

# Parental Perceptions, Experiences, and Desires of Music Therapy

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#### Abstract

*Music therapy (MT) is a therapeutic practice where a therapist uses music to enhance the life quality for their patients. Children have an innate enjoyment of music, making music an effective medium for exploring their potential. In this study, we explore the parental perception of MT through an online survey. Contrary to the public perception that MT only addresses emotional needs, 47 out of 59 parents reported seeing improvements in other areas including behavioral, cognitive, linguistic, and social changes. All but one parent indicated that they would recommend MT to others. The survey results further revealed that even parents of children participating in MT had misconceptions regarding MT, which we describe in the paper. Parents reported inaccessibility and cost as other major limitations surrounding MT adoption. We conclude by discussing how technology solutions could mitigate issues with definition, distance, and cost, while maintaining the benefits of MT.*

#### Introduction

Music Therapy is defined by the American Music Therapy Association (AMTA) as “the clinical and evidence-based use of music interventions to accomplish individualized goals within a therapeutic relationship by a credentialed professional who has completed an approved music therapy program.”<sup>1</sup> This definition provides three qualities of MT that distinguish it from therapeutic music, a broader use of music for alleviating a physical, emotional, or mental concern<sup>2</sup>. First, MT is evidence-based and has a strong research foundation<sup>1</sup>. Secondly, the interventions are individualized with a therapeutic goal and conducted over several planned sessions. Thirdly, it is practiced by a Board-Certified Music Therapist (MT-BC), and the therapy occurs within a therapist-patient relationship.

Although MT has been established as a profession for over 60 years, there is “a lack of recognition and understanding of what music therapy is and its benefits [...] many people still have not heard of the profession.”<sup>3</sup> Even people who have heard about MT hold widespread misconceptions about MT including: the client must be musically inclined, music therapists are not real therapists and cannot handle “serious issues,” and more<sup>4</sup>. In actuality, MT can benefit a wide spectrum of people ranging from premature infants, children with autism, adults with traumatic injuries, to older adults with Parkinson's disease<sup>1,3</sup>. MT is especially effective for children since they naturally enjoy and respond to music<sup>5</sup>; this innate and universal musicality has been termed as “The Music Child” by Nordoff and Robins, and has been used to explore “receptive, cognitive, expressive, and communicative capabilities” of children with developmental delays<sup>6</sup>. Many parents avidly testify about the results they have seen, and research studies show the effectiveness of MT for children<sup>7,8,9</sup>. This discrepancy between the potential benefits of MT and the lack of public awareness calls for an exploration of the landscape of MT and development of ways to overcome the challenges that lead to the underuse of MT.

Our research goal is to explore the parental experience of MT through an online survey to identify the current status of MT. Through the research process, we found that even parents of children participating in MT had misconceptions and confusions regarding MT, which we aim to clarify through the paper. We discovered that along with the definition and expectation misconceptions of MT, the inaccessibility and the cost were major limitations surrounding MT-adoption. We conclude the paper by discussing two technology directions that might address the definition, expectation, and accessibility challenges.

#### Music Experiences and Origins of Approaches in MT

Music therapists use four fundamental music experiences in MT: *improvisatory, re-creative, composition, and listening*<sup>10</sup>. A MT approach can use one or more music experiences to meet the clinical goals of the session. Darrow, a professor in MT, categorizes the approaches based on their origins are in music education, psychotherapy, or medicine<sup>11</sup>. In this section, we provide a description of each music experience with a list of possible clinical goals for each experience. The clinical goals and the intervention used vary greatly depending on the client's diagnosis and condition, so the list of clinical goals and approaches presented here are not exhaustive.

1) *Improvisatory* MT focuses on the spontaneous creation of music such as song improvisation and body improvisation. Clinical goals of improvisatory MT experiences include developing creativity and group skills, and establishing non-verbal channels of communication and self-expression<sup>10</sup>.

2) *Re-creative* MT involves singing and playing pre-composed music and is used to work with clients of wide ranging diagnosis from aphasia, attention deficit hyperactivity disorder (ADHD), and cerebral palsy<sup>1</sup>. Clinical goals of re-creative MT experiences include increasing self-confidence and attention span, and developing a sense of mastery<sup>12</sup>.

3) *Composition* methods involve creating vocal and instrumental pieces as a means of self-expression. Clinical goals of composition include raising self-esteem through decision making and reaffirmation of the therapist, “development of self-image, and dealing with emotional loss and trauma”<sup>76</sup>.

4) *Listening* MT is a receptive musical experience involving listening and responding to live or recorded music. Clinical goals of listening MT include evoking and supporting emotional responses, promoting self-expression, and verbal processing of meaningful ideas.

These music experiences are used in different approaches in MT that come from three different origins: a) music education, b) psychotherapy, and c) medicine. We provide below an approach from each of the origins and how the four music experiences are used within each approach.

a) Orff-Based MT approach is based on Orff Schulwerk, a multisensory music education approach based on learning by doing that emphasizes using elemental music in which everyone is able to participate<sup>11</sup>. In an Orff-based MT session, the children start by exploring the musical possibilities, and then are led to imitate a pattern the music therapist presents (*re-creative*). Once they successfully imitate, they improvise using body percussion (eg. snapping), non-pitched percussion (eg. drums), then pitched percussion (eg. xylophones) and the music therapist organizes the musical ideas to fit the goal of the session (*improvisational*). Children learn turn taking, looking out for subtle cues, and collaborating towards a common goal through this exercise. The final stage is creation where they combine what they have learned in the previous stages (*composition*). The choice making process and affirmative response from the music therapist raises the children's confidence and can improve their decision-making skills.

b) Bonny Method of Guided Imagery and Music (BMGIM) originates from psychotherapy. Since this approach involves verbal reflections of the clients' experiences, clients have to be cognitively and physically capable of verbalizing their thoughts. A BMGIM session consists of a preliminary conversation (to build rapport and to set the tone of the session), relaxation, music listening, and a post-session review (*listening*)<sup>11, 13, 14</sup>. The listening section begins when the music therapist turns on pre-recorded music for the child that is pre-selected based on its therapeutic usefulness. The music therapist provides an opening imagery scene and lets the child verbalize the imagined scenes throughout the music while providing encouragement and empathy. The child is encouraged to make interpretations and parallels to his/her life in the post-session review. Through the focused and pre-planned discussion, music promotes psychodynamic healing and growth of interpersonal relationship between the therapist and the child.

These types of psychotherapeutic music listening techniques have to be clearly distinguished from informal therapeutic experiences involving music (ex. listening to relaxing music at home to lighten one's mood) and formal therapeutic music (ex. bedside musicians playing for patients in the hospital). Sound therapies, where the inherent properties of music itself are considered as the agent of change, are not considered MT by music therapists either. However, some branches of sound therapy refer to themselves as MT. In fact, our study participants termed sound therapies as MT. The schism between music therapists' view of clinical MT and the outsiders' view of MT is elaborated further in the Discussion Section.

c) Neurologic Music Therapy (NMT) is a medical approach to MT developed by Dr. Michael Thaut and his colleagues that investigates the effects of music on the brain and behavioral functions<sup>15</sup>. NMT methods are used for sensorimotor training, cognitive training, and speech and language training through different properties of music and sound such as pitch, timbre, and rhythm. Melodic intonation therapy (MIT) is a type of NMT that has been effective for treatment of children with apraxia of speech<sup>11, 16, 17</sup>. The learning occurs in a gradual pattern while music therapist taps the rhythm. The phrase is first hummed by the music therapist and imitated by the child through signing, then repeated “speech singing,” and eventually spoken in normal speech (*re-creative*).

Based on this wide range of music experiences and approaches in MT, different clients have different perceptions, experiences, and desires of MT. In this study, we surveyed parents whose children had participated in MT to address the following research questions:

**RQ 1** Why do parents choose music therapy for their children?

- RQ 2** Why do parents stop music therapy?  
**RQ 3** What benefits do parents expect from music therapy sessions?  
**RQ 4** What benefits did parents see through music therapy sessions?  
**RQ 5** What changes do parents want to see in the field of music therapy?

## **Methodology**

Our study was conducted through an anonymous online survey on parental satisfaction of MT in the U.S. and South Korea. The survey was designed based on existing MT literature with input from music therapists and consisted of 19 closed-ended questions and 8 open-ended questions that explored the types of MT in which the child had participated as well as the parents' expectations and thoughts on MT. We recruited participants through mailing lists; posts on online forums (e.g., Reddit); flyers in cafes, libraries, and healthcare centers around three large universities; and music therapists. Additionally, we contacted approximately thirty-five health care centers offering music therapy in the U.S. and South Korea through email. Recruiting participants proved difficult and took over a year. We first started by recruiting participants in the U.S. and expanded our study to include participants from South Korea when Korean music therapists showed interest in our study. The Korean parents were mainly recruited through music therapists and therapy centers in South Korea. As an incentive, each participant was entered into a raffle for a \$50 Amazon gift card.

### ***Participants***

Between March 4, 2014 and February 6, 2015, we received 59 responses through a Korean and an English version of an anonymous online survey: 38 from South Korea and 21 from the U.S. The details of the survey results are provided in Table 1. All but two (n=53) of the respondents who indicated their relationship to the child who participated in MT were mothers; one respondent was the father and one respondent was a legal guardian. The majority of the parents surveyed (n=46) had one or two children currently living at home, with the number of children at home ranging from one to seven (Eng:  $\mu = 2.19$ ,  $\sigma = 1.47$ ; Kor:  $\mu = 1.58$ ,  $\sigma = 0.80$ ). Ages of the focus children ranged from 15 months to over 25 years old, with the mean age of 12.

### ***Procedure***

#### ***Survey Design***

After presenting the consent form on the introductory page, the survey collected demographic and basic information about the focus children. Next, the survey asked about the respondent's relationship to the child who had taken MT and the total number of children at home to probe the possible influence on the amount of parental involvement in MT. The survey then targeted RQ1 by asking where the participants had heard about MT, what prompted them to try MT, and what other therapies they had tried. To answer the second research question, the survey asked if the child is currently receiving MT services. If no, the survey asked for the main reasons for discontinuing MT.

The next seven questions focused on the specifics of the MT sessions by asking how long the child has received MT, the type of music experiences in MT sessions, and the location, frequency, duration, and the type of MT sessions (personal, group, family, other). The survey then asked the participants to rate the parental involvement during and outside of MT sessions<sup>1</sup>, the music therapist's understanding of the child's needs and strength, and whether the child looked forward to the MT sessions on a five point Likert scale.

Next, the survey presented multiple-choice questions to ask for areas they would most like to see improvements through MT (for RQ3) and for areas they saw a satisfactory improvement (for RQ4). We followed these questions open-ended questions to elaborate on the improvements they saw and how they would improve MT. We then asked whether they would recommend MT to family and friends. The survey ended by asking for the participant's birth date to filter out spam and ensure that the participant was over 18. We also filtered out responses that did not answer any of the open-ended questions.

#### ***Data Analysis***

We analyzed the open-ended questions by establishing a list of common themes through open coding and categorizing each response into one of the themes. The emerged themes are mentioned in the results section. Two raters categorized all 90 responses independently; the intercoder reliability between the two coders was substantial,

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<sup>1</sup> Parental involvement outside of MT sessions includes, but is not limited to, learning new ways of using music at home and eliciting skills that the child learned during MT sessions.

$\kappa = .77$ ,  $p < 0.05$ . They resolved the differences by discussing each response till they came to an agreement for all the responses. All of the Korean open-ended questions were translated by one of the researchers and proofread by a graduate student who has an English Education degree from a Korean university.

We analyzed responses from the two surveys (English and Korean) separately and did not make comparisons between the two samples because the participants were not randomly sampled from the two populations. Four of the five Likert scale responses were combined into a composite score given that the results from the two samples are significantly equivalent based on the two one-sided tests for equivalence ( $p < 0.05$ ,  $\epsilon = 1$ ). The last Likert scale response is reported separately. The responses from the two countries' surveys were also combined to compare the desired areas of change to actual areas of change. We used a paired-sample test that compared each respondent's desired changes and actual changes. Fourteen Korean responses relating to the music therapists were discarded. This is because they were collected directly through a music therapist and it is possible that those respondents felt pressured to answer more positively to questions regarding that music therapist. That left us with 21 English responses and 24 Korean responses for those two questions relating to the music therapist.

## Results

The average response rate for each question in the survey was very high (97%) with all but one question getting a response rate higher than 95%; the last opened ended question asking for areas for improvement had a 58% response rate. Most of the parents first learned of MT through a health care provider (e.g., doctor, therapist), friends, and online sources (e.g., blog, SNS, search engine). Other sources of information came from school, family, rehabilitation centers, magazine articles, and television. The location of the sessions was split between home ( $n=8$ ; 38%) and clinics ( $n=7$ ; 33%) for the English survey while the majority of the Korean survey respondents ( $n=34$ ; 89%) answered clinics. Personal therapy was the most common form of therapy followed by group therapy for both the American and Korean clients. One respondent answered that the child participated in both personal and group sessions. However, one parent commented that they would prefer if her child had access to a group MT session, indicating that not everyone has access to all types of MT.

Age of the child (in years)					Sessions / Week				
0-5	6-10	11-15	16-20	20+	1	2	3	4 or more	
5   5	6   13	3   10	4   6	3   4	17   27	1   9	1   1	2   1	
Total number of children at home					Location of MT				
1	2	3	4	4+	school	clinics	home	other	
8   14	7   17	3   4	2   0	1   0	3   0	7   34	8   3	4   1	
Duration of MT (in months)					Type of MT				
$\leq 12$	13-24	25-36	37-48	48+	personal	group	family	other	
9   19	3   4	4   5	1   4	2   5	16   31	4   7	0   0	1   0	
Became aware of MT through					Minutes / Week				
health care provider	family	your child's school	friend	online	less than 30	30 to 60	60 to 90	more than 90	
6   18	2   1	2   1	3   5	2   5	3   0	14   25	1   9	3   4	
Other therapies taken					Reasons for discontinuing MT				
occupational therapy	speech therapy	behavioral therapy	none	other	lack of improvement	schedule conflict	reached max benefit	availability of MT	cost of service
19   3	17   23	8   10	1   5	6   17	1   0	2   0	2   0	4   0	1   1
Child still participating in MT		Willing to recommend MT to others			Music experiences				
yes	no	yes	no		improvisatory	re-creative	composition	listening	other
11   35	10   3	19   38	1   0		12   35	15   30	3   14	14   23	1   12

**Table 1.** Table of survey results. Responses reported as Eng | Kor (out of 21 | 38)

Most of the children received MT once a week or twice a week. The duration of the sessions was primarily 30 minutes to 60 minutes (n=39) or 60 minutes to 90 minutes (n=10). This frequency and duration of MT is common for developmental treatments while rehabilitative MT can be more intensive. For example, the regimen for MIT, previously mentioned in section 2 can be as intensive as 1.5 hrs/day for five days/week as it utilizes brain plasticity for recovering speech<sup>17</sup>.

In addition to MT, parents had also tried speech therapy (n=40), occupational therapy (n=21), and behavioral therapy (n=18). Eight of the Korean parents had tried art therapy. This can be explained by the options of therapies commonly offered in social welfare centers and clinics, the location of MT sessions for the majority of the Korean clients.

### ***1. Motivations for starting and discontinuing music therapy***

Motivations for starting MT mostly consisted of the diagnosis of the child. Six parents specified autism spectrum disorder (ASD); eight parents specified speech delay, disorder, or a non-verbal child; six specified developmental delay as the diagnosis. Other parents reported Down Syndrome (n=2), ADHD, episodes of seizures, anxiety disorders, Williams Syndrome, and encephalopathy as reasons for starting MT. Parents further reported seeking MT to see specific benefits such as reduced frequency of seizures, improved self-expression, and stress relief. Six parents indicated the children's interest in music. Respondent 15 wrote, "Due to seizures music was one of two ways she would respond to stimuli." Similarly, Respondent 18 wrote, "my daughter has Down syndrome, has many areas of delay, and also loves and responds to music." This response to music regardless of the child's delay in other areas is a key factor in "the Music Child" and how MT can bring out the child's potential.

Out of 13 parents who reported that their children were not currently receiving MT services, four reported unavailability of MT, three reported a conflict in schedule, two reported that they had received maximum benefit. The others reported unwillingness of the child to participate, ineffectiveness of therapy, cost of service, and recommendations from the child's teacher to stop. Throughout the survey and other correspondence with parents of children who had participated in MT, it became apparent that one of the main limitations of MT was the unavailability of MT as 8 participants listed it as a change they would like to see in MT, and 7 out of 13 who discontinued MT had difficulty accessing MT.

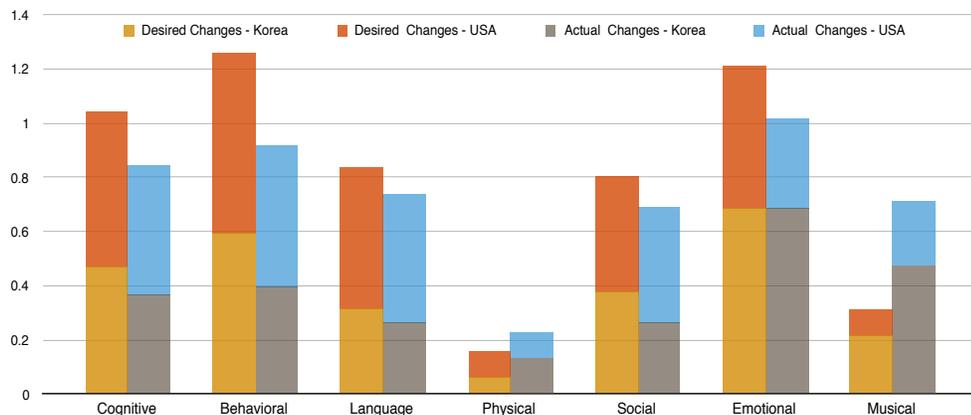
### ***2. Experiences in music therapy***

The most common types of music experience were *improvisation* (n=47) and *re-creative* (n=45). *Listening* was also widely used for the American patients (n=37) while *composition* was not as commonly used in either population (n=17). Most parents (n= 47) reported that the child had experienced more than one type of musical experience in MT. Parents were satisfied with the level of their involvement during and outside of MT sessions overall. The mean score to the statement "I was satisfied with the amount of parental involvement during the session" on a Likert scale from 1 (strongly disagree) to 5 (strongly agree) was 3.93 ( $\sigma = 0.95$ ), and the mean score for involvement outside of the session was 4 ( $\sigma = 0.84$ ). The scores were significantly greater than a neutral response of 3 according to the Wilcoxon signed rank test (Inside session:  $V = 579.5$ ,  $p\text{-value} < 0.001$ ; Outside of session:  $V = 601$ ,  $p\text{-value} < 0.001$ ). Parents thought that the music therapists' understanding of the child's strengths was satisfactory ( $\mu = 4.36$ ,  $\sigma = 0.86$ ) and that the music therapists' understanding of the child's needs was satisfactory ( $\mu = 4.47$ ,  $\sigma = 0.81$ ). Both groups reported that the children looked forward to the MT sessions, but the average value was slightly higher for the Korean respondents (Eng:  $\mu = 3.76$ ,  $\sigma = 1.22$ ; Kor:  $\mu = 4.29$ ,  $\sigma = 1.12$ ).

### ***3. Desired changes and satisfaction***

To address RQ3 and RQ4, we asked the participants to indicate the areas of desired changes prior to MT and perceived outcomes of MT, respectively. The results for these questions, "In which of the following areas would you most like to see improvements through music therapy? Select up to 3 answers" and "In which of the following areas did you see a satisfactory improvements through music therapy? (Select all that are true)," are shown in Figure 1.

The seven developmental areas used to indicate desired and perceived changes were: cognitive, behavioral, language, physical, social, emotional, and musical. These areas were chosen based on the target areas listed by AMTA and prior research on MT outcomes<sup>1,18,19</sup>. Emotional, behavioral, and cognitive were respectively the first, second, and third areas in which Korean parents would like to see changes, while behavioral and cognitive were first and second in the English survey. Language and emotional tied as the third. One hypothesis explaining the Korean parents' emphasis on emotional improvements is that the intense academic pressure in South Korea might adversely affect children's emotional stability<sup>20</sup>.



**Figure 1.** Y-axis is the percentage of parents who indicated the area for desired (left) or actual (right) changes. If all parents marked one area, its total value would be 2.0 (1.0 for Korea and 1.0 for the U.S.). Note that parents could mark all areas of actual changes, but only the *top three* desired changes.

If a parent selected a desired area for change and selected that area again as a perceived improvement, we noted that that area was met with satisfaction via MT. Desires for musical changes were most likely to be satisfied, with 89% the parents who checked it as desired also checking it as a perceived outcome. Desires for emotional changes were the second most likely to be met at 79%. Desires for cognitive improvement were least likely to be met through MT with 44% of parents wanting to see cognitive changes reporting perceived changes. In one noteworthy case, a parent reported continued satisfaction for their 22-year old child with autism, who had participated in MT for 15 years (Respondent 21). In addition to the three standard therapies mentioned in our survey – occupational therapy, speech therapy, and behavioral therapy, the child had participated in numerous other therapies including “physical therapy, interactive metronome therapy, cranio-sacral therapy, hippotherapy, pet (dog) therapy, Fast ForWord, Listening Program, [and] auditory integration therapy.” The parent had checked cognitive, behavioral, and emotional for the desired changes and *all* the categories for perceived outcomes showing high satisfaction with MT.

All but two of the participants responded that they would recommend MT to family and friends (n=57) indicating their overall satisfaction with MT. One participant stated that she would not recommend MT because she perceived no changes, and one participant did not provide a response.

#### 4. Benefits of music therapy

The survey asked, “Could you give an example of an improvement? (ex. my child can focus longer)” to investigate specific changes parents perceived through MT. Out of 56 parents who provided a response, many reported changes in multiple developmental areas. The majority of the reported changes were emotional changes (n=19). Parents reported emotional stability (n=8) and enhanced emotional expressiveness (n=7). For example, Respondent 12 wrote, “We received receptive & expressive emotions, listening, and increased happiness and a connection via eye contact/smiles.”

Seventeen parents reported behavioral changes including *an increase in the following of directions* and *decreased frequency of tantrums*. Respondent 33 wrote that her child “doesn't throw tantrums as often, doesn't hit the younger sibling as often, does homework, washes more often, [and] started going on school field trips (translated from Korean).” Similarly, Respondent 37 wrote, “ADHD symptoms became less severe, reduced impulsive and violent behaviors and shouting. Reduced roaming around, throwing fits, and gluttony (translated from Korean).”

Language changes were also prevalent in the responses (n=14). Parents reported improvements in vocalization, timing and rhythm of speech, pronunciation, and self-expression. Respondent 6 stated that “[her] son could speak in sentences instead of phrases. Better attention. Quicker processing of questions he was asked and shorter time to respond.” Relating to the phenomenon that some people who struggle to speak can still sing the words, Respondent 17 wrote, “[my daughter] will sing to talk to us, before she couldn't tell us her needs.” This activation of language through singing is often cited as a major strength of MIT mentioned in Section 2. Other major reported improvements included cognitive (n=12) and musical (n=10) improvements such as learning how to read music. Respondent 34 wrote that her child “sang for the first time, unique accents and pronunciation became better, more focused when studying, doesn't get irritated or angry as often (translated from Korean).”

#### 5. Desired changes in the field of MT

Parents reported various limitations surrounding MT in response to the final question, “How can music therapy be improved for your child?” Of the 34 submitted responses, the following themes emerged: more

individualized/diverse programs (n=9), accessibility (n=8), awareness (n=6), lowered cost (n=4), and acknowledgement from organizations (n=3).

Parents often sought out specific programs, environments, and opportunities that addressed their children's needs such as receiving therapy in a larger, sound-proof space. Respondent 21 requested more social and language-related programs; Respondent 33 requested opportunities for her child to play ukulele with other children. Two parents requested programs that are currently available in other regions but not in their own (ex. group therapy). Some parents currently did not have access to MT at all. Concerning the accessibility of MT, one mother wrote, "We need providers in central Illinois that [are] affordable and available. We found no one in the area to help. We travelled to Texas for our initial treatment and then continued at home with very little outside help. I am not a music teacher and this took the fun element out of the therapy for my son." Other parents wanted to raise the awareness of MT as the treatment had been effective for their children.

Cost is a major concern of many parents. One respondent (8) stated, "We paid \$100 for a consultation with an occupational therapist. She played special music for my daughter during the session them [sic] recommended that I purchase a \$25 mp3 soundtrack, \$50 headphones and a \$150 MP3 player because the soundtracks were only sold as mp3. I'm interested in music therapy but not at that price!" This burden of cost could be alleviated if the service was run by schools. However, schools are often unfamiliar with MT or skeptical of its effectiveness. Respondent 6 stated that one way to improve MT is through "convincing my child[sic] school administration on how beneficial it is. Having them also realize it's a related service recognized by the Department of Education." Respondent 10 mentioned that "It would be nice if schools would recognize music therapy as an educational tool for children with disabilities. As it stands school districts do not want to allow it in schools or to be used within a school environment." Respondent 32 stated that the reason for discontinuing MT was because the child's kindergarten teacher told them to stop. No further explanation was given to explain this recommendation.

Two respondents indicated that there was nothing they would change. Respondent 14 wrote:

Our therapist is amazing. She understood our daughter's strengths and used those to help her speak. [...] For example "I want to go outside" is to the tune of Mary Had a Little Lamb. Because it is music, our daughter will now sing that when she wants to go outside to play instead of just fussing. She now sings when she is hungry, thirsty, wants to play the piano, wants TV, or to listen to music, or needs a diaper change.

## **Discussion**

The results of this anonymous online survey convey parents' original desires and experience with MT and suggestions for the field. Additionally, the results and the process of research revealed a sense of confusion and unawareness of the exact definition of clinical MT. The schism in the MT and sound therapy communities aggravated the confusion of parents and schools. In the following section, we shed some light on this confusion. Then, we propose how technology could enhance the field of MT based on the results from the survey and our discussions of this survey with music therapists.

### ***Ambiguities of music in health and healing***

Our survey responses highlighted that parents of children who received Samonas Sound Therapy classified it as MT although it does not meet the third criteria established above. Samonas Sound Therapy is an auditory intervention program that uses physical properties of processed music and sound "to re-map and restore the brain's ability to process sound."<sup>21</sup> Thus, specific music *features* such as shifted pitch are the agent of change rather than the musical *experience* as in clinical MT. Since the healing power is inherent in the music in sound therapy, a child can listen to a selected recording at home without a therapist-patient relationship and still receive therapeutic benefits of Samonas Sound Therapy. Furthermore, although sound therapy often requires training as well, the certification processes are considerably different; for example, the authors of this paper received "Therapeutic Listening" certification via a 12-hour online training course. Most of the participants in the course were trained occupational therapists who were interested in extending their programs to include sound therapy. To become a Music Therapist-Board Certified (MT-BC), one must obtain a bachelor's degree or higher in MT, perform 1200 hours of clinical training, and pass the national board certification.

Music therapists with whom we corresponded confirmed that sound therapy was absolutely distinct from clinical MT. They considered it important to distinguish therapeutic music and sound therapy from MT because this mislabeling could diminish the credibility of MT. Their main concern was the lack of evidence-based research and the lack of therapist-patient interaction in sound therapies. Thus, although sound therapy is also an authentic way of

using music for healing, it should be distinguished from MT because the two disciplines' fundamental philosophies in the use of music are different.

### *Assistive Technology for MT*

The value and the need for MT at a distance became apparent after the parental reports in this study aligned with comments we had received in our lab over the year from parents missing appointments or struggling to reach our speech and hearing clinic. In this study, we found that the unavailability of MT was the leading cause for discontinuing MT with four people out of 13 who discontinued MT articulating this in the survey and eight parents listing accessibility as the area of improvement in an open-ended question. In 2011, there were 3,352 AMTA members in the U.S. As the majority of them work in urban regions, people in rural areas had limited access to MT. To date, few teletherapy approaches to MT have been explored. This idea of using technology to augment MT, however, was met with a strong opposition from select music therapists. The main objection was that technology, or rather, a lack of direct therapist-patient involvement, might negatively impact the outcome of a therapy session. In this section, we explore two technology directions for MT that address the limitations surrounding MT while attempting to maintain the benefits of MT. These are (1) teletherapy and (2) clear and definitive MT resources that raise awareness, advance understanding of MT, and enhance therapist-parent communication to encourage continuous therapy at home.

#### *Teletherapy: supporting remote MT*

Teletherapy, also referred to as e-therapy<sup>22</sup>, is emerging as an alternative that offers equal access to different therapies regardless of one's geographical region. Although teletherapy can be synchronous or asynchronous and comes in different modalities (e.g., email, chat, and video-conferencing), in this paper, the term "teletherapy" refers to the use of videoteleconferencing (VTC) to deliver therapy sessions when distance separates the client and the therapist. Clinicians have been investigating telecommunication methods for patients in remote areas since the mid-1950s<sup>23-25</sup>. Previous teletherapy studies have shown the acceptability and feasibility of teletherapy for children and youth<sup>26-28</sup>. One such study measured Therapeutic Alliance (TA), the relationship between a healthcare professional and a client in teletherapeutic settings<sup>29</sup>. The maintenance of TA is especially important in MT since the therapeutic changes are made through the relationship between the therapist and the client. The results supported that "TA can be developed in psychotherapy by videoconference, with clients rating bond and presence at least equally as strongly as in-person settings across a range of diagnostic groups." This shows that MT could potentially be conducted at a distance while maintaining the essential therapist-patient relationship. One possible MT teletherapy scenario: MIT can be conducted using VTC where the therapist leads a singing session while the child sings along wearing an augmented wristband or a glove that taps the beats on the wrist. This allows the two research-supported therapeutic elements of MIT – melodic phrasing and rhythmic tapping – to be incorporated in teletherapy<sup>6</sup>. Bandwidth and network limitations in rural areas pose a challenge for this approach. Remote music collaborations are difficult as sound lags disrupt synchronization, which in turn may erode the benefits of MT. These limitations suggest more abstracted low bandwidth interactions between the remote participants that do not rely on traditional VTC.

An alternative and perhaps preferred usage of technology for addressing the inaccessibility of MT is educating the parents in real-time so that the therapy could be conducted at home under the supervision of the therapist, thus minimizing travel. The idea is presented in "Coaching Parents of Young Children with Autism in Rural Areas Using Internet-Based Technologies: A Pilot Program" and could be extended to explore how Internet-based technologies could enhance communication between the music therapist and the parent to encourage continuous treatment<sup>30</sup>. In this scenario, a clinician observes the parent-child interaction via VTC and gives real-time parental guidance via an earpiece worn by the parent to assist the parent in a parent-child clinician guided session. This approach mitigates the remote syncing challenges of the remote participation approaches while encouraging direct social interaction between the parent and child.

#### *Information organization: raising awareness and receiving acknowledgement*

Out of 34 parental suggestions for MT, nine (26%) addressed the need to promote MT through raising awareness for the general public (n=6) and receiving acknowledgement of MT efficacy from schools (n=3). Even parents themselves experienced difficulty in understanding the exact definition of MT – shown through parents who mistook sound therapy and MT – and the interventions used in MT – shown through two parents who responded that they did not know what methods were used during their children's therapy sessions. The music therapist who sent us a collection of responses further indicated that some parents do not understand the precise purpose of MT and rather perceive it as a method for relieving a child's stress. This limited view of MT can be problematic as parents and the

general population undermine the effects of MT and do not consider it for treatment in non-emotional areas. Even if a person is interested in MT, it is currently difficult to access a list of the major methods and interventions used in MT and how each method of MT benefits the clients. The AMTA website offers general information on how MT can be applied to a specific population or situation (e.g., young people, Alzheimer's patients, pain management). However, it does not provide specific interventions that are frequently used for young children (ex. Nordoff-Robbins Music Therapy). Although relevant information can be found by searching online and reading academic journals, the search is not only burdensome but also confusing for time-challenged parents who are not familiar with the area and lack a starting framework.

We propose a site where a collection of interventions categorized by music experience, origins, target population, clinical goals, etc. is presented with case studies and research findings. This MT archive would help clarify the clinical definition of MT to the public, and would be useful for informing schools and other organizations of the uses and benefits of MT. It could also have evidence based MT research for those who are interested in pursuing the literature to date. After logging in, parents could also view a summary of their children's MT sessions and a list of parent-child exercises that can be done at home to enhance their understanding of MT sessions and enable continuous treatment. The official Autism Speaks site is an exemplary site that presents everything starting from basic information such as the definition and symptoms of autism to resources for parents and novel research findings<sup>31</sup>. Since the site has many of the elements we are exploring, it could be used as a model for raising the public awareness and receiving organizations' acknowledgement.

### **Limitations**

While the findings of this study contribute to the understanding of parental experience of MT and prompt a discussion on technological applications, this study is not without limitations. The recruitment of the participants through music therapists and clinics might have biased the results to over-represent certain approaches of MT over others and participants predisposed to the benefits of MT resulting in overly positive responses. Even with aggressive advertising for approximately one year, we struggled to reach participants and did not have enough participants from each country to make a cultural comparison. The non-random sampling, the small sample size for each population, and the self-selection bias might limit the generalizability of the findings. However, we found commonly recurring themes in responses of participants from both countries suggesting consensus for the specific benefits and limitations of MT.

### **Conclusions**

In this paper, we presented findings from a survey designed to make sense of parents' expectations and experiences of MT for their children. The study contributes to the understanding of MT in three areas: survey findings highlighting satisfaction, limitations, and desires of MT; the discovery of the parent-clinician misalignment of the meaning of music therapy; and a discussion of future directions using simple existing technologies to create a united MT face and to create computer-mediated technologies to explore remote accessibility for MT.

Through the survey we found that parents: (1) expressed strong satisfaction with MT and 57 out of 58 parents stated that they would recommend MT to others; (2) indicated that they would like MT to be more accessible, affordable, and publicly recognized. Throughout our survey preparation and analysis, we discovered parents and MT clinicians had different models representing music therapy – parents often included therapeutic music techniques in their MT umbrella. Finally, we presented two future directions to address the MT limitations that arose from the survey and research process: teletherapy for making MT more accessible and information organization for raising the awareness and being acknowledged by the public and institutions.

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