THE EFFECTS OF MUSIC THERAPY ACTIVITIES AND SIBLING DYADS ON SOCIAL INTERACTIONS OF CHILDREN WITH ISOLATED LISSENCEPHALY SEQUENCE

A THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS

FOR THE DEGREE OF MASTER OF ARTS

IN THE GRADUATE SCHOOL OF THE

TEXAS WOMAN'S UNIVERSITY

DEPARTMENT OF PERFORMING ARTS

BY

KRISTIN E. BARR, B.A., MT-BC

DENTON, TEXAS

MAY, 1998

TEXAS WOMAN'S UNIVERSITY

DENTON, TX

March 27, 1998

To the Associate Vice President for Research and the Dean of the Graduate School:

I am submitting herewith a thesis written by Kristin E. Barr entitled "The Effects of Music Therapy Activities and Sibling Dyads on Social Interactions of Children With Isolated Lissencephaly Sequence". I have examined this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Music with a major in Music Therapy.

Dr. Nicki S. Cohen, Major Professor

We have read this thesis and have recommended its acceptance:

nicki s cohen

Nancy A Hadsell

Pamela J Youngblood

Accepted

Leslie M Thompson

Associate Vice President for Research
and Dean of the Graduate School

ACKNOWLEDGMENTS

I would like to thank the families who participated in this study and the Lissencephaly Network for helping me coordinate this study.

Thank you, Darrin, for helping me edit and format this thesis. I could not have done it without your help.

Thank you, Aunt Iva, for proofreading my thesis.

I would like to thank mom, dad, Shawn, Darrin, Tammy, and the boys for their love and support.

I would also like to thank Dr. Nicki Cohen, Dr. Nancy Hadsell, and Dr. Pam Youngblood for their support throughout my music therapy education.

DEDICATION

This is dedicated to my three nephews, who were the inspiration for this study. I love you!

THE EFFECT OF MUSIC THERAPY ACTIVITIES AND SIBLING DYADS ON SOCIAL INTERACTIONS OF CHILDREN WITH ISOLATED LISSENCEPHALY SEQUENCE

Kristin E. Barr, May, 1998

ABSTRACT

The purpose of this study was to examine the effects of music therapy with and without sibling participation on the social interaction skills of children with Isolated Lissencephaly Sequence (ILS). The research questions addressed the effects of music therapy activities and siblings on the number of vocalizations, the number of gestures, and the duration of eye contact of children with ILS. Participants were divided into three sibling dyads; each consisted of one child with ILS and one child who was not handicapped. The research design was a Modified ABACA Reversal format. Treatment phases included one with music therapy and the siblings and one with individual music therapy. Sessions were conducted two times a week for 20 minutes over a minimum of 25 sessions. According to the results, the highest percentage of vocalizations, the highest percentage of gestures, and the longest eye contact occurred during the individual music therapy treatment.

TABLE OF CONTENTS

CHAPTER I

INTRODUCTION

Lissencephaly (agyria-pachygyria) is a rare disorder. It is a cerebral malformation, which results in a smooth instead of convoluted surface. In a normal brain the majority of all nerve cells are located at or near the surface of the cortex. In Lissencephaly, many of the nerve cells do not reach the surface. Instead, they are stuck in an abnormal position, and are not able to make their usual connections with other nerve cells (Dobyns, 1996). This malformation of the brain results in mental retardation. Not much research exists on this disorder or how to treat it.

All children with Lissencephaly are also diagnosed with mental retardation. The American Association for Mental Retardation defines mental retardation as having "...substantial limitations in present functioning. It is characterized by significantly subaverage intellectual functioning, which exists concurrently with related limitations in two or more of the following applicable skill areas: communication, self-care, home living, social skills, community use, self-direction, health and safety, functional academics, leisure, and work" (McGill Smith, 1993, pp. 2-3). Children who are mentally retarded impact families in many ways, which may include placing heavy financial demands on the family for medical care and redefining parental expectations. Since sibling

relationships generally last a lifetime, siblings of children with mental retardation are impacted differently than their parents are (Powell & Ogle, 1985).

Music is a powerful stimulus. It is mostly non-verbal, which can allow people who are not able to communicate verbally to express themselves. This may be the case with those who are severely or profoundly mentally retarded. According to Gaston, "Music, a form of human behavior, is unique and powerful in its influence. It can benefit handicapped and ill persons by helping them to change their behavior by acquiring new or better behaviors" (1968, p. 7).

People with mental retardation often lack appropriate social skills. Structured music therapy activities, which include movement, songs, and interaction with peers, can be catalysts in the development of social skills, such as communication, social gestures, and eye contact. More research is needed to investigate the use of music and the effect of siblings on social skills in children with Lissencephaly.

CHAPTER II

REVIEW OF LITERATURE

Lissencephaly comes from the Greek words "lissos", meaning smooth, and "enkephalos", meaning brain (Dobyns, Reiner, Carrozzo, & Ledbetter, 1993). This disorder is relatively rare, occurring in 1 out of 100,000 live births (Dobyns, et al, 1993), and affecting males and females in equal numbers, according to the National Organization for Rare Disorders (NORD) (1993). Probable causes of Lissencephaly are: (a) viral infections in the baby during the first trimester of pregnancy; (b) insufficient blood supply to the baby during the first trimester; (c) genetic disorder with recessive inheritance; (d) damage or mutation to a specific genetic region on chromosome 17; or (e) unknown (Dobyns, 1991).

The gestation of children with Lissencephaly is usually normal, but the infant can be small for gestational size. Children with Lissencephaly are always severely or profoundly retarded (Dobyns, et al, 1993), as well as being non-verbal and non-ambulatory (de-Rijk-van Andel, Arts, Barth, & Loonen, 1990). Facial appearance depends on the particular syndrome, however, bitemporal hollowing and a small jaw are common in all syndromes. A minority of individuals are microencephalic at birth, but almost all will become so within the first five years of life (Dobyns, et al, 1993). Infants with Lissencephaly are

generally cyanotic and have a feeble cry. Some also have enlarged livers and spleens, are jaundiced, or have urinary tract infections (NORD, 1993). Strabismus and respiratory problems are common (de-Rijk-van Andel, et al, 1990), as well as apnea and poor feeding.

The most common feeding problems occurring in individuals with Lissencephaly include: (a) choking and gagging while feeding, (b) refusing food, (c) spitting up, and (d) weight loss. Usually these difficulties are caused by acid reflux (i.e., acid shooting up from the stomach into the esophagus) and aspiration, (i.e., liquids or food falling down the trachea rather than the esophagus while swallowing). These conditions usually worsen with time (Dobyns, 1996; Zickler & Dodge, 1996).

Several methods for managing these problems exist. Oftentimes, correct positioning of the child during feeding, thickening the child's foods, or administering medications will correct most feeding problems. Because of poor nutrition and the occurrence of aspiration pneumonia (Dobyns, et.al, 1993), many individuals with Lissencephaly eventually require a gastrostomy, a surgical procedure to insert a feeding tube into the stomach (Austrin & Austrin, 1987). Some require another surgical procedure in which the sphincter muscle at the top of the stomach is tightened. This procedure is called a Nissen fundal plication (Dobyns, 1996).

Lissencephaly is rarely suspected at birth because a great percentage of infants with this disorder look and act like normal newborns (Dobyns, 1991). The

most accurate tools for diagnosing Lissencephaly are: (a) the Computerized Axial Tomography Scanner (CAT Scan), which is an imaging device that takes X-rays at multiple angles through specific sections of the body and relays to a computer which assembles the information and provides a total picture of the part being examined; and (b) the Magnetic Resonance Imaging Device (MRI), a machine that scans the soft tissues of the body by means of an electromagnetic field and radio waves and provides both visual images on a computer screen and magnetic tape recordings for future use (Austrin & Austrin, 1987). The MRI is better than the CAT Scan because it provides better contrast of the gray-white matter of the brain (Schuirer, Kurlemann, & von Lengerke, 1993).

Characteristics of the Lissencephalitic brain are fairly uniform. It has a smooth cerebral surface, thickened cortical mantle, and microscopic evidence of neuronal migration (Swaimon, 1994). Features of the brain closely resemble a fetal brain around the third month of gestation (Miller, 1963). Over 90% of those with Lissencephaly have seizures, which often begin around three to twelve months of age. The most common seizures are infantile spasms, tonic seizures (stiffening of all or part of the body without associated jerking), and atypical absence seizures, which consist of brief episodes of staring and small automatic movements. After all of these types of seizures, the children usually resume their previous activities (Dobyns, 1992). Most seizure activity can be partially controlled with medication, but the seizures are usually not entirely controlled (Dobyns, 1996). Children with this disorder may lose some developmental

abilities during later childhood due to more frequent seizures and higher doses of seizure medication.

Larger body size may also be a factor in loss of developmental abilities. Many forms of locomotion are easier when children are small. As they grow, some of these motor skills may be harder to accomplish because their bodies are larger and heavier, making movements more difficult.

Two types of Lissencephaly have been found; Type I, or Classical Lissencephaly, and Type II, which includes more defects of the brain and eyes, and increased occurrence of hydrocephalus. The three most common Lissencephaly syndromes are Isolated Lissencephaly Sequence, Miller-Dieker Syndrome, and Walker-Warburg Syndrome (Dobyns, 1991). This research will limit its discussion to Isolated Lissencephaly Sequence, or ILS.

Children with ILS generally have a normal facial appearance (Dobyns, et al, 1993), with only secondary facial dismorphisms (de-Rijk-van Andel, et.al., 1990). Abnormal neuronal migration occurs between the 10th to 14th weeks of fetal development. After birth, the brain is small, and ventricles are enlarged posteriorly. The corpus collossum is either small or absent, and the structural pattern of cerebral hemispheres is immature, resembling a fetal brain (Swaimon, 1994).

Most individuals with ILS have inconsistent visual tracking, brief smiling, and reduced spontaneous movements. They are "floppy" and are much less active than normal children. Poor head control and backwards arching of the

head and trunk are usual characteristics (Dobyns, 1991). As the children get older, spasticity of the arms and legs may develop (Dobyns, 1996). The life span of children with ILS is shorter than that of normal children.

Many therapy services are needed for children with Lissencephaly. They need physical and occupational therapies to improve motor skills and to prevent or lessen contractures, and speech therapy to improve communication. Play therapy can be beneficial in developing recreational skills. Through play, children learn about the world, and develop cognitive and social competencies (Li, 1981). By improving acquired skills and facilitating the development of new skills, these therapies will increase the level of functioning, and in turn, improve the quality of life for these children.

Many areas of a child's development are affected by mental retardation. The level of retardation is key to a person's development; the more severe the handicap, the slower the rate of learning (Rousey, & Eyman, 1995). The play of children with severe mental retardation is generally different than that of their nonhandicapped peers. Usually, they are more likely to play alone, are less likely to engage in imaginative play, and are more likely to engage in non-specific activities (Smith, 1993). Social behaviors are generally learned by modeling and practicing behaviors of another person, such as a sibling or a normal peer. Jorgenson and Parnell (1970) believe that developing appropriate social behaviors is a must for people who are mentally retarded, in order for them to be as normalized as possible. Children with mental retardation often benefit from

interaction with others, such as peers or siblings.

Siblings are greatly affected by having a brother or sister with mental retardation. Many children experience a variety of feelings about having a disabled sibling. They may fear the reactions of their friends or of other people and also may feel isolated from their peers. Some may be angry at their sibling, parents, society, or others, which may result in guilt for being angry (Powell & Ogle, 1985). Conversely, siblings sometimes gain an understanding of others who are handicapped because of having a sibling who is disabled. Siblings may have an increased tolerance for differences. They may feel responsibility toward their handicapped sibling and pride in the sibling's accomplishments (National Information Center for Children and Youth with Disabilities, 1988).

Many factors affect the sibling of a handicapped child. The severity of the handicapping condition can affect how much responsibility the sibling has in caring for the mentally retarded child, especially if the child with a disability is living at home. The size of the family is another factor. In larger families, there are more siblings to share the care. Attitudes in the family are also important. The more positive the parents' attitudes, generally, the more positive the nonhandicapped children's attitudes will be. Other factors include the age of the handicapped child, sex of the handicapped child, the family's financial state, and services available for the mentally retarded child and the family (Powell & Ogle, 1985). Many potential benefits exist in having a child with mental retardation in the family, such as the expansion of parental and sibling coping skills (Lubetsky,

Mueller, Madden, Walker, & Len, 1995).

Normal siblings, in turn, have a profound effect on a child with mental retardation. They provide a major source of social interaction, which can positively affect the mentally retarded child's development (Powell & Ogle, 1985). According to Powell and Ogle (1985), "increasing social interaction between a child with a handicap and his or her siblings would provide greater opportunities for siblings to model various socially appropriate behaviors and, thus, to learn from each other" (p. 107).

Three studies were conducted to examine the social interactions of sibling dyads. In all three studies, three categories of behaviors were measured: (a) prosocial behaviors, such as affection, praise, and cooperation; (b) antisocial behaviors, such as physical aggression, insults, and tattle-telling; and (c) imitation, such as following the sibling into another room, or performing the same behaviors within 10 seconds of the sibling's initiating them. The first study involved same-sex sibling dyads. The second study included mixed-sex dyads, and the third study was comprised of both types of sibling dyads.

Abramovitch, Corter, and Lando (1979) conducted the first study, which involved 34 pairs of same-sex sibling dyads. The researchers conducted two one-hour observations in the children's homes. Results indicated that the sex of the dyad affected prosocial and antisocial behaviors, but imitation remained the same. Males were seen to be more physically aggressive than females, and older females demonstrated the most prosocial behaviors of any other grouping.

Older children initiated antisocial and prosocial acts more often than the younger siblings, and the younger siblings imitated older siblings more often than older siblings imitated the younger.

A follow-up study was conducted with 36 pairs of mixed-sex sibling dyads. Abramovitch, Corter, and Pepler (1980) found results similar to those of the previous study. The gender composition of the dyad (older boy with younger girl, older girl with younger boy) did not affect prosocial, antisocial, or imitative behaviors.

A third longitudinal study was conducted with 28 pairs of same-sex dyads and 28 pairs of mixed-sex dyads (Pepler, Abramovitch, & Corter, 1981). Results were similar to those of the two previous studies. Older siblings initiated more prosocial and antisocial behaviors, while the younger siblings imitated more. The younger siblings responded more positively to prosocial behaviors and submitted more to the antisocial behaviors. The researchers concluded that the younger sibling plays a very important role in maintaining the interactions in the dyad by reciprocating prosocial behaviors, submitting to antisocial behaviors, and imitating the older siblings. Based upon the longitudinal nature of the study, the researchers found that the frequency of aggression increased over time for the mixed-sex dyads, while the frequency of imitation decreased with these pairs.

As shown from these studies, siblings mutually influence each other's development. Both sibling rivalry and sibling camaraderie are instrumental in helping children learn about relationships with other people. Siblings are capable

of teaching socially accepted behaviors to each other. Imitation is crucial for the social development of a child. Through watching and imitating their siblings, children can learn essential social skills (Lowenthal, 1996).

Like the influence of siblings, music can help foster the development of children with mental retardation. Gaston (1964) held that children with handicaps "need music for healthy and normal development"(p. 5). Johnson (1981) felt that music is able to satisfy the needs of people who are disabled. Winship (1928) believed that everyone has the ability to enjoy music, regardless of IQ. He also stated that people could not help but respond to music, because it provides pleasure to the body, mind, and soul.

Music is a powerful agent that can reach someone when other attempts fail. It also provides a non-verbal means of communication for those who may not have the ability to communicate verbally, and allows for these individuals to have a successful outlet for emotional expression. Music is often able to stimulate vocal play and can serve as an avenue for socially acceptable expression for any child, mentally retarded or not (Johnson, 1981; Pfeifer, 1989). According to Humpal (1990), music not only helps children increase their communication, but also improves their responsiveness to the environment and enhances their social interaction skills.

Music can contribute to the development of social interaction skills for children with mental retardation. Music is a successful medium because it fosters trust and cooperation (Gunsberg, 1991) and enables people to interact in

groups (Gaston, 1968). According to Humpal (1990), "integrating disabled and regular needs children in music sessions may provide an enjoyable and non-threatening setting for interaction and socialization to occur" (p. 34).

Because music can foster the development of social interaction skills for children with mental retardation, music therapy can be a beneficial intervention. Davis, Gfeller, and Thaut (1992) define music therapy as "a behavioral science concerned with human behavior and is based on a scientific approach....Music is used as a medium to help people maintain or improve important life skills in the areas of communication, academic performance, gross and fine motor development, social skills, and emotional development" (p.6). Since Lissencephaly is a rare disorder, no published studies presently exist pertaining to the treatment of Lissencephaly with music therapy. However, because children with this disorder are mentally retarded, there are music therapy studies concerning social skills in individuals within these population parameters that may be applicable to children with Lissencephaly.

Saperston (1973) conducted a case study with an eight-year-old boy diagnosed with profound mental retardation and autism. A primary goal of the music therapy treatment was to establish communication with the boy through music. Seated at the piano, the therapist musically mirrored the boy's movements, which included walking around the room, stomping, rocking, shuffling, and pounding his hand. The boy realized that he could control the music coming from the piano by changing his movements. A second goal of

increasing eye contact was targeted for improvement through music therapy. The therapist sang the boy's name repeatedly for 10 minutes. Gradually, the therapist only sang his name when the boy made direct eye contact. Results showed that the boy's eye contact increased to a one-minute consecutive duration. An additional response was that he began to move his lips in imitation of the therapist's singing.

A second case study involved music therapy with another boy with autism and mental retardation (Mahlberg, 1973). The goals of this work were: (a) to increase his attention span, (b) to interrupt and reduce the boy's autistic behaviors, and (c) to teach him nonverbal communication techniques. One of the activities used was clapping hands. The boy was asked to clap the therapist's hands, and then clap his own hands in imitation of the therapist. Another activity involved a tambourine. The therapist asked "What's your name?", and the boy was prompted to hit the tambourine in response to the question. A third activity included action songs, which were designed to increase the boy's body image. Results indicated that the subject was able to tolerate music therapy sessions lasting up to one hour. He became more aware of the therapist as a person, rather than as an object. In addition, he spontaneously showed affection to the therapist.

Two single case designs by Aldridge, Gustorff, and Neugebauer (1995) demonstrated progress in social behaviors as well. Two preschool-aged girls with mental retardation and severe social and communication impairments served as

participants. At first, each girl showed hesitation while playing the musical instruments, which included a piano, bell, chime bar, cymbal, and drum. As the sessions progressed, both seemed to gain confidence, and they began establishing eye contact with the therapist and co-therapist. The parents of the girls reported that their interactions with family, friends, and others also improved. Both eventually initiated social interaction with others, and both took more social risks. In addition, the girls' verbal communication improved.

Although the research presented in this chapter explored the individual effects of sibling interaction on children with mental retardation and the effects of music on children with mental retardation, no published research has been found that examined the influence of both music and sibling interaction on children with mental retardation, let alone, ILS. The purpose of this study was to examine the effects of music therapy with and without sibling participation on the social interaction skills of children with ILS. The research questions were: (a) Will the music therapy activities and siblings increase the number of vocalizations of children with ILS?, (b) Will the music therapy activities and siblings increase the number of gestures of children with ILS?, and (c) Will the music therapy activities and siblings improve the duration of eye contact of children with ILS?

CHAPTER III

METHODOLOGY

Selection of Participants

Six participants were divided into three sibling dyads. Each pair of siblings consisted of one child diagnosed with Type I: Isolated Lissencephaly Sequence and one child who was not handicapped. Visual and auditory impairments did not range beyond moderate impairment for any child.

Design

The research design was a Modified ABACA Reversal format (Kazdin, 1982). The first phase of the study consisted of a baseline observation (A) of each of the children with ILS. Two types of treatment phases were implemented, one with music therapy and the child with ILS (B), and one with music therapy with this child and his or her siblings (C). Data were measured after every session.

The three dependent variables were the number of vocalizations, the number of social gestures, and the duration of eye contact. Vocalizations were defined as laughing and vocables specific to each child with ILS. Social gestures were defined as reaching with their arms toward the sibling, researcher, or the mirror. Eye contact was defined as looking directly at the sibling's or researcher's face or at their own face in the mirror. Vocalizations and gestures were measured by partial interval recording and eye contact was measured by

durational recording.

Procedure

The sessions were conducted two times a week for a minimum of 10 weeks. The time commitment was approximately 20 minutes per session, with a minimum of 25 sessions and a maximum of 34 sessions. The researcher continued each condition until the trend for all of the dependent variables within each condition had stabilized.

The music therapy activities, which were chosen to stimulate auditory, tactile, and visual senses, were based on the Carolina Curriculum for Infants and Toddlers (Johnson-Martin, Jens, Attermeier, and Hacker, 1991). The treatment sessions were divided into three parts. Part 1 consisted of musical activities that used a maraca, drum, and bubbles. During the treatment with music therapy and siblings, the sibling without ILS held and played the maraca and drum and faced the child with ILS, while the researcher sang about the maraca and drum. Next, the sibling blew bubbles, while the researcher sang a modified version of the song, "Tiny Bubbles". For the treatment with the child with ILS alone, the researcher faced the child, held and played the instruments, and then blew the bubbles while singing "Tiny Bubbles".

Part 2 involved the use of a mirror. During the treatment with music therapy and siblings, the sibling without ILS looked in the mirror, and then showed the mirror to the child with ILS. Next, both children looked in the mirror together while the researcher sang the "Name Song", (Pinson, 1986). For the

treatment with the child with ILS alone, the researcher looked in the mirror, showed it to the child, and sang the "Name Song".

Part 3 of the treatment intervention involved singing the action songs, "Put Your Finger in the Air" and " I Take My Little Hands", plus a ball-rolling game. The siblings sat facing each other during the treatment with music therapy and siblings, and the normal sibling modeled the movements for the sibling with ILS while the researcher sang the action songs. Finally, the siblings rolled a ball to each other while singing, "Roll the Ball" (adapted from "Pass the Box", Brunk & Coleman, 1996). For the treatment with the child with ILS alone, the researcher sang the action songs while facing and physically assisting the child with ILS with the movements and with rolling the ball.

Data Collection and Analysis

For the purpose of observational recording, the sessions were divided into 10-second intervals. For gestures and vocalizations, a data tracking form was used which displayed the intervals in 10-second increments. A plus (+) was used to indicate that the specified behavior occurred at least once during the specified increment of time. A blank space was used to indicate that the targeted behavior did not occur at all during the specified increment of time. The amount of time the behavior occurred was determined and compared to the total amount of time per session. All intervals for the vocalizations and gestures variables were totaled and converted to percentages of intervals in which each behavior occurred. For eye contact (durational recording), data tracking involved

recording the time when eye contact began and when it ended. A VCR counter, which displayed minutes and seconds [mm:ss], was used to record the duration of the behavior.

In order to facilitate accurate measurement, each session was videotaped and reviewed by the researcher. Inter-rater reliability for the vocalizations variable was established by having a third party view the videotapes and measure this dependent variable independently.

CHAPTER IV

RESULTS

The purpose of this study was to examine the effects of music therapy with and without sibling participation on the social interaction skills of children with ILS. The research questions were: (a) Will the music therapy activities and siblings increase the number of vocalizations of children with ILS? (b) Will the music therapy activities and siblings increase the number of gestures of children with ILS? and c) Will the music therapy activities and siblings improve the duration of eye contact of children with ILS? Three pairs of sibling dyads participated in this study. The research used an Modified ABACA Reversal design. The researcher met with the participants twice a week over a period of four months. The two treatment phases, which consisted of music therapy with the child with ILS alone (Phase B) and music therapy with this child and the sibling (Phase C), were alternated with repeating baseline conditions. In order to facilitate accurate measurement, each session was videotaped and reviewed by the researcher. Vocalizations and gestures were measured by partial interval recording and eye contact was measured by durational recording. The data were analyzed by computing the sample mean for each subject, the sample mean across participants, and the standard deviations. For purposes of

reporting, the participants with ILS in this study will be known as Amy, Patrick, and Andrew.

Research Question 1

The first research question was: Will the music therapy activities and siblings increase the number of vocalizations of children with ILS? Table 1 represents the children's individual mean percentage of vocalizations and the aggregate mean percentage of vocalizations for all three children across conditions. According to Table 1, two of the children made the highest percentage of vocalizations during one of the treatment conditions. For Amy, it was during the music therapy and sibling treatment, while for Andrew, it was during the individual music therapy treatment. Patrick demonstrated the highest percentage of vocalizations during the initial baseline condition. Interrater reliability for vocalizations was calculated at 83% for Patrick and 100% for Amy. The aggregate mean for all three participants indicated the highest percentage of vocalizations occurred during the individual music therapy treatment and the second highest percentage of vocalizations occurred during the music therapy treatment with sibling. Figure 1 represents the aggregate mean percentage of vocalizations for all three participants.

Table 1
Mean Percentage of Vocalizations Per Condition and Across Participants

Participants	A1	C	A2	B	A3
Amy	29.59	56.66	45.03	43.07	47.65
Patrick	21.73	8.27	21.04	3.33	6.51
Andrew	19.24	14.83	12.40	52.45	17.84
Across Participants	23.52	26.59	26.16	32.95	24.00

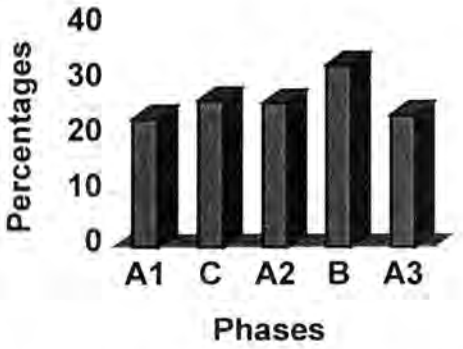

Figure 1: Mean Percentage of Vocalizations Per Condition

Table 2 represents each child's standard deviation for vocalizations across conditions. According to Table 2, two of the three children demonstrated a higher standard deviation during the three baseline conditions and a lower standard deviation during the two treatment conditions.

Table 2
Vocalization Standard Deviations Per Condition

Participants	A1	C	A2	B	A3
Amy	14.7	5.06	23.93	11.64	28.52
Patrick	15.01	6.02	17.15	3.78	3.02
Andrew	22.17	7.8	5.21	9.54	14.62

Research Question 2

The second research question was: Will the music therapy activities and siblings increase the number of gestures of children with ILS? Table 3 represents the participants' individual mean percentage of gestures and the aggregate mean percentage of gestures for all three children across conditions. According to Table 3, Andrew demonstrated the highest mean percentage of gestures during the individual music therapy treatment, while Amy and Patrick demonstrated the highest mean percentage of gestures during a baseline condition. One of the participants, Andrew, made the next higher mean percentage of gestures during the music therapy and sibling treatment condition, while Amy and Patrick's next highest mean percentage of gestures were during the individual music therapy treatment condition. The aggregate mean across participants indicated the highest percentage of gestures during the individual music therapy treatment and the next highest during the second baseline condition. Figure 2 presents the aggregate mean percentage of gestures for all three participants across conditions.

Table 3
Mean Percentage of Gestures Per Condition and Across Participants

Participants	A1	C	A2	B	A3
Amy	0.49	0.00	0.00	0.58	0.00
Patrick	0.46	0.28	3.52	0.48	0.00
Andrew	0.42	1.30	0.00	5.00	0.17
Across Participants	0.46	0.53	1.17	2.02	0.06

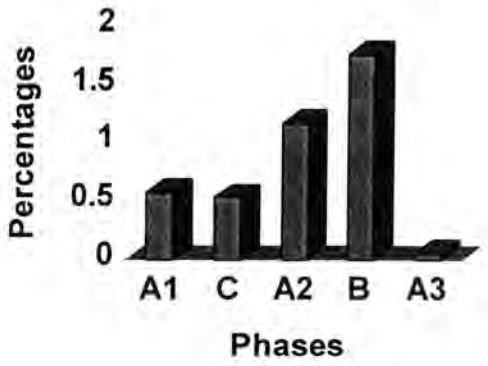

Figure 2: Mean Percentage of Gestures Per Condition

Table 4 depicts each child's standard deviation for gestures per condition. No trends in standard deviation data across conditions were noted.

Table 4
Gesture Standard Deviations Per Condition

Participants	A1	C	A2	B	A3
Amy	0.66	0.00	0.00	0.82	0.00
Patrick	1.37	0.40	4.70	0.87	0.00
Andrew	1.38	1.66	0.00	3.12	0.33

Research Question 3

The third research question was: Will the music therapy activities and siblings improve the duration of eye contact of children with ILS? Table 5 represents the participants' individual mean duration of eye contact and the aggregate mean duration of gestures for all three children across conditions. According to Table 5, all three participants demonstrated the longest mean duration of eye contact during one of the treatment conditions. Patrick and Andrew's eye contact was longest during the individual music therapy treatment, while Amy's eye contact was longest during the treatment condition with her sibling. The longest

aggregate mean duration of eye contact across participants occurred during the individual music therapy treatment, followed by the music therapy treatment with sibling. Figure 3 depicts the aggregate mean duration of eye contact for all three participants across conditions.

Table 5
Mean Duration in Seconds of Eye Contact Per Condition and Across Participants

Participants	A1	C	A2	B	A3
Amy	122.60	450.20	3.60	306.00	0.00
Patrick	5.80	131.83	17.20	278.14	2.00
Andrew	42.33	208.20	6.86	485.00	75.80
Across Participants	56.91	263.41	9.22	356.38	25.93

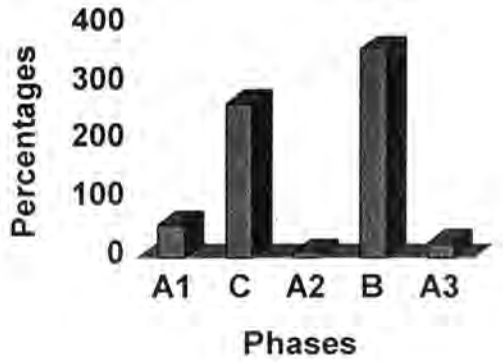

Figure 3: Mean Duration in Seconds of Eye Contact

Table 6 represents each participant's standard deviation for duration of eye contact across conditions. For two of the three children, the standard deviation was highest during one of the baseline conditions.

Table 6
Eye Contact Duration Standard Deviations Per Condition

Participants	A1	C	A2	B	A3
Amy	138.40	88.06	4.45	64.79	0.00
Patrick	10.26	33.41	19.50	127.64	4.00
Andrew	89.72	76.68	6.75	92.67	120.93

CHAPTER V

SUMMARY, DISCUSSION, AND RECOMMENDATIONS

Summary

Introduction and Purpose

Lissencephaly is a cerebral malformation, which results in a smooth instead of convoluted cerebral surface. Many of the nerve cells are not able to make their usual connections with other nerve cells. This condition results in severe or profound mental retardation. Children with Lissencephaly impact their families in many ways, which may include placing heavy financial demands on the family for medical care and redefining parental expectations. Since sibling relationships generally last a lifetime, siblings of children with Lissencephaly are impacted differently than their parents are.

Music is a powerful stimulus. It allows people who are not able to communicate verbally, such as those with Lissencephaly, to express themselves. These children also often lack appropriate social skills. The use of structured music therapy activities, such as those, which focus on vocalizations, social gestures, and eye contact, can enable these children to develop social skills. Peers and siblings can also be positive elements in developing social skills by functioning as models.

The purpose of this study was to examine the effects of music therapy

with and without sibling participation on the social interaction skills of children with ILS. The research questions were: (a) Will the music therapy activities and siblings increase the number of vocalizations of children with ILS?, (b) Will the music therapy activities and siblings increase the number of gestures of children with ILS?, and (c) Will the music therapy activities and siblings improve the duration of eye contact of children with ILS?

Procedure

Six participants were divided into three sibling dyads. Each pair of siblings consisted of one child diagnosed with Type I: Isolated Lissencephaly Sequence and one child who was not diagnosed with a disability. The research design was a Modified ABACA Reversal format (Kazdin, 1982). The three dependent variables were the percentage of vocalizations, the percentage of social gestures, and the duration of eye contact.

Treatment was administered in two phases, one involving individual music therapy with the child with ILS (B), and one involving music therapy with the sibling dyad (C). Data were measured after every session. The time commitment was approximately 20 minutes per session, for a minimum of 25 sessions and a maximum of 34 sessions. The research was conducted twice a week. In order to facilitate accurate measurement, each session was videotaped and reviewed by the researcher. Interrater reliability was established by having a third party view the videotapes and measure the vocalization variable independently.

Results

Two of the three participants had a higher mean percentage of vocalizations during one of the treatment conditions, and the highest aggregate mean percentage of vocalizations occurred during the individual music therapy condition. The highest aggregate mean percentage of gestures occurred during the individual music therapy treatment. Two of the three participants' individual mean duration of eye contact were the longest during the treatment phase with individual music therapy, while the third participant's was the longest during the treatment phase with music therapy and the sibling. The aggregate data revealed the longest mean duration of eye contact occurred during the individual music therapy treatment. Interrater reliability for vocalizations was calculated at 83% for Patrick and 100% for Amy.

Discussion

Individual Participants

Amy

Amy is a 10-year-old girl with ILS. She has a moderate neurogenic visual impairment. Amy is able to eat soft solid food, but is required to sit upright after meals for twenty minutes due to incomplete swallowing of her food. She has a seizure disorder, which is controlled mostly by medication. Her mobility is limited to scooting around in circles on her stomach. Amy's vocalizations include vowel sounds, "hi", and "mama". She has an older brother, who is 13 years old. Sessions with Amy were held twice a week after her dinner in the family room of

her home. She sat in her Tumbleforms chair for the majority of the sessions.

Vocalizations and eye contact were highest during the treatment condition that included her brother; however, the number of gestures did not change across conditions. Amy's vocalizations increased the first baseline session after each treatment phase ended, then decreased. A possible reason for this pattern is that she seemed upset with the researcher for not doing music with her. Although there were people in the room with her during Phases A2 and A3, they were not in close proximity to her and no eye contact was observed. Figures 4-6 depict Amy's vocalizations, gestures, and eye contact across conditions.

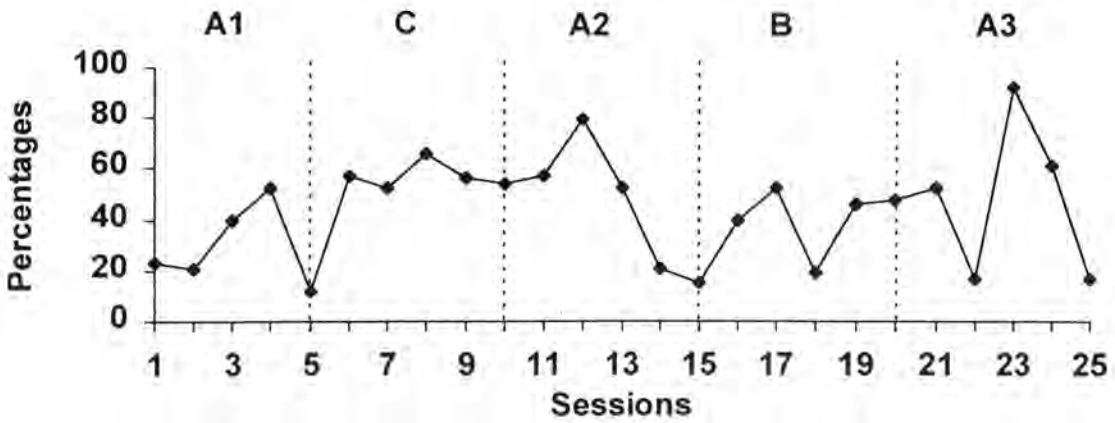

Figure 4: Amy's Vocalizations

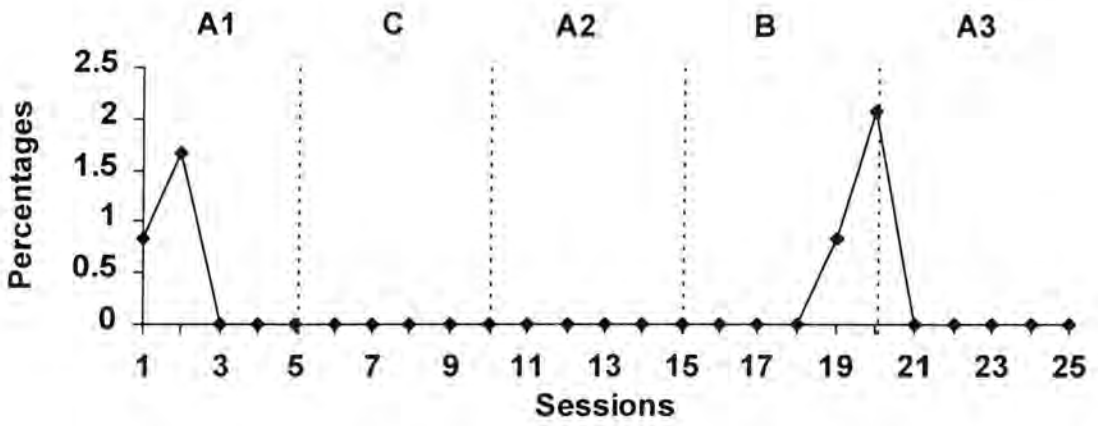

Figure 5: Amy's Gestures

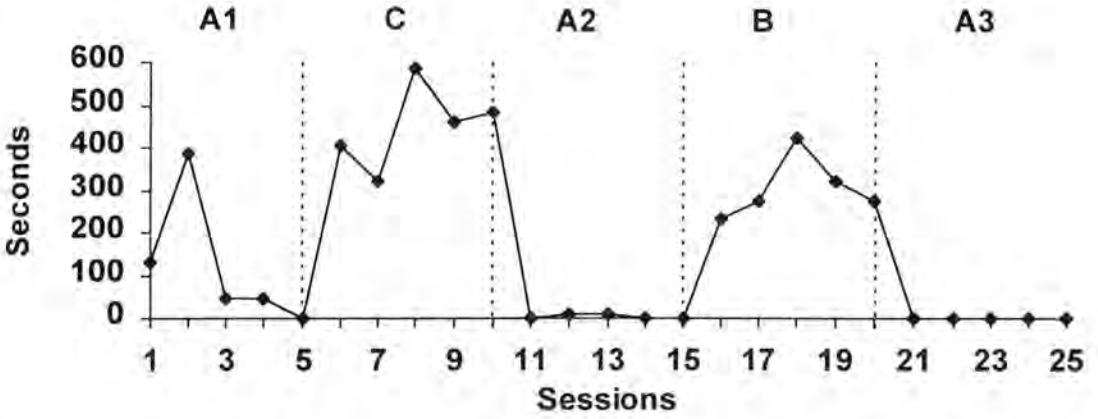

Figure 6: Amy's Eye Contact

Patrick

Patrick is an 8-year-old boy with ILS. He has a seizure disorder, which is mostly controlled with medication. Patrick is able to eat a soft diet. His vocables are limited to vowel sounds. Patrick is non-mobile. He has a younger sister, who is four years old. Sessions were held twice a week after school. The majority of the sessions were held in the family room, however four sessions were conducted in his bedroom, adjacent to the family room.

Vocalizations and eye contact varied throughout the study and gestures increased during the second baseline phase. Patrick's vocalizations decreased as eye contact increased during the treatment with individual music therapy. A possible reason is that he appeared to be listening more to the researcher, which may explain his decrease in vocalizations during this phase. Vocalizations were highest during Sessions 18-20 (Phase A2), with the peak number occurring on Session 19. The high number of vocalizations may be explained by the fact that on these three days, the housekeeper was playing with Patrick with his pom-pom. Figure 7-9 depict Patrick's vocalizations, gestures, and eye contact across conditions.

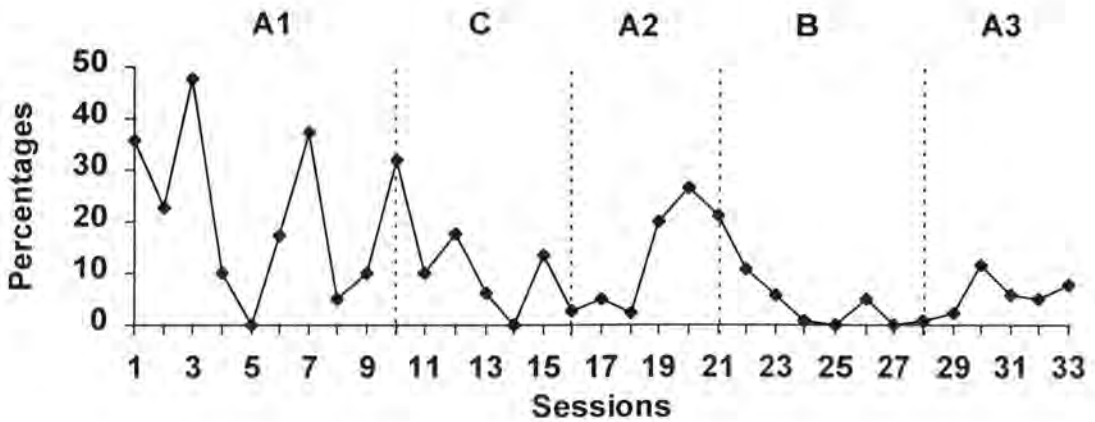

Figure 7: Patrick's Vocalizations

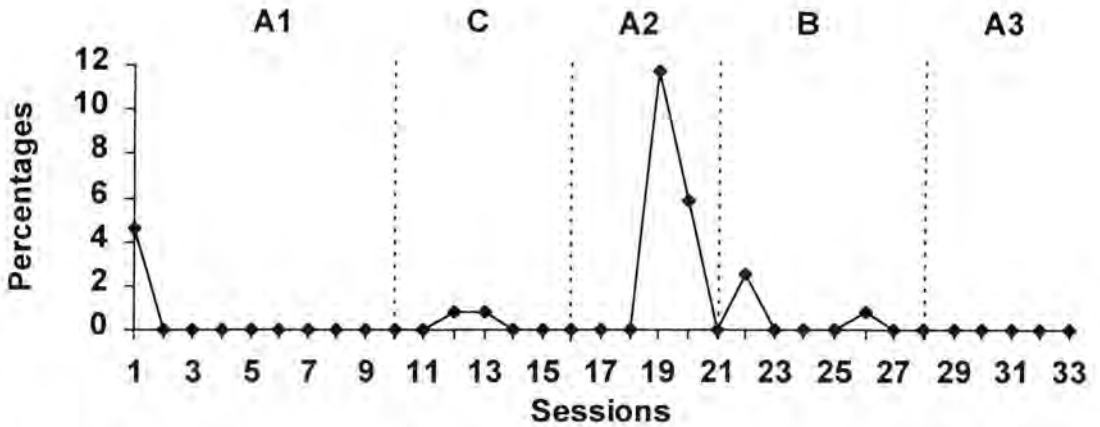

Figure 8: Patrick's Gestures

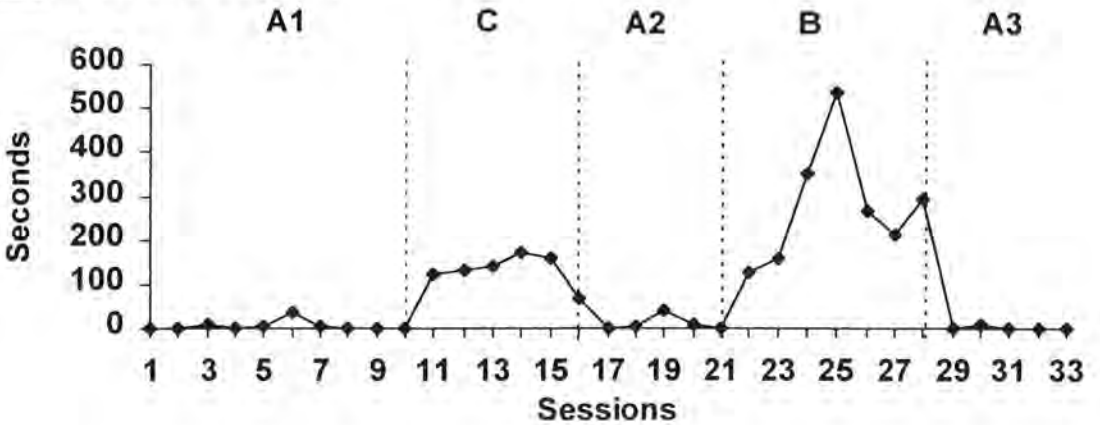

Figure 9: Patrick's Eye Contact

Andrew

Andrew is a 4-year-old boy with ILS. He has strabismus, but had surgery to help correct it. He is able to eat soft foods, such as pudding, yogurt, bread, and Nutra Grain bars. Andrew is fed most of his foods by a g-tube due to an underdeveloped swallowing reflex, which encourages aspiration. His mobility is limited to rolling or scooting in circles on his back. Vocables include the vowel sounds, "lah", "da", "woh", "gi", "ca", "bo", and "leega". Andrew has two younger

brothers; one is two-and-one-half-years old and one was born during the course of the study.

Andrew was hospitalized for pancreatitis and Nissen fundal plication surgery during the initial baseline phase of the research. He was again hospitalized for pancreatitis and gallbladder surgery during the treatment that included music therapy and his two-and-one-half-year-old brother. Sessions were held two times a week in the family room during Andrew's feeding time. For the majority of the sessions, Andrew sat in his Snug Seat chair.

Andrew's vocalizations varied during the beginning and stabilized toward the end of the first baseline phase. His number of gestures remained fairly stable during this initial condition, and the trends in his vocalizations and eye contact mirrored each other.

All three dependent variables were highest during the treatment phase with the individual music therapy. A possible explanation could be that this treatment occurred after Andrew had recovered from his hospitalizations. Also, he is the researcher's oldest nephew and is very familiar with her. He might have enjoyed the individual time with his aunt more than the time with his aunt and sibling. Andrew's vocalizations increased during the first session of the baseline following each treatment phase, then decreased. Figures 10-12 depict Andrew's vocalizations, gestures, and eye contact across conditions.

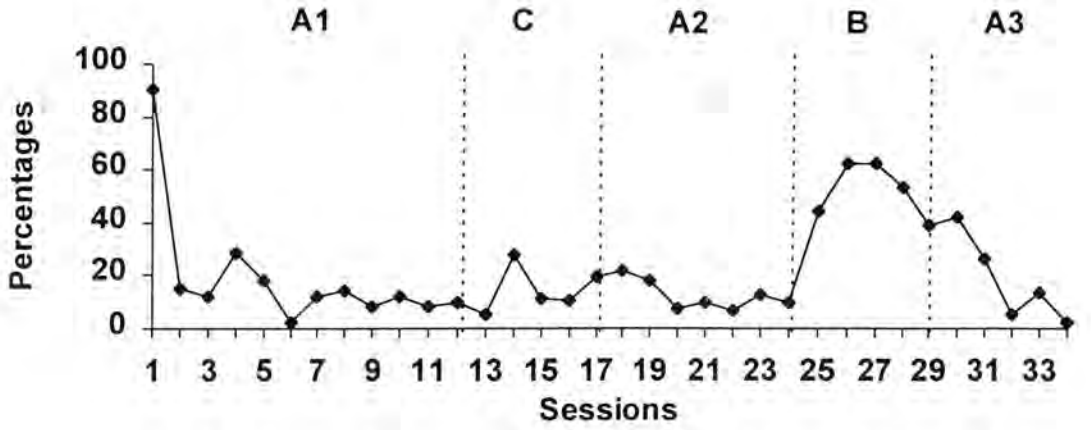

Figure 10: Andrew's Vocalizations

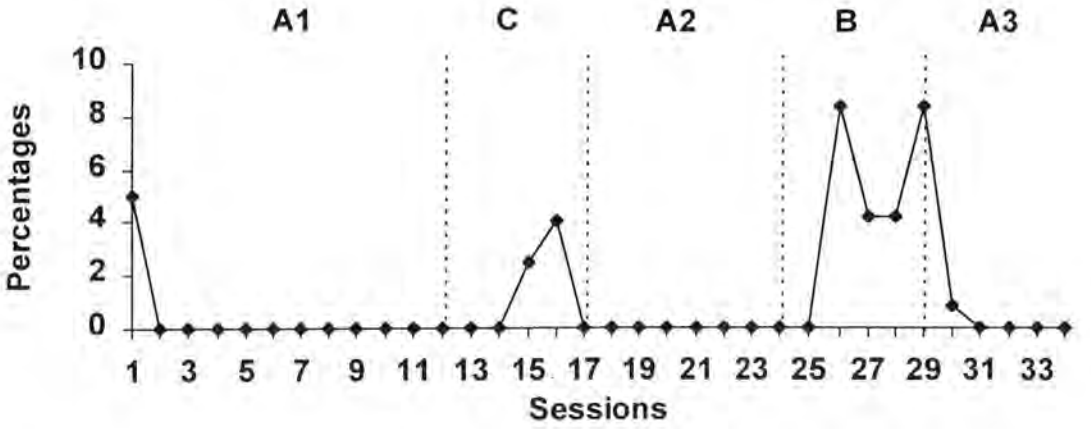

Figure 11: Andrew's Gestures

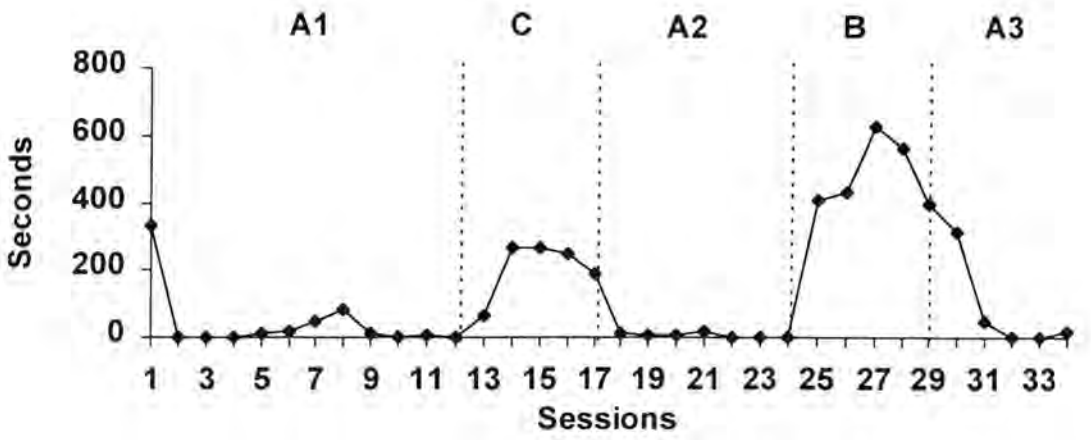

Figure 12: Andrew's Eye Contact

General Trends

The majority of the participants' vocalizations were higher during the treatment with music therapy and sibling than they were during individual music therapy treatment, and higher during the treatment phases than they were during the baseline phases. Although two of the three children experienced the highest number of gestures during one of the baseline phases, all three children's gestures were higher during the individual music therapy treatment than they were during the treatment with music therapy and sibling. The majority of the participants' eye contact was the longest during the individual music therapy treatment and the shortest during the third baseline phase.

Recommendations for Further Studies

After careful review of the results, more studies on the interaction between music therapy, siblings, and their effects on children with ILS are recommended. However, they should be expanded to include one phase with the subject and sibling without music. Because there was not a phase, which included the sibling

without music therapy, findings on the impact of the sibling on the targeted dependent variables should be interpreted with caution.

In addition, it appears that the physical environments in which the baseline phases were conducted needed to be more consistent across participants. For example, at times, people were in the room with Amy, but did not appear on camera while at other times, people were present and did appear on camera. Therefore, Amy's dependent variables varied during the baseline phases. Also, auditory and visual distractions, such as having the television on during treatment sessions, should have been eliminated, as they seemed to negatively influence the participants' attention.

Other factors that probably affected the participants' responses were time of day, age of sibling, and extraneous events, such as hospitalizations. The time of day needed to be different for Patrick. His sessions were immediately after his naptime when he was probably still sleepy, which slowed down his responses. Amy's brother was considerably older than the other two siblings in the study. Since he was 13, he was more able to assist in the session than the other two siblings, who were 4 and two-and-one-half years old. Andrew's hospitalizations most likely influenced his responses. Andrew was recovering from two surgeries and probably did not feel well enough to perform at his best. His hospitalizations may have also affected his two-and-a-half year old brother, who varied in his reactions from being overly affectionate to avoiding Andrew.

The influence of music therapy on the interaction between children with

ILS and their parents should be explored. Parents of children with ILS are seeking new interventions and opportunities for family involvement. For example, Amy's parents consistently attended and observed the treatment sessions and were very impressed with her results. Following the study, they spoke to the researcher about continuing music therapy services for their child.

Further studies on handicapped and non-handicapped sibling dyad interactions are also needed. According to the study of non-handicapped dyads by Abramovitch, Corter, and Lando (1979), older children initiated more antisocial acts than their younger siblings. However, in the present study, Andrew's younger brother initiated more antisocial acts. Pepler, Abramovitch, and Corter (1981) found that younger siblings generally imitate the older sibling, but Amy was the only younger sibling who imitated an older sibling.

The results of this study reinforce other research findings in music therapy literature. Aldridge, Gustorff, and Neugebauer (1995) measured the eye contact, interactions, and verbal communications of two girls in their individual music therapy sessions. Similarly the aggregate mean percentage of vocalizations in this study were the highest during the treatment phase with individual music therapy. The aggregate mean percentage of gestures and duration of eye contact were the highest during this treatment phase and the aggregate mean duration of eye contact was the second highest during the treatment phase with music therapy and the sibling. Saperston (1973) conducted a study with a boy with autism. His duration of eye contact increased to one minute. However, in

this study, the aggregate mean duration of eye contact across participants was nearly three minutes involving individual music therapy.

Studies involving sibling dyads, which include one child who is handicapped and one who is not, should continue to be explored. Other research investigating the effects of music on motor behavior, attention span, visual tracking and localization, and cognitive skills of children with ILS should be undertaken. Comparing the effects of interactions with older siblings versus those with younger siblings on children with ILS should be investigated as well.

References

Abramovitch, R., Corter, C., & Lando, B. (1979). Sibling interaction in the home. Child Development, 50.

Abramovitch, R., Corter, C., & Pepler, D.J. (1980). Observations of mixed-sex sibling dyads. Child Development, 51.

Aldridge, D., Gustorff, D., & Neugebauer, L. (1995). A preliminary study of creative music therapy in the treatment of children with developmental delay. The Arts in Psychotherapy, 22 (3).

Austrin, M.G. & Austrin, H.R. (1987). Young's Learning Medical Terminology: A Work Text. St. Louis, MO: C.V. Mosby Company.

Barr, B. (1978). I Take My Little Hands. Unpublished Composition.

Brunk, B.K., & Coleman, K.A. (1996). Pass the box. in Learning Through Music: Music Therapy Strategies for Special Education, 2. Grapevine, TX: Prelude Music Therapy Products.

Davis, W.B., Gfeller, K.E., & Thaut, M.H. (1992). An Introduction to Music Therapy: Theory and Practice. Dubuque, IA: Wm.C. Brown Publishers.

Dobyns, W.B. (1991). Lissencephaly: Information for Parents. [Review] Indianapolis, IN: Department of Neurology & Medical Genetics: Indiana University of Medicine.

Dobyns, W.B. (1992). Seizures in Children with Lissencephaly. [Review]. University of Minnesota Department of Pediatric Neurology: Minneapolis.

Dobyns, W.B., Reiner, O., Carrozzo, R., & Ledbetter, D. H. (1993). Lissencephaly: A human brain malformation associated with deletion of the LIS1 gene located at chromosome 17p13. JAMA, 270 (23).

Dobyns, W.B. (1996). About Lissencephaly. Fort Wayne, Indiana: The Lissencephaly Network, Inc., 2.

Gaston, E.T. (1964). The aesthetic experience and biological man. Journal of Music Therapy, 1 (1).

Gaston, E.T. (1968). Music in Therapy. New York: MacMillan Company, 7.

Humpal, M.E. (1990). Early intervention: The implications for music therapy. Music Therapy Perspectives, 8, 30-5.

Johson-Martin, N.M., Jens, K.G., Attermeier, M.A., & Hacker, B.J. (1991). The Carolina Curriculum for Infants & Toddlers with Special Needs (2nd ed.). Baltimore, MD: Paul H. Brookes Publishing Company.

Johnson, R.E. (1981). E Thayer Gaston: Leader in scientific thought on music therapy and education. Journal of Research in Music Education, 29 (4) 279-285.

Jorgenson, H., & Parnell, M.K. (1970). Modifying social behaviors of mentally retarded children in music activities. Journal of Music Therapy, 7 83-87.

Kazdin, A.E. (1982). Single-case research designs: Methods for clinical and applied settings. New York: Oxford University Press.

Li, A.K.F. (1981). Play and the mentally retarded child. Mental Retardation, 19 (3), 121-6.

Lowenthal, B. (1996). Teaching social skills to preschoolers with special needs. Childhood Education.

Lubetsky, M.J., Mueller, L., Madden, K., Walker, R., & Len, D. (1995). Family-centered/interdisciplinary team approach to working with families of children who have mental retardation. Mental Retardation, 33 (4).

Mahlberg, M. (1973). Music therapy in the treatment of an autistic child. Journal of Music Therapy, 10 (3).

McGill Smith, P. (1983). You are not alone: For parents when they learn that their child has a disability. NICHCY News Digest, 3 (1), 1-4.

Miller, J.Q. (1963). Lissencephaly in 2 siblings. Neurology, 13, 841-50.

National Information Center for Children and Youth with Disabilities. (1988). NICHCY News Digest, 11.

National Organization for Rare Disorders. (1993). Information on Lissencephaly. Rare Disease Database Reports [On-line]. Available: http://www.NORD-RDB.com/~orphan.

Pepler, D.J., Abramovitch, R., & Corter, C. (1981). Sibling interaction in the home: A longitudinal study. Child Development, 52.

Pfeifer, M. (1989). A step in the right direction: Suggested strategies for implementing music therapy with the multihandicapped child. Music Therapy Perspectives, 6.

Pinson, J.W. (1986) Name song. in New Songs for God's People, 8. Denton, TX: Author.

Powell, T.H., & Ogle, P.A. (1985). Brothers and Sisters: A Special Part of Exceptional Families. Baltimore, MD: Paul H. Brookes Publishing Company.

de-Rijk-van Andel, J.F., Arts, W.F.M., Barth, P.G., & Loonen, M.C.B. (1990). Signs of 21 patients with Lissencephaly type I. Developmental Medicine & Child Neurology, 32 707-717.

Rousey, A.M., & Eyman, R.K. (1995). Probabilities of the development of ambulation for mobile children with moderate to profound mental retardation. Mental Retardation, 33 (5).

Saperston, B. (1973). The use of music in establishing communication with an autistic mentally retarded child. Journal of Music Therapy, 10 (4).

Schuirer, G., Kurlemann, G., & von Lengerke, H.J. (1993). Neuroimaging in Lissencephalies. Childs Nervous Syster, 9(7).

Smith, R. (ed.). (1993). Children with mental retardation: A parents' guide. Bethesda, MD: Woodbine House.

Swaimon, K.F. (1994). Pediatric neurologic diseases. in Pediatric Neurology: Principles and Practice (2nd ed.). St. Louis, MO, p. 438.

Winship, A.E. (1928). Music for mentally crippled children. Music Supervisors Journal, 14 47.

Zickler, C., & Dodge, N. (1996). Feeding and Nutrition in Children with Developmental Disabilities. Fort Wayne, IN: The Lissencephaly Network.

APPENDICES

APPENDIX A

SESSION ORDER

Session Order

Part One: Instruments

1. "Maraca Song" (to the tune of "La Cucaracha")

The child with ILS held the maraca, with the sibling or researcher assisting. The researcher sang the song while the child with ILS played the maraca.

2. "Drum Song" and Chant

Hand-over-hand assistance and physical prompts were used. The drum was held by the researcher or sibling sideways to enable the child with ILS to play the drum. The chant was sung after the drum song.

3. Bubbles Activity.

The sibling blew bubbles, while the researcher sang a modified version of the song, "Tiny Bubbles". For the treatment with individual music therapy, the researcher faced the child with ILS, held and played the instruments, and then blew the bubbles while singing "Tiny Bubbles".

Part Two: Mirror Activity

During the treatment with music therapy and sibling, the sibling without ILS looked in the mirror, and then showed the mirror to the child with ILS. Next, both children looked in the mirror together while the researcher sang the "Name Song", (Pinson, 1986). For the treatment with individual music therapy, the researcher looked in the mirror, showed it to the child with ILS and sang the

"Name Song".

Part Three: Action Songs/Games

1. "Put Your Finger in the Air" (Tune of "If You're Happy and You Know It")

Use the verses "Put your hands on your head", "Put your hands on your knees," and "Clap your hands, NAME, clap your hands".

2. "I Take My Little Hands" (Barr, 1978)

The sibling or researcher held the forearms of the child with ILS, in order to assist the child with ILS in clapping his or her hands. The researcher sang "I Take My Little Hands."

3. Rolling the Ball.

The siblings rolled a ball to each other while singing, "Roll the Ball" (adapted from "Pass the Box", Brunk & Coleman, 1996). For the individual treatment with music therapy, the researcher sang the action songs while facing and physically assisting the child with ILS with the movements and with rolling the ball.

APPENDIX B

AMY'S RESULTS

Table 7: Amy's Results

Sessions	Vocalizations	Gestures	Eye Contact
1	22.72	0.83	132
2	20.83	1.66	386
3	40.00	0.00	47
4	52.63	0.00	48
5	11.76	0.00	0
6	57.14	0.00	403
7	52.15	0.00	320
8	66.23	0.00	586
9	53.42	0.00	459
10	54.34	0.00	483
11	57.46	0.00	0
12	79.36	0.00	10
13	52.32	0.00	8
14	20.87	0.00	0
15	15.15	0.00	0
16	40.00	0.00	234
17	52.62	0.00	276
18	19.23	0.00	423
19	45.87	0.83	322
20	47.61	2.08	275
21	52.10	0.00	0
22	16.66	0.00	0
23	91.74	0.00	0
24	61.11	0.00	0
25	16.66	0.00	0

APPENDIX C

PATRICK'S RESULTS

Table 8: Patrick's Results

Sessions	Vocalizations	Gestures	Eye Contact
1	35.71	4.58	0
2	22.72	0.00	2
3	47.61	0.00	10
4	10.00	0.00	0
5	0.00	0.00	5
6	17.27	0.00	35
7	37.20	0.00	6
8	5.00	0.00	0
9	10.00	0.00	0
10	31.74	0.00	0
11	10.00	0.00	120
12	17.51	0.84	132
13	6.00	0.84	142
14	0.00	0.00	170
15	13.33	0.00	160
16	2.80	0.00	67
17	5.00	0.00	0
18	2.50	0.00	4
19	50.00	11.76	42
20	26.66	5.83	40
21	21.04	0.00	0
22	10.83	2.50	127
23	5.82	0.00	160
24	0.83	0.00	354
25	0.00	0.00	537
26	5.00	0.83	264
27	0.00	0.00	214
28	0.83	0.00	291
29	2.50	0.00	0
30	11.55	0.00	10
31	5.83	0.00	0
32	5.00	0.00	0
33	7.69	0.00	0

APPENDIX D

ANDREW'S RESULTS

Table 9: Andrew's Results

Sessions	Vocalizations	Gestures	Eye Contact
1	90	0.00	329
2	15.15	0.00	0
3	11.89	0.00	1
4	28.33	0.00	0
5	18.34	0.00	12
6	2.50	0.00	20
7	11.66	0.00	46
8	14.44	0.00	84
9	8.44	0.00	10
10	11.76	0.00	0
11	8.33	0.00	6
12	10.00	0.00	0
13	5.00	0.00	65
14	27.52	0.00	267
15	11.64	2.50	266
16	10.74	4.00	251
17	19.23	0.00	192
18	21.64	0.00	12
19	18.34	0.00	8
20	7.44	0.00	6
21	10.00	0.00	20
22	6.66	0.00	0
23	12.75	0.00	0
24	10.00	0.00	2
25	44.20	0.00	407
26	62.72	8.33	432
27	62.72	4.16	626
28	53.42	4.16	564
29	39.21	8.33	396
30	41.73	0.83	315
31	26.66	0.00	49
32	5.00	0.00	0
33	13.33	0.00	0
34	2.50	0.00	15

APPENDIX E

CONSENT FORM

Texas Woman's University

Subject Consent to Participate in Research

Title of Study: The Effect of Music Therapy on the Social Interaction Skills of Children With Isolated Lissencephaly Sequence and Their Siblings

Names and Phone Numbers of Investigators: Kristin E. Barr (940) 591-6098, and Nicki S. Cohen, Ph.D. (940) 898-2523

I understand that I am agreeing to allow my children to participate in a research study and that the purpose of the study is to examine the effects of music therapy on the social interaction skills of children with Isolated Lissencephaly Sequence (ILS) and their siblings. The study will involve the children for a minimum total time commitment of six hours twenty minutes (6 hours, 20 minutes), with sessions being held two times a week, for a total of twenty (20) sessions. The sessions will be limited to twenty (20) minutes each.

I do hereby consent to the recording of my children's images by Kristin E. Barr acting on this date under the authority of Texas Woman's University. I understand that the material recorded during the sessions may be available for the researcher's Master's thesis. I also understand that only the researcher and her advisor, Dr. Nicki S. Cohen will view the videotapes for interrater reliability purposes only.

I hereby release Texas Woman's University from any and all claims arising out of such taping, recording, reproducing, transmitting, or exhibiting as is authorized by Texas Woman's University.

Possible Risks include: One risk is breach of confidentiality. The researcher will use pseudonyms, and keep the children's real names separate from the rest of the data. Another risk is deviation from the children's normal routines, boredom, or dislike of activities. The sessions will be limited to 20 minutes each. If the children dislike the activities, or they cause any distress, the researcher will cease the activities immediately and take measures to comfort the children. If possible, the researcher will use alternate activities. The researcher will store the data in a locked cabinet in her bedroom for one year after the completion of the study. Destruction of the data will involve erasing videotapes and computer discs and shredding paper.

Possible Benefits include: Free music therapy services, possible increase of socialization in the child with ILS, more positive relationships between siblings,

and an increased knowledge of music therapy for the parents.
I understand that my child's participation in this study is voluntary and that my children may withdraw from the study at any time. My children's refusal to participate will involve no penalty or loss of benefits to which he or she is otherwise entitled.

An offer has been made to answer all of my questions and concerns about the study. I will be given a copy of the dated and signed consent form to keep.

We will try to prevent any problem that could happen because of this research. Please let us know at once if there is a problem and we will help you. You should understand, however, that TWU does not provide medical services or financial assistance for injuries that might happen because you are taking part in this research.

If you have any questions about the research or about your rights as a subject, we want you to ask us. Our phone number is at the top of the form. If you have questions later, or if you wish to report a problem, please call us or the office of Research and Grants Administration at (940)898-3375.

_____ _____

Signature of Parent **Date**

_____ _____

Signature of Researcher **Date**

APPENDIX F

DATA TRACKING FORM

Data Tracking Form

Subject #_____
Session #_____

Time	Vocal	Gestures	Eye Contact	Time	Vocals	Gestures	Eye Contact
0:00				10:00			
10				10			
20				20			
30				30			
40				40			
50				50			
1:00				11:00			
10				10			
20				20			
30				30			
40				40			
50				50			
2:00				12:00			
10				10			
20				20			
30				30			
40				40			
50				50			
3:00				13:00			
10				10			
20				20			
30				30			
40				40			
50				50			
4:00				14:00			
10				10			
20				20			
30				30			
40				40			
50				50			
5:00				15:00			
:10				:10			
:20				:20			

Time	Vocal	Gestures	Eye Contact	Time	Vocals	Gestures	Eye Contact
5:30				15:30			
40				40			
50				50			
6:00				16:00			
10				10			
20				20			
30				30			
40				40			
50				50			
7:00				17:00			
10				10			
20				20			
30				30			
40				40			
50				50			
8:00				18:00			
10				10			
20				20			
30				30			
40				40			
50				50			
9:00				19:00			
10				10			
20				20			
30				30			
40				40			
50				50			

+ indicates behavior occurred at least once during specified interval of time.
a blank space indicates behavior did not occur at all.