N
9	Vocal Cue/ Physical Prompt	0	X	No eye contact	0	N
10	Vocal Cue/ Physical Prompt	1	O	Eye contact and responded to the therapist	2	Y
11	Verbal Prompt	1	O	Eye contact and responded to the therapist	3	Y
12	Verbal Prompt	1	O	Eye contact and responded to the therapist	2	Y
13	Visual Prompt/ Vocal Cue	1	O	Eye contact and responded	1	Y

				to the therapist		
14	Visual Prompt	1	O	Eye contact and responded to the therapist	1	Y
15	Visual Prompt	1	O	Eye contact and responded to the therapist	2	Y
16	Visual Prompt	1	O	Eye contact and responded to the therapist	1	Y

4. Movement Time Intervention

Activity: Bubble

Table 4.66: Bubble Activity Anecdotal Report on February 28, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate : X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Prompt	1	O	Eye contact and responded to the therapist with a simile	1	Y

5. Musical Instrument Playing Intervention

Activity: Shakers – Instrument Movement Game

Table 4.67: Instrument Movement Game Activity Anecdotal Report on February 28, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate: X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Prompt	1	O	Eye contact and responded to the therapist with a simile	1	Y
2	Verbal Prompt	0	X	Looked around the session room	0	N
3	Verbal Prompt	0	X	Looked around the session room	0	N
4	Verbal Prompt	0	X	No eye contact	0	N
5	Verbal Prompt	0	X	No eye contact	0	N
6	Verbal Prompt	1	O	Eye contact and responded to the therapist	3	Y
7	Verbal Prompt	1	O	Eye contact and responded to the therapist	2	Y
8	Verbal Prompt	1	O	Eye contact and responded	2	Y

				to the therapist		

6. Animal Board Game Time

Activity: Five Dogs Board

Table 4.68: Five Dogs Board Activity Anecdotal Report on February 28, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate: X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Prompt	1	O	Eye contact and responded to the therapist	1	Y
2	Visual Prompt	1	O	Eye contact and responded to the therapist	1	Y
3	Visual Prompt	1	O	Eye contact and responded to the therapist	2	Y
4	Verbal Prompt	2	O	Eye contact and responded to the therapist	2	Y
5	Visual Prompt	1	O	Eye contact	1	Y

8. Closing of the session

Activity: Goodbye Song

Table 4.69: Goodbye Song Activity Anecdotal Report on February 28, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	AP's responses (appropriate: O; inappropriate : X)	AP's responding actions	Time responding actions (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Prompt	1	O	Eye contact and responded to the therapist	1	Y
2	Musical Cue	2	O	Eye contact and responded to the therapist	2	Y
3	Visual Prompt/ Musical Cue	0	X	No response	0	N
4	Visual Prompt/ Musical Cue	0	X	No response	0	N
5	Visual Prompt/ Musical Cue	1	O	Eye contact and responded to the therapist	3	Y
6	Musical Cue	0	X	No response	0	N
7	Musical Cue	1	O	Eye contact and responded to the therapist	2	Y
8	Visual Prompt	0	X	No eye contact	0	N
9	Visual Prompt/	2	O	Eye contact and	2	Y

	Verbal Prompt			responded to the therapist		
10	Visual Prompt/ Musical Cue	1	O	Eye contact and responded to the therapist	1	Y

Result – Case Two

Case Two – (AP)

Therapist: (ES), MT-BC

Assessment of Baseline Behavior Data

Assessment

AP's music therapist, ES, provided parental interview and informal assessment procedures for five weeks of music therapy assessment sessions from October 11, 2012 to December 6, 2012. During the five weeks of assessment sessions, AP received multiple interventions. AP's attitude was cooperative and engaged. He showed happy affect as evidenced by smiling, laughing, and maintaining adequate eye contact. The interventions included movement time activity intervention, instrument playing activity intervention, book time activity intervention, piano time activity intervention, xylophone/ metallophone time activity intervention, "My Turn, Your Turn," activity intervention, card time activity intervention, and an animal board game activity intervention. AP showed the most interest in instrument playing, singing, and movement to music. During assessment, AP had grown in social interaction skills and expressive communications.

Strength

AP's receptive communication skills are classified by the level of high functioning, as evidenced by understanding the one and two step directions. AP was able to count the number from zero to five consistently. He recognizes the letters of the alphabet. In addition, AP had the ability to remember the sounds that he made previously in certain interventions. AP had the ability to control his emotion and shows self-regulation skills. For example, he is able to provide gestures to show overstimulation, such as noises being loud. Obviously, AP's functioning of gross motor skill is high. He walks easily and is able to manipulate most instruments. AP is able to move in the environment easily. In addition, he has the ability to play the drum with a mallet in an up and down pattern.

Improvement

AP has low functioning of expressive communication skills. He was unable to make multi-syllable sounds until the last two assessment sessions (November 29, 2012 and December 6, 2012). In addition, AP was unable to say the alphabet in sequence. Due to limited expressive communication skills, AP has to provide his gesture to express his emotion and feeling. Moreover, AP has low functioning of fine motor skills. He requires some hand over hand assistance to make musical timbre, such as smooth and fluid motions.

Objectives

As indicated above, AP's condition is classified as mild to moderate with cognitive, communication, social, emotional, physical skills. AP's therapist measures AP's target behaviors and improvements to expect outcome or accomplishment of goals (Honser, 1999) by June 2013.

Progression Anticipative Objective Outcome:

Objectives #1: To increase expressive communication, AP will articulate an appropriate syllable when prompted, with no more than three redirections for 80% of opportunities, by June 2013.

Objectives #2: To increase expressive communication and social skills, AP will respond to a question appropriately using a verbal response or gesture, with no more than three redirections for 80% of opportunities, by June 2013.

October 2012 to December 2012, Assessment Progression Outcome:

Objective #1: AP was making verbalizations at around 30% accuracy. He acted shy and made the sound to express his needs.

Objective #2: AP was responding to questions around 50% and mostly through gestures.

December 2012 to February 2013

AP still appeared to simile in every music therapy session during the three month progression. AP had improved in speech, gestures, and eye contact compared to the

assessment period. AP was able to make sounds frequently, answer with yes/no or uses gestures accurately. In addition, AP had ability to say the alphabet in sequence during the three-month progression. Although AP had improvements on his speck and social interaction skill, his was unable to incomprehensive to make full statements during the interaction. AP needed to learn more how to create comprehensible sound

Progression outcome:

Objective 1: AP had achieved this objective with 52% accuracy. He has made progress in the sense that he actually attempts to make sounds frequently, but he needs to continue to learn how use his mouth and tongue to create comprehensible sounds.

Objective 2: AP had achieved this objective with 69% accuracy. He can answer with yes/no, or uses gestures accurately, but is still incomprehensible when trying to make full statements.

The research utilized the outcomes of social skills to be the baseline data to analyze AP's interaction with the therapist. As above baseline data indicated mentioned, the therapist assessed AP's need to establish two objectives for AP: expressive communication and social skills. The therapist evaluated AP's improvements through three-month progression. AP had improvement in social skills/expressive communication and achieved at 50.000% of accuracy. Figure 4.4 illustrates the baseline of AP's interaction progress.

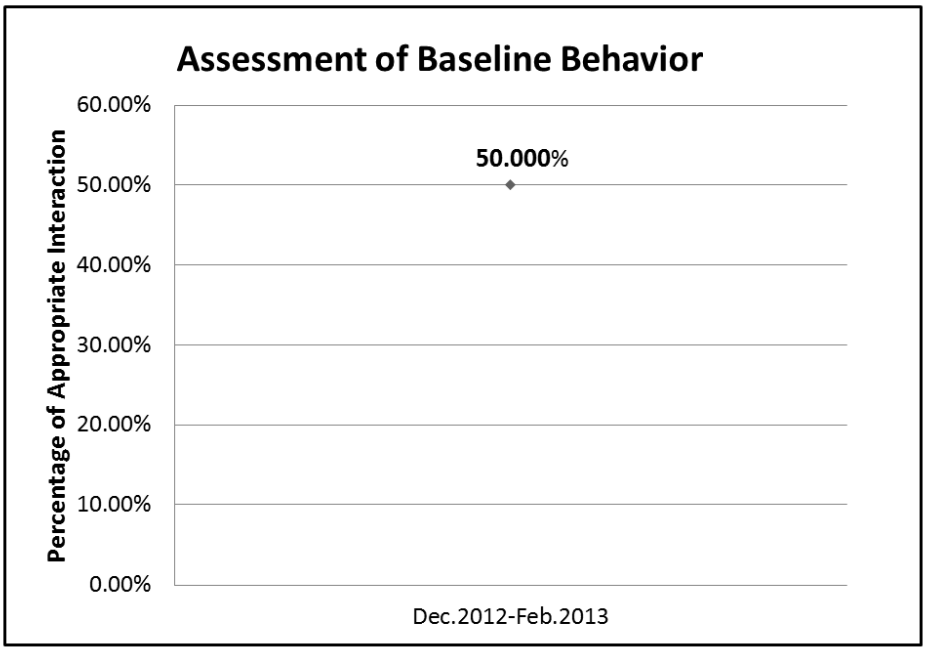

Figure 4.4: The Baseline of AP's Percentage of Interaction Progress

Prompts/Cues and Fading Data

According to the videotape recording, the research recorded the time of prompts and cues which were provided by the therapist, and the client's appropriate responses. For the client case two, the therapist usually conducted 8 to 10 activity interventions in the session. Based on the time duration of each activity interaction, the times of prompts and cues were variable. The client's mother was present the outside of the session room as observation by the researcher.

Additionally, conversion of the prompts and cues from times to percentages was provided to analyze the client's the rates of successful reactions.

Session 1

Date: January 24, 2013

The therapist provided 67 times of prompts and cues, and the client had 48 times of the appropriate reactions in the Session 1. The appropriate percentage of prompts and cues was 66.667%.

Table 4.70: Music Therapy Session on January 24, 2013

	Intervention/Activity	Times of Prompts/Cues & Appropriate Responses	Percentage of Prompts/Cues
1	Opening of the session: Check in and Hello Song	8/4	50.000%
2, a.	Musical Instrument Playing Intervention: Drum – Loud & Quiet	5/5	100.000%
2, b.	Musical Instrument Playing Intervention: Clave – Fast & Slow	9/7	77.778%
2, c.	Musical Instrument Playing Intervention: Egg Shakers – Instrument Movement Game	7/4	57.143%
2, d.	Musical Instrument Playing Intervention: Plastic Maracas – Stop & Go	5/5	100.000%
3	Piano Time Intervention: Piano Sound	13/8	61.538%
4	Xylophone Time Intervention: Alphabet Sound	4/4	100.000%
5	"My Turn, Your Turn" Intervention: "My Turn, Your Turn"	9/5	55.556%
6	Book Time Intervention: Animal Names Game	4/4	100.000%
7	Closing of the session: Goodbye Song	3/2	66.667%

Session 2

Date: January 31, 2013

The therapist provided 47 times of prompts and cues, and the client had 34 times of the appropriate reactions in the Session 2. The appropriate percentage of prompts and cues was 74.340%.

Table 4.71: Music Therapy Session on January 31, 2013

	Intervention/Activity	Times of Prompts/Cues & Appropriate Responses	Percentage of Prompts/Cues
1	Opening of the session: Check in and Hello Song	3/3	100.000%
2, a.	Musical Instrument Playing: Drum –Loud & Quiet	6/5	83.333%
2, b.	Musical Instrument Playing: Maraca & Egg Shakers – Instrument Movement Playing	6/3	50.000%
2, c.	Musical Instrument Playing Intervention: Claves – Instrument Movement Game	3/3	100.000%
3	Piano Time Intervention: Piano – Piano Sound	16/11	68.750%
4	Metallophone Time Intervention: Alphabet Sound	5/3	60.000%
5	“My Turn, Your Turn” Intervention: “My Turn, Your Turn”	5/3	60.000%
6	Book Time Intervention: Animal Name Game	1/1	100.000%
7	Animal Board Game Intervention: Five Frogs Board	1/1	100.000%
8	Closing of the session: Goodbye Song	1/1	100.000%

Session 3

Date: February 7, 2013

The therapist provided 193 times of prompts and cues, and the client had 133 times of the appropriate reactions in the Session 3. The appropriate percentage of prompts and cues was 68.912%.

Table 4.72: Music Therapy Session on February 7, 2013

	Intervention/Activity	Times of Prompts/Cues & Appropriate Responses	Percentage of Prompts/Cues
1	Opening of the session: Check in and Hello Song	5/5	100.000%
2, a.	Card Time Intervention: Number Card	9/9	100.000%
2, b.	Card Time Intervention: Alphabet Card	7/7	100.000%
3	Piano Time Intervention: Piano Sound	47/27	57.477%
4, a.	Musical Instrument Playing Intervention: Shakers – Instrument Movement Game	12/11	91.667%
4, b.	Musical Instrument Playing Intervention: Drum – Old McDonald	48/26	54.167%
5	Animal Board Game Intervention: Five Frogs Board	9/9	100.000%
6	Movement Time Intervention: Movement with Music	12/12	100.000%
7	Book Time Intervention: Spelling Animal Names	31/19	61.290%
8	Closing of the session: Goodbye Song	13/8	61.538%

Session 4

Date: February 28, 2013

The therapist provided 144 times of prompts and cues, and the client had 99 times of the appropriate reactions in the Session 4. The appropriate percentage of prompts and cues was 68.750%.

Table 4.73: Music Therapy Session on February 28, 2013

	Intervention/Activity	Time of Prompts/Cues & Appropriate Responses	Percentage of Prompts/Cues
1	Opening of the session: Check in and Hello Song	5/5	100.000%
2	Card Time Intervention: Alphabet Card	43/32	74.419%
3, a.	Musical Instrument Playing Intervention: Drum – Old McDonald	58/33	56.897%
3, b.	Musical Instrument Playing Intervention: Bell – Music and Color	16/13	81. 250%
4	Movement Time Intervention: Bubble	1/1	100.000%
5	Musical Instrument Playing Intervention: Instrument Movement Game	8/4	50.000%
6	Animal Board Game Time: Five Dogs Board	5/5	100.000%
7	Closing of the session: Goodbye Song	10/6	60.000%

The Result of the Research

The researcher recorded the number of prompts and cues which were provided by the therapist in the session, and the number of prompts and cues which the client

responded appropriately. Then based on these data, the researcher calculated the percentages in order to analyze the progress of the client's interaction with the therapist (Table 4.4). According to the prompts/cues and fading data, the number of prompts and cues was 47 in Session 2, which was the most minimum. However, in Session 3, there were 193 times of prompts and cues. In Session 4, the number of prompts and cues was 114. Hence, Session 4 was the fading phase.

Table 4.74: The Result of AP's Interaction with the Therapist

Research Data	The Process of Therapist-Client Interaction			Outcome
	The Therapist	The Client	The Therapist	
	1st: Number of prompts and cues	2nd: Number of appropriate responses	3rd: Number of positive reinforcement	Percentage of appropriate interaction
Baseline				
October to December 2012	N/A	N/A	N/A	50.000%
Prompts/Cues				
Session 1 January 24, 2013	67	48	48	66.667%
Session 2 January 30, 2013	47	34	34	72.340%
Session 3 February 7, 2013	193	133	133	68.912%
Fading				
Session 4 February 28, 2013	114	99	99	68.750%

Discussion – Case Two

The results of this research observation showed that AP had improvement in interaction since the assessment phase to the last day of the research observation, February 28, 2013. The curve displayed up and down movement during the baseline-prompts/cues-fading phase and maintained at around 68.831% of accuracy, which entered

the fading phase. The overall results indicated that AP's interaction with the therapist was improved (Figure 4.5).

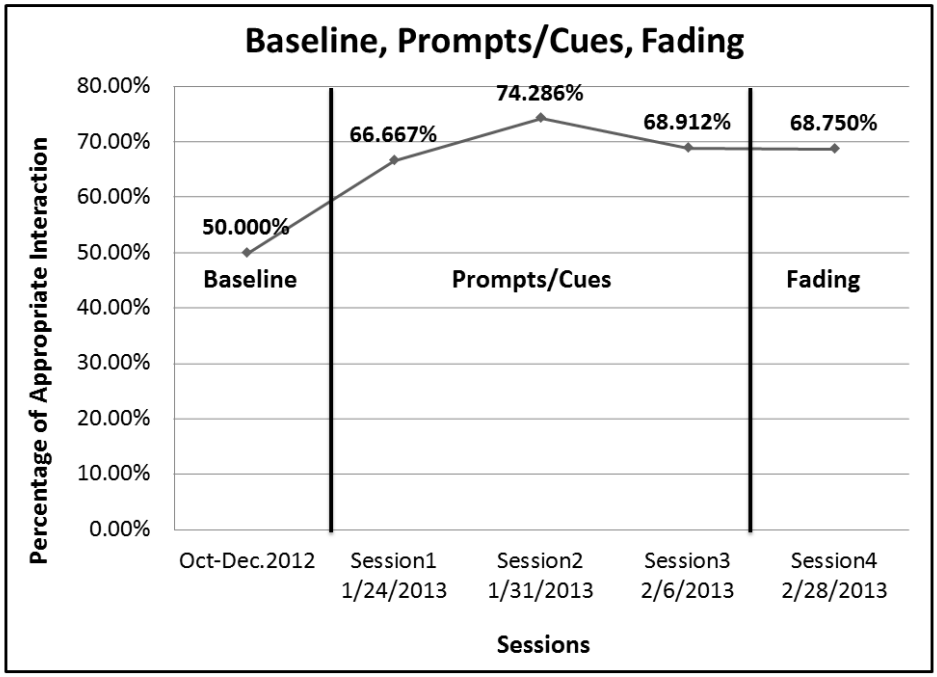

Figure 4.5: Percentage of AP's Appropriate Interaction with the Therapist

Prompts/Cues Phase

During the prompts/cues phase, in Sessions 1 and 2, overall the therapist decreased the number of prompts/cues (Figure 4.6). In Session 1, the therapist provided 67 times of prompts and cues while AP had 48 times of appropriate responses. The percentage of appropriate interaction was 66.667%. In Session 2, the therapist decreased the number of prompts and cues to 47 times while AP had 34 times of appropriate responses. AP achieved 72.286% of accuracy when interacting with the therapist. This percentage is close to 80%, which was the therapist's anticipated objective outcome for

AP's interaction skills. During the prompts/cues phase, from Session 1 to Session 2, the therapist decreased the number of prompts and cues by 20. Moreover, AP's percentage of accuracy increased by 5.673%.

However, in Session 3, the therapist provided 193 times of prompts/cues, which was an increase of 146 times compared to Session 2. Within the 193 times of prompts/cues, AP had 133 times of appropriate responses. Hence, AP's percentage of appropriate responses was 68.912%.

Fading Phase

During the fading phase, in Session 4, the therapist provided prompts and cues 114 times, which was a decrease of 79 times compared to Session 3. Moreover, AP had 99 times of appropriate responding action and thus achieved 68.750% of accuracy.

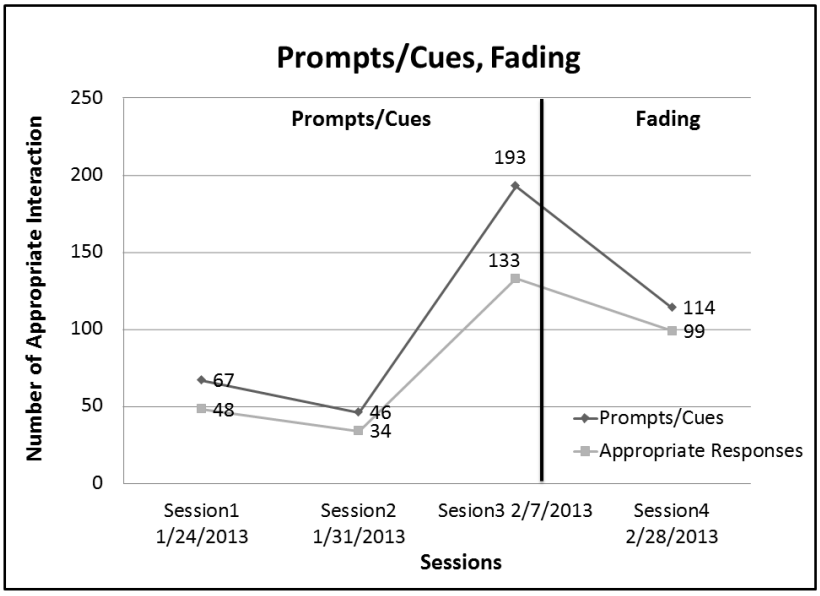

Figure 4.6: AP's Number of Prompts/Cues & Appropriate Responses

In summary, the data indicated that AP had improvement in therapist-client interaction in eye contact, communication and speech. According to the therapist's reports, AP's interaction skills had improved and achieved 69% of accuracy since the assessment periods from December 2012 to February 2013, which was consistent with the researcher's observation study. Hence, the outcome showed that AP had positive effects of prompts and fading procedures, as evidenced by AP's increase in his interaction with the therapist.

The Researcher's Observation

From the researcher's four-session observation, AP showed improvements on social interaction skills, expressive communication, and speech. In Sessions 1, 2 and 3, AP was able to say the order of the alphabets from A to E. Then in Session 4, as the therapist reported and the researcher observed, AP was able to say all the alphabet from A to Z. The therapist promoted the goals of activity intervention for AP in order to improve AP's expressive communication.

Starting from Sessions 3 and 4, the therapist started to engage AP in saying the order of the alphabets from A to Z. During the Card Time Intervention –Alphabet Time Activity in Session 4, AP had 74.419% of accuracy. In addition, the therapist added two more new activity interventions, Musical Instrument Playing Intervention –Old McDonald Activity and Book Time Intervention –Spelling Animal Names, for AP in order to improve AP's speech and expressive communication. Table XX shows the new interventions in order to promote AP's speech and expressive communication.

Table 4.75: The New Interventions for AP in Session 3 and Session 4

	Session 3	Session 4	Session 3	Session4	Session 3
Activity Intervention	Musical Instrument Playing Intervention – Old McDonald Activity		Card Time Intervention – Alphabet Time Activity		Book Time Intervention – Spelling Animal Names
Time	413 seconds	791 seconds	138 seconds: A to E	760 seconds: A to Z	411 seconds
Number of Prompts/Cues	48	58	7	43	31
Number of Appropriate Responses	26	33	7	32	19
Percentage of Appropriate Interaction	54.167%	56.897%	100.000%	74.419%	61.290%

The Research Observation Data – Case Three

Client: FL

Music Therapist: LH, MT-BC

Date: February 6, 2013

1. Opening of the session

Activities: Check in and Hello Song

Table 4.76: Check in and Hello Song Activity Anecdotal Report on February 6, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	FL's responses (appropriate: O; inappropriate: X)	FL's responding actions	Time maintained (seconds)	Positive Reinforcement (Yes: Y/ No: N)
1	Verbal Prompt	1	O	FL stopped the negative behaviors	2	Y
2	Visual Prompt& Verbal Prompt	2	O	Eye contact	13	Y
3	Musical Cue	2	O	Responded to the therapist appropriately	3	Y

2. Musical Instrument Playing Intervention

Activity: FL Fine Musician with Piano – Piano with Number

Table 4.77: Piano with Number Activity Anecdotal Report on February 6, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	FL's responses (appropriate: O; inappropriate: X)	FL's responding actions	Time maintained (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Visual Prompt	0	X	No eye contact but responded to the therapist	0	N
2	Visual	1	O	Eye contact	5	Y

	Prompt			and responded to the therapist		
3	Vocal Cue	1	O	Eye contact and responded to the therapist	6	Y
4	Vocal Cue	1	O	Eye contact and responded to the therapist	5	Y
5	Vocal Cue	1	O	Eye contact and responded to the therapist	6	Y
6	Vocal Cue	1	O	Eye contact and responded to the therapist	3	Y
7	Vocal Cue	1	O	Eye contact and responded to the therapist	4	Y
8	Musical Cues* 5	1	O	FL toward his body away with the therapist and no any eye contact	5	Y
9	Vocal Cue	1	O	Eye contact and responded to the therapist	4	Y
10	Musical Cues *3	1	O	Eye contact and responded to the	22	Y

				therapist		
11	Vocal Cue*2	1	O	Eye contact and responded to the therapist	10	Y
12	Visual Prompts	1	O	Eye contact and responded to the therapist	3	Y
13	Physical Prompt & Vocal Cue	0	X	FL toward his body away with the therapist and no any eye contact	0	N
14	Physical Prompt & Vocal Cue	0	X	FL toward his body away with the therapist and no any eye contact	0	N
15	Physical Prompt & Vocal Cue	0	X	FL toward his body away with the therapist, no any eye contact, and responded to the therapist, “No touch” (FL mumbled)	0	N
16	Vocal Cue	1	O	FL toward his body back and had eye contact with the	3	Y

				therapist		
17	Visual Prompt	1	O	Eye contact and responded to the therapist	3	Y
18	Musical Cues*3	1	O	Eye contact and responded to the therapist	13	Y

3. Book Time Intervention

Activity: Animal Book

Table 4.78: Animal Book Activity Anecdotal Report on February 6, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	FL's responses (appropriate: O; inappropriate: X)	FL's responding actions	Time maintained (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Cue& Verbal Prompts	1	O	Playing	20	Y
2	Verbal Prompt	1	O	Eye contact and playing	10	Y
3	Vocal Cue	1	O	Playing	12	Y
4	Musical Cue& Vocal Cue	1	O	Playing	10	Y
5	Vocal Cue	1	O	Playing	20	Y
6	Visual Prompt	0	X	Looking around the session room and no playing	0	N
7	Verbal Prompt	0	X	Looking around the	0	N

				session room and no playing		
8	Visual Prompt & Verbal Prompt	0	X	Looking around the session room and no playing	0	N
9	Verbal Prompt	0	X	Looking around the session room and no playing	0	N
10	Verbal Prompt	1	O	Eye contact and playing	8	Y
11	Musical Cues*2	1	O	Playing	8	Y
12	Musical Cues*3	1	O	Playing	9	Y
13	Musical Cues*2	1	O	Playing	11	Y
14	Musical Cue	1	O	Playing	20	Y
15	Visual Prompts	0	X	Looking around the session room and no playing	0	N
16	Visual Prompt& Vocal Cue	1	O	Eye contact and playing	20	Y
17	Musical Cue	0	X	Looking around the session room and no playing	0	N
18	Vocal Cue	1	O	Eye contact and playing	23	Y

4. Musical Instrument Playing Intervention

Activities:

a. FL Fine Musician with Ocean Drum – Loud & Quiet and Stop & Go

Table 4.79: Loud & Go and Stop & Go Activity Anecdotal Report on February 6, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	FL's responses (appropriate: O; inappropriate: X)	FL's responding actions	Time maintained (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Vocal Cue	0	X	Looked around the session room	0	N
2	Vocal Cue	0	X	Looked around the session room	0	N
3	Vocal Cue & Verbal Cue	1	O	Eye contact and responded the therapist's question	5	Y
4	Visual Prompt	0	X	No eye contact while talking with the therapist	0	N
5	Visual Prompt	0	X	No eye contact while talking with the therapist	0	N
6	Visual Prompt	0	X	No eye contact and kept talking	0	N
7	Visual Prompt& Verbal Cue	1	O	Eye contact while responding to the therapist's request	10	Y
8	Verbal	1	O	Focused on	8	Y

	Prompt			playing and looked at the ocean drum		
9	Verbal Prompt	1	O	Played the ocean drum appropriately	3	Y
10	Verbal Prompt	1	O	Played the ocean drum appropriately	3	Y
11	Musical Cue	1	O	FL responded the therapist.	7	Y

b. FL Fine Musician with Tambourine – Loud & Quiet and Stop & Go

Table 4.80: Loud & Go and Stop & Go Activity Anecdotal Report on February 6, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	FL's responses (appropriate: O; inappropriate: X)	FL's responding actions	Time maintained (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Vocal Cue	0	X	No eye contact and no response	0	N
2	Vocal Cue	0	X	No eye contact while talking	0	N
3	Verbal Cue	1	O	Eye contact and responded to the therapist appropriately	4	Y
4	Verbal Cue	0	X	No eye contact and responded to	0	N

				the therapist inappropriately		
5	Verbal Prompt	1	X	Responded to the therapist without eye contacts	0	N
6	Verbal Prompt	1	X	Responded to the therapist without eye contact	0	N
7	Visual Prompt& Vocal Cue	1	X	Responded to the therapist without eye contact	0	N
8	Verbal Prompt& Visual Prompt	1	O	Eye contact and responded to the therapist appropriately	4	Y
9	Musical Cue & Verbal Prompt	1	O	Eye contact and playing	6	Y
10	Musical Cue	1	O	Eye contact and playing	3	Y
11	Verbal Prompt	1	O	Eye contact and playing	1	Y

c. FL Fine Musician with Sound Shapes – Music with Number & Music and Color

Table 4.81: Music with Number & Music and Color Activity Anecdotal Report on February 6, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	FL's responses (appropriate: O; inappropriate: X)	FL's responding actions	Time maintained (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Vocal Cue	1	X	Responded to	2	N

				the therapist without eye contact		
2	Vocal Cue	1	O	Eye contact and responded to the therapist appropriately	3	Y
3	Verbal Prompt	0	X	Walked around the session room and sat down on the floor rather than chair	0	N
4	Verbal Prompt	0	X	Walked around the session room and then leaned on the window of observation room	0	N
5	Verbal Prompt	0	X	FL did not respond to the therapist	0	N
6	Verbal Prompt	2	O	Sat down on his chair.	4	Y
7	Verbal Prompt	1	X	Playing without following the therapist's direction.	2	N
8	Verbal Prompt & Physical Prompt	1	O	Responded to the therapist appropriately and followed the therapist's directions	5	Y
9	Verbal Prompt	2	O	Responded to the therapist appropriately and followed the	8	Y

				therapist's directions		
10	Verbal Prompt & Physical Prompt	1	O	Responded to the therapist appropriately and followed the therapist directions	5	Y
11	Verbal Prompt	1	O	Eye contact and responded to the therapist	4	Y
12	Visual Prompt	1	O	Eye contact	3	Y

5. Book Time Intervention

Activity: "The Old Man"

Table 4.82: "The Old Man" Activity Anecdotal Report on February 6, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	FL's responses (appropriate: O; inappropriate: X)	FL's responding actions	Time maintained (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Vocal Cue	0	X	Looked around the session room and did not responded to the therapist	0	N
2	Vocal Cue	0	X	Looked around the session room and did not responded to the therapist	0	N
3	Vocal Cue	0	X	Looked around the session room	0	N

				and did not responded to the therapist		
3	Verbal Cue	2	O	Responded to the therapist without eye contact	3	Y
4	Visual Prompt & Verbal Cue	1	O	Responded to the therapist appropriately with eye contact	4	Y

6. Closing of the session

Activity: Goodbye Song

Table 4.83: Goodbye Song Activity Anecdotal Report on February 6, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	FL's responses (appropriate: O; inappropriate: X)	FL's responding actions	Time maintained (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Cue	1	O	Eye contact and responded to the therapist appropriately	2	Y
2	Musical Cue	1	O	Eye contact and responded to the therapist	3	Y

Date: February 13, 2013

1. Opening of the session Intervention

Activities: Check in and Hello Song

Table 4.84: Check in and Hello Song Activity Anecdotal Report on February 13, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	FL's responses (appropriate: O; inappropriate: X)	FL's responding actions	Time maintained (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Cue	1	O	Eye contact and responded to the therapist appropriately	3	Y
2	Musical Cue	3	O	Responded to the therapist appropriately	1	Y
3	Verbal Cue& Musical Cue	1	O	Responded to the therapist appropriately	5	Y
4	Visual Prompt	1	O	Responded to the therapist appropriately	8	Y

2. Musical Instrument Playing Intervention

Activity:

a. FL Fine Musician with Piano – Piano with Number

Table 4.85: Piano with Number Activity Anecdotal Report on February 13, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	FL's responses (appropriate: O; inappropriate: X)	FL's responding actions	FL's time maintained (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Verbal Cues*10& Musical Cues*3	1	O	Eye contact and responded to the therapist	8	Y
2	Verbal Cue	1	O	Eye contact and played	3	Y

3	Verbal Prompt	1	O	Eye contact and responded to the therapist	3	Y
4	Vocal Cue	1	X	Responded to the therapist the wrong answer and no eye contact	2	N
5	Vocal Cue	1	X	Responded to the therapist the wrong answer and no eye contact	3	N
6	Vocal Cue	1	O	Eye contact and responded to the therapist	3	Y
7	Verbal Cues* 4 &Verbal Prompt	1	O	Eye contact and responded to the therapist	3	Y
8	Vocal Cue	1	O	Eye contact and responded to the therapist	3	Y
9	Verbal Cues* 10	1	O	Eye contact and responded to the therapist	11	Y
10	Vocal Cue	1	O	Eye contact and responded to the therapist	4	Y
11	Verbal Cues*6 & Verbal Prompt	1	O	Eye contact and responded to the therapist	7	Y
12	Visual Prompts*2	1	O	Eye contact	6	Y
13	Verbal Prompt	1	O	Eye contact and responded to	2	Y

				the therapist		
14	Musical Cues*3	1	O	Eye contact and responded to the therapist	3	Y
15	Vocal Cue	1	O	Eye contact and responded to the therapist	4	Y
16	Visual Prompt& Verbal Cue	1	O	Eye contact and responded to the therapist	3	Y
17	Musical Cues*3 & Verbal Prompt	1	O	Eye contact and responded to the therapist	2	Y
18	Vocal Cue	1	X	Responded to the therapist but no eye contact	3	N
19	Verbal Cue	1	O	Eye contact and responded to the therapist	4	Y
20	Verbal Cues*6 & Musical Cues	1	O	Eye contact and responded to the therapist	3	Y

3. Movement Intervention

Activity:

a. Movement with Scarf

Table 4.86: Movement with Scarf Activity Anecdotal Report on February 13, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	FL's responses (appropriate: O; inappropriate:	FL's responding actions	FL's time maintained (seconds)	Positive Reinforcement (Yes: Y;

			X)			No: N)
1	Vocal Cue	1	X	Responded to the therapist without eye contact	3	N
2	Vocal Cue& Verbal Cue	0	X	No response and no any eye contact	0	N
3	Vocal Cue	0	X	No response and no any eye contact	0	N
4	Vocal Cue& Physical Prompt	1	X	Responded to the therapist the wrong answer and no eye contact	2	N
5	Physical Prompt &Visual Prompt & Verbal Cue	1	O	Eye contact and responded to the therapist appropriately	3	Y
6	Verbal Cue	0	X	No response	0	N
7	Verbal Cue	0	X	No responses	0	N
8	Verbal Cue	1	O	Eye contact and responded to the therapist	8	Y
9	Verbal Prompt	1	O	Eye contact and responded to the therapist	9	Y
10	Verbal Cue & Physical Prompt	0	X	No response	0	N
11	Verbal Cues& Physical Prompts	0	X	No responses	7	N
12	Verbal Cue & Physical Prompt	1	O	Eye contact and responded to the therapist	7	Y
13	Verbal Cue&	0	X	No response	0	N

	Physical Prompt					
14	Verbal Cue& Physical Prompt	0	X	No responses	0	N
15	Verbal Cue& Physical Prompt	1	O	Eye contact and responded to the therapist	9	Y
16	Verbal Cue	0	X	No response	0	N
17	Verbal Cue	1	O	Eye contact and responded to the therapist	6	Y
18	Vocal Cue	1	O	Responded to the therapist and followed the directions appropriately	4	Y

4. Musical Instrument Playing Intervention

Activities:

a. FL Fine Musician with Palm Drum – Instrument Movement Game

Table 4.87: Instrument Movement Game Activity Anecdotal Report on February 13, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	FL's responses (appropriate: O; inappropriate: X)	FL's responding actions	Time maintained (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Vocal Cue	0	X	No responses and looked around the session room	0	N
2	Vocal Cue	1	X	Responded to	0	N

				the therapist without any eye contact		
3	Verbal Cue	1	O	Responded to the therapist appropriately with eye contact	3	Y
4	Vocal Cue	0	X	Responded to the therapist inappropriately without eye contact	0	N
5	Visual Prompt & Verbal Cue	1	O	Eye contact and responded to the therapist appropriately	5	Y
6	Musical Cue	1	X	Playing the palm drum inappropriately	2	N
7	Musical Cue	1	O	Playing the palm drum appropriately	8	Y
8	Musical Cue	1	X	Looked around the session room and no playing the palm drum	8	N
9	Musical Cue	1	O	Playing the palm drum appropriately	14	Y
10	Musical Cue	1	X	Playing the palm drum inappropriately	3	N
11	Musical Cue	1	O	Playing the palm drum appropriately	7	Y
12	Musical Cue	1	X	Playing the palm drum inappropriately	4	N

13	Musical Cue	1	O	Playing the palm drum	16	Y

b. FL Fine Musician with Kalimba – Fast & Slow and Stop & Go

Table 4.88: Fast & Slow and Stop & Go Activity Anecdotal Report on February 13, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	FL's responses (appropriate: O; inappropriate: X)	FL's responding actions	Time maintained (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Vocal Cue	0	X	No responses and looked around the session room	0	N
2	Vocal Cue	1	X	Responded to the therapist without any eye contact	0	N
3	Verbal Cue	0	X	No responses and looked around the session room	0	N
4	Vocal Cue	1	O	Eye contact and responded to the therapist appropriately	5	Y
5	Verbal Prompt	1	O	Sat down on the chair appropriately	4	Y
6	Verbal Prompt	1	O	Playing the kalimba appropriately	8	Y
7	Verbal Prompt& Musical Cue	1	O	Playing the kalimba appropriately	5	Y
8	Verbal Prompt & Musical Cue	1	O	Playing the kalimba appropriately	4	Y

9	Verbal Prompt & Musical Cue	1	O	Playing the kalimba appropriately	3	Y
10	Verbal Prompt	0	X	Inappropriate behaviors		N
11	Verbal Prompt	0	X	Inappropriate behavior		N
12	Verbal Prompt	1	O	Responded to the therapist appropriately with eye contact	4	Y
13	Verbal Cue	1	O	Responded to the therapist appropriately with eye contact	3	Y

5. Movement Intervention

Activity:

a. Movement with Scarf

Table 4.89: Movement with Scarf Activity Anecdotal Report on February 13, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	FL's responses (appropriate: O; inappropriate: X)	FL's responding actions	FL's time maintained (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Vocal Cue	5	X	Responded to the therapist inappropriately	9	N
2	Verbal Prompt	4	X	Responded to the therapist inappropriately	5	N
3	Verbal Prompt	1	O	Responded to the therapist	3	Y

				appropriately		
4	Vocal Cue	1	X	Responded to the therapist without the eye contact	3	N
5	Vocal Cue	1	X	FL responded to the therapist inappropriately	0	N
6	Visual Prompt	1	O	FL responded to the therapist appropriately.	4	Y
7	Vocal Cue	1	O	FL looked at the therapist.	3	Y
8	Verbal Prompt	1	O	FL responded to the therapist appropriately.	3	Y
9	Verbal Prompt& Visual Prompt	1	O	FL responded to the therapist appropriately	3	Y
10	Verbal Prompt	0	X	FL did not respond to the therapist	0	N
11	Verbal Prompt	0	X	FL did not respond to the therapist	0	N
12	Verbal Prompt	0	X	FL did not respond to the therapist	0	N
13	Verbal Prompt& Physical Prompt	1	O	Responded to the therapist appropriately	6	Y
14	Verbal Prompt	0	X	FL did not respond to the therapist	0	N
15	Verbal Prompt	0	X	FL did not respond to the therapist	0	N

16	Verbal Prompt	0	X	FL did not respond to the therapist	0	N
17	Verbal Prompt	0	X	FL did not respond to the therapist	0	N
18	Verbal Cue& Physical Prompt	1	O	Responded to the therapist appropriately with eye contact	2	Y

6. Musical Instrument Playing Intervention

Activities

a. FL Fine Musician with Shakers – Stop & Go and Fast & Slow

Table 4.90: Stop & Go and Fast & Slow Activity Anecdotal Report on February 13, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	FL's responses (appropriate: O; inappropriate: X)	FL's responding actions	FL's time maintained (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Vocal Cue	0	X	No eye contact. FL did not respond to the therapist.	0	N
2	Vocal Cue	0	X	No eye contact. FL did not respond to the therapist.	0	N
3	Vocal Cue	1	O	FL responded to the therapist with eye contact. But the answer was incomplete.	3	Y

4	Verbal Prompt	1	X	FL responded to the therapist without eye contact.	3	N
5	Visual Prompt	1	O	FL responded to the therapist appropriately	2	Y
6	Musical Cue	1	O	Playing appropriately	4	Y
7	Musical Cue	1	O	Playing appropriately	3	Y
8	Musical Cue	1	O	Playing appropriately	12	Y
9	Visual Prompt	1	O	FL responded to the therapist appropriately.	4	Y

b. FL Fine Musician with Maracas – Loud & Quiet, Fast & Slow, and Stop & Go

Table 4.91: Loud & Quiet and Stop & Go Activity Anecdotal Report on February 13, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	FL's responses (appropriate: O; inappropriate: X)	FL's responding actions	FL's time maintained (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Vocal Cue	1	O	FL responded to the therapist appropriately	4	Y
2	Visual Prompt	1	O	FL responded to the therapist appropriately	3	Y

3	Musical Cue	1	O	Playing maracas appropriately	7	Y
4	Musical Cue	1	O	Playing maracas appropriately	3	Y
5	Visual Prompt	1	O	FL responded to the therapist appropriately	6	Y
6	Musical Cue	1	O	Playing appropriately	13	Y
7	Musical Cue	2	O	Playing appropriately	9	Y
8	Musical Cue	2	O	Playing appropriately	3	Y
9	Musical Cue	1	O	Playing maracas appropriately	7	Y
10	Musical Cue	1	O	Playing maracas appropriately	11	Y

7. Book Time Intervention

Activity: "The Old Man"

Table 4.92: "The Old Man" Activity Anecdotal Report on February 13, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	FL's responses (appropriate: O; inappropriate: X)	FL's responding actions	FL's time maintained (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Musical Cue	1	O	FL responded to the therapist appropriately	4	Y
2	Musical Cue	1	O	FL responded to the therapist	4	Y

				appropriately		
3	Musical Cue	1	O	FL responded to the therapist appropriately	5	Y
4	Musical Cue	1	O	FL responded to the therapist appropriately	8	Y
5	Musical Cue	3	O	FL responded to the therapist appropriately	8	Y

8. Closing of the session

Activity: Goodbye Song

Table 4.93: Goodbye Song Activity Anecdotal Report on February 13, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	FL's responses (appropriate: O; inappropriate: X)	FL's responding actions	FL's time maintained (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Musical Cue	1	O	Eye contact	2	Y
2	Musical Cue	1	O	Eye contact	3	Y
3	Visual Prompt	1	X	FL did not respond to the therapist appropriately.	1	N
4	Verbal Cue	1	O	FL responded to the therapist appropriately.	3	Y
5	Musical Cue	1	O	Eye contact	2	Y
6	Musical Cue	1	O	Eye contact	2	Y

Date: February 27, 2013

1. Opening of the session

Activity: Check in and Hello Song

Table 4.94: Check in and Hello Song Activity Anecdotal Report on February 27, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	FL's responses (appropriate: O; inappropriate: X)	FL's responding actions	FL's time maintained (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Musical Cue	2	O	Eye contact and responded to the therapist appropriately	3	Y
2	Verbal Cue	1	O	Eye contact and responded to the therapist appropriately	3	Y

2. Musical Instrument Playing Intervention

Activity:

a. FL Fine Musician with Piano – Piano with Number

Table 4.95: Piano with Number Activity Anecdotal Report on February 27, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	FL's responses (appropriate: O; inappropriate: X)	FL's responding actions	FL's time maintained (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Vocal Cue	1	O	Eye contact	4	Y

				and responded to the therapist		
2	Verbal Cue	1	O	Eye contact and responded to the therapist	5	Y
3	Verbal Cue* 10	1	O	Eye contact and responded to the therapist	18	Y
4	Verbal Prompt	1	O	Eye contact and used his hands to make zero and one	4	Y
5	Vocal Cue	1	O	Eye contact and responded to the therapist	3	Y
6	Verbal Cue	1	O	Eye contact and repeated the sentence completely	5	Y
7	Verbal Prompt	1	O	Eye contact and used his hands to make zero and one	3	Y
8	Vocal Cue	0	X	Looked around the session room	0	N
9	Vocal Cue	1	O	Eye contact and responded to the therapist	3	Y
10	Vocal Cue	1	O	Eye contact and responded to the therapist	3	Y
11	Verbal Cue	1	X	No eye contact but repeated the sentence completely	6	N

				and quietly		
12	Visual Prompt & Verbal Cue	1	O	Eye contact and repeated the sentence completely	4	Y
13	Verbal Cues* 10 & Verbal Prompt	1	O	Eye contact and used his heads to make zero and one	2	Y
14	Vocal Cue	1	O	Eye contact and responded to the therapist	4	Y
15	Visual prompt & Verbal cue	1	O	Eye contact and responded to the therapist	7	Y
16	Vocal Cue	1	O	Eye contact and responded to the therapist	3	Y
17	Verbal Cues* 5& Verbal Prompt	1	O	Eye contact and used his hands to make zero and one	3	Y
18	Vocal Cue	1	O	Eye contact and responded to the therapist quietly	2	Y
19	Verbal Cue	1	O	Eye contact and responded to the therapist	5	Y
20	Vocal Cue	1	O	Eye contact and responded to the therapist	4	Y
21	Physical Prompt & Vocal Prompt	3	O	Responded to the therapist and read the number order	27	Y
22	Verbal	1	O	Responded to	5	Y

	Prompt			the therapist		
23	Vocal Cue	1	O	Eye contact and responded to the therapist	7	Y
24	Verbal Prompt	1	O	Eye contact and responded to the therapist	4	Y
25	Verbal Prompt	0	X	FL did not follow the therapist' direction	0	N
26	Verbal Prompt	0	X	FL did not follow the therapist's direction	0	N
27	Physical Prompt/ Verbal Prompt	1	O	Responded to the therapist	1	Y

b. FL Fine Musician with Tambourine – Loud & Quiet, Fast & Slow and Stop & Go

Table 4.96: Loud & Quiet, Fast & Slow and Stop & Go Activity Anecdotal Report on February 27, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	FL's responses (appropriate: O; inappropriate: X)	FL's responding actions	FL's time maintained (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Vocal Cue	0	X	Looked around the session room and the table	0	N
2	Vocal Cue	1	O	Eye contact and responded to the therapist	4	Y

3	Physical Prompt	1	O	Followed the therapist's direction	5	Y
4	Musical Cue & Verbal Prompt	1	O	Eye contact and play the tambourine appropriately	8	Y
5	Musical Cue& Verbal Prompt	1	O	Eye contact and play the tambourine appropriately	4	Y
6	Musical Cue& Verbal Prompt	1	O	Eye contact and play the tambourine appropriately	7	Y
7	Musical Cue & Verbal Prompt	1	O	Eye contact and play the tambourine appropriately	5	Y
8	Musical Cue & Verbal Prompt	1	O	Eye contact and play the tambourine appropriately	3	Y
9	Musical Cue& Verbal Prompt	1	O	Eye contact and play the tambourine appropriately	7	Y
10	Musical Cue& Verbal Prompt	1	O	Eye contact and play the tambourine appropriately	6	Y

3. Movement Time

Activity:

a. Ball

Table 4.97: Ball Activity Anecdotal Report on February 27, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	FL's responses (appropriate: O; inappropriate: X)	FL's responding actions	FL's time maintained (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Vocal Cue	0	X	Looked around the session room and the table	0	N
2	Vocal Cue	1	O	Eye contact	2	Y
3	Visual Prompt& Verbal Cue	1	O	Eye contact and responded to the therapist appropriately	4	Y
4	Verbal Prompt	0	X	Looked around the session room and did not responded to the therapist	0	N
5	Verbal Prompt	0	X	Looked around the session room and did not responded to the therapist	0	N

6	Verbal Prompt	0	X	Looked around the session room and did not responded to the therapist	0	N
7	Verbal Prompt/ Physical Prompt	1	O	Eye contact with the therapist	1	Y
8	Verbal Prompt	0	X	Quietly responded to the therapist	0	N
9	Verbal Cue	1	O	Responded to the therapist appropriatel y	3	Y

4. Musical Instrument Playing Intervention

Activity: FL Fine Musician with Ocean Drum – Loud & Quiet

Table 4.98: Loud & Quiet Activity Anecdotal Report on February 27, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	FL's responses (appropriate: O; inappropriate: X)	FL's responding actions	FL's time maintained (seconds)	Positive Reinfor cement (Yes: Y; No: N)
1	Vocal Cue	1	O	Eye contact with the therapist	2	Y
2	Verbal Prompt	1	O	Eye contact and played the ocean drum appropriatel	4	Y

				y		
3	Musical Cue	1	O	Played appropriately	22	Y
4	Musical Cue	1	O	Played appropriately	125	Y

5. Movement Intervention

Activity: Beanbag

Table 4.99: Beanbag Activity Anecdotal Report on February 27, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	FL's responses (appropriate: O; inappropriate: X)	FL's responding actions	FL's time maintained (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Vocal Cue	1	O	Eye contact with the therapist	4	Y
2	Physical Prompt	1	O	Responded to the therapist and played appropriately	5	Y
3	Verbal Prompt	0	X	No eye contact and walked around the session room	0	N
4	Physical Prompt& Verbal Prompt	1	O	Walked back to the therapist	4	Y
5	Verbal Prompt	1	O	Eye contact and responded to the therapist	4	Y

6. Musical Instrument Playing Intervention

Activity: FL Fine Musician with Shakers – Fast & Slow and Stop & Go

Table 4.100: Fast & Slow and Stop & Go Activity Anecdotal Report on February 27, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	FL's responses (appropriate: O; inappropriate: X)	FL's responding actions	FL's time maintained (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Vocal Cue	1	O	Eye contact with the therapist	2	Y
2	Verbal Cue	1	O	Responded to the therapist and played appropriately	4	Y
3	Musical Cue	1	O	Played appropriately	126	Y

7. Closing of the Session

Activity: Goodbye song

Table 4.101: Goodbye Song Activity Anecdotal Report on February 27, 2013

The Process of Therapist-Client Interaction						
	Antecedent	Behavior			Consequence	
	The therapist's cues and prompts	Time lapse after cues and prompts (seconds)	FL's responses (appropriate: O; inappropriate: X)	FL's responding actions	FL's time maintained (seconds)	Positive Reinforcement (Yes: Y; No: N)
1	Musical Cue	1	O	Eye contact and responded to the therapist	2	Y

				appropriately		

Result – Case Three

Case Three – (FL)

Therapist–(LH), MT-BC

Assessment of Baseline Behavior Data

Assessment

FL's music therapist, LH, provided the parental interview and therapist's observation from June 13, 2012 to August 15, 2012, which consists of eight weeks of music therapy assessment sessions. It is found that the result of the therapist's assessment is correlated with the parents' interpretation. In those eight weeks of music therapy assessment sessions, FL was very verbal. He showed the most interest in books intervention and number interventions which are positive reinforcement for FL; however, the therapist reported that these interventions would not be provided near the end of each session since FL may become fixated or distracted.

Strength

FL has good language skills as evidenced by his clear phonation and enunciation, as well as good verbal expressions. In addition, FL has good gross and fine motor skills. He demonstrated the ability to walk and move through the environment easily. During the movement intervention, he was able to create and imitate movements. FL appears to have

no problem playing the keys by alternating his fingers. Moreover, FL can spell animal names such as “monkey,” “lion,” “camel,” and “horse”.

Improvement

FL has a deficit in social interaction skills. He was unable to maintain eye contact for the duration of time without multiple prompts. However, based on the music therapist’s observation, FL has improved his eye contact toward the end of the assessment period. Moreover, FL has a deficit in concentration as evidenced by fixating on counting objects in un-relating number intervention.

Objectives

As indicated above, FL’s condition is classified as mild with cognitive, communication, social interaction, and physical skills. FL’s therapist measures FL’s target behaviors and improvement in an effort to address his social interaction skills and cognitive skills by February 2013.

Outcome #1: FL will initiate and maintain eye contact for the duration of verbal expression in 75% of trials with no more than two prompts by February 2013.

Outcome #2: FL will redirect to new tasks in 75% of trials with no more than one prompt by February 2013.

Three-Month-Quarterly Therapy Progression

July to September 2012

FL appeared to smile in every music therapy session throughout the three-month progression. FL also seemed to enjoy music as evidenced by his singing along and playing the drum set. Music is a good motivation for FL to address his social interaction skills and cognitive skills. In those three months, the frequency of prompts in most trials to maintain FL's eye contact decreased. However, he was unable to initiate eye contact without verbal and visual prompts. In addition, FL was able to redirect to new tasks without prompt, but he was distracted by the clock and was unable to concentrate.

Progression outcomes #1: FL arrived at initiating and maintaining eye contact for the duration of verbal expression in 55% of trials with no more than two prompts.

Progression outcomes #2: FL arrived at redirecting to new tasks in 64% of trails with no more than one prompt.

October to December 2012

FL still appeared to smile in every music therapy session during the three month progression. FL enjoyed music as evidenced by his singing along and playing the drum set and bells. FL had improved in maintaining eye contact compared to the previous three-month progression. Although he still needed one verbal and visual prompt in most trails in order to initiate eye contact. In addition, the percentage of trails for redirecting to new tasks with no more than one prompt had decreased from 64 % to 42%. However, one prompt still needed to be provided before the new tasks.

Progression outcomes #1: FL arrived at initiating and maintaining eye contact for the duration of verbal expression in 57% of trials with no more than two prompts.

Progression outcomes #2: FL arrived at redirecting to new tasks in 42% of trails with no more than one prompt.

As above indicated mentioned, the therapist assessed FL's need to establish two objectives for FL: maintaining eye contact and decreasing the frequencies of prompt. The research utilized the outcomes of maintaining eye contact to be the baseline data to analyze FL's interaction with the therapist. Figure 4.7 illustrates the baseline of FL's interaction progression.

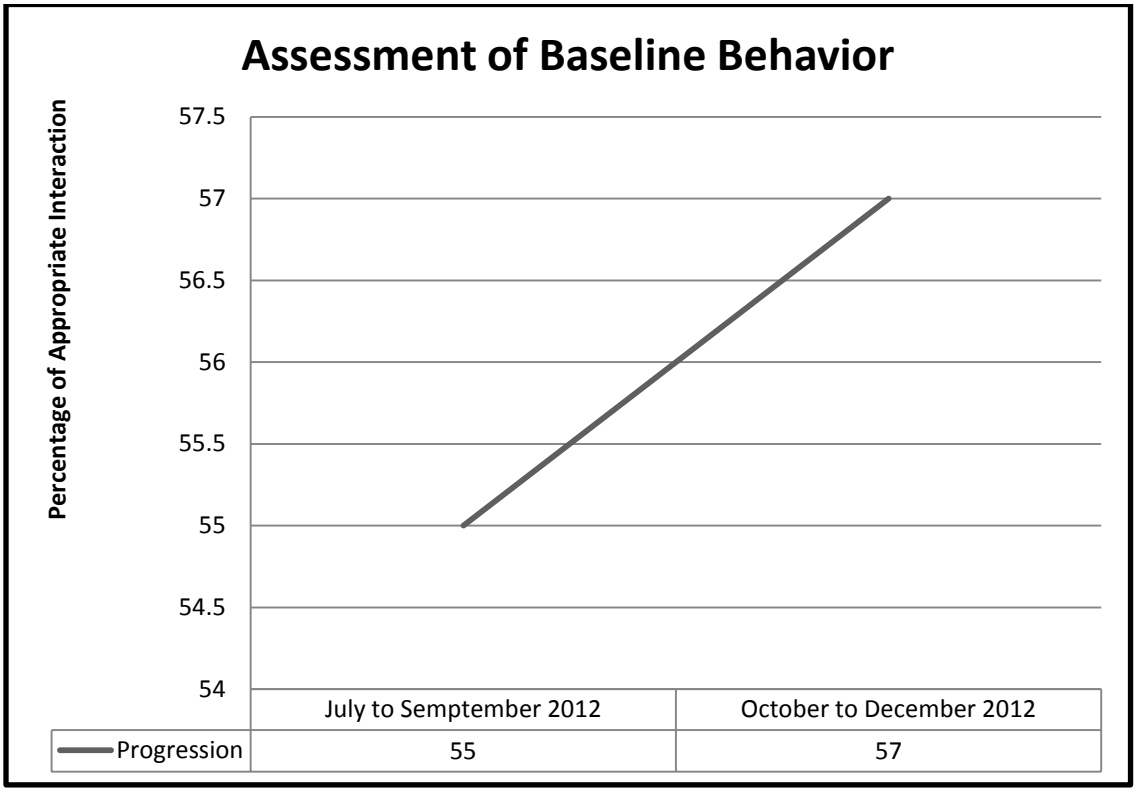

Figure 4.7: The Baseline of FL's Percentage of Interaction Progress

Prompts/Cues and Fading Data

According to the videotape recording, the research recorded the times of prompts and cues which were provided by the therapist, and the client's appropriate responses. For the client case three, the therapist usually conducted 8 to 10 activity interventions in the session. Based on the time duration of each activity interaction, the times of prompts and cues were variable. The client's mother usually was present in the observation room and sometimes waited at outside of the session room as reported by the client's therapist, (LH). Throughout the research observations, his mother was absent twice in Session 2 and Session 3.

Additionally, conversion of the prompts and cues from times to percentages was provided to analyze the client's the rates of successful reactions.

Session 1

Date: February 6, 2013

The therapist provided 109 times of prompts and cues, and the client had 79 times of the appropriate reactions in the Session 1. The appropriate percentage of prompts and cues was 72.477%.

Table 4.102: Music Therapy Session on February 6, 2013

	Intervention/Activity	Times of Prompts/Cues & Appropriate Responses	Percentage of Prompts/Cues
1	Opening of the session: Check in and Hello Song	3/3	100.000%
2	Instrument Playing Intervention: FL Fine Musician with Piano – Piano with Number	18/16	88.889%
3	Book Time Intervention: Animal Book	18/12	66.667%
4	Instrument Playing Intervention: FL Fine Musician with Ocean Drum – Loud & Quiet and Stop & Go	11/6	54.545%
5	Instrument Playing Intervention: FL Fine Musician with Tambourine – Loud & Quiet and Stop & Go	11/5	45.454%
6	Instrument Playing Intervention: FL Fine Musician with Sound Shapes – Music with Number	12/7	58.333%
7	Book Time Intervention: “The Old Man”	4/2	50.000%
8	Closing of the session	2/2	100.000%

Session 2

Date: February 13, 2013

The therapist provided 178 times of prompts and cues, and the client had 138 times of the appropriate reactions in the Session 2. The appropriate percentage of prompts and cues was 77.528%.

Table 4.103: Music Therapy Session on February 13, 2013

	Intervention/Activity	Times of Prompts/Cues & Appropriate Responses	Percentage of Prompts/Cues
1	Opening of the session: Check in and Hello Song	4/4	100.000%
2	Instrument Playing Intervention: FL Fine Musician with Piano – Piano with Number	20/17	85.000%
3	Movement Intervention: Movement with Scarf	18/7	38.889%
4	Instrument Playing Intervention: FL Fine Musician with Palm Drum – Instrument Movement Game	13/6	46.153%
5	Instrument Playing Intervention: FL Fine Musician with Kalimba – Fast & Slow and Stop & Go	13/8	61.538%
6	Movement Intervention: Movement with scarf	18/7	38.889%
7	Instrument Playing Intervention: FL Fine Musician with Shakers – Stop & Go and Fast & Slow	9/6	66.667%
8	Instrument Playing Intervention: FL Fine Musician with Maracas – Loud & Quiet, Fast & Slow, and Stop & Go	10/10	100.000%
9	Book Time Intervention: "The Old Man"	5/5	100.000%
10	Closing of the session: Goodbye song	6/5	83.333%

Session 3

Date: February 27, 2013

The therapist provided 88 times of prompts and cues, and the client had 83 times of the appropriate reactions in the Session 2. The appropriate percentage of prompts and cues was 94.318%.

Table 4.104: Music Therapy Session on February 27, 2013

	Intervention/Activity	Times of Prompts/Cues & Appropriate Responses	Percentage of Prompts/Cues
1	Opening of the session: Check in and Hello Song	2/2	100.000%
2	Instrument Playing Intervention: FL Fine Musician with Piano – Piano with Number	27/23	85.185%
3	Instrument Playing Intervention: FL Fine Musician with Tambourine – Loud & Quiet, Fast & Slow and Stop & Go	10/9	90.000%
4	Movement Time: Ball	9/4	44.444%
5	Instrument Playing Intervention: FL Fine Musician with Ocean Drum – Loud & Quiet	4/4	100.000%
6	Movement Intervention: Beanbag	5/4	80.000%
7	Instrument Playing Intervention: FL Fine Musician with Shakers – Fast & Slow and Stop & Go	3/3	100.000%
8	Closing of the session	1/1	100.000%

The Result of the Research

The researcher recorded the number of prompts and cues which were provided by the therapist in the sessions, and the appropriate number of prompts and cues which the client responded appropriately. Then based on this data, the researcher calculated the percentages in order to analyze the progress of the client's interaction with the therapist (Table 4.105). As the result data indicated, the number of prompts and cues increased

from Session 1 to Session 2, while the number of prompts and cues decreased in Session 3. Therefore, Session 3 was the fading phase.

Table 4.105: The Result of FL's Interaction with the Therapist

The Research Data	The Process of Therapist-Client Interaction			Outcome
	The Therapist	The Client	The Therapist	
	1st: Number of prompts and cues	2nd: Number of appropriate responses	3rd: Number of positive reinforcement	Percentage of appropriate interaction
Baseline				
July to Septembers 2012	N/A	N/A	N/A	55.000%
October to December 2012	N/A	N/A	N/A	57.000%
Prompts/Cues				
Session 1 February 6, 2013	79	53	53	67.089%
Session 2 February 13, 2013	116	75	75	64.655%
Fading				
Session 3 February 27, 2013	61	50	50	81.967%

Discussion – Case Three

The results of this research observation showed that FL had improvement in interaction since the assessment phase to the last day of the research observation, February 28, 2013. The curve gradually goes up from baseline, prompts/cues to fading and reached 81.967%. The overall results indicated that FL had improvement in interaction with the therapist (Figure 4.8).

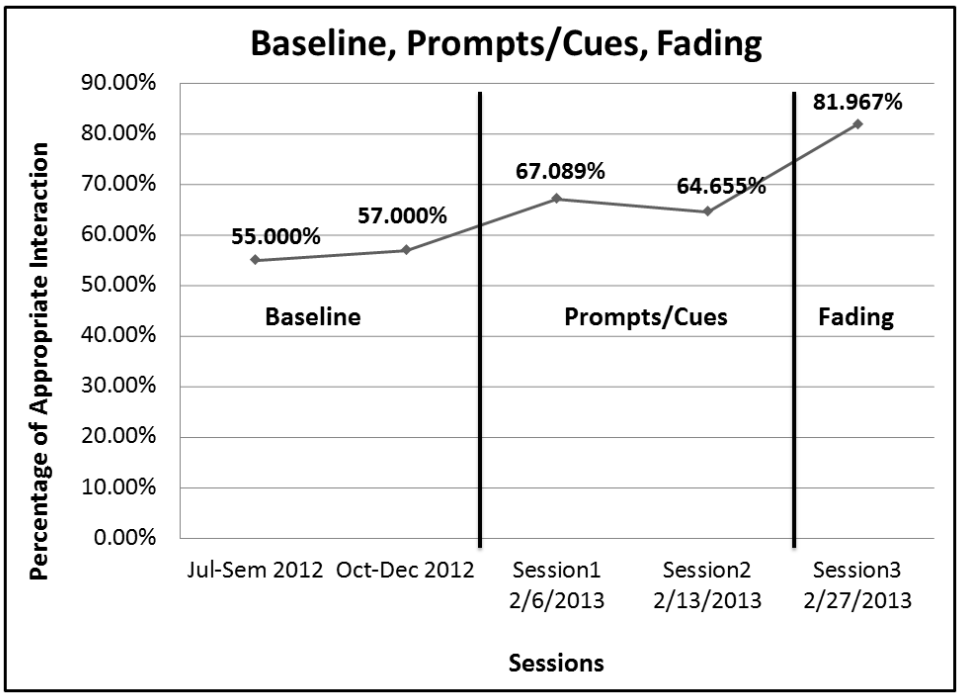

Figure 4.8: Percentage of FL's Appropriate Interaction with the therapist

Prompts/Cues Phase

During the prompts/cues phase, in Sessions 1 and 2, overall the therapist increased the number of prompts/cues (Figure 4.9). In Session 1, the therapist provided 79 times of prompts and cues while FL had 53 times of appropriate responses. The percentage of appropriate interaction was 67.089%. In Session 2, the therapist provided 116 times of prompts and cues while FL had 75 times of appropriate responses. Thus, FL achieved 64.655% of accuracy. During the prompts/cues phase, the therapist provided 37 more prompts and cues in Session 2 than in Session 1. However, FL had a slightly higher accuracy in Session 1, a difference of 2.434%.

In Sessions 2 3, FL's mother was not present in the observation room. Hence, FL's behavior and emotion may have been influenced by his mother's absence. During Session 2, FL had low participation, so the therapist provided many times of prompts and cues to engage FL in the activity interventions. Moreover, in Session 3, FL's mother had her second absence. FL could have been used to working with the therapist without his mother; hence, the therapist did not provide as many prompts and cues as in Session 2.

As the therapist, LH, reported, FL's behaviors and responses were different during each session. The therapist reported and noticed that FL showed no difference in his behavior regardless of his mother's presence.

Fading Phase

During the fading phase, in Session 3, the therapist decreased the number of prompts and cues. The therapist provided 61 times of prompts and cues while FL had 50 times of appropriate responses. FL achieved 81.967% of accuracy. The therapist provided 55 fewer prompts and cues in Session 3 than in Session 2. In addition, FL's percentage of appropriate response showed a 17.312% increase in Session 3.

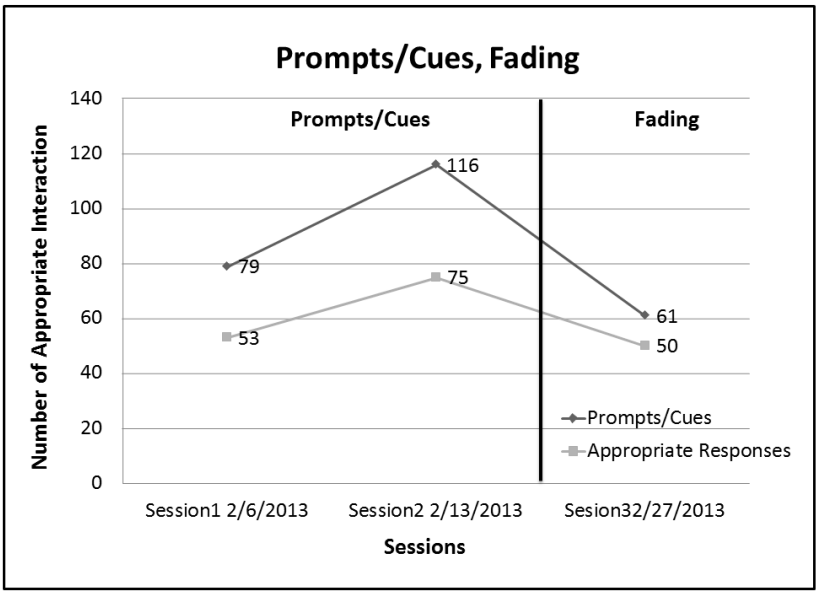

Figure 4.9: FL's Number of Prompts/Cues & Appropriate Responses

In summary, the results showed that the curve went up gradually in the baseline-prompts/cues-fading phase (Figure 4.8). FL had improvement in therapist-client interaction in eye contact. The therapist's techniques, prompting and cuing, had caused FL to increase his interaction.

Summary

The three children's results showed that the three clients' interaction with the therapist. The progress of the three children was slow, but the percentages of appropriate responses were going up gradually. During the process of progression, two children's percentage curves showed the shapes of a triangle, and the in progress was irregular. The children's behaviors and emotions may have been influenced by others factors, such as medicines. However, the overall results of the research showed a decrease in the amount of prompts and cues.

CHAPTER V

CONCLUSION

Autism spectrum disorder (ASD) is a neurobiological developmental disorder with developmental disabilities. A child with autism spectrum disorders has central nervous system dysfunction and sensory integration dysfunction, which impacts social interaction. Impaired social interaction is the primary feature and symptom of a child with autism spectrum disorder. Additionally, social interaction is the most significant issue during the life-span development. Therefore, the most important goal for a child with autism spectrum disorder is to improve and increase the child's social interaction.

The primary purpose of music therapist-child interaction in music therapy treatment is to support the child in applying the techniques in the real world, such as families and schools that he/she learned throughout therapist-child interactions. Additionally, child will has ability to build positive relationship with peers, families and romantic partners. In music therapy treatment, a music therapist has an important role for child with autism spectrum disorder to practice interacting with others. The music therapist utilized each child's interests to design the music therapy activity interventions based on their levels of functioning. Music becomes a medium to engage the child in joining the music therapy activity intervention. The musical medium was a technique for the therapist to create a space for the child to improve and increase child interaction, including eye contact, communication and speech. Moreover, in order to maintain the child's participation and attention, during the activity interventions, the therapist had to provide various styles. As the child had appropriate reaction, the therapist provided

positive reinforcement in order to reward the child. Based on each child's personality, conditions and interests, the therapist provided various positive reinforcements, involving favorite activity choices, verbal encouragement, and keeping playing or singing.

The researcher utilized Applied Behavior Analysis, (ABA) prompt and fading procedure to analyze and measure the process of three therapist-child interactions in music therapy treatment. The process included prompting/cuing, appropriate reactions and positive reinforcement. In music therapy treatment, the therapist gradually removed the times and frequencies of prompts and cues in order to assist the child to achieve at a desired changed behavior independently. The therapist decreased the frequency of the prompts and cues; that is, the child had improvement in the behaviors. After the child performed the appropriate reactions, the therapist provided positive reinforcement in order to reward and encourage the child if the child had appropriately eye contact, communication, and speech. Therefore, positive reinforcement is a simulation to support the child to achieve the desired and appropriate behaviors, including eye contact, clear pronunciation, completed sentences.

There were three children and two therapists in this research study. The three children were classified as mild to moderate functioning. The three children enjoyed joining music therapy treatment as reported by the therapists and their parents. The three children have different interests. As their therapists reported, two of the children liked bubble activity and one of the children liked the activities which were related to the order of the numbers. These activities were the three children's rewards during the sessions. Moreover, during the activity interactions, the therapists utilized prompting and cuing in

order to increase the participation based on the three children's conditions and needs. The prompting and cuing had six different categories, including verbal cuing, musical cuing, vocal cuing, verbal prompting, physical prompting, and visual prompting. The overall goal of prompting and cuing were to increase the therapist-child interaction in the music therapy treatment. Based on each child's conditions, the purposes of prompting and cuing were different.

In case one, the client was SU who had short attention span . Therefore, the purpose of prompting and cuing was to improve her concentration, as reported by the therapist and observed by the researcher. SU's progress of interaction showed irregular curve since the assessment to the last day of research observation (Figure 4.2). However, on the last day of the research observation, the therapist gradually decreased the number of prompts and cues while SU's appropriate reactions were increasing as evidenced by the result of SU percentage of interaction.

In case two, the client was AP who had few eye contacts and weakness of speech during the assessment period. The therapist utilized the prompting and cuing to increase AP's eye contact and improve his ability of speech. Throughout the 4 days of research observations, AP's ability of speech had improvement and his eye contact. AP improved by making eye contact with the therapist frequently. In addition to eye contact, AP was able to speak the order of alphabet from A to Z, which was achieved at anticipation of outcome. Thus, in the last research observation, the therapist utilized more advanced activity intervention for AP in order to improve AP's expressive communication skills.

During the last research observation, most of the prompts and cues were to improve AP's expressive communication rather than speech and eye contact.

In case three, the client was FL who had few eye contacts. The purpose of prompting and cuing was to improve FL's eye contact and appropriate reactions, such as complete sentences and speech volume. Throughout 3 days of research observations, FL had different behaviors and responses as reported by the therapist and observed by the researcher. The number and frequency of prompts and cues were irregular based on FL's behaviors. However, the overall curve of baseline-prompts/cues-fading phase (Figure 4.8) showed that FL had improvement in his interaction with the therapist.

After analyzing the three children's interactions with prompts and fading procedural approach, the result showed that the three children had improvement in the interaction with their therapists. In the virtuous circle of music therapy treatment (Figure 1.19), the music therapist had four times of interventions. The number and frequency of the therapist's interventions gradually decreased, which showed the child achieved the desired changed behaviors in music therapy treatment. Additionally, the child's improvement in desired behaviors showed that music therapy treatment benefited the three children's interactions with their therapist.

Limitation of study

It was observed that there were three limitations in this research, including 1) difficulty in defining for prompts/cues, 2) limited data of research observations and 3) baseline data not being the research's first-hand information.

The first limitation was difficulty in defining the prompts/cues. The researcher collected and recorded two conditions of the process of interaction with prompts/cues. The one of the condition was that the therapist provided prompts and cues since the child had obviously no eye contact, no attention, uncompleted speech, or uncompleted communication (Figure 5.1).

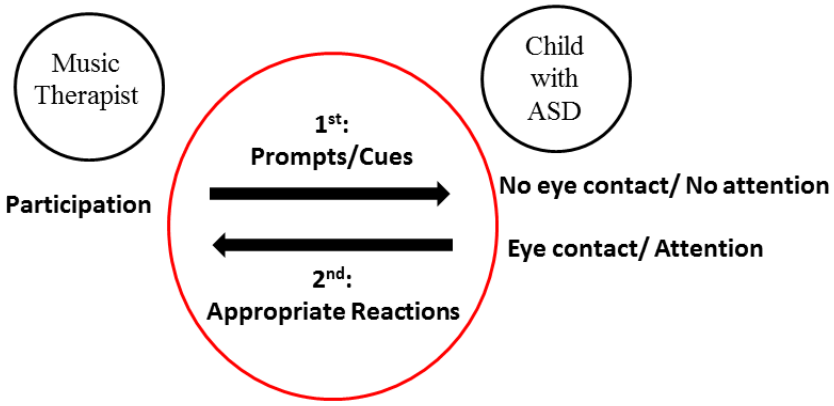

Figure 5.1: Condition 1: The Process of Interaction with Prompts/Cues

Alternatively, another condition was that the therapist asked questions and gave directions to the child in order to increase the child's participation during the activity interventions. As the child had no appropriate reactions, the therapist provided prompts and cues to remind the child to provide appropriate reactions (Figure 5.2).

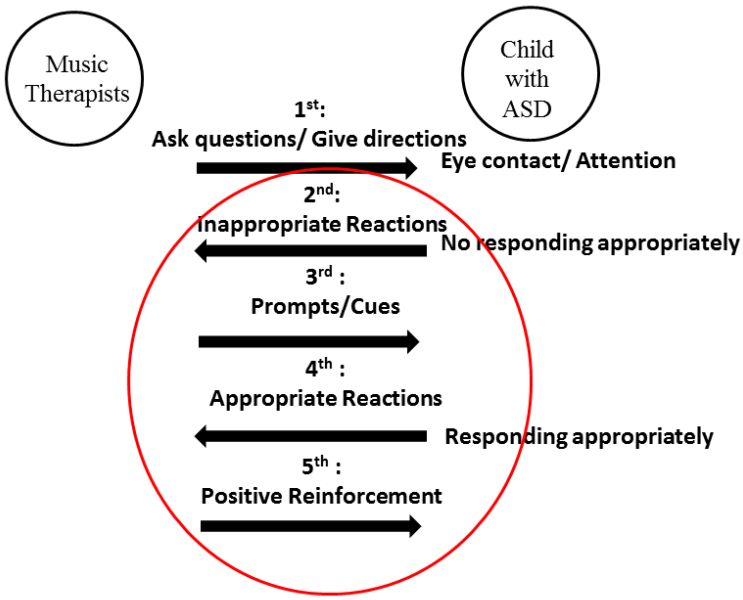

Figure 5.2: The Condition 2: The Process of Interaction with Prompts/Cues

However, the researcher had challenges in defining the prompts and cues in one of the condition (Figure 5.3).

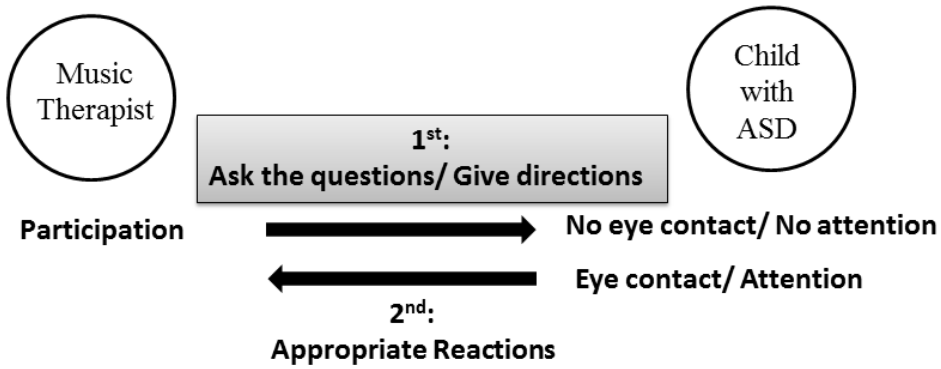

Figure 5.3: The Challenge of Definition of Prompts/Cues

That is, the therapist asked questions or gave directions to the child, while the child did not make eye contact or pay attention in the activity interventions. As the child heard the

questions and directions, the child regained attention and made eye contact with the therapist. At that point, it was difficult to define the prompts/cues since questions and directions were necessary techniques during the whole session. However, based on the therapists' volume while asking the questions or providing the directions, the researcher still could define the prompts and cues. For example, if the therapists' volume was louder suddenly than previous sentences, the research defined the therapists provided prompts or cues rather than questions or directions.

The second limitation of the study was that there was limited data to analyze and measure the progress of child's interaction with the therapist. Although within 3 to 4 days of the research observations, the child had improvements on the interaction with the therapist. However, the 3 to 4 occasions of observation data did not demonstrate strongly that the child was positively affected by the prompts and fading procedures in the music therapy treatment.

The final limitation of the study was that the baseline data was from observation rather than conducting the session by the researcher. The baseline data was provided by the therapist, which was not the first hand information to the researcher. Although the researcher had an assumption to deduce the measuring method as consistent, there were some short comings. For example, the therapists had different working experiences, music therapy background and forth. In this research, one of the therapists has worked with pediatric patients few years ago, and currently the therapist works with children with developmental delay. Therefore, the baseline data was not strong enough to demonstrate the child's progress clearly.

Future Research Measure

Based on the current study, a number of possible areas of research can be conducted to provide further understanding on the importance of music therapist/client interaction.

1) To analyze the effect of music therapy group treatment on the child-peer interaction
2) To utilize Applied Behavior Analysis shaping to analyze the effect of music therapy performance activity interventions on the client's behavior.
3) To utilize the ABA chaining to analyze child's expressive communication skill in music singing activity intervention.

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APPENDIX A

LIST OF LITERATURE REVIEW RESEARCH STUDIES

*JMT = Journal of Music Therapy; MTP: Music Therapy Perspective

	Author	Year; Volume; Page; Source	Title	Points of Journals
1	Gaderry, A. L.	Spring 2011; 48:1; p 74-89; JMT	A Survey of the Use of Aided Augmentative and Alternative Communication during Music Therapy Sessions with Persons with Autism Spectrum Disorders	To research music therapy improve communication
2	Kaplan, R. S., & Steele, A. L.	Spring 2005; 42:1, p 2-19; JMT	An Analysis of Music Therapy Program Goals and Outcomes for Clients with Diagnoses on the Autism Spectrum	To analyze treatment goals and outcomes
3.	Lim, H. A.	Spring 2010; 47:1; p 2-26; JMT	Effect of "Developmental Speech and Language Training Through Music" on Speech Production in Children with Autism Spectrum Disorders	To research music therapy improve children's speech and language
4	Reschke-Hernandez, A. E.	Summer 2011; 48:2; p 169-207; JMT	History of Music Therapy Treatment Interventions for Children with Autism	To review history of music therapy treatment intervention
5	Whipple, J.	Summer 2004; 41:2; p 90-106; JMT	Music in Intervention for Children and Adolescents with Autism: A Meta–Analysis	To analyze music therapy treatment with three approaches
6	Brown, L. S., & Jellison, J. A.	Fall 2012; 49:3; p 335-364; JMT	Music Research with Children and Youth with Disabilities and Typically Developing Peers: A Systematic Review	To review past journals to research developing peers for children with disabilities
7	Gooding, L. F.	Winter 2011; 48:4; p 440-462; JMT	The Effect of a Music Therapy Social Skills Training Program on Improving Social Competence in Children and Adolescents with Social Skills Deficits	To research music therapy improve social skills
8	Katagiri, J.	Spring 2009; 46:1; p 15-31; JMT	The Effect of Background Music and Song Texts on the Emotional Understanding of Children with	To research music can help children express

			Autism	emotions in order to improve social interactions
9	Lim, H. A., & Draper, E.	Winter 2011; 48:4; p 532-550; JMT	The Effects of Music Therapy Incorporated with Applied Behavior Analysis Verbal Behavior Approach for Children with Autism Spectrum Disorders	To research music therapy improve children's communication with ABA VB approach
10	Walworth, D. D.	Spring 2007; 44:1; p 2-22; JMT	The Use of Music Therapy within the SCERTS Model for Children with Autism Spectrum Disorder	To analyze SCERTS model can support music therapists arrive at successful treatment outcomes
11	Kern, P.	Winter 2006; 43:4; p 270-294; JMT	Using Embedded Music Therapy Interventions to Support Outdoor Play of Young Children with Autism in an Inclusive Community-Based Child Care Program	To research music supports children's outdoor play
12	Walworth, D. D., & Register, D.	Fall 2009; 46:3; p 204-216; JMT	Using the SCERTS Model Assessment Tool to Identify Music Therapy Goals for Clients with Autism Spectrum Disorder	To provide SCERTS model to research music therapy treatment outcomes for children with ASDs
13	Williams, K. E., Berthelsen, D., & Nicholson, J. M., Walker, S., & Abad, V.	Spring 2012; 49:1; p 23-44; JMT	The Effectiveness of a Short-Term Group Music Therapy Intervention for Parents Who Have a Child with a Disability	To analyze Song& Grow treatment and benefit/support family who have a child with disability in order to improve family interaction
14	McCarthy, J., Geist,	Winter 2008; 45:4; p 405-	A Survey of Music Therapists' Work with Speech-Language	To survey music therapy

	K., & Schock, M.	426; JMT	Pathologists and Experiences with Augmentative and Alternative Communication	support communication with augmentative and alternative communication (AAC) approach
15	Gilboa, A., Bodner, E., &Amir, D.	Fall 2006; 43:3; p 196-225; JMT	Emotional Communicability in improvised Music: The Case of Music Therapists	To survey how music therapists to convey emotions with musical improvisation
16	Pasiali, V.	Fall 2012; 49:3; p 303-334; JMT	Supporting Parent-Child Interventions: Music Therapy as an Intervention for Promoting Mutually Responsive Orientation	To research interaction between music therapists and family in order to support treatment successful outcomes
17	Schubert, E.	Winter 2007; 44:4; p 344-368; JMT	Locus of Emotion: The Effect of Task Order and Age on Emotion Perceived and Emotion Felt in Response to Music	The relationship between music and emotions
18	Rainey Perry, M. M.	Fall 2003; 40:3; p 227-246; JMT	Relating Improvisational Music Therapy with Severely and Multiply Disabled Children to Communication Development	To research music therapy support disabled children's communication development
19	Jones, J. D.	Summer 2006; 43:2: p 94-110; JMT	Songs Compose for Use in Music Therapy: A Survey of Original Songwriting Practices of Music Therapists	To survey song writing intervention practices of music therapists
20	Brown, L. S., & Jellison, J. A.	Fall 2012; 49:3; p 335-364; JMT	Music Research with Children with Youth with Disabilities and Typically Developing Peers: A Systematic Review	To research music support children to develop peer relationship
21	Sussman, J. E	Spring 2009; 46:1; p 53-	The Effect of Music on Peer Awareness in Preschool Age	To research the effect of music

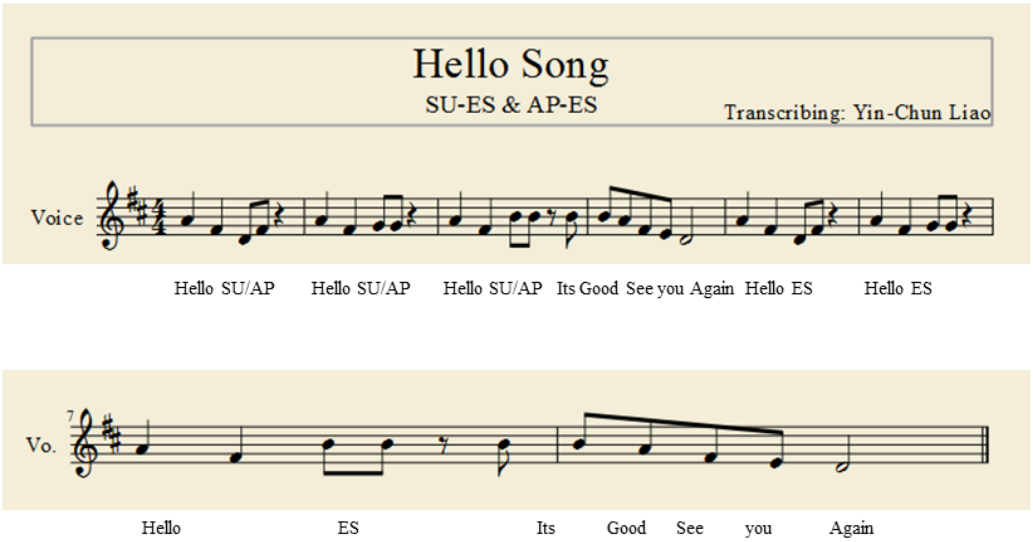
		68; JMT	Children with Developmental Disabilities	on peer awareness in order to improve children's music activity
22	Pasiali, L.	2004; 22:1; p 11-22; MTP	The Use of Prescriptive Therapeutic Songs in a Home-Based Environment to Promote Social Skills Acquisition by Children with Autism: Three Case Studies	To analyze singing intervention to promote social skills
23	Allgood, N.	2005; 23:2; P 92-99; MTP	Parents' Perceptions of Family-based Group Music Therapy for Children with Autism Spectrum Disorder	To survey music therapy treatment outcome
24	Ropp, C. R., Caldwell, J. E., Dixon, A. M., Angell, M. E., & Vogt, W. P.	2006; 24:2; P 87- 93; MTP	Special Education Administrators' Perceptions of Music Therapy in Special Education Programs	To survey music therapy administration in special education
25	Kern, P., Wakeford, L., & Aldridge, D.	2007; 25:1; P 43-51; MTP	Improving the Performance of a Young Child with Autism during Self-Care Tasks Using Embedded Song Interventions: A Case Study	To research improved song intervention to improve children's behaviors
26	Lim, H. A.	2009; 27:2; p 103-114; MTP	Use of Music to Improve Speech Production in Children with Autism Spectrum Disorders: Theoretical Orientation	To research music therapy support children's development of communication with various music therapy theories.
27	Demers, C. L., Tincani, M.,	2009; 27:2; P 88-96; MTP	Effects of Music Therapy on Young Children's Challenging Behaviors: A Case Study	To examine music therapy interventions to promote

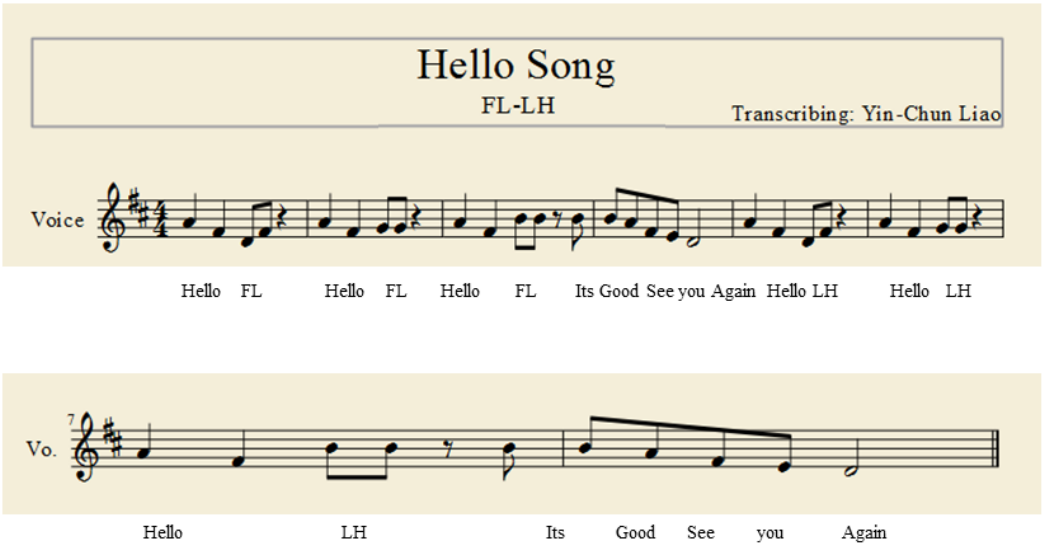
	Norman, R. K., & Higgins, K.			children's behaviors with pervious researches and experiments.
28	Lim, H. A.	2010; 28:2; p 95-105; MTP	Use of Music in the Applied Behavior Analysis Verbal Behavior Approach for Children with Autism Spectrum Disorders	To provide ABA VB approach to analyze music therapy effect on children's communication development
29	Kern, P.	2010; 28:2; p 116-123; MTP	Evidence-Based Practice in Early Childhood Music Therapy: A Decision-Making Process	To research music therapy improve children's cognitive development
30	Hooper, J., Wigram, T., Carson, D., & Lindsay, B.	2008; 26:2; p 80-96; MTP	A Review of the Music and Intellectual Disability Literature (1943-2006) Part Two – Experimental Writing	To examine music therapy treatment outcome with experimental writing
31	Dellatan, A. K.	2003; 21:2; p 105-109; MTP	The Use of Music with Chronic Food Refusal a Case Study	To research music therapy treatment with medical aspects
32	Register, D., & Humpal, M.	2007; 25:1; P 24-31; MTP	Using Musical Transitions in Early Childhood Classrooms: Three Case Examples	To research musical stimuli to improve children's social skills in classroom
33	Silverman , M.J.	2006; 24:1; p 4-12; MTP	Forth Years of Case Studies: A History of Clinical Case Studies in the Journal of Music Therapy, Music Therapy , and Music Therapy Perspectives	To provide the previous forty researches to analyze music therapy treatment outcome to support music

				therapists

APPENDIX B

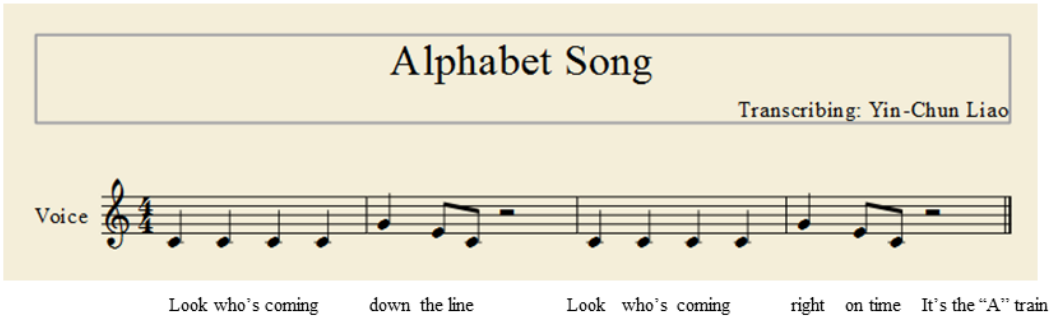
HELLO SONG


Hello Song
SU-ES & AP-ES
Transcribing: Yin-Chun Liao
Voice
Hello SU/AP Hello SU/AP Hello SU/AP Its Good See you Again Hello ES Hello ES
Vo.
7
Hello ES Its Good See you Again


Hello Song
FL-LH
Transcribing: Yin-Chun Liao
Voice
Hello FL Hello FL Hello FL Its Good See you Again Hello LH Hello LH
Vo.
7
Hello LH Its Good See you Again

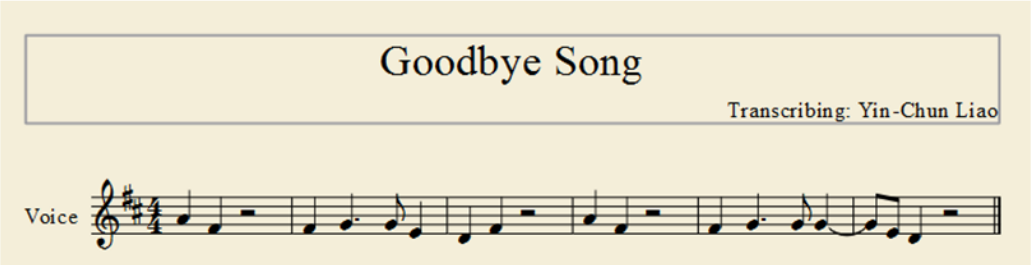
APPENDIX C

ALPHABET SONG


Alphabet Song
Transcribing: Yin-Chun Liao
Voice
Look who's coming down the line Look who's coming right on time It's the "A" train

APPENDIX D

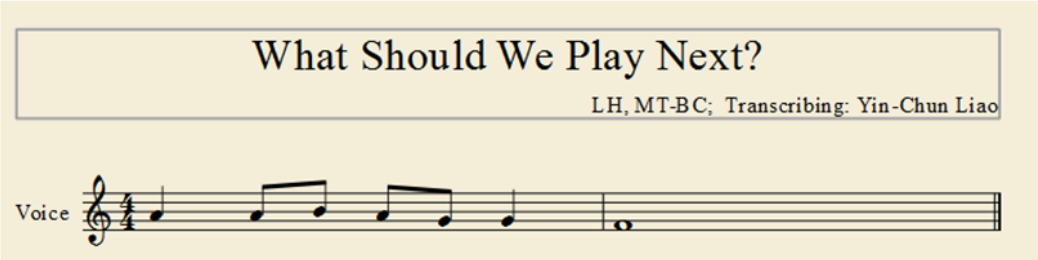
GOODBYE SONG



Oh no (drum) it's ti-----me to say goodbye Oh no (Drum) it's ti------me to say goodbye

APPENDIX E

VOCAL CUE


What Should We Play Next?
LH, MT-BC; Transcribing: Yin-Chun Liao
Voice
What should we pl------ay next?

APPENDIX F

PERMISSION FORM

Permission Form

Arizona State University

INTRODUCTION:

The purposes of this form are to provide information that may affect decisions regarding your child's participation and to record the consent of those who are willing for their child to participate in this study.

RESEARCHERS: **Professor Barbara J. Crowe & Yin-Chun Liao** at Arizona State University has invited your minor child's (ward's) participation in a research study at this institution.

DESCRIPTION OF RESEARCH STUDY:

If you decide to allow your child (ward) to participate in this study, **your child will be accept music therapy treatment in ASU music therapy clinic.** Your child's (ward's) participation will take approximately (**50 minuses for each music therapy session**).

EXCLUSIONARY CRITERIA:

In order for your child (ward) to participate in this study, your child (ward) must be **present in music therapy session once a week and be under 12 years of age**.

RISKS:

If you do decide to have your child (ward) participate in the study, he/she may face a risk of recording video. The researched reduce the risks by providing blurry images to cover your child and your faces, and you and your child will not identified by name in the video.

BENEFITS:

The possible benefits of your child's (ward's) participation in the research are to improve your child's physical development directly and mental development indirectly.

NEW INFORMATION:

You will be contacted if new information is discovered that would reasonably change your decision about your child's (ward's) participation in this study

CONFIDENTIALITY:

The results of the research study may be published but your child's (ward's) name or identity will

not be revealed. In order to maintain confidentiality of your child's (ward's) records, the

investigators will maintain all data by storing in a password protected laptop. Your child will not be identified by name or any documents.

WITHDRAWAL PRIVILEGE:

If you choose not to have your child (ward) participate or to withdraw your child (ward) from the study at any time, there will be no penalty. It will not affect your child's treatment. Likewise, if your child (ward) chooses not to participate or to withdraw from the study at any time, there will be no penalty.

COSTS AND PAYMENTS: no costs

COMPENSATION FOR ILLNESS AND INJURY:

Agreeing to your child's (ward's) participation does not waive any of your legal rights. However, no funds have been set aside to compensate you in the event of injury. In the event that your child suffers harm as a result of participation in this research project, you may contact Professor Barbara J. Crowe (Phone number would be **480-965-7413**) or you may contact the Chair of the Human Subjects Institutional Review Board through the Research Compliance Office at (480) 965-6788.

VOLUNTARY CONSENT: By signing this form, you are saying 1) that you have read this form or have had it read to you, and 2) that you are satisfied you understand this form, the research study, and its risks and benefits. The researchers will be happy to answer any questions you have about the research. If you have any questions, please feel free to contact Professor Barbara J. Crowe (480-965-7413) or Yin-Chun Liao (480-3291882)

If at any time you feel pressured to allow your child (ward) to participate, or if you have any questions about your rights or this form, please call the Chair of the Human Subjects Institutional Review Board through the ASU Office of Research Integrity and Assurance at (480) 965-6788.

Note: By signing below, you are telling the researchers Yes, that you will allow your child (ward) to participate in this study. Please keep one copy of this form for your records.

Your child's (ward's) name (please print): _____

Parent 1: Your name (please print): _____

Your Signature: _____

Parent 2: Your name (please print): _____

Your Signature: _____

Date: _____

INVESTIGATOR'S STATEMENT:

I certify that this form includes all information concerning the study relevant to the protection of the rights of the participants, including the nature and purpose of this research, benefits, risks, costs, and any experimental procedures.

I have described the rights and protections afforded to human research participants and have done nothing to pressure, coerce, or falsely entice the parent to allowing this child (ward) to participate. I am available to answer the parent's questions and have encouraged him/her to ask additional questions at any time during the course of the study.

Investigator's Signature: _____

Date: _____

APPENDIX G

MUSIC THERAPY THERAPEUTIC INTERACTION

PARENTAL LETTER OF PERMISSION AND CONSENT

Music Therapy Therapeutic Interaction

Parental Letter of Permission and Consent

Dear Parent:

We are **Professor Barbara J. Crowe** in Music Therapy Program at Arizona State University and graduate student **Yin-Chun Liao**. We are conducting a research study Music Therapy Interaction: case studies

I am inviting you and your child's participation, which will involve **50 minutes of music therapy sessions once a week for ten weeks.** Participation will include singing children's songs, playing musical instruments, improvisation and movement with music.

You and your child's participation in this study is voluntary. If you choose not to have your child participates or to withdraw your child from the study at any time, there will be no penalty. The results of the research study may be published, but your child's name will not be used.

There are no known benefits of the study. There are no foreseeable risks or discomforts to your child's participation.

We will provide the digital recording equipment your each session with you and your child. The recording equipment is housed in an adjacent room out of your child's sight. Cameras are discretely placed in the therapy room. The entire session will be recorded with the recording stating be you and your child name. Identifications and information will not be used. The videos will be analyzed by researchers Professor Crowe and Yin-Chun Liao to evaluate your child's response to music therapy interventions under two conditions- with parent or without parent present once the analysis is complete, the recordings will be permanently erased.

Confidentiality will be maintained by storing all data in a password protected laptop. Your child will not be identified by name on any documents. The results of this study may be used in reported, presentations, or publications, but you and your child's name will not be used.

If you have any questions concerning the research study or your child's participation in this study, please call me (or Professor Barbara J. Crowe) at (480) 965-7413.

Sincerely,

(Yin-Chun Liao)

By signing below, you are giving consent for your child _____ (Child's name) to participate in the above study.

_____ _____ _____

Signature Printed Name Date

By singing below, you are agreeing to participate in the above studying

If you have any questions about you or your child's rights as a subject/participant in this research, or if you feel you or your child have been placed at risk, you can contact the Chair of the Human Subjects Institutional Review Board, through the Office of Research Integrity and Assurance, at (480) 965-6788.