CHILDREN WITH DOWN SYNDROME AND MUSIC:
A PARENTAL DESCRIPTION OF THEIR EXPERIENCE IN MUSIC

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Alyssa Daudt
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ABSTRACT

The purpose of this study was to explore the experience in music of children with Down Syndrome by use of a descriptive parental survey. The researcher constructed a survey, which had sections including both Likert-type scale ratings as well as open-ended questions. Subjects were found through The Arc, which is an advocacy group for people with mental retardation (including Down Syndrome.) The survey was mailed to 102 parents of children with Down Syndrome in a specific county in a northeastern state. A total of 35 surveys were received, 34 of which were included in data summaries. Items on the survey were divided into categories: Demographics, Quality of Life, Personal Organization, and Socialization. Results show that parents think that music enhances their child's quality of life, that it helps with self-organization, and that it fosters social interactions. Parents seem very positive about music and their children. Many significant correlations were found, particularly involving the learning of songs and other information through the use of music, which supports the literature. Many of the parents' responses show that there are aspects of the musical responses of children with Down Syndrome that are congruent with that of a typical child. Several parents commented that their children's responses to a musical environment are no different than the responses of "normal" children. Implications of this data include: mainstreaming in music classes is particularly useful both for learning purposes and for social interactions; music and musical activities may increase or help serve to maintain self-esteem; music may be an
optimal way of reaching children with Down Syndrome, since it appears that their musical behaviors and responses are not as affected by their disability as other areas of their lives. The data collected may help special educators, parents, and music therapists to use music more effectively with this population. Since specific information about children with Down Syndrome and music is very limited, this study opened a wide area for others to conduct further, more specified research.
DEDICATION

To Ryan Daudt, my inspiration, my laughter, my brother.
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I. Introduction

Specific information about children with Down Syndrome and music is very limited. Most of the music therapy literature has Down Syndrome mixed in with other developmental disabilities (Boxill, 1985; Courtnage, DiGiacomo & Schmidt, 2000; Duffy & Fuller, 2000; Grant, 1989.) Although people with Down Syndrome share some symptoms with autism and other developmental disabilities, it also is unique in some ways. For example, there are differences in emotional development, affect, and social behaviors, as well as physical differences (Hodapp & Fidler, 1999; Lister, Leach, & O’Neill, 1998, Vietze, 1985). In addition, children with Down Syndrome may function at a higher level in some areas, including music (Ching & Stratford, 1983), than children with other developmental disabilities. Because Down Syndrome is a distinct diagnosis, with specific emotional, affective, social, and possibly musical differences, it is important that the description of their musical responsiveness be viewed as a separate entity from that of children with other developmental disabilities. This study is a step toward documenting the responses to music that children with Down Syndrome have.

Of the studies of music therapy for people with developmental disabilities (including Down Syndrome), the therapist typically describes the client’s experience (Boxill, 1985; Bruscia, 1991; Duffy & Fuller, 2000; Grant, 1989). Musical responses do not only occur within a music therapy session; they can occur spontaneously at any time and in any place. Therapists do not typically have the opportunity to see their clients
outside the session. Parents are likely to have a better feel for how their child responds to music in everyday life, since they see the child in their home environment. The present study aims to see how parents of children with Down Syndrome (rather than music therapists) describe their child's social, affective, and behavioral responses to a musical environment. If this study can find similarities in parents' descriptions of their children's responsiveness to music, it may help special educators, parents, and music therapists to use music more effectively with this population. Specifically, it could help music therapists to identify the best ways to use music with clients who have Down Syndrome. It may also give credence to the idea that music therapy may be particularly valuable to this population. The present study could also dispel possible myths that people with Down Syndrome would have a lessened musical responsiveness than their non-disabled peers.

Since most music therapy research is written from the perspective of the music therapist (Boxill, 1985; Bruscia, 1991; Duffy & Fuller, 2000; Grant, 1989), the present study is a limited Survey/Descriptive Study of parents rather than therapists. It was thought that a parental survey would give a more historical framework on the child's musical history, and also would allow for a large sample size. It also would allow for spontaneous musical responses during everyday activities, outside the music therapy environment, to be taken into consideration and documented.

The survey is set up in such a way that the results can be studied in both quantitative and qualitative perspectives. Using a Likert-type scale for quantitative survey questions allowed the researcher to see how subjects view specific aspects of music (such as level of musical involvement, behaviors during music, and music as a social activity)
and to what degree. It also simplified quantitative data analysis because the data produced were numerical (Gardner, Cummings, Dunham, & Pierce, 1998). Open-ended, qualitative survey questions allowed room for expansion (Aigen, 1995); parents had the opportunity to describe their child’s experiences with music in their own words. This study seeks to describe the relationship of children with Down Syndrome and music in three chosen areas: quality of life, personal organization, and as a socializing agent.

The limitations of the study are low response rate (35 responses out of 102 surveys sent out; 34% response rate), and the small range of geographical and economic backgrounds of subjects.
II. Literature Review

Down Syndrome

Down Syndrome, also known as trisomy 21, is an autosomal abnormality caused by an additional 21st chromosome (Newman & Newman, 1999). The condition occurs in one of every 700 live births, and is the most frequent genetic cause of mental retardation in the United States (Newman & Newman, 1999). Children with Down Syndrome have specific physical abnormalities from birth, and may have heart defects, visual impairments, and immune system deficiencies. Intellectual development is markedly slowed, and babies born with Down Syndrome appear to be less responsive to stimulation than babies without Down Syndrome (Bukatko & Daehler, 1995). Physical abnormalities include low muscle tone, eyes with a particular epicanthal fold, a protruding tongue and other specific facial features, broad and thick hands and feet with small fingers and toes, and a combination of over 100 other signs. The overriding feature is mental retardation. Only a small percentage of people with Down Syndrome have an IQ over 50. There is no known cause or cure (Kaplan & Sadock, 1998).

Down Syndrome is classified as not only falling under the umbrella of mental retardation, but also as a "developmental disability." Boxill (1985) says that:

The term developmental disability denotes a severe chronic disability, the onset of which is usually at birth, that is attributable to a mental or physical impairment or a combination of both resulting in substantial limitations in self-care, receptive
and expressive language, learning, mobility, self-direction and capacity for independent living and reflecting the person's need for a combination for generic care, interdisciplinary treatment, or other services of lifelong duration. (p. xi)

Since Down Syndrome is a developmental disability, studies including subjects with Down Syndrome often include subjects with a wide range of other developmental disabilities as well, limiting the information gathered on Down Syndrome alone. The present study seeks to expand on what is currently known about Down Syndrome in itself.

Many studies have been done on infants with Down Syndrome that document differences between those with and those without the syndrome. There are differences in the central nervous system between individuals with and without Down Syndrome. For example, those with Down Syndrome have an "overall decrease in serotonin levels," which suggests that they may have difficulty regulating sleep-wake cycles, with a tendency toward wakefulness (Ganiban, Wagner, & Cicchetti, 1990, p. 73). Decreased serotonergic levels also may affect responsivity to the environment. Differences in noradrenaline levels suggests differences in levels of autonomic nervous system functions, possibly implying "decreased sensitivity to novelty in the world" (Ganiban, Wagner, & Cicchetti, 1990, p. 73). There are also "specific reflexive, neuromotor, sensory, and pre-cognitive growth profiles of the syndrome" (Marfo, 1991, p. 61), as well as differences in their development of concepts of conservation (Lister, Leach, & O'Neill, 1998). All of these facts suggest that individuals with Down Syndrome may have emotional and temperamental characteristics that are due to differences in their neurotransmitters caused by the syndrome.
There are many more differences between infants and toddlers with Down Syndrome and nonhandicapped infants in the areas of emotionality, regulation and expression of affect, approach and engagement with the world, and maturational components that have been documented (Ganiban, Wagner, & Cicchetti, 1990). However, it is unknown if these are characteristics that are specific to Down Syndrome or that are common to anyone with mental retardation. Since Down Syndrome can be diagnosed at birth and many other types of mental retardation cannot, most studies of infants and toddlers with mental retardation are done with Down Syndrome subjects being compared to normal subjects, not to others with mental retardation. A study by Marcovitch, Goldberg, MacGregor, and Lojkasek (1986), cited in the Ganiban, Wagner, & Cicchetti chapter (1990), indicated that temperamentally, infants and toddlers with Down Syndrome were similar to other developmentally delayed groups of the same age, but with "some qualitative differences in approach, activity, and distractibility" (p. 91). Another study comparing children with autism and Down Syndrome's sibling interactions, found that children with Down Syndrome engaged in more frequent bouts of interaction and imitation than the subjects with autism (Knott, Lewis, & Williams, 1995). This shows that there are documented social differences between some subgroups of developmentally disabilities. Unfortunately, the researcher has not been able to locate other literature that explores behavioral differences between those with Down Syndrome and those with other types of mental retardation.

There have been findings of decreased neuronal development in those subjects with Down Syndrome, which may be linked to the "abnormally high incidence of Alzheimer's disease" among those with Down Syndrome (Ganiban, Wagner, & Cicchetti,
Since this high incidence is due specifically to Down Syndrome, not other developmental disabilities, it suggests that there may be more differences between these populations that exist but are not yet documented. These differences might include not only differences in brain structure but in emotional and temperamental characteristics, learning style, even musical responsiveness. The present study seeks to find out about the musical responsiveness of individuals specifically with Down Syndrome. Although it is not the intention of this thesis to differentiate Down Syndrome from mental retardation, the results of the study may in fact reveal differences between these populations.

Most of the aforementioned research was done in a laboratory setting, which in itself may have different results than research collected in the home. The present study attempts to gather information about what occurs spontaneously in the home environment, in order to include the richness of the children's experiences and the truest examples of their potentials.

Social and Emotional Development

Children with Down Syndrome vary in their rate of development, as do non-disabled children. However, they always develop at a slower rate than children without the syndrome (Selikowitz, 1990). The anatomical structure of the brain is different for children with Down Syndrome, including fewer brain cells, which affects their development. The process of learning new skills is less efficient for children that have Down Syndrome. This includes all areas of development: gross-motor, fine-motor, language and speech, cognitive, personal and social development (Selikowitz, 1990).
Social development may suffer for more reasons than the genetic abnormality alone; it is possible that the child with Down Syndrome will begin taking part in social activities at a later age, and therefore not have as many social opportunities overall. This may further slow their social development. There are also social stigmas associated with mental retardation and Down Syndrome (Alderson, 2001; Rowitz, 1981; Taylor, 2000; Dudley, 1997) that may negatively affect the child's social development. If the child does not have playmates of his or her own age, possibly due to others' negative perceptions of Down Syndrome (Rowitz, 1981), the child may be more isolated than the typical child and not develop socially at a normal rate. Since music can be a social activity, it can be a way for children with the syndrome to make a connection with other individuals. Also, if the present study can show that children with Down Syndrome tend to be at an appropriate developmental level within a musical context, music can be an opportunity for them to engage in an activity with others where they are more "normal." This can help change the "normal" children's possible negative perceptions of Down Syndrome, and also help the self-esteem of the child with Down Syndrome. It can also suggest that music may be a good activity or class for inclusion of children with Down Syndrome.

Since all people with Down Syndrome "possess a common genetic abnormality, the concept of homogeneity of personality is plausible" (Gibbs & Thorpe, 1983, p. 601). However, the literature is not in agreement as to whether this is actually true. The classic stereotype of children with Down Syndrome being affectionate and outgoing has been supported by some studies (Gibbs & Thorpe, 1983; Kaplan & Sadock, 1998) and challenged by others (Bridges & Cicchetti, 1982; Hanson & Rothbart, 1983; Ganiban,
Wagner, & Cicchetti, 1990). Each child is different, and will respond to different stimuli in different ways. Some children may need help to manage their anger, anxiety, or frustration; some may not need help in these areas.

As adolescents, it is not uncommon for those with Down Syndrome to have emotional difficulties and/or behavioral disorders in addition to their Down Syndrome (Kaplan & Sadock, 1998). For example, Spitzer, Gibbon, Skodol, Williams, & First (1994) discuss a case in which a 15-year-old boy had gotten so behaviorally out of hand that his mother took him to the emergency room. He had been hitting her, after reportedly overreacting to her request that he stop banging on the floor. He had a very bad temper and a low threshold for anger (Spitzer et al., 1994) as do other children with Down Syndrome (Kaplan & Sadock, 1998). Again, not all studies support that this is a common problem. But for those children who do have problems with impulse control, anger management, or emotional difficulties, music therapy may be a way to help the child organize him/herself and work toward alleviating some of these problems.

**Developmental Aids and Interventions**

Receiving early and constant educational intervention, physical therapy, and having a good home environment have very positive effects in children with Down Syndrome (Newman & Newman, 1999; Selikowitz, 1990). If these interventions are implemented, people with Down Syndrome can gain independence in adulthood (Newman & Newman, 1999).

It has been documented that people with Down Syndrome benefit from interventions such as speech and language therapy (Kumin, 1998), physical therapy
(Winders, 1999), occupational therapy (Bruni, 2001), physiotherapy (Selikowitz, 1990) and special education (Newman & Newman, 1999; Selikowitz, 1990). If there are documented benefits to children with Down Syndrome having these other therapies, it is possible that they will benefit from music therapy as well. The literature also shows that there is a need for children with Down Syndrome to have therapeutic interventions in order to improve their physical, mental, and social functioning. If parents report that children with Down Syndrome respond well to music, then music therapy in particular may be of great benefit to them in addressing these developmental areas.

Children and adolescents with mental retardation have also had positive experiences using creative media: art, (Hairston, 1990; Crawford, 1977; Gitter, 1977; Banks, Davis, Howard, & McLaughlin, 1993), dance/movement (Reese, 1988; Lishman, 1986; Rogers, 1977; Kavaler, 1974) and music (Jellison & Flowers, 1991; Jellison & Gainer, 1995; Heal & O’Hara, 1993; Hoskins, 1988; Pujol, 1994; Wager, 2000). Crowe (1987) explains that it is necessary to stimulate creativity with people who have mental retardation:

“It may be...that the retarded not only possess fundamental creative potential, but some may function at the norm in this area. By working to develop this aspect of functioning, we could be providing the retarded with a compensatory activity and a much needed means of self-expression...If the goal for work with the mentally retarded is to develop their abilities to the fullest, work in the area of creative areas becomes essential. Research supports the idea that involvement in the creative arts enhances intellectual development...” (p. 238).
Music can stimulate creativity. Therefore, it may not only serve as a means of self-expression to clients with Down Syndrome, but it may also help them to advance intellectually, and improve their quality of life. This seems worthy of further study.

Alderson (2001) did a study that interviewed six adults with moderate mental retardation who lived fairly independent lives, to find out about their quality of life. Alderson’s study “suggests that the potential of people with learning difficulties will not be realised until they have many more opportunities to develop it” (Generalisability and Validity section, ¶ 1). She states that most research done with people with Down Syndrome focuses on their limitations, and that although they do have difficulties, they also have “potential and achievements” (Generalisability and Validity section, ¶ 1) that are rarely assessed in research. Looking at what they are capable of can help give us a more realistic picture of their abilities. If music is something that people with Down Syndrome enjoy and are relatively good at, it may be one aspect of their lives in which they are able to rise to their potential.

Alderson also states that within the general population, there are no correlations between intellectual ability, contentment and self-esteem. In other words, one may have low intellectual ability yet still live a happy life. Yet, it is still generally thought that people with developmental disabilities have a lower quality of life due to their disability. She continues to say that the reason for this is that there is a social stigma that the lives of people with developmental disabilities are not worth living. People with disabilities are frequently confronted by others that look at them strangely, that verbally or physically confront them without provocation, and that see them as incapable of working, thinking
This shows that even though people with Down Syndrome may not necessarily need improvements in their quality of life, the views of others are sure to affect them in some way. Music therapy is one way to provide experiences that help develop self-esteem. And again, if the present study can show that people with Down Syndrome are more “normal” within a musical context, it can help change the possible negative perceptions of Down Syndrome that others may have, and in turn help the self-esteem of the child with Down Syndrome.
The subjects of Alderson’s study all lived either on their own or with parents. Quality of life of people with Down Syndrome that have more severe mental retardation and/or live in institutions was not addressed in this study. It may be assumed that their quality of life may not be as high due to institutional conditions. It was thought that if the present study can show that people with Down Syndrome respond well to music and that it enhances their quality of life, it gives good reason to make music an integral part of their childhood, whatever their level of intellectual impairment.

_Music Therapy with Children with Developmental Disabilities_

According to the American Music Therapy Association (AMTA), “Music therapy is the prescribed use of music by a qualified person to effect positive changes in the psychological, physical, cognitive, or social functioning of individuals with health or educational problems” (AMTA, April 2001).

The AMTA lists people with “developmental disabilities” as a group that can benefit from music therapy. The AMTA website has many quotes from clients involved in music therapy. A mother of a 6 ½ year old with Down Syndrome says:

“Music therapy has helped my son to learn turn-taking, sharing, listening skills and some colors, animals, parts of the body and clothes. (Child participated in group music therapy for 2 years in preschool and then in individual music therapy for 1 year in kindergarten)” (AMTA, April 2001).

Many of the aspects mentioned are aspects of personal organization and interaction with the environment. The developmental areas quoted, as well as those mentioned earlier, could be addressed with children specifically with Down Syndrome in music therapy.
Boxill (1985) clearly describes her rationale for using music therapy with people with developmental disabilities:

Used as a therapeutic tool, music:

- effects direct contact on a psychobiological basis with people who often are otherwise unreachable
- serves to establish, maintain, and strengthen the client-therapist relationship in ways that are uniquely attributable to the power of this tool
- facilitates expression in people who either are nonverbal or have deficits in communication skills
- provides the opportunity for experiences that open the way for, and motivate, learning in all domains of functioning
- creates the opportunity for positive, successful, and pleasurable social experiences not otherwise available to them
- develops awareness of self, others, and the environment that improves functioning on all levels, enhances well-being, and fosters independent living

(p. 16)

One way to restate the above would be to say that music can be used in three categories: as a socializing agent, as a means of personal organization, and as an enhancement to a person's quality of life. In Gaston's book (1968), Sears also speaks of the processes of music therapy as "Experience within structure...Experience within self-organization... and Experience in relating to others" (p. 33). These areas include such processes as self-expression, sensory-elaborated behavior, and cooperation. All of these areas are ways that music therapy can not only be a positive experience for people with
developmental disabilities in general, but also for people with Down Syndrome specifically. As stated earlier in the literature, these are also areas in which children with Down Syndrome may particularly benefit from interventions. Music can foster social interaction which may be lacking, it can help those with emotional difficulties and/or behavioral problems (which are not uncommon for children with Down Syndrome (Kaplan & Sadock, 1998)), and it can enhance quality of life (Gaston, 1968). The researchers categorized the survey questions into those three areas, to determine if parents think their children use music in any of those ways in their daily lives.

There have been numerous studies done that refer to music interventions with subjects that have mental retardation or other developmental disabilities (Jellison & Flowers, 1991; Jellison & Gainer, 1995; Heal & O’Hara, 1993; Hoskins, 1988; Pujol, 1994; Velasquez, 1991, Wager, 2000). Bruscia, in *Case Studies of Music Therapy* (1991), documented increases in positive affect during music therapy with clients with developmental disabilities. Also, music therapy seemed to enhance social interactions and increase positive observable behaviors (Bruscia, 1991).

Howery states, in Gaston’s book (1968), that music therapy provides a means of communication, security, gratification, and esthetic sensory experience for those with mental retardation. She goes on to say “The severely retarded respond with greatest success to the rhythmic element of music” (p. 58). This supports the idea that people develop rhythmically regardless of whether they have a developmental disability or not. Boxill (1985) agrees that “because rhythm works on the organism on a primary level and is ’absorbed’ physically, its therapeutic use is basic to work with this client population” (p. 114). Kreitler and Kreitler, in *Psychology of the Arts* (1972), also discuss rhythm as a
basic element of life. They quote Stevens (1951) saying that "...electrical activity in the brain, neural transmission, respiration, heartbeat, circulation, and many other visceral activities...are all rhythmically structured" (p. 150). Kreitler and Kreitler also quote Piaget (1960): "rhythm characterizes the functions that are the junction between organic and mental life" (p.150). Therefore, it makes perfect sense that the rhythmic aspect of music would affect even the most developmentally delayed of people, because rhythm is at the core of all organic life.

Hairston conducted a study in which two groups, the first on children with autism and mental retardation, and the second on children with mental retardation alone, were exposed to both music therapy and art therapy. The results showed a gain in developmental areas (behavior, communication, socialization, and pre-academics) after therapy in both groups studied (Hairston, 1990). It is possible that music therapy would show a developmental gain for clients with Down Syndrome as well. It is also possible that the gain for clients with Down Syndrome could be different or even greater than the gain shown in these two subject groups.

Grant (1989) describes a specific method of using music therapy with children with developmental disabilities in order to aid in development of perceptual, sensorimotor, social, and communication skills. Grant's method uses music therapy as a part of an interdisciplinary approach. He concludes that music may be helpful to this population; these are areas in which clients with Down Syndrome would quite possibly also benefit.
Research Methods: Quantitative, Qualitative, and Survey

Mertens (1998) describes quantitative research methods as "research that measures variables in a quantifiable way" (p. 3). Aigen speaks of some researchers that describe it as "[research methods that] are used when the data are numerical" (Wheeler, 1995, p. 285).

The Likert-type scale is a common quantitative survey format (Edwards & Holden, 1989). Likert-type scales allow the research subject to rate a construct on a scale (usually five point) to measure the degree to which they agree or disagree with a statement (Edwards & Holden, 1989), which allows the researchers to find differences and similarities between subjects along some specific dimension. The scale is also a good method because it is numerical, so it simplifies quantitative data analysis (Gardner, Cummings, Dunham, & Pierce, 1998). It is possible to measure people's attitudes about a particular topic by use of a Likert scale survey (Larsen & Ommundsen, 1997). The present study, in part, rated parents' attitudes toward their children with music. It also aimed to find out what the parents believed their children's attitudes toward music to be.

Bloom, Krathwohl, & Masia (1956) used a specific scale that rates affect on a five-point scale in a unique way. The scale is as follows:

1. Receiving (Attending)
2. Responding
3. Valuing
4. Organization
5. Characterization by a Value or Value Complex
This is known as the affective domain of the *Taxonomy of Educational Objectives*. Buttram describes the scale in Hodges' book (1996) in a way that can be viewed in a musical context:

...receiving, or willingness to attend to stimuli; responding, or willingness to participate in some way; valuing, adopting, or demonstrating commitment to some value; organization, forming concepts and abstractions of experience; and characterization of a value or value system, or internalizing a value system guiding activity (p. 458).

Moving up the scale, we go from noticing the music to shaping one's life around it. This scale, although not appropriate in its entirety for this Down Syndrome study, is useful nonetheless, since it quantified affective response, a generally qualitative construct (this is also what makes it unique). One of the topics addressed by the Down Syndrome study is the affect of the child when in contact with music. This scale also aided the researchers in designing questions that range from the basic attending behavior of a child with Down Syndrome when music is present, to the child shaping their life around music.

Prickett states in Wheeler's book (1995) that quantitative research attempts to answer questions by "quantifying or ascribing importance to the number or size of reactions or results" (p. 98). Quantitative analysis helps us to organize our perceptions of our world, eliminate researcher biases, and helps make it possible to replicate a study (Wheeler, 1995). Since it is widely used, results measured in the language of quantitative research allows the results to be better understood across disciplinary lines. Nonmusicians can therefore better understand the results, even if they are unfamiliar with musical phenomena.
Another distinct type of research is qualitative research. Mertens (1998) describes qualitative research as “research that captures holistic pictures using words” (p. 3). Aigen mentions in Wheeler’s book (1995) that “the qualitative approach to research has much in common with humanistic approaches to music therapy and explains the basic consonance between the two” (p. 309).

Aigen also states that qualitative research can be very useful in a field such as music therapy, since it deals so much with things like creativity, nonverbal expression, and human relationships. These aspects of music therapy are often more thoroughly expressed in qualitative methods rather than quantitative (Wheeler, 1995).

It seems that most research in the music therapy field follows a “more traditional” quantitative model (Forinash, 1993, p. 69). Most documentation and description of qualitative methods has taken place since the 1990’s. Since it is an emerging type of research, not many published examples can be found.

Meeting the music therapy researcher’s goal of “both discerning artistic qualities such as creativity and improvisation, which are the essence of clinical work, and communicating those often ineffable features to other professionals in a coherent and well-defined manner” can be challenging (Forinash, 1993, p. 69). There has been an active debate within the field over whether that goal can be better met using quantitative or qualitative methods (Forinash, 1993).

Forinash goes on to quote Hesser (1982), who says that “...our profession [is] beginning to polarize between those who hold a ‘scientific’ approach on the one side and those who have an ‘artistic’ approach on the other. In such a polarization neither side has the total picture” (p. 69). Aldridge states that “a tolerance of both the scientific and the
aesthetic is called for, with neither demanding predominance over the other, rather that each has something valuable to contribute as a facet of a greater understanding" (Aldridge, 1993, p. 120). This researcher agrees with Aldridge, Forinash, and Hesser; this is why the current study employs a combination of both quantitative and qualitative methods.

Once the researchers of the present study had decided to use a combination of both quantitative and qualitative methods, a format needed to be chosen. It seems that surveys are widely used, and with good reason. "Surveys can be thought of as methods used for descriptive research or as data collection methods used within other research designs... and are used pervasively in educational and psychological research" (Mertens, 1998, p. 105). For example, surveys have been done with music therapists as the subjects (Nicholas & Gilbert, 1980; Michel, 1995). Parents are often surveyed when researchers are interested in parent's views or their experiences as parents. Examples include:


All of these researchers used parents as a way to find out more about their experiences and feelings about their children.

Lathom-Radocy and Radocy state in Wheeler's book (1995) that "survey research is very appropriate for learning what some defined population does or believes" (p. 167).
This suggests that a survey would be a good method to use to explore the experience in
music of children with Down Syndrome.

Many music therapy clients are not able to verbalize their feelings, and are not
capable of filling out a self-report about their experiences with music therapy. This
would also hold true for many children that have Down Syndrome. To do a survey with
this population, someone else would have to report the information. Since parents see
their children in many different settings, not only within the therapeutic environment,
they are likely to be good subjects for a survey that asks about their children’s
experiences and behaviors.

In most of the aforementioned music therapy studies, the researchers, usually the
music therapists, described the client’s experience within the therapeutic environment. In
order to find out about the clients’ home experience, it would be necessary to look to a
different group for this information, since therapists do not see their clients outside
therapy. As mentioned earlier, researchers have used parental surveys as a way to find
out more about their experiences and feelings about their children. A parental survey
done in 2000 by Courtnage, DiGiacomo and Schmidt at the Kardon Institute of the Arts,
Philadelphia, aimed to find out more about the clients’ experience outside the therapeutic
environment. The study surveyed parents of 30 clients with a wide range of diagnoses
and ages who were receiving individual music therapy. The clients ranged in age from 4
through 55; diagnoses include Down Syndrome, developmental disabilities, cerebral
palsy, autism, attention deficit/hyperactivity disorder, learning disabilities and
neurological impairments. They used a written survey, using a Likert scale, in which
parents of clients rated change in their children’s observable behaviors in the areas of
interpersonal interaction, language/communication, motor skills, and emotional responses
since the start of music therapy. This study showed that parents are capable of reporting
rate of change in observable behaviors in subjects with a wide range of disorders and
disabilities. It is one of few studies conducted using parents as a resource of feedback
about their child's musical experiences. Although it was a relatively small study with
fewer than eight subjects with Down Syndrome, it did show that there was a trend for
moderate change in behavior of these subjects (Courtnage, DiGiacomo & Schmidt,
2000). This study shows that music therapy can bring about positive change in clients,
which is seen both by therapists and parents.

The aforementioned study spoke of the experiences of people with developmental
disabilities that are receiving music therapy. What about people who are not receiving
music therapy? What role does music play in their lives? To ask this question, the
researcher decided to use a pool of families with a child who has Down Syndrome, and
survey the parents. The aim is to find out about the musical life of children with Down
Syndrome.

There are limitations to using parents as the sole source of information. Parents
may not have a realistic picture of their child’s abilities and experiences due to their own
bias. Their knowledge is also limited to their child’s musical interactions that take place
in their presence; whatever parents report about musical situations at school and
elsewhere is secondhand information. However, the home environment differs from the
therapeutic experience. Parents are able to describe situations in which music takes place
in their homes, and how their children respond to it. Is music a chosen social activity
with family or friends? Is music listening a part of their children’s daily lives? These
things cannot be seen within a laboratory or a music therapy session. It therefore follows that parents, more so than experimenters or therapists, are able to paint a picture of the musical life of their children.
III. Methodology

Design

This is a limited Survey/ Descriptive Study. The researchers designed a survey (Appendix B) in order to determine how parents of children with Down syndrome describe their child's social, affective, and behavioral responses to a musical environment. The survey was designed to include quantitative questions using a Likert scale, as well as qualitative, open-ended questions. The questions were divided into three categories: quality of life, personal organization, and socialization. Items 1 through 8 are in the “Quality of Life” section, items 9 through 15 comprise the “Personal Organization” section, and items 16 through 20 pertain to “Socialization.” All questions are related to the parents’ perception of the child’s reaction to, level of involvement with, and feelings about music and musical activities.

Subjects

All subjects were adult parents, ages 18-80, of children with Down Syndrome. This study has 34 subjects of both genders; there was no exclusion criteria for participation. All racial/ethnic groups were welcome to participate in this study. Background information of the children included age, gender, severity of mental retardation and ethnicity.

Subjects were found through The Arc, an advocacy group for people with mental retardation (including Down Syndrome). All subjects resided in or near a specific county
in a Mid-Atlantic state. For reasons of confidentiality, The Arc mailed the surveys
directly from their office; the researchers will never come into contact with any personal
information on the subjects.

The present study was designed and implemented in conjunction with a second
researcher, Ryoko Ohara, who will not be studying the results.

Procedures

After the survey was designed in April 2001, it was approved by the Institutional
Review Board of MCP Hahnemann University. Mailings were assembled at MCP
Hahnemann University by the researchers, put in MCP Hahnemann envelopes, sealed,
and hand-delivered to one of the offices of The Arc. Due to The Arc’s confidentiality
policies, the researchers were unable to obtain addresses of the subjects. Therefore, the
mailings were addressed and sent by mail directly from The Arc office in May 2001.

Each mailing contained a cover letter from The Arc (Appendix A), a cover letter
from MCP Hahnemann University’s Creative Arts in Therapy Department (Appendix B),
a four-page survey (Appendix B), and a stamped envelope addressed to MCP
Hahnemann University. The Arc cover letter was from the Director of the Community
Resources office. The purpose of the letter is to explain that The Arc has no direct
affiliation with MCP Hahnemann University, the survey, and/or the researchers. The
MCP Hahnemann University cover letter explains what the survey is about, that
participation is voluntary, and the mailing instructions. It also includes space to fill in
some background information of the subjects: Child’s age, Child’s gender, Child’s
Ethnicity, and the Severity of the child’s Mental Retardation as determined by physician,
school, or State Division of Developmental Disabilities. To minimize the risk of subject personal information being disclosed, the MCP Hahnemann University cover letter clearly stated "To protect your anonymity, please do not include any personal information on the envelope or the survey itself."

Subjects privately filled out the survey if they wished to, sealed it in the stamped envelope provided, and sent it in the mail. 35 surveys were received by the researcher by mid-July, 2001.

Data Analysis

Each survey was given a number upon receipt by the researcher, making it possible to reference back to each particular survey as necessary. For quantitative data, subjects’ responses to each item were entered into a data table in SPSS 10.0.5 (Statistical Package for the Social Sciences) computer program for Windows. The program was used to calculate frequency of responses to each question and correlations between items and item sections. Results are displayed in terms of n (number of cases per answer to each item) and % (percentage of cases, rounded to the nearest whole number). If subjects did not rate an item, it is referred to as "no answer." If subjects chose "N/A" (not applicable), it is also referred to as "no answer" since the researcher was unable to infer what the subjects were expressing.

Qualitative data cannot be analyzed by SPSS, so it was necessary for the researcher to use a different method of analysis for these data. Answers to the open-ended items were typed verbatim, with all of the responses to each qualitative item in a list. The researcher then highlighted and color-coded key words, phrases, and ideas that
were stated by more than one subject, for each item separately. Each color represented one idea. Then, the amount of subjects that commented on each idea were counted and recorded, and compared to the number of subjects that commented on other ideas. Some "in their own words" responses are also included in the results section. Consistencies in the parental descriptions/responses to the open-ended questions were noted.
IV. Results

The main objectives of this study were to:

1.) explore the experience in music of children with Down Syndrome by descriptive parental report;

2.) to assess the beliefs and attitudes that parents of children with Down Syndrome have about music and their child;

3.) to expand knowledge of what is currently known about Down Syndrome and music;

and

4.) to collect data which may help special educators, parents, and music therapists to use music more effectively with this population.

The results of the survey are divided into 6 sections:

1.) Demographic Information of Respondents,

2.) Quality of Life,

3.) Personal Organization,

4.) Socialization,

5.) Correlations, and

6.) Descriptive Data.
Demographic Information of Respondents

There were 102 surveys sent out to parents of children with Down Syndrome in and near a specific county in a northeastern state. Out of the 35 surveys sent back to the researcher, one was not used in these results since the child was said to have Trisomy-18, not Down Syndrome. Therefore, 34 surveys, or 34% were used for the basis of these results.

The children of the respondents ranged in age from 22 months to 19 years old. Nine children (27%) were between the ages of 22 months and 4.9 years. Six children (18%) were of school age, between the ages of 5 and 9.9 years. Six children (18%) were pre-teen, between the ages of 10 and 12.9. Nine children (27%) were adolescents, between the ages of 13-19. Four respondents did not fill out this information (12%).

Of the 34 surveys, 16 subjects (47%) indicated that their child was male, and 18 subjects (53%) indicated that their child was female. Respondents were asked the severity of their child’s mental retardation as determined by physician, school, or State Division of Developmental Disabilities. Eight children (24%) were described as having mild mental retardation, 13 (39%) as moderate, and one (3%) as severe. Six parents (18%) were not sure, and six parents (18%) skipped this item. Nineteen (56%) of the respondents described their child as “Caucasian,” two (6%) as “African American,” two (6%) as “American,” one (3%) as “Asian,” one (3%) as “Hispanic,” and one (2%) as “mixed.” Eight subjects (24%) did not respond to this item. For the sake of simplicity, the researcher will refer to respondents who either left an item blank or circled N/A as “did not respond/answer.” (see Appendix C).

A table of means and ranges for each survey item is included in Appendix D.
Quality of Life

The first 8 items of the survey pertain to music as a part of quality of life (see Table 1). Responses to items in this section demonstrate that according to their parents, most children seem to enjoy music and want to be involved with it in a variety of ways.

100% of respondents agreed with the statement in item 1 that “my child likes music” (n=29, 85% strongly agreed, n=5, 15% agreed). 100% of respondents also agreed with item 2’s statement “my child likes singing or vocalizing along with music” (74% strongly agreed, 27% agreed). Item 3 states “my child frequently wants to be involved with music.” 97% of respondents agreed (71% strongly agreed, 27% agreed) and one parent (3%) was not sure.

Item 4 states “my child does not like to sing or vocalize when there is no music playing.” Most parents (n=17, 79%) disagreed (15 (44%) strongly disagreed, 12 (35%) disagreed), 2 (6%) were not sure, 2 (6%) agreed and 3 (9%) strongly agreed.

Item 5 declares “My child likes to learn songs.” 97% of respondents (n=33) agreed with the statement in item 5, (n=23, 68% strongly agreed, n=10, 29% agreed), and one parent (3%) was not sure. This item is directly correlated with frequently wanting to be involved with music (Item 3) at the 0.05 level (p<0.05; r=0.429).

Item 6 states “My child plays music (on instruments, musical toys, pots and pans, etc.).” Responses tallied 25 (74%) who agreed (n=15, 44% agreed; n=10, 29% strongly agreed), 3 who disagreed (n=1, 3% strongly disagreed; n=2, 6% disagreed), 4 (12%) who were not sure, and 2 (6%) did not answer.
Item 7 declares "My child seems to use music as a way of expressing him- or herself." Seven respondents (21%) strongly agreed, 11 (32%) agreed, 9 (27%) were not sure, and 7 disagreed (21%); no respondents strongly disagreed.

Item 8 states "My child imitates musicians or identifies with certain artists." Responses are as follows: 15 (44%) strongly agreed, 5 (15%) agreed, 6 (18%) were not sure, 4 (12%) disagreed, 2 (6%) strongly disagreed, and 2 did not answer. This tendency is directly correlated with age at the 0.05 level, with desire to learn more songs (item 5) at the 0.01 level (p<0.01; r=0.549), and with music as a means of relaxation (item 13) at the 0.01 level (p<0.01; r=0.504).

Table 1

Responses to Items Pertaining to Quality of Life

<table>
<thead>
<tr>
<th>Item #</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Not sure</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>No answer</th>
</tr>
</thead>
<tbody>
<tr>
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<td>0</td>
<td>5</td>
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<td>Item 2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>25</td>
<td>0</td>
</tr>
<tr>
<td>Item 3</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>9</td>
<td>24</td>
<td>0</td>
</tr>
<tr>
<td>Item 4</td>
<td>15</td>
<td>12</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Item 5</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>10</td>
<td>23</td>
<td>0</td>
</tr>
<tr>
<td>Item 6</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>15</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Item 7</td>
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<td>7</td>
<td>9</td>
<td>11</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Item 8</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>5</td>
<td>15</td>
<td>2</td>
</tr>
</tbody>
</table>
Personal Organization

The next seven items (items 9 through 15) deal with music as a part of personal organization (see Table 2). Results show that parents generally believe that music helps their children in aspects of self-organization, such as rhythmic grounding, affect change during music, and orienting responses to musical stimuli.

100% of respondents agreed that their child seems happy when listening to, playing, or singing music in item 9 (n=29, 85% strongly agreed; n=5, 15% agreed).

Item 10 states “My child seems to have greater impulse control when involved with music. (less hitting, less throwing things, etc.)” Responses tallied 9 (27%) respondents agreed (n=5, 15% strongly agreed; n=4, 12% agreed), 3 (9%) were not sure, and 5 (15%) disagreed. Exactly half of respondents (n=17) either chose “not applicable” or did not answer. This item is directly correlated with the severity of mental retardation at the 0.05 level (p<0.05; r=-0.637).

Item 11 states “My child moves (clap, dance, sway, tap feet, etc.) to music.” Results show that nearly three-quarters (n= 24, 71%) of the respondents strongly agreed, 9 respondents (27%) agreed, and one respondent (3%) was not sure.

Item 12 declares “My child has a longer attention span than usual when involved with music.” Again, roughly three quarters of the respondents agreed (n=12, 35% strongly agreed, n=12; 35% agree). Three subjects answered “not sure” (9%) and 4 subjects (12%) disagreed.
Item 13 states “My child becomes relaxed when listening to music.” The majority of respondents agree (n=11, 32% strongly agreed; n=16, 47% agreed). Two respondents (6%) were not sure, 3 (9%) disagreed, and 2 (6%) did not answer.

Item 14 states “My child does imaginative play while listening to music.” Almost half of respondents agreed (n=7, 21% strongly agreed; n=8, 24% agreed). Nine parents (27%) were not sure, 5 parents (15%) disagreed, and 5 (15%) did not answer.

Item 15 states “My child’s behavior is shaped by music in some way.” The majority of respondents were not sure (n=10, 29%), whereas 21% (n=4) agreed, 15% (n=5) strongly agreed, 24% (n=8) disagreed, and one parent (3%) strongly disagreed. Three parents (9%) did not respond to this item.
Table 2

**Responses to Items Pertaining to Personal Organization**

<table>
<thead>
<tr>
<th>Item #</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Not sure</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>No answer</th>
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<td>Item 9</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>29</td>
<td>0</td>
</tr>
<tr>
<td>Item 10</td>
<td>0</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>Item 11</td>
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<td>0</td>
<td>1</td>
<td>9</td>
<td>24</td>
<td>0</td>
</tr>
<tr>
<td>Item 12</td>
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<td>4</td>
<td>3</td>
<td>12</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>Item 13</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>16</td>
<td>11</td>
<td>2</td>
</tr>
<tr>
<td>Item 14</td>
<td>0</td>
<td>5</td>
<td>9</td>
<td>8</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Item 15</td>
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<td>8</td>
<td>10</td>
<td>7</td>
<td>5</td>
<td>3</td>
</tr>
</tbody>
</table>

**Socialization**

The last five items, numbered 16 through 20, pertain to music as a means of socialization (see Table 3). Parents’ responses reveal that their children are likely to engage in musical activities with others.

Most respondents (82%) agreed with item 16’s statement “My child plays music with me or other individuals” to some degree (n=20, 59% agreed; n=8, 24% strongly agreed). One parent (3%) was not sure, and 5 (15%) did not respond. This item is directly correlated with using music as a means of expression (item 7) at the 0.01 level (p<0.01; r=0.521).
Item 17 declares “My child sings with me or other individuals.” All of the respondents, with the exception of 2 who were not sure and 2 who did not respond, agreed (n=16, 47% agreed; n=14, 41% strongly agreed).

Item 18 states “my child uses musical rhythms, sings, or chants while involved in play.” Over half (59%) of respondents concurred (n=14, 41% agreed; n=6, 18% strongly agreed), but 7 parents (21%) disagreed, one (3%) strongly disagreed, 3 (9%) were not sure, and 3 (9%) did not respond.

Item 19 states “My child dances with me or other individuals.” All but one respondent agreed (n=16, 47% strongly agreed; n=17, 50% agreed; n=1, no answer).

The final item (item 20) states “My child asks for music (asks me to play an instrument, to put on music, etc.).” Almost half (47%) of respondents strongly agreed (n=16), 32% agreed (n=11), 15% disagreed (n=5), none strongly disagreed, and only 6% (n=2) did not answer.

Table 3

Responses to Items Pertaining to Socialization

<table>
<thead>
<tr>
<th>Item #</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Not sure</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>No answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 16</td>
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<td>0</td>
<td>1</td>
<td>20</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>Item 17</td>
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<td>16</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>Item 18</td>
<td>1</td>
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<td>3</td>
<td>14</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Item 19</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>17</td>
<td>16</td>
<td>1</td>
</tr>
<tr>
<td>Item 20</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>11</td>
<td>16</td>
<td>2</td>
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</tbody>
</table>
Correlations

Significant correlations were found between several items. The Pearson Correlation between the Quality of Life section and the Personal Organization section of the survey is 0.79, which is significant at the 0.05 level. The Pearson Correlation between the Quality of Life section and Socialization section of the survey is 0.55, which is significant at the 0.05 level. The Pearson Correlation between the Socialization section and the Personal Organization section of the survey is 0.53, which is significant at the 0.01 level (see Table 4).

Table 4

Pearson Correlations for Parent Survey Sections

<table>
<thead>
<tr>
<th>Survey Sections</th>
<th>Quality of Life</th>
<th>Personal Organization</th>
<th>Socialization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of Life</td>
<td>1</td>
<td>0.785**</td>
<td>0.548**</td>
</tr>
<tr>
<td>Personal Organization</td>
<td>0.785**</td>
<td>1</td>
<td>0.532*</td>
</tr>
<tr>
<td>Socialization</td>
<td>0.548**</td>
<td>0.532*</td>
<td>1</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level

* Correlation is significant at the 0.05 level

Descriptive Data

Items 6, 8, 15, 20 had an open-ended component in addition to the rating scale. An “additional comments” section was added at the end of the survey as well (responses to all open-ended items are shown in Appendix E). The major findings of the descriptive
data are that adolescents with Down Syndrome generally enjoy music, that they have musical preferences, they tend to imitate and pretend to be popular musicians, and that they prefer playing percussive instruments to winds, guitar or strings.

Responses to item 6 ("My child plays music (on instruments, musical toys, pots and pans, etc). If so, please describe.") are as follows: 38% of parents (n=13) specified percussive instruments, 26% (n=9) specified piano or keyboard, 9% (n=3) specified guitar, and 6% (n=2) for playing or pretending to play wind instruments.

Responses to item 8 ("My child imitates musicians or identifies with certain artists. If you agree with the above statement, please explain.") included comments such as: 10 parents (29%) used the words "imitate," "copy," or "pretend" to be specific musicians that they have seen. Six children (18%) enjoy the music of specific current pop stars. Several parents (n=4, 12%) mentioned singing or singing along, and 3 parents (9%) mentioned that their children dance or know dance moves from music videos.

Responses to item 15 ("My child's behavior is shaped by music in some way. Please explain.") varied. A number of parents (n=9, 26%) used positive terms such as "happy," "fun," and "enjoys," and 4 respondents (12%) specified that music seems to be "calming" or "relaxing" to their children. Some parents (n=3, 9%) mentioned that music helps their children in the learning process, and 2 parents (6%) said that music helps their child to "express himself" or that it is a "great means of self-expression" for their child. One parent said "through music my child is able to interact both socially & with language with other children more so than at any other time. It is the easiest way or activity to "include" him in..." One said that their child will "get focused on a song and will block
everything else out.” Another mentioned that their child becomes “more cooperative” when music is on.

Responses to item 20 (“My child asks for music (asks me to play an instrument, to put on music, etc.). If so, please describe.”) are as follows: 20 (59%) parents said that their child has specific musical preferences or that they have their own CD’s or tapes. 24% (n=8) said that their child is able to “do it him/herself,” or “push the button to turn on music.” 18% (n=6) specified asking for music in the car.

Responses to “Please state any comments that you think are relevant about the musical response by children with Down Syndrome” are varied. The majority of parents (n=14, 41%) used positive terms such as “loves,” “happy,” “joy,” “appreciation for” and “fun.” Several respondents (n=6, 18%) mentioned music as helpful in the learning process. Of those 6 respondents, 2 (6%) had children between the ages of 0 and 5, 2 (6%) had children between 6 and 10, and 2 (6%) did not specify the age of their child. Several parents (n=4, 12%) (each one having a child from a different age category—toddler, school-age, pre-teen and adolescent) commented “From what I’ve seen the musical response in children with Down Syndrome is no different than that of a normal child” or similar comments. One mentioned that music often initiates a sexual response, one used the words “interact” and “important to their growth,” and one parent of a 6-year-old said that “music... seems to have a calming effect.”
V. Discussion

The data appears to say that parents think that music enhances their child's quality of life, that it helps with personal organization, and that it fosters social interactions. Parents seem very positive about music and their children. There are many implications of these data.

Several parents said that their children have “normal” musical responses compared to other children (two parents specified their own other children, one said compared to “a normal child,” and one said “...feels like everyone else when he can sing & enjoy music.”). This suggests that there are aspects of the musical responses of children with Down Syndrome that are congruent with that of a typical child. For example, descriptive responses to item 8 show that 40% of parents of children ages 10-19 commented that their children imitate musicians, and six parents of children ages 6-19 commented that their children “love,” “imitate,” or are “into” current pop stars. This is typical of children of these ages, which means that the children with Down Syndrome tend to have musical preferences appropriate to their age. If children with Down Syndrome are more “normal” within a musical environment, it suggests:

1) inclusion in music classes is particularly useful both for learning purposes and for social interactions;

2) if the children feel more “normal” in musical situations, then music and musical activities may boost or help serve to maintain self-esteem;
3) music may be an optimal way of reaching children with Down Syndrome, since it appears that their musical behaviors and responses are not as affected by their disability as other areas of their lives.

The final point particularly suggests that music therapy might have very positive results for children with Down Syndrome. A music therapist would be trained to work with their musical behaviors and responses and work toward creativity, expression, social or behavioral goals to benefit the child in many ways.

Descriptive information reveals that rhythm and percussion are favored and possibly particularly useful in the learning process. This supports the literature (Boxill, 1985; Gaston, 1968). One respondent commented “She seems to learn songs and things like the alphabet more easily. Rhythm/rhyming also helps her- she can say the Pledge of Allegiance- can’t remember her address.” This implies that if special educators put information to a chant, the children are more likely to remember the information. This can help school performance as well as enhance learning at home. In addition, rhythmic chants or songs may also be of value during transitions, due to the childrens’ orienting response to rhythm. For example, when children at school need to go from one area of the room to another, chanting or singing rhythmically may help orient the children to where they are and where they are moving to. This can also aid children, teachers, and parents during times of transition.

Further data about music and learning appeared in the additional comments section at the end of the survey. The researcher thinks that it’s very significant that 6 parents mentioned that music was helpful in the learning process. Learning was only mentioned once within the body of the survey (“My child likes to learn songs”); the
respondents said this without prompting, or even being led to that conclusion. If the survey had an item saying something such as “Music seems to aid my child in the learning process,” it is likely that more parents would have also had this experience. This information can be of use to special educators; information put to a melody or rhythm could quite possibly speed the learning process, and also add interest.

According to the literature, rhythm is such a basic element of life that it is the most mastered element of music, regardless of intellectual ability (Gaston, 1968; Kreitler & Kreitler, 1972). Therefore, engaging in it would be pleasurable, particularly when it is one of the few things that a child has mastery over. Rhythm is then particularly powerful for this group of people, and can be used not only in the learning process but as an outlet and as a means of self-gratification. Rhythm activities can be incorporated into everyday life, and when offered to children and encouraged by their parents, can allow for pleasure, mastery, and social interaction. Music therapists may also want to focus on grounding rhythmic music experiences with this population for these reasons.

For item 20 (“My child asks for music (asks me to play an instrument, to put on music, etc.) If so, please describe.”), the fact that 20 parents out of 34 said that their child has specific musical preferences or that they have their own CD’s or tapes, and eight said that their child is able to “do it him/herself,” or “push the button to turn on music,” seems to show several things. It shows that with music, the children are able to show their individuality. It is something that they can call their own, that is a part of them and their personality. It is uniquely theirs. It also shows their independence, and is another aspect of their reactions to music that seem “normal.” These preferences could also be used in teaching and/or music therapy as a way to make a connection with the child, and to
encourage their individuality. Musical independence should therefore be encouraged and supported by parents as well.

There were significant correlations between some survey items. The researcher finds the correlation between the severity of the child's Down Syndrome and item 10 ("My child seems to have greater impulse control when involved with music...") particularly significant (p<0.05, r=-0.637). This has several implications:

1.) that the children with more severe mental retardation have less impulse control than the children with milder mental retardation;

2.) that music helps to get the attention of, and is grounding to the children with more severe mental retardation;

3.) the more severe the child's mental retardation, the more music may be of behavioral benefit.

This information suggests that the more severe the mental retardation, the more music should be incorporated into learning, play, and everyday life. Music therapists are trained to use music to work toward (psychological, not necessarily musical) goals. Since children with severe Down Syndrome respond well to music, it seems to follow that they would particularly benefit from music therapy.

The more children with Down Syndrome like to learn songs, the more they want to be involved with music, as seen by the correlation between item 5 and item 3 (p<0.05). This can also be viewed in the reverse; the more they want to be involved with music, the more they like to learn songs. Since 97% of respondents' children frequently wanted to be involved with music, and the same percentage enjoy learning songs, this seems to be an ideal way to reach them educationally. Again, this can benefit special educators, since
children who want to be involved with music tend to enjoy learning songs, and information put to melody can aid the learning process.

One can speculate that if one likes to learn more songs, one would imitate artists. This correlation was found (between item 5 and item 8) in the survey. It is part of normal development for a child to imitate people in order to become better at something that the child values. This shows that children with Down Syndrome develop normally in this aspect.

It also seems to be a normal part of development that as children enter their pre-teen and adolescent years, they seek to identify with others. Many children dress like pop stars and identify with people that are in the spotlight. It is also normal to wish to be famous, to want to be loved by millions and to have the lifestyle of the rich and famous. The fact that age and imitating or identifying with certain artists (item 8) are correlated shows that teens with Down Syndrome have a normal desire to be like those they admire. In terms of Bloom, Krathwohl and Masia's scale (1956), these children have moved from Receiving through Responding, Valuing, and Organization due to the value they place on the music and musicians.

Musical responses of the children generally appear to be appropriate for their age. Since 40% of the subjects' children between ages 10 and 18 imitate rock stars or siblings, it may be more data backing the likelihood of inclusion being beneficial. If they imitate musical behaviors it is possible that they will also imitate non-musical behaviors. It is also possible that being around typical children may help them to learn to do the things that typical children do. Not every child is at a level that inclusion would benefit them, and not every child has social deficits that need to be remedied. However, this data does
show that children with Down Syndrome do imitate behaviors. This information can be of great use, since imitation seems to be a preferred learning method for them.

There were also several significant correlations between the three sections of the survey (Quality of Life, Personal Organization, and Socialization; see Table 4). As quality of life scores increase, so do personal organization scores (p<0.01; r=0.785). This means that parents who rated their children highly on items pertaining to their child’s use of music as an enhancement to their quality of life, also rated their children highly on items pertaining to use of music as a means of personal organization. In other words, children who have developed their lifestyle in some way around music and are involved with it in several ways, also use music as a means of self-organization. This shows that for these children, music is enjoyed and is also useful to them. They would likely respond well to music therapy, because not only is music already an important part of their lives, but it has positive behavioral effects. Music therapists would be able to work with these behavioral effects and further aid the child’s development.

There is also a correlation between respondents who scored highly on quality of life items and on socialization items (p<0.01; r=0.548). In other words, children who are involved with several aspects of music in their lives also seem to find greater interpersonal interaction from musical experience. In this case, it seems possible that encouraging music in the household would also foster social interactions, which would aid in development of social skills.

There were no significant correlations found between survey items and gender. None of the answers to the survey items were unique to mostly females or males, showing that the results stand regardless of gender.
Some of the data received was unexpected. For example, responses to item 15 ("My child's behavior is shaped by music in some way.") varied greatly; this was unexpected. (The majority of respondents were not sure (n=10, 29%), whereas 21% (n=4) agreed, 15% (n=5) strongly agreed, 24% (n=8) disagreed, and one parent (3%) strongly disagreed. Three parents (9%) did not respond to this item.) Some respondents wrote in comments such as:

- "Just because she has Down Syndrome doesn't mean that she has behavior that needs to be controlled by music,"
- "He loves music but I disagree that it has anything to do with behavior,"
- "My child's behavior does not change because she listens to music- it is just something that she enjoys. She is not a "better" child nor a "more difficult" one because of music."

This type of response indicates that the wording of the item may have been unclear. A better wording might have been "My child's behavior is influenced by music in some way," "My child's life is shaped around music in some way," or "My child's behavior changes in response to music." The researcher hypothesizes that if the sentence were clearer, responses would be overwhelmingly positive.

Another item that had a spread of responses was item 14 ("My child does imaginative play while listening to music."). This item may also have yielded different results if worded differently, such as "My child engages in creative activities while listening to music."

Item 10 also had a wide range of responses ("My child seems to have greater impulse control when involved with music. (less hitting, less throwing things, etc.").
The wording of the item may have had a negative connotation, and examples did not include more positive aspects of impulse control, such as listening more, or having greater involvement with the matter at hand. It also may have been directed more toward a younger age group, and some of the parents of older children seemed defensive in their responses.

Limitations of the Study and Suggestions for Further Research

More studies comparing development of children with Down Syndrome in comparison to children with other forms of mental retardation are necessary. Replication of this survey administered to parents of children with other forms of mental retardation would shed light on these possible differences between the musical behaviors of these groups. More research in the home environment could also be useful with a number of populations.

Increasing the response rate may be possible through telephone surveys or personal interviews. Interviews also might lessen parental defensiveness or misunderstanding since wording and meaning of items could be explained as needed.

Since this study focused on parents' point of view how their children experience with music, in future studies, children's self-report on their experiences with music may also be useful, and may yield different results. Other sources of information, such as older siblings, or other therapists that use music (speech therapists, occupational therapists, etc.) would also add valuable data. The study could also be replicated with adults that have Down Syndrome, to find out about the influence of music in their lives, and its value in quality of life, personal organization and socialization aspects.
Essentially, anything that adds to the literature base of music and Down Syndrome could be useful. Documentation of music therapy cases of people with Down Syndrome would show if music therapy is particularly helpful to this population, and what specific methods seem to be most beneficial to them.

One of the original motivating factors of this thesis is that the researcher herself has a sibling with Down Syndrome. This sibling is very musical; whose life almost revolves around musical activities and dreams of being in a rock band. In her eight years of spending time with children that have developmental disabilities at summer camps, the researcher noticed that many of the children with Down Syndrome in particular seemed very musical. They loved being on stage and performing, that they always wanted to have the microphone to sing along with their favorite songs, that they picked up the nuances of performance gestures of their idols. Children at the camps who had other developmental disabilities did not seem to respond in this way to music. This is what sparked this thesis, and although it is possible that the qualitative analysis is biased for this reason, the data seems to speak for itself. Researcher biases would not necessarily affect the results of quantitative analysis.

Other limitations include the homogeneous demographics of the sample in this study (location, ethnicity, and economic status since the area was relatively affluent). For future studies, researchers could look at different geographical areas and economic statuses, since this study includes only a specific geographical area. Minority populations could also be considered, since the present study's subjects were 56% Caucasian. In addition, the results may not be generalizable to the entire Down syndrome population.
Further studies would add much needed information to the thin literature base on music and Down syndrome.
Exploring the experience in music of children with Down Syndrome by use of a descriptive parental survey was the objective of this study. Although Down Syndrome is a developmental disability, it is plausible that there are musical responses that are unique to people with Down Syndrome. Literature on music and those with Down Syndrome is limited. Finding out more about their experience in music can aid parents, special educators, and music therapists in knowing the best and most effective ways to use music for developmental gain with this population.

The researcher constructed a survey, which had sections including both Likert-type scale ratings as well as open-ended questions. Subjects were found through The Arc, which is an advocacy group for people with mental retardation (including Down Syndrome.) The survey was mailed to 102 parents of children with Down Syndrome in a specific county in a northeastern state. A total of 35 surveys were received, 34 of which were included in data summaries.

Results show that in addition to, seemingly, providing for an aesthetic experience, parents think that music enhances their child’s quality of life, that it helps with self-organization, and that it fosters social interactions. This is in support of the literature. Parents seem very positive about music and their children. Many significant correlations were found, particularly involving the learning of songs and other information through the use of music, which also supports the literature. Connections made between music
and learning can aid special educators in developing curricula, and can help parents to provide activities that enhance their child's individuality, self-esteem, and learning.

Many of the parents' responses show that there are aspects of the musical responses of children with Down Syndrome that are congruent with that of a typical child. Several parents commented that their children's responses to a musical environment are no different than the responses of "normal" children. Therefore, music may be an optimal way of reaching children with Down Syndrome, since it appears that their musical behaviors and responses are not as affected by their disability as other areas of their lives. This implies that music therapy may be especially advantageous to this population. It also suggests that mainstreaming within music classes can be of particular benefit to children with Down Syndrome (as well as their non-handicapped peers). This information is not previously documented, and opens up a wide area for further research.
REFERENCES


March 2001

Dear Parents:

Enclosed you will find a survey. This is part of a study being done by a student who is the sister of one of our Stepping Stones alumni. Please take the time to look it over at your convenience; however, The ARC is in no way affiliated directly with the survey.

Thank you for your time.

Sincerely,

Lee Bergman, Director
Community Resources

Enclosure
Dear Parents,

We are asking you to participate in a survey about the experience that children with Down Syndrome have with music. This research is being conducted by graduate music therapy students as part of a Psychology of Music course. Participation in this survey is voluntary. You do not have to participate. When you are finished completing this survey, please seal it in the self-addressed stamped envelope provided and drop it in the mail by June 13, 2001.

To protect your anonymity, please do not include any personal information on the envelope or the survey itself.

Thank you for your participation.

Background information:

Child’s age: ______________________

Child’s gender: _____________________

Child’s ethnicity: ____________________

Severity of Mental Retardation as determined by physician, school, or State Division of Developmental Disabilities (please circle one of the following):

Mild Moderate Severe Profound Not sure
Children with Down Syndrome and Music: A Qualitative Parental Description of Their Experience in Music

| 1 Strongly Disagree | 2 Disagree | 3 Not Sure | 4 Agree | 5 Strongly Agree | N/A Not Applicable |

Please circle the number that you think is most appropriately describes your child's experience.

Space is provided for comments on some questions.

**Quality of Life:**

1. My child likes music.
   1  2  3  4  5  N/A

2. My child likes singing or vocalizing along with music.
   1  2  3  4  5  N/A

3. My child frequently wants to be involved with music.
   1  2  3  4  5  N/A

4. My child does not like to sing or vocalize when there is no music playing.
   1  2  3  4  5  N/A

5. My child likes to learn songs.
   1  2  3  4  5  N/A
6. My child plays music (on instruments, musical toys, pots and pans, etc.)
   
<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
   
   If so, please describe.

7. My child seems to use music as a way of expressing him- or herself.
   
<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8. My child imitates musicians or identifies with certain artists.
   
<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
   
   If you agree with the above statement, please explain:

   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________

Personal Organization:

9. My child seems happy when listening to, playing, or singing music.
   
<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10. My child seems to have greater impulse control when involved with music. (less hitting, less throwing things, etc.)
   
<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>N/A</th>
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</tr>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>1</td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Not Sure</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

11. My child moves (clap, dance, sway, tap feet, etc.) to music.

   1   2   3   4   5
12. My child has a longer attention span than usual when involved with music.

   1   2   3   4   5
13. My child becomes relaxed when listening to music.

   1   2   3   4   5
14. My child does imaginative play while listening to music.

   1   2   3   4   5
15. My child's behavior is shaped by music in some way.

   1   2   3   4   5

   Please explain:

   ____________________________________________________
   ____________________________________________________
   ____________________________________________________

   Socialization:

16. My child plays music with me or other individuals.

   1   2   3   4   5

   N/A
17. My child sings with me or other individuals.
   1  2  3  4  5  N/A

18. My child uses musical rhythms, sings, or chants while involved in play.
   1  2  3  4  5  N/A

19. My child dances with me or other individuals.
   1  2  3  4  5  N/A

20. My child asks for music (asks me to play an instrument, to put on music, etc.)
   1  2  3  4  5  N/A
   If so, please describe.

Please state any comments that you think are relevant about the musical response by children with Down Syndrome.

Thank you for taking the time to complete this survey. Please seal it in the self-addressed stamped envelope provided and mail.

To protect your anonymity, please do not include any personal information on the envelope or the survey itself. Thank you for your participation.
Appendix C

*Demographic Information of Respondents' Children*

<table>
<thead>
<tr>
<th>Age group</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4.9 years</td>
<td>9</td>
<td>26.9</td>
</tr>
<tr>
<td>5-9.9 years</td>
<td>6</td>
<td>17.6</td>
</tr>
<tr>
<td>10-12.9 years</td>
<td>6</td>
<td>17.6</td>
</tr>
<tr>
<td>13-19 years</td>
<td>9</td>
<td>26.5</td>
</tr>
<tr>
<td>No answer</td>
<td>4</td>
<td>11.8</td>
</tr>
</tbody>
</table>

**Gender**

<table>
<thead>
<tr>
<th>Gender</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>16</td>
<td>47.1</td>
</tr>
<tr>
<td>Female</td>
<td>18</td>
<td>52.9</td>
</tr>
</tbody>
</table>

**Severity of mental retardation**

<table>
<thead>
<tr>
<th>Severity</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>8</td>
<td>23.5</td>
</tr>
<tr>
<td>Moderate</td>
<td>13</td>
<td>38.2</td>
</tr>
<tr>
<td>Severe</td>
<td>1</td>
<td>2.9</td>
</tr>
<tr>
<td>Profound</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>No answer</td>
<td>12</td>
<td>35.3</td>
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</table>

**Ethnicity**

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>American</td>
<td>2</td>
<td>5.9</td>
</tr>
<tr>
<td>African American</td>
<td>2</td>
<td>5.9</td>
</tr>
<tr>
<td>Caucasian</td>
<td>19</td>
<td>55.9</td>
</tr>
<tr>
<td>Hispanic</td>
<td>1</td>
<td>2.9</td>
</tr>
<tr>
<td>Category</td>
<td>Count</td>
<td>Percentage</td>
</tr>
<tr>
<td>--------------</td>
<td>-------</td>
<td>------------</td>
</tr>
<tr>
<td>Asian</td>
<td>1</td>
<td>2.9</td>
</tr>
<tr>
<td>Mixed</td>
<td>1</td>
<td>2.9</td>
</tr>
<tr>
<td>No Answer</td>
<td>8</td>
<td>23.5</td>
</tr>
</tbody>
</table>
### Appendix D

**Means and Ranges for All Survey Items**

<table>
<thead>
<tr>
<th>Survey Items</th>
<th>Mean</th>
<th>Range (Min-Max)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Quality of Life items</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My child...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. likes music.</td>
<td>4.9</td>
<td>4 - 5</td>
</tr>
<tr>
<td>2. likes singing...</td>
<td>4.7</td>
<td>4 - 5</td>
</tr>
<tr>
<td>3. frequently wants to be involved...</td>
<td>4.7</td>
<td>3 - 5</td>
</tr>
<tr>
<td>4. does not like to sing... without music*</td>
<td>4.0</td>
<td>1 - 5</td>
</tr>
<tr>
<td>5. likes to learn songs...</td>
<td>4.7</td>
<td>3 - 5</td>
</tr>
<tr>
<td>6. plays music...</td>
<td>4.0</td>
<td>1 - 5</td>
</tr>
<tr>
<td>7. seems to...express...</td>
<td>3.5</td>
<td>2 - 5</td>
</tr>
<tr>
<td>8. imitates musicians...</td>
<td>3.8</td>
<td>1 - 5</td>
</tr>
<tr>
<td><strong>Personal Organization</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. seems happy...</td>
<td>4.9</td>
<td>4 - 5</td>
</tr>
<tr>
<td>10. ...greater impulse control...</td>
<td>3.5</td>
<td>2 - 5</td>
</tr>
<tr>
<td>11. moves to music</td>
<td>4.7</td>
<td>3 - 5</td>
</tr>
<tr>
<td>12. ...longer attention span...</td>
<td>4.0</td>
<td>2 - 5</td>
</tr>
<tr>
<td>13. becomes relaxed</td>
<td>4.1</td>
<td>2 - 5</td>
</tr>
<tr>
<td>14. ...imaginative play...</td>
<td>3.6</td>
<td>2 - 5</td>
</tr>
<tr>
<td>15. behavior is shaped...</td>
<td>3.2</td>
<td>1 - 5</td>
</tr>
</tbody>
</table>
### Socialization

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>16.</td>
<td>plays music with others...</td>
<td>4.2</td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>sings with others...</td>
<td>4.4</td>
<td>3 - 5</td>
</tr>
<tr>
<td>18.</td>
<td>uses rhythms...</td>
<td>3.6</td>
<td>1 - 5</td>
</tr>
<tr>
<td>19.</td>
<td>dances with me...</td>
<td>4.5</td>
<td>4 - 5</td>
</tr>
<tr>
<td>20.</td>
<td>asks for music...</td>
<td>4.2</td>
<td>2 - 5</td>
</tr>
</tbody>
</table>

*measurements for this item were reverse scored, due to the word "not" in the item*
## Appendix E

### Responses to Open-ended Items

<table>
<thead>
<tr>
<th>Item #</th>
<th>n</th>
<th>%</th>
<th>Quotations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 6</td>
<td>13</td>
<td>38</td>
<td>“percussion,” “pots and pans,” “drums,” “maracas,” etc.</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>26</td>
<td>“piano,” “keyboard,” “toy piano”</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>8.8</td>
<td>“guitar,” “toy guitar”</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>5.8</td>
<td>“clarinet,” “sax,” “toy trumpet”</td>
</tr>
<tr>
<td>Item 8</td>
<td>10</td>
<td>29</td>
<td>“pretend to be that artist,” “imitates [her brother] and...pianists,” “imitate the guitar player,” “copy singing...on videos,” etc.</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>17.6</td>
<td>“pop stars &amp; groups,” “Backstreet Boys,” “Britney Spears,” “Spice Girls,” “NSync”</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>11.7</td>
<td>“puts on her own concerts, singing...,” “sings show tunes,” “singing...to favorite songs,” “sing along”</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>8.8</td>
<td>“knows all the dancing moves &amp; motions to songs,” “copy dancing on videos he watches,” “dancing to favorite songs”</td>
</tr>
<tr>
<td>Item 15</td>
<td>9</td>
<td>26</td>
<td>“happy,” “fun,” “enjoys,” “loves,” “favorite,” “happier,” etc.</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>11.7</td>
<td>“calms,” “calming,” “relaxation”</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>8.8</td>
<td>“learning process,” “repeats lessons learned on Barney songs (poor me),” “learns dance routines”</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>5.8</td>
<td>“allows her a great means of self-expression,” “express himself best through music”</td>
</tr>
<tr>
<td>Item</td>
<td>Response</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>----------</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 1    | 2.9      | "Through music my child is able to interact both socially & with language w/ other children more so than at any other time. It is the easiest way or activity to include him in."
| 1    | 2.9      | "...she also tends to get focused on a song and will block everything else out, like she is in her own world"
| 1    | 2.9      | "when music is on...more cooperative"
| 1    | 2.9      | "she is influenced by the way her favorite singers look & dress"
| 1    | 2.9      | "Music is a part of [his] world. He is involved with it every day in one way or another. His favorite class in school is music."
| Item 20 | 58.8 | "certain CD's," "listen to his tapes," "requests specific songs by name," "asks me to play songs he likes on the piano," etc.
| 8    | 23.5     | "does it herself," "[has her] music on all the time," "he doesn't talk much but will bring me his tape recorder to turn on," "she knows how to push the button to turn on music," etc.
| 6    | 17.6     | "especially in the car," "car radio," "her tape...in the car," etc.
| 6    | 17.6     | "it should be a huge part of their learning program," "through repetition and rhythm of songs she learns best," "rhythm/rhyming also helps her [learn]." "learn a lot through auditory," etc.
| 4    | 11.7     | "we see no response which is different from that of our other child, or other children in general," "...musical response in"
Children with Down syndrome is no different from that of a normal child,” "...feels like everyone else when he can sing & enjoy music,” etc.

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<tr>
<td>1</td>
<td>2.9</td>
<td>“Music is an important way to help DS children to articulate, interact, for some to make a noticeable contact and interaction with life and in general- is most important to their growth.”</td>
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<tr>
<td>1</td>
<td>2.9</td>
<td>“If you raise them to mix with others their music should grow with them, they should be allowed more music, not just nursery songs.”</td>
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<td>1</td>
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<td>The musical response seems to have a calming effect.”</td>
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<tr>
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<td>“My son is in puberty &amp; often suggestive music (MTV, CD’s etc.) will initiate a sexual response (masturbation).”</td>
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