Dance/Movement Therapy for Autism Spectrum Disorder?

An Investigation

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As a student who struggles to balance my love of dancing, education, and the sciences (especially chemistry), I have traveled a winding path through departments and mindsets at Barnard College. A course about special education during my semester abroad in Copenhagen, Denmark, piqued my interest in education for children with special needs, and while there I studied with people who brought dance/movement therapy (DMT) to my attention. So perhaps it was inevitable that my thesis topic would come to combine all of these interests.

Autism has always fascinated me, probably due to a combination of influences: my young cousin was diagnosed with autism; a close family friend works at a school for autistic children, and I have a powerful childhood memory of seeing a play about an autistic teenager. Studying in Copenhagen with a woman who specializes in autism brought my latent interest in the disorder to the forefront. To write my senior thesis on dance/movement therapy as it relates to autism seemed only natural.

The American Dance Therapy Association's website includes a long list of unpublished master's theses about DMT and autism, and once I saw that wealth of available resources, I knew I had found my topic: I would combine dance, special education, and the science of discovering the cause, diagnosis, treatment, and cure for autism.

When I emailed my family friend, who has worked with autistic children for three decades, to ask her thoughts on this topic, I was excited, even hopeful. I was imagining that research into DMT and autism would show a great potential for dance as a means of communication (something autistic children struggle with). Her response stopped me in my tracks. She wrote that dance/movement therapy is not a treatment for autistic children, that it is "bad science," and that while "it's becoming a priority for us [educators at her school] to learn how to teach art and music and dance to our students … that has to be distinguished from seeing these activities as a kind of therapy."[1]

This skepticism, from someone I and countless others trust as an experienced professional working with autistic children meant that I had to look critically at the case studies and other materials I had found. I drew on my scientific background and my belief in numbers to sift through and analyze the studies. Taking into account who wrote a study, when it was written, what exactly it was saying, and how it accounted for the nature of autism, I arrived at a question I had barely encountered in my research. Should dance be used as therapy for children with autism spectrum disorder?

Autism spectrum disorder is a neurodevelopmental disorder that involves problems in communication, social interaction, narrow interests, and repetitive behaviors. The disorder is a spectrum, meaning people with autism have a vast range of symptoms and behaviors associated with the disorder.[2] A very effective, well-known treatment approach for people with autism is called Applied Behavior Analysis (ABA). In general, ABA is a method of teaching skills and behaviors to people with autism by breaking tasks down into very small, sequential steps. ABA relies on the idea that behaviors are

[1] Susan Langer (snlanger@gmail.com), personal communication with the author, 5 October 2012.
[2] Joel D. Bregman, "Definitions and Characteristics of the Spectrum," in Autism Spectrum Disorders, 3d ed., ed. Dianne Zager (Mahwah, N.J.: Lawrence Erlbaum Associates, 2005), 7.

spurred by a person's environment.[3] These two topics will be explained in more detail below.

All people, whether on the autism spectrum or not, can benefit from dance/movement therapy. However, DMT is only appropriate for a specific subset of children with autism. Because the behaviors and symptoms of autism range across an enormous spectrum, and because there is minimal evidence of DMT's efficacy, DMT is not regarded as an effective treatment, unlike Applied Behavior Analysis. The challenges DMT has encountered in its research additionally hinder its acceptance by professionals in the world of autism. Instead of being used as a therapy, I believe that the dance aspect of DMT can be a refreshing, fulfilling activity for children on the autism spectrum, not because it will change behaviors, but because it offers a positive, enjoyable life experience.

Review of Literature and Methodology

A wide range of literature exists pertaining to DMT and autism spectrum disorder. This includes chapters from books about creative arts therapies, journal articles, master's essays, and Ph.D. dissertations that document and describe case studies using DMT with autistic children. Written in a mostly qualitative manner by dance/movement therapists, these case studies were published from 1978 to the present and usually describe positive results. I read more scientific journal articles from *Research in Autism Spectrum Disorders* and *The Arts in Psychotherapy*, written by scientists about specific DMT methods and research in exercise for autistic children. I also examined books focusing

[3] Langer communication.

specifically on autism spectrum disorder or dance/movement therapy, and a book and articles about research methods, problems, and attitudes in dance/movement therapy.

I have conducted a few informal interviews. I spoke at length with Deb Gordon, a cousin and the mother of a ten-year-old autistic boy, about any DMT or exercise/physical therapy her son may have had, why she enrolled him in those therapies, and what the goals and results have been.[4] I also interviewed Susan Langer, a behavior analyst and the Chief Program Officer at the New England Center for Children (NECC), a renowned research and education center for autistic children in Southborough, Massachusetts. I questioned her about her personal views with respect to DMT for autistic children, NECC's stance on DMT, Applied Behavior Analysis, NECC's use of dance, and general physical exercise for their students.

Langer views dance/movement therapy as an intervention without sufficient evidence of its efficacy, and therefore does not use or recommend it to her students. NECC, she says, is "very strongly committed to empirically based interventions," which DMT is not.[5] The lens of this paper will use her rigorous, scientifically-based perspective, as well as literature that exposes problems with DMT research, to critique case studies and assess whether or not dance should be used as a therapy for children with autism spectrum disorder.

Background

Dance/Movement Therapy (DMT)

Dance/movement therapy has been used in the United States since World War II. Marian Chace, a dancer with the Denishawn company, choreographer, and teacher of

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[4] Deb Gordon (dgs@comcast.net), personal communication with the author, 27 September 2012.
[5] Langer communication.

modern dance in Washington D.C. during the 1930s and 1940s, first developed the mind-body connection as a form of therapy for her dance students. She "questioned why pupils who had no intention of being professional came to take dance classes" and started gearing her classes toward the needs and interests of recreational dancers. In 1942, she was asked to work with returning soldiers from World War II at St. Elizabeth's Hospital in Washington D.C. Dance/movement therapy was seen as promising because it could so easily be a group treatment. Chace developed her methods working with institutionalized, often schizophrenic and psychotic, individuals.[6]

Over the past half century, dance/movement therapy has increased in popularity in the U.S. According to the American Dance Therapy Association (ADTA), which Chace founded in 1966, dance/movement therapy "is practiced in mental health, rehabilitation, medical, educational and forensic settings, and in nursing homes, day care centers, disease prevention, health promotion programs and in private practice." DMT is considered appropriate for a vast range of clients, as it is reported to be "effective for individuals with developmental, medical, social, physical, and psychological impairments."[7]

DMT sessions vary greatly depending on the dance/movement therapist and the client. Sessions for children with ASD have been described as using props, music, spoken words, or singing (but also not using them). A session can be with a group or an individual. It can be very structured and predictable in activity, or completely free form, following the wishes of the child. Because of this variety, DMT is hard to define. The

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[6] Sharon Chaiklin, "We Dance the Moment our Feet Touch the Earth," in The Art and Science of Dance/Movement Therapy, ed. Sharon Chaiklin and Hilda Wengrower (New York: Routledge, 2009), 6.

[7] American Dance Therapy Association, "About Dance/Movement Therapy," 2009, http://www.adta.org/default.aspx?pageid=378213 Accessed 2 October 2012.

ADTA defines DMT as "the psychotherapeutic use of movement to promote emotional, cognitive, physical, and social integration of individuals."[8]

A common DMT technique is mirroring, also called empathic reflection, in which the therapist literally reflects or recreates the client's body shapes, movements, vocalizations, and rhythms. Mirroring is intended to help the client understand where s/he is physically and emotionally by being able to visualize their own body. This understanding, called attunement, leads to increased awareness of the self, both emotionally and physically (such as awareness of different body parts). With a developing awareness of the self comes an increased awareness of others. This leads to the most important goal of DMT: developing a trusting relationship between the therapist and the client. In fact, dance/movement therapy makes use of "movement behavior as it emerges out of the developed therapeutic relationship" between the client and the therapist.[9]

Another central concept of DMT is using dance and movement as a form of communication. In general, "dance/movement therapy is based on the fundamental realization that, through the dance, individuals both relate to the community they are part of on a large or smaller scale, and are simultaneously able to express their own impulses and needs" through movement.[10] Thus, movement is viewed "as both expressive and communicative and [dance/movement therapists can] use it both as a method of assessing individuals and the mode for clinical intervention."[11] In this vein, an increase in

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[8] Ibid.
[9] Christina Devereaux, "Moving Into Relationships," in Play-based Interventions for Children and Adolescents with Autism Spectrum Disorders, ed. Loretta Gallo-Lopez and Lawrence C. Rubin (New York: Routledge, 2012), 335-337.
[10] Chaiklin, 5.
[11] Devereaux, 334.

awareness of others' and one's own body "expands individuals' movement vocabulary, thus increasing their ability to communicate their needs and desires."[12] The shared experiences during DMT sessions lead to the client and therapist engaging in movements that interact and regulate each other, meaning the therapist gains a level of control over the client via movement, and vice versa. This nonverbal interaction is based on their trusting relationship, and can change behaviors and lead to further self-expression and awareness for the client.[13]

Autism Spectrum Disorder (ASD)

Autism spectrum disorder is one of three major subcategories of pervasive developmental disorders (PDDs).[14] PDDs are neurodevelopmental disorders, generally defined as disorders characterized by delays in the development of several basic functions in addition to narrow interests and repetitive behaviors.[15] Autism is specific because it involves problems in all domains; categories of symptoms are defined as "(a) qualitative impairment in social interaction; (b) impairments in communication; and (c) restricted, repetitive, stereotyped behavior, interests, and activities."[16] ASD can be accompanied by a range of other conditions such as mental retardation and language disorders, but these are not what make autism spectrum disorder unique. The underdeveloped social aspect of people with ASD means that "emphatic gestures, informative facial expressions, and vocal modulation lack essential meaning for them." In addition, people with ASD

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[12] Devereaux, 335.
[13] Deveraux, 338.
[14] The other two categories are asperger's syndrome and pervasive developmental disorder not otherwise specified (PDD-NOS).
[15] Travis Thompson, Making Sense of Autism, (Baltimore: Brookes Publishing, 2007), 19-20.
[16] Bregman, 7.

generally communicate in order to "express needs, desires, and preferences" but not to "convey sincere interest in others, or to share experiences, excitement, or feelings."[17]

The last ten years has witnessed a marked rise in both prevalence of ASD and public attention to it. Increased research has played the largest role in the growing numbers of diagnoses, leading to "earlier and more accurate diagnosis, [as well as] recognition of a broader spectrum, and increased awareness among primary practitioners, educators, and parents."[18]

In this paper, the word "therapy" will be synonymous with treatment, meaning a practice that is intended to change the behaviors of children with autism. This change means to remediate behaviors that make an autistic child's life more difficult. For example, treatments may aim at enhancing communication skills, whether verbal or nonverbal, or at teaching social and life skills. Another word that will be used interchangeably with treatment is "intervention."

There is "no such thing as a one-size-fits-all recipe" in terms of education and treatment plans for children with ASD. [19] When developing a treatment plan for a student, educators must take into account the student's age, ability level, learning style, behavioral and communicative repertoires, school, home, neighborhood, future living and employment environments, and personal preferences.[20]

The most common, reputable approach to treating children with autism is Applied Behavior Analysis (ABA), which is described as being "data based, outcome driven,

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[17] Bregman, 10-11.
[18] Bregman, 39.
[19] Dianne Zager and Nancy Shamow, "Teaching Students with Autism Spectrum Disorders," in Autism Spectrum Disorders, 3d ed., ed. Dianne Zager, (Mahwah, N.J.: Lawrence Erlbaum Associates, 2005), 321.
[20] Zager and Shamow, 297.

research validated, and accountable."[21] The underlying assumption of the approach is that "behavior is lawfully determined, with the determiners of behavior located in the environment, not in the child."[22] In other words, every behavior can be attributed to a stimulus in the child's environment. ABA-based treatments encourage more appropriate behaviors, such as making eye contact, as well as teach communication and life skills, such as how to wash one's hands. ABA will be discussed in more detail below.

Evidence

Fourteen accounts of DMT use with autistic children were examined. These include journal articles, case studies, a video, and dissertations documenting a specific dance/movement therapist's experience with one child, a more general description of therapy sessions, or a current example of DMT practices.

Case Study Examinations

The following two case studies demonstrate the variety of DMT research as it relates to autism. One study is an anecdotal journal article, while the other is a dissertation conducted like an experiment.

The article by Jonas Torrance, published in the *American Journal of Dance Therapy* in 2003 and entitled "Autism, Aggression, and Developing a Therapeutic Contract," demonstrates most clearly the problems that arise from the question: "Whom is DMT intended for?" when it comes to children on the autism spectrum. As a case study, it is completely anecdotal and discusses the effects of using a therapeutic contract in DMT sessions.

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[21] Zager and Shamow, 302.
[22] Ibid.

This case study describes a group DMT session for four adolescent boys, aged sixteen to eighteen, who all share the diagnosis of autism and violent behaviors, toward both themselves and others. These young men are described overall as being somewhat high functioning and verbal: "some students spoke a good deal, mainly expressing obsessive thoughts, while others might use just one occasional word."[23] The article describes a specific example of violent behavior observed in one of the sessions, called the "case example," which makes the article a case study. Torrance then discusses the behavior and introduces the concept of a therapeutic contract.

The therapeutic contract is there because "students and staff need to come together in the session for change to occur," and violent behavior acts an obstacle.[24] Torrance writes to prove the efficacy of the therapeutic contract in the context of the sessions. He claims that the therapeutic contract makes dance/movement therapy more effective. In the conclusion, Torrance writes, "by following the three steps in the therapeutic contract, the group was able to maintain a balance between these two extremes [of violent behavior] and to begin to take a fourth step; promoting healing."[25] The case study examines the therapeutic contract in detail, in an effort to showcase how it can be a supplemental aspect of DMT.

The structure of the DMT session, and the use of a therapeutic contract are unique to this case study alone. The differences between this article and most of the other case studies examined were striking. Upon further examination, most of these differences have only to do with the autistic children the sessions are intended for. This raises the question:

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[23] Jonas Torrance, "Autism, Aggression, and Developing a Therapeutic Contract," American Journal of Dance Therapy 25, no. 2 (2003), 99.
[24] Torrance, 102.
[25] Torrance, 108.

how can DMT be described as a treatment for autism when it changes markedly between situations? The way it is used and the goals for these boys who demonstrate violent behavior are unique. Clearly, while the overarching concepts of DMT remain constant, the practices implementing DMT do not.

Torrance's article is also typical of DMT case studies that use qualitative observations infused with drama and personal feelings that make them less reliable. In describing the obsessive chronological listing of future events practiced by one boy (James), Torrance writes that "each one of James's successive keyworkers [aides] was invited to take part in James's chronological tragedy, to witness his third person observation of a life marked out, but not lived."[26] James's behavior is certainly saddening; however, Torrance's language is overly dramatic, and his personal feelings about James's situation are not appropriate to a case study. In fact, these sentiments play into the idea that DMT is too subjective and unsupported a therapy to be used with autism.

"An Investigation of Dance/Movement Therapy as a Therapeutic Modality for Children with Autism: A Case Study Approach," is the Doctor of Psychology dissertation written by Allison Warnick at the California School of Professional Psychology in 1995. Warnick conducted an experiment with three hypotheses, none of which were confirmed. This is the only case study examined that does not yield positive results.

To conduct her study, Warnick matched two pairs of autistic children based on developmental level, and one of each was used as a control group. The children were all

[26] Torrance, 100.

boys, ranging in age from five to ten years old.[27] All four children participated in dance/movement therapy sessions for twenty minutes each day, five days per week, for six weeks.[28] However, the control group only experienced mirroring in their sessions, while the experimental group's sessions used a, "directive approach that included attempting to expand the autistic child's movement repertoire."[29] The Autism Behavior Checklist[30] and Warnick's questionnaire, as well as movement coding sheets based on Laban movement analysis[31] were used to evaluate changes in the children.

In the abstract of her dissertation, Warnick briefly states her three hypotheses, and whether or not they were confirmed. Her first hypothesis is that the change in the children in the DMT group would follow the 1968 model outlined by Beth Kalish. Kalish is a founding member of the American Dance Therapy Association. Her 1968 model of movement repertoire expansion is described in the "Combined Proceedings of the Third and Fourth Annual Conference of the American Dance Therapy Association." According to Warnick, this first hypothesis was not confirmed; the children's movement repertoires were not expanded.[32]

The second hypothesis states that the improvements seen in the child that resulted from DMT would "generalize to other settings, such as the home and the classroom." This hypothesis was also unconfirmed, because of the lack of change in the children's

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[27] Allison Warnick, "An Investigation of Dance-Movement Therapy as a Therapeutic Modality for Autistic Children: A Case Study Approach," Psy.D. diss., California School of Professional Psychology (1995), 40.
[28] Warnick, viii.
[29] Warnick, 3.
[30] The Autism Behavior Checklist lists the five categories of autistic behavior: sensory, relating, body and object use, language, and social and self-help, and includes a list of fifty-seven yes or no questions about common behaviors seen in autism. Each question is weighted differently (43).
[31] Laban Movement Analysis is a method of describing and notating movement, developed by Rudolf von Laban, using Effort, Shape, Space, and Body as categories.
[32] Warnick, ix, 90.

movement repertoires. The third hypothesis is that the children in the DMT group would improve more than the children in the control group. This hypothesis was unconfirmed because the mild improvements seen were not statistically significant.[33]

Warnick states the purpose of her study to be, "to explore the conditions necessary to produce therapeutic change in autistic children through the use of dance/movement therapy."[34] However, her study does not vary conditions of dance/movement therapy at all. What she seems to be testing is whether mirroring alone produces therapeutic effects in autism (control group), or if expansion of the mirroring relationship into new movements produces change in autism (experimental group). Unfortunately, she does not say explicitly what therapeutic effects, or changes, she expects to see in the children, besides overall improvement in autistic behaviors. This leaves the experiment open-ended and questionable: even Warnick does not know what to expect!

One problem with Warnick's study is that she had multiple people fill out each checklist/questionnaire for each child so results could be compared. This is a good idea for confirming results, but there was only a 52% agreement for some of the data.[35] The subjectivity of movement prevents this precaution from being useful, and instead makes the study appear unreliable and ineffective. If only half the data agrees with itself, how can it even be used to generate results?

Another problem, mentioned by Warnick, was the short length of the study. Longer sessions and a longer overall study would have allowed Warnick to establish a better movement relationship with the children, which could have led to better, more

[33] Warnick, ix-x.
[34] Warnick, 3.
[35] Warnick, 55.

positive results. Warnick, who acted as the dance/movement therapist in the study, also mentions her lack of experience with DMT; she is not a certified dance/movement therapist (she is receiving a doctorate in psychology), but was conducting sessions and "learning by doing."[36] An experienced dance/movement therapist might have brought about different results.

Warnick saw general improvements in both the control and experimental groups, which could indicate that simply establishing a mirroring relationship provides benefits, but is more likely a result of other interventions the children experienced during the study. If she had wanted her study to accurately measure the effects of DMT, Warnick would have had to take the children out of all other interventions so they experienced only DMT. However, since other interventions have proven to be effective and the well-being of the autistic children was paramount, it would have been unethical for Warnick to require that.

Warnick mentions that it would have been advisable to increase the number of children in the study, "so that statistical analyses could be performed."[37] Statistical analyses would have made the study more credible and given it a more solid foundation. Warnick also discusses a change in the experiment that would have used unbiased professionals to evaluate the children instead of the researcher, parents, and teachers. These people filled out the questionnaires and checklists and made observations that contributed to the data and results of the study.[38] Warnick's case study is an admirable attempt at an experiment, but even she recognizes all the factors that could have improved the study and made it more valuable.

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[36] Warnick, 78-79.
[37] Warnick, 85.
[38] Ibid.

Presentations of DMT

The following two accounts of DMT use, which are also described and critiqued in detail, were chosen because each portrays a different aspect of DMT in both research and practice that is fitting for this argument.

Tina Erfer's chapter, "Treating Children with Autism in a Public School System," in Fran J. Levy's book *Dance and Other Expressive Art Therapies* (1995) gives a comprehensive, rational overview of the concepts behind DMT, specifically in the treatment of children with autism, and gives two examples of DMT sessions that she conducted in a public school system. The first session, for a group of lower functioning children, and the second session, for a group of higher functioning children, involve similar activities and methodologies, but differ in crucial ways that will be discussed.

Erfer's descriptions of DMT sessions are extremely specific with respect to their contexts, which makes it impossible to know if her methods and activities work only for the five specific children in the group, or could work for a more random group. The commonalities between the sessions help one to realize which aspects of DMT are constant when used with autistic children. Both sessions open with a hello song and close with a goodbye song, use relaxation, props as obstacles, naming of body parts, and free play and exploration, as well as following a regular schedule during each session. The higher functioning group used more full-bodied movement, allowed greater initiative during the activities, and incorporated a balancing exercise. The lower functioning group instead incorporated turn taking and an effort toward group synchrony in movement (which the other group already had achieved).[39]

[39] Tina Erfer, "Treating Children with Autism in a Public School System," in Dance and Other Expressive Art Therapies, ed. Fran J. Levy, (New York: Routledge, 1995), 202-207.

All of the children were verbal and could understand the instruction and commands given by Erfer. Most of them had been working with her for several years. The lower-functioning group ranged in age from five to seven, while the higher functioning group members were seven or eight years old.[40] Otherwise, Erfer tells the reader little about the functioning levels and behaviors of these autistic children. This lack of information makes it difficult to assess whether or not these methods would be appropriate or beneficial for other children on the autism spectrum. Erfer's incorporation of verbal cues and spoken response does limit the possible pool of children. The specificity of the situation makes it hard to generalize about the applicability of the methods to children on the autism spectrum; a drawback common in DMT literature.

Erfer's rationale for using DMT with autistic children is that "movement is a universal means of communication," especially for children who are nonverbal.[41] The initial goals of DMT sessions, according to Erfer, are to "reach the child at the level at which he or she seems to be functioning… to establish a relationship, and to work toward the formation of a body image" that will allow the child to develop greater awareness of the self and consequently of others.[42] Erfer states that "behavioral change occurs through, and is supported by, the interpersonal relationship established with the child (or children) [and the therapist, Erfer] through movement."[43] This relationship, founded in movement, is unique to DMT, and is supposed to allow the therapist to access and change the child's behaviors.

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[40] Erfer, 202, 205.
[41] Erfer, 196.
[42] Erfer, 198.
[43] Ibid.

However, this "behavioral change" must be more specifically described and accounted for. Erfer's vagueness spurs questions such as: What kind of behavior changes, and how does it change? Does the behavioral change occur solely within the DMT sessions or in other contexts of the child's life as well? Why is a relationship based on movement significant? Perhaps a relationship based on movement can affect physical behaviors related to movement more than another. But the behaviors of autistic children that need to be remedied are not only physical. The formation of a trusting relationship with an adult has an undoubtedly positive impact on a child, whether autistic or not, but does it really change autistic behaviors?

Erfer makes a thought-provoking point, which is that DMT sessions are "process-oriented, rather than product-oriented."[44] The process of any sort of therapy is integral to that therapy; however, when it comes to children with autism, the end goal of modifying behaviors is paramount. Reaching this goal will often be a long process, but the focus is on overall changes that must occur. Therefore, effective treatments for autism tend to be product-oriented. The mission of a treatment is to reach a specific goal, such as teaching a child to point to a picture of food when he is hungry, instead of throwing a fit. Various processes (or methods) are attempted in order to reach this goal until one is successful. Here lies a significant discrepancy between what DMT values in comparison to typical treatments for autistic children.

Another account of DMT practices is the DVD "Aut-erobics," released in 2006. However, this DVD exemplifies the misleading, poorly uninformed persona associated with most dance/movement therapists. The DVD is intended for use by parents at home with their autistic children or by teachers at school with autistic students. Joanne Lara

[44] Ibid.

takes credit for all of the ideas and session demonstrations, and calls her method "Autism Movement Therapy." In the explanatory section of the DVD, Lara says that Autism Movement Therapy works because it uses "structured movement and music that connects the left and right hemispheres of the brain for a whole brain cognitive thinking approach." She continues by saying that it will "cognitively redirect or remap the way your child thinks."[45]

There are several problems with Lara's claims. Firstly, she provides no evidence that the goal of "hemisphere integration" is feasible, besides just saying that it is, and she does not explain why it is desirable. What will "remapping" the brain lead to? What kind of new way will the child think? Why is this new way of thinking better than how the child thinks now? The ability to change the way a child cognitively thinks, through movement, is debatable. Moreover, reputable autism treatments do not seek to change how a child cognitively thinks, but rather to change the behaviors that the child exhibits in various situations.

Lara cites one article in the informational portion of her video – "Creative Movement Therapy Benefits Children with Autism," by Kristin Hartshorn et al., published in *Early Childhood Development and Care* in 2001. The article describes an experiment that claims that movement therapy leads to an "increase in attentive behaviors and a decrease in stress behaviors" in autistic children.[46] Lara fails to mention that these changes in behavior were observed only within the movement therapy sessions, not in any classroom or home setting. In addition, the article clarifies that "on-task active" behavior did not improve throughout the sessions, only "on-task passive" behavior,

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[45] Aut-erobics, produced by Joanne Lara, directed by Chris Sanborn, 68 min, 2007, DVD.
[46] Kristin Hartshorn et al., "Creative Movement Therapy Benefits Children with Autism," Early Child Development and Care 166, no. 1 (2001): 1.

which indicates that the children gradually paid more attention to the sessions but did not necessarily participate.[47] In other words, the autistic children became accustomed over time to the format of the session, the dance/movement therapist, and the other children. This experiment, while flawed on its own terms, does not even begin to provide adequate support for the claims Lara makes in her DVD.

The DVD contains a sample video that depicts a young boy, assumed to be autistic, working with a teacher on a worksheet. The teacher is having trouble getting the boy to focus, and the boy and teacher seem frustrated. The video cuts to a scene where the teacher is leading the boy in simple dance movements (some of those that Lara teaches in the instructional portions of the video), with upbeat music. The viewer sees the boy and the teacher smiling and having fun outside while they dance together. Later, the boy and teacher are back in the classroom, working on the same worksheet, now being successful and productive.[48]

This sample video is quite misleading and, frankly, inane. Lara depicts her program as an instant cure that will make children with autism more focused and productive, which is simply untrue. It takes advantage of misinformed people who work with and care for autistic children, and tries to sell a cure for autism, which, unfortunately, does not yet exist.

Besides Lara's faulty assertions, it is debatable whether or not her Autism Movement Therapy can be classified as DMT. Lara is not a trained dance/movement therapist (she has degrees in Special Education and Dance), and, while the title sounds similar, Lara clearly differentiates her program (Autism Movement Therapy) from

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[47] Ibid.
[48] Aut-erobics, Produced by Joanne Lara, directed by Chris Sanborn, 68 min, 2007, DVD.

dance/movement therapy itself.[49] However, for those who do not know what exactly DMT is (including parents and professionals who work with autistic children), it would be easy to confuse the approach in Lara's DVD with it.

Lara's DVD exemplifies why DMT has a bad reputation with most professionals in the world of autism. It lacks proof, reason, and any real foundation in science, whereas there are many other interventions proven to be effective. Lara's movement therapy is like a fad diet; it is a waste of time, energy, and resources that could be put toward a much more effective intervention.

The problems encountered in many anecdotal accounts and case studies of DMT and autism, such as those described above, stem from an even greater challenge. Research in the field of dance/movement therapy is severely limited, and some dance/movement therapists have begun to acknowledge this deficit and to work to increase the quality of research in DMT.

DMT Research

Problems in DMT research are due to many factors, including the education and attitudes of dance/movement therapists. In dance/movement therapist training programs, "a course in research is required … [however] these courses do not give individuals enough understanding of research to support its use in professional dance/movement therapy practice."[50] Without a sufficient background in empirical research methods, implications, and uses, dance/movement therapists feel out of place and uncomfortable with research, and so they tend to avoid it. Therefore, "qualitative research has become

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[49] Joanne Lara, "The Autism Expert: Bio," http://theautismexpert.com/AutismExpertBio.html (11 November 2012).

[50] Robyn Flaum Cruz and Cynthia F. Berrol, "What Does Research Have To Do With It?" in Dance/Movement Therapists in Action: A Working Guide to Research Options, 2d ed., ed. Robyn Flaum Cruz and Cynthia F. Berrol (Springfield, ILL: Charles C. Thomas, 2012), 18.

the norm for DMT because it offers a relatively comfortable alternative for those whose prior training was not in the sciences but in the arts."[51]

The divide created between the arts and sciences by the training programs for arts therapists is problematic. This division means that "arts therapies are prone … to avoiding any dialogue with science as if that would be a betrayal of principles."[52] The divide morphs into something almost political, a battle between those who consider themselves artists and those who consider themselves scientists within the psychotherapy world. It lends itself to artists viewing "scientific research as rather mysterious, distant, and awe inspiring, and so many arts therapists do not routinely acquire or teach the research skills necessary to enter into a meaningful dialogue with scientists."[53] Without communication and cooperation between these artists and scientists, arts therapies have a bleak future.

In response to this "documented view by practitioners that research is somehow antithetical to the values or the artistic nature of psychotherapy," many dance/movement therapists have taken a step back, realized this problem, and written articles and books urging other dance/movement therapists to learn about and adopt scientific research into their practices.[54] Robyn Flaum Cruz and Cynthia F. Berrol, dance/movement therapists who wrote and edited the book *Dance/Movement Therapists in Action,* believe that, "the professional growth that dance/movement therapists experience through research

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[51] Bonnie Meekums, "Moving Towards Evidence for Dane Movement Therapy: Robin Hood in Dialogue with the King," The Arts In Psychotherapy 37, no. 1 (2010), 37.
[52] Meekums, 36.
[53] Ibid.
[54] Cruz and Berrol, 17.

activities is of benefit to the entire profession," by giving it a solid groundwork for conversation with scientists.[55]

Dance/Movement Therapists in Action is a book written to teach and encourage dance/movement therapists about conducting research to benefit their own practices and the field overall. The text is intended for any and all dance/movement therapists: from students to "seasoned professionals." Cruz and Berrol write that the purpose is "to expose dance/movement therapists to methodology presented in somewhat discrete chapters of possible research methods for the discipline, and to excite readers about the many possibilities for inquiry in DMT."[56] With a second edition published in 2012, this very current, substantial book dedicated to informing dance/movement therapists about the wide variety of research models and methods that exist in order to "guide scholarly research," reinforces the fact that DMT is severely lacking in such research.

From the perspective of Autism Spectrum Disorder, studies examining the quality of information about therapy interventions for children with ASD also show a lack of adequate research for the interventions (not specifically DMT). Jennifer Stephenson et al.'s article, "Quality of the Information on Educational and Therapy Interventions Provided on the Web Sites of National Autism Associations," published in *Research in Autism Spectrum Disorders* in 2012, concludes that there is an overall lack of information about scientific evidence of the efficacy of such interventions.

Seventeen out of the twenty-nine interventions mentioned on the websites (from the United States, the United Kingdom, and Australia) were rated by Stephenson et al. as weak, meaning "there was minimal or no research evidence available to support them

[55] Cruz and Berrol, 19.
[56] Ibid.

and/or the intervention was not based on sound principles and was regarded by the majority of review authors as having little or no promise."[57] This is a result of a combination of factors. The websites themselves do not provide adequate or accurate information to begin with, but there is not enough research in efficacy to support or disprove many interventions. Some ASD interventions are described as having "a sound empirical and theoretical base," while others, "are unsupported, controversial and ineffective."[58] This misleads parents and teachers who use such websites and leads to the use of ineffective interventions for children with ASD, which is a waste of time and resources that could be put toward effective, valuable treatments.

Dance/movement therapy is not even mentioned by any of the national autism associations examined, and so was not categorized by Stephenson et al. However, based on research thus far, DMT would certainly be classified as "weak," since it fits the category well (little to no research evidence and not based on principles that are widely accepted). The challenges and significant lack of research in efficacy of DMT are problematic, but this study shows that these problems are not uncommon, and that there are many other therapies for ASD that are in a similar situation as DMT.

There have been a few attempts at DMT research to prove efficacy using quantitative methods. However, many of these studies have run into problems. "The majority of existing research [in DMT] is based on case studies. The number of quantitative studies is limited and many have methodological shortcomings," which makes the research inadequate and unconvincing to scientists and others outside the field

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[57] Jennifer Stephenson et al., "Quality of the Information on Educational and Therapy Interventions Provided on the Web Sites of National Autism Associations," Research in Autism Spectrum Disorders 6, no.1 (2012), 12.
[58] Stephenson et al., 11.

of DMT.[59] Problems in the research include "lack of control, small sample sizes or length of treatment."[60] In addition, the nature of DMT makes quantitative research methods especially challenging. DMT is based on qualitative observations; dance is visual, and movement patterns and qualities are hard to quantify. Overall, "quantitative studies of DMT-related change in children have been poorly designed and reported."[61] Often, the studies do not use enough children to generate data, and the studies do not last long enough to yield results. The changes reported are usually only within the DMT sessions, not necessarily carried over into a child's daily life. So despite these attempts, the quantitative research has not met the scientific standards that DMT needs.

More specifically, when it comes to children with developmental disabilities, such as ASD, "most of the studies assessing the efficacy of DMT … examine dependent variables related to movement and spatial awareness."[62] However, the effects of DMT on children with ASD that are considered most important, and advertised most heavily, are not changes in movement and spatial awareness, but changes in social and behavioral qualities. This shows that quantitative research into DMT is not yet able to measure effects that are most relevant to children with ASD. How can social and behavioral qualities be quantitatively measured? That is one of the largest questions in DMT research as it relates to ASD.

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[59] Meredith Ritter and Kathryn Graff Low, "Effects of Dance/Movement Therapy: A Meta-Analysis," The Arts in Psychotherapy 23, no. 3 (1996), 249.
[60] Ritter and Low, 252.
[61] Ritter and Low, 250.
[62] Ibid.

Above all else, the most important concept for research in DMT is to encourage "building theory on the foundation of clinical experience."[63] Theory for dance/movement therapists would be foundational ideas that are used across the board, in all DMT practices. This theory will act as a strong support for DMT in the eyes of scientists. Laurence Higgens, a dance/movement therapist who lectures at the Laban Center in London, England, argues that, "we [dance/movement therapists] do need to make explicit the basis on which the validity of our work can be assessed."[64] In other words, there is a need for a clear foundation for DMT, which, in the form of research in efficacy, will authorize the claims that dance/movement therapists make in qualitative observations.

Dance/movement therapists run into problems when they don't use empirical research and instead rely on their inadequate exposure to research and publish articles about their findings. Dance/movement therapists "are vulnerable to traps that can undermine their work when they substitute opinion or a system of beliefs for knowledge, because beliefs cannot be disproved and disproving…is a vital element for research and accumulating knowledge."[65] Case studies written by dance/movement therapists that include "opinion or a system of beliefs" do not count as evidence of efficacy and therefore, while they may provide insight for other dance/movement therapists, will not help bolster the image of DMT to the outside world. Accumulation of knowledge in the form of evidenced research is vital if dance/movement therapy is to be taken seriously by scientists. If DMT could acquire the support of those prescribing treatments, such as behavior analysts and clinicians, it could be implemented as a credible therapy.

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[63] Laurence Higgens, "On the Value of Conducting Dance/Movement Therapy Research," The Arts in Psychotherapy 28, no. 3 (2001), 191.
[64] Higgens, 193.
[65] Cruz and Berrol, 16.

Besides a need for validation by scientists, the field of dance/movement therapy suffers without adequate research practices. There is concern that "when practitioners rely on personal opinion, nonaxiomatic truths, and loosely construed and personalized theories, practice is not refined or improved."[66] DMT practices cannot change or grow to be better suited to its clients without research it can build on.

The bottom line is that increased, more effective research skills and knowledge, used more often by dance/movement therapists, is vital to the field: "if the profession is to survive and grow, training in research methods must form part of our professional training courses and continuing professional development courses," Higgens asserts.[67] Although some dance/movement therapists, as described above, are unfamiliar with traditional research methods in efficacy, it is imperative to recognize that "quantitative research can clarify the usefulness of non-traditional therapies and increase their acceptance outside the domain of creative arts therapies."[68]

Higgens calls for "sharing experience through written accounts of our practice, developing theoretical models, and testing our claims," as a means to collect knowledge that can be organized into research that will lead to "acceptance as an area of study within the university system, recognized professional training courses, and established posts within the health care system."[69] Without sufficient research, there is no foundation on which DMT will survive outside of the DMT community, where it will be critiqued by scientists and others who have little to no experience with it. Research in efficacy that serves as a "reliable assessment of therapeutic change is an important aspect of gaining

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[66] Cruz and Berrol, 15.
[67] Higgens, 194.
[68] Ritter and Low, 252.
[69] Higgens, 192.

acceptance in the therapeutic community," in addition to the scientific world, and will give dance/movement therapists the voice they need to be heard and respected by others.[70] Without research that serves as evidence, dance/movement therapists "risk being justly accused of using an approach that is not well evidenced."[71]

The challenges and problems faced by dance/movement therapists as they attempt to enter the world of scientific research in order to prove the efficacy of their methods are not small. There are countless hurdles that must be overcome, and it will, without a doubt, take time. But dance/movement therapists are encouraging each other to work hard, because they know that the future of their field rests on evidence.

Looking Further

When considering DMT as an intervention for children with ASD, it is important to remember that every intervention has different intentions. Some ASD interventions are geared toward a very specific goal, such as speech therapy, while others are "comprehensive" because they address all of the "core deficits in ASDs as well as other functional skills that will assist in promoting a child's development."[72] DMT sees itself as a comprehensive intervention; it is not specific about one goal or intent. However, this does not bode well for DMT, since most comprehensive interventions do have multiple, very specific, goals.

As a point of comparison, one can examine Applied Behavior Analysis (ABA), a comprehensive approach to intervention, used for many children with ASD, which is proven to be effective.[73] Most "comprehensive approaches have undergone evaluation

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[70] Ritter and Low, 258.
[71] Meekums, 38.
[72] Travis Thompson, Making Sense of Autism, (Baltimore: Brookes Publishing, 2007), 43.
[73] Thompson, 44.

using research designs that provide strong evidence of their effectiveness, which are considered *evidence-based practices*."[74] DMT is not an evidence-based practice as a consequence of its deficit in research, while ABA is evidence-based, and here they will be compared.

ABA is "derived from the science of Behaviorism, founded by B.F. Skinner," and using this foundation, children with ASD can learn to eliminate inappropriate, excessive behaviors, such as throwing tantrums, and to increase more positive, useful behaviors, such as verbally expressing what is frustrating.[75] ABA is "concerned with identifying how people learn and what motivates their behavior": valuable information that can be used to benefit children with ASD.[76] This intervention approach has been proven "with empirical data and a body of scientific literature to support its effectiveness" for children with autism.[77]

The New England Center for Children (NECC), a renowned research and education center for autistic children in Southborough, Massachusetts, generally serves more severe, lower-functioning children with autism. Children attend NECC when their public school cannot accommodate their needs, and the extremely expensive NECC tuition is funded by the student's hometown.[78] Because of this, NECC needs to have, and does have, a reputation for being a school that is particularly effective in teaching children with autism. This reputation can be attributed to their consistent, exclusive use of ABA as basis for

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[74] Ibid.
[75] New England Center for Children, "Treatment Approach," 2012, http://www.necc.org/programs-and-services/treatment-approach.aspx (15 October 2012).
[76] Ibid.
[77] Ibid.
[78] Susan Langer, interview by Sonia Neuburger, 4 November 2012.

their curriculum.

The key to understanding ABA is to realize that it is an *approach* to intervention, meaning that it provides methodologies with which to remediate behaviors of children with ASD. At NECC, these methods include, "task analysis, discrete trials, incidental learning, and other proven curricula that best suit the individual student's learning style. Data are taken before and during treatment and ineffective interventions are revised quickly to ensure continued progress."[79] These methods require breaking down large chunks into tiny, sequential steps. For example, to teach a child how to wash his hands, one would do a task analysis and break down the action into small parts: first, turn on the water; next put your hands in the water; next, rub them three times, etc. Each step would be learned one at a time, adding on the next step once the previous one was absorbed. This tends to be how children with autism learn.[80]

According to Susan Langer, a behavior analyst and the Chief Program Officer at NECC, all interventions used at NECC (such as the task analysis described above) follow the specific theories and requirements of Applied Behavior Analysis: there must be a significant data change from baseline (beginning) to intervention (treatment); one must look at how the environment controls *observable* behavior (what precedes and follows a behavior); the treatment must aim to achieve specific *observable* targets; one must be able to replicate the results; and finally, the effects of the intervention must have social validity (a measure of importance to the people around the autistic child).[81]

According to Langer, if dance/movement therapists could carry out research in

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[79] New England Center for Children, "Treatment Approach," 2012, http://www.necc.org/programs-and-services/treatment-approach.aspx (15 October 2012).
[80] Susan Langer, interview by Sonia Neuburger, 4 November 2012.
[81] Ibid.

DMT that fit the above ABA framework, and the intervention achieved a specific observable goal for the child, then it would be accepted, at NECC, at least.[82] Unfortunately, empirical research in DMT is only beginning to be used and encouraged, so research that uses theories from ABA seems to be a long way off.

It is clear, then, that DMT simply does not have adequate evidence to be used today as an intervention for autism. That is not to say that it is impossible to prove DMT's useful effects on autism, but that currently there is not enough proof of its efficacy. However, even if DMT could be researched with the specific criteria that professionals in autism stand by, it will probably never be the sole treatment for autistic children. DMT could certainly be conducted in a way that has important therapeutic effects, but it could never teach the entire repertoire of skills and behaviors that autistic children need. It would be an effective tool to increase a child's comfort level in social situations, but it could not teach social skills. How we know that autistic children learn does not line up with how DMT works.

Regardless, dance is an art that everyone should have the chance to experience, and so with that in mind, I propose that dancing to music, and some activities from DMT, be used with autistic children for the sole purpose of giving them an enjoyable, creative outlet, which all people deserve.

In addition, free dance to music could be seen as physical exercise for students. Several studies on physical exercise for children with autism have shown that it is beneficial, "not only in terms of physical health, but perhaps also in terms of decreased

[82] Ibid.

maladaptive behavior (e.g., stereotypy[83]) and increased adaptive behavior (e.g., classroom on-task behavior)."[84] The benefits of an unstructured twenty-minute dance party three days per week also include the physiological benefits of exercise, such as the release of endorphins and increased physical and cardiovascular health. Several studies on physical exercise mention attempts at "making the exercise more enjoyable" so that the children actually want to participate.[85] That would not be a problem if the activity were dance. Turning on any child's favorite music will likely get them up, out of their seat, and dancing, without having to coax them into the activity.

A disorder with such a large spectrum of symptoms and behaviors clearly does not necessitate just one form of treatment. While it is apparent that DMT may have some benefits for children with ASD, there simply does not exist quantitative proof of its efficacy as a treatment. DMT is not harmful to children, whether on the autism spectrum or not; however, the literature can be misleading, and there are significant weaknesses in DMT research. Without sound research that provides evidence of its efficacy, DMT will never be accepted as an intervention for autistic children.

However, the benefits of time spent with peers, creating trusting relationships, moving to music, and increasing body awareness should not be ignored. Dance, and aspects of DMT, should be used, not as a therapy, but as a fun activity for children with ASD. This would be a refreshing experience that is not aimed at "fixing" a problem, but instead provides pure enjoyment, and a fulfilling experience for the child.

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[83] Defined by Merriam-Webster as "frequent almost mechanical repetition of the same posture, movement, or form of speech," which, for example, in autistic children could be hand or finger flapping, twisting, or complex whole-body movements.
[84] Russell Lang et al., "Physical Exercise and Individuals with Autism Spectrum Disorders: A Systematic Review," Research in Autism Spectrum Disorders 4 (2010): 569.
[85] Lang, 568.

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