I am both honored and pleased to be here today at the invitation of the Marian Chace Foundation Trustees. I want to begin by thanking the Trustees for giving me this special opportunity. I am grateful. I also want to especially thank Dr. Mimi Berger for her lovely introduction, but even more, for her unflagging mentorship and guidance over so very many years. In my first semester in my dance/movement therapy (DMT) program at New York University I thought I had made a serious mistake. I had borrowed a lot of money to study something that I thought might not be right for me. I sat with Mimi in her office and confessed my fear that maybe I just could not be a good dance/movement therapist. I honestly can’t remember her exact words, but the gist was that my fears were unfounded and more importantly, that she was absolutely confident in me and in my ability to learn to be a dance/movement therapist.

Flash forward almost 40 years, and here I am today tasked with speaking “to my passion and knowledge of how to move the profession forward,” (S. Chaiklin, personal communication, February 15, 2017). That sounds like quite a big job, right? I thought so too until I tuned into the “passion” part of the request and realized that I have two big, overlapping, intersecting passions—DMT and research. The message I am going to try to share with you today has a few objectives; I want to help us reframe how we think about research, I want to increase our excitement about research, and I want to show that research has always been a part of DMT and will continue to be central to the future of dance/movement therapy. Finally, I want to stress that we can all participate in research, and that when we do, the care we give to our clients, patients, and students, is better care. And to me, that’s the whole point—to give high quality services to the people with whom we work.

I sought advice in constructing this talk from valued colleagues, and I also did some research on giving talks like this one because it is so different from the
teaching that I usually do. According to Randy Olson (http://www.randyolsonproductions.com/writing/writing_index.html) who describes himself as a “scientist-turned-filmmaker,” substantive communication should always be our foremost goal when we are trying to convey a message, especially in a talk such as this one. He suggests a narrative that lets one communicate their motivation should help to get one’s message across, so I want to begin by telling you the story of how I started out in DMT and how I got excited about research.

For most of my DMT career, I’ve had an interest in the biological or physiological aspects of movement, specifically, movement disorders that are associated with psychopathology. This interest began with my dance/movement therapy internship at Bronx Psychiatric Center where I had the unique opportunity to work as part of a large creative arts therapy department directed at that time by Miriam Roskin Berger. This picture (see Fig. 1) from about 1981 shows some of my colleagues in a dance/movement therapy workshop. When I arrived in the Bronx, Mimi had just managed to make sure that creative arts therapies were included in the new psychiatry residency training units opened at Bronx Psychiatric by Albert Einstein College of Medicine. My dance/movement therapy internship took place on one of the two new units that opened, and then I stayed on to be a dance/movement therapist on one of the units. The Einstein residency training units were made up of trainees in many disciplines—psychiatry, psychology, social work, nursing, and arts therapies—and all of the trainees’ supervisors. The program had an emphasis on public or community psychiatry, a specialization developed in the 1960s and 1970s to give quality care to the poor, and underserved; those who depended on public services.

To begin the new units, staff combed the hospital for the most difficult cases and each day was filled with rounds, and community meetings, and case conferences. It was an exciting learning environment. A key feature of this environment was the

Fig. 1 Creative arts therapies staff at Bronx Psychiatric Center around 1981. The author is second from the left
continual question put to the trainees as a group—“What does the research literature say about this clinical issue we think we are observing in this patient?” The teaching model assumed that the trainees were always reading the literature and using it to support their clinical work for a very important reason—that the patients deserved the best care we could give them. This message was often verbalized, and it made a very lasting impression on me.

There was a long history of dance/movement therapy at Bronx Psychiatric before I ever arrived there, and my passion for involuntary movement disorders comes from that history. Irmgard Bartentieff and Martha Davis’s work that became the Movement Psychodiagnostic Inventory (Davis, 1991) was actively developed in the Bronx and used at Bronx Psychiatric. I was trained to use that observational lens as part of my internship, and I used it clinically every day. These two elements that I experienced at Bronx Psychiatric, that we should always use research to expand our understanding of clinical work for the good of the patient, and a fascination with involuntary movements, stayed with me even after I left New York in the late 1980s to work in rural New Mexico.

In the first series of American Dance Therapy Association Talks recorded in 2013 (ADTA, 2013), I told the story of my encounter with a young adolescent in New Mexico who was experiencing psychosis. I described how observing the movement of his head as he entered my office alerted me to his psychosis. His head movement perfectly matched an item on the Movement Psychodiagnostic Inventory which I describe in the talk, and based on that observation and the fact that I could not get much verbal information out of this young man, I referred him to an inpatient unit. When the teen arrived at the unit which was a couple of hours away by car and was admitted, the admitting staff person called me and asked—“How did you know how sick he is? How could you tell?” I was really at a loss. What was I supposed to say? I saw it in his head movement—really?

But there was more to that story that I didn’t tell in the talk. And that is that until the moment I saw the teen’s head move, I had not really ever considered what those movements described in the Movement Psychodiagnostic Inventory really were, and I didn’t know what caused them. A few years later I learned that they were abnormal involuntary movements that indicate disturbance in the extrapyramidal motor system (Cruz, 1995). They have been associated with severe psychopathology for well over 100 years, and can be observed in those who are very ill. But until that moment I had only seen them in adults, and I was very surprised to see one of these movements in a teen. That single encounter—that surprise—intensified my interest so much, that just a few years later it quite literally developed into my doctoral dissertation. That one observation gave me the motivation to “find out.” What are these movements really—what causes them? Why can they be observed in teens and adults with psychosis and how might they be useful in helping people? I really wanted to know, and that interest, that fascination, that motivation led me on an excursion that still excites me today.

I am frankly fascinated by the many ways we can look at the body and movement, and how they are interconnected with health, illness, cognition, emotion—all the many ways we define “mind” and its functions. I continue to find understanding the physiological or neurological basis of movement absolutely
fascinating. And that is why I find the theme of this 2017 ADTA Annual Conference, “Movement as Pathway to Neuro-Resilience and Social Connection”—so truly exciting. It captures the idea that our neurological system is resilient, and that movement provides an important means of accessing that resilience. Research developments over the last 20 or so years have really begun to galvanize the profession of DMT by supporting some of the mechanisms that dance therapists hypothesized long ago for how DMT “works.” Just think for example, of our longstanding practice of mirroring or reflecting people’s movement in our own bodies as a means of establishing connection and what we now know about mirror neurons (Berrol, 2016); that they are a special “variety of visuospatial neuron” and are central to human social interaction, firing in response to observing movement in others (Acharya & Shukla, 2012, p. 118). Indeed, mirroring someone’s movement really does play on a deep connection in the brain.

Research on the role of rhythm in our bodies also provides an exciting example of how movement can act as a tool for neurological resilience. I want to delve a little into this role as a way to move us into the body of my talk “Rhythms of Research and Dance/Movement Therapy,” about our connections to research as a profession, as individual professionals, and how the favored methods of research change cadence in response to the times.

Rhythm is a biologically intrinsic part of human physiology. It is such a basic part of our physiology that we are neurologically constructed to process and respond to rhythms. Multiple areas of the brain are involved including the motor cortex, somatosensory cortex, basal ganglia, and cerebellum. The auditory system connects to motor structures so that rhythmic signals (like music) coordinate with motor response—and this process of coordination is called entrainment (Thaut & Abiru, 2010). Rhythms we hear prime our bodies to move and provide timing for our movements. This helps explain the longstanding, mutually influencing relationship between music and dance that we use every day in our work as dance/movement therapists. We create rhythms with the body and use music to extend and move patients toward different types of movement expression and therapy goals. The benefits of entrainment, or the coordination of our motor response with external rhythms is part of why using dance with people with Parkinson’s disease is helpful to them. A body of research is growing that demonstrates that when we use dance as an intervention, people with Parkinson’s disease are helped to speak and walk more smoothly among other benefits (Bearrs, McDonald, Bar, & DeSouza, 2017; Hulbert, Ashburn, Roberts, & Verheyden, 2017; McNeely, Duncan, & Earhart, 2015). The usefulness of entrainment is also demonstrated in Rhythmic Auditory Stimulation (RAS), a technique used in neurologic music therapy—to retrain gait in stroke patients. In fact, using rhythm to movement entrainment has also been found to be beneficial in rehabilitation work with other types of patient groups who have different physical deficits caused by different types of neuropathology than those of Parkinson’s and stroke. As described by Thaut and Abiru (2010) this is remarkable because it involves those whose “deficits have very different kinematic features and differing neuropathologies” (p. 266). What is so exciting about this is that it means that our neurological “wiring” for rhythm and movement entrainment may be seen as a natural, generalized tool for neurological resilience—a tool that is built into us.
When pathologies that are very different such as stroke or Parkinson’s disease, disrupt motor functioning, strategic use of rhythm and body movement—what we typically do in DMT—can help repair the damage.

Rhythm really is a potentially powerful tool and of course, it is an inherent element of dance. Marian Chace wrote early on about the use of rhythm in dance/movement therapy to activate and engage patients. As dance/movement therapists, we spend time learning to use rhythm with individuals and groups, and we consider it so important that it is featured in a number of different sections of the newly revised ADTA Standards for Education and Clinical Training. Truly, dance and rhythm are inseparable, but dance is even more complex than its physiological components; it can connect us to others. Dance combines emotion, cognition, social interaction, and sensory stimulation, as well as motor coordination. It can create awareness and control of emotional responses or states of arousal which is very useful for many of our patients. According to researchers Olvera (2008), Kattensroth, Kalisch, Holt, Tegenthoff, and Dinse (2013), and underscored by Hanna (2014), dance as a complex activity, induces neuroplasticity, adaptation, and impacts multiple systems in positive ways. What we capitalize on as dance/movement therapists, is that dance is an interactive phenomenon that can impact awareness, relatedness, relationship, and community.

The research I just briefly touched on around rhythm and motor response did not exist when Marian Chace began working. In fact, it did not exist when I was trained as a dance/movement therapist in the late 70s. And yet, the core principles or mechanisms of DMT which were formed in the earliest days of development of the field, we now find are supported by new and emerging research. How can that be? Chace described arriving at her early work at St. Elizabeths in 1942 in this way: “Dance therapy, as a discipline, did not move into the mental hospital full blown and as a bright idea to be sold. Its roots were in work that had been going on for many years prior to this in the community,” (Chaiklin, 1975, p. 9). And those roots included adopting a method that she reported as, “I began to use my training as a means of communication and body awareness rather than as a teacher of art forms….I observed and empathized with the needs being expressed” (Chaiklin, 1975, p. 10).

In an essay published in American Journal of Dance Therapy last year, I characterized the relationship between DMT and research as vitally connected from “the earliest days of the field,” (Cruz, 2016, p. 297). I explained that viewpoint by noting that Chace’s earliest published writings which date back to 1945, clearly documented her process of using a trial and error approach that included observing and reflecting and sensing in her own body; practices that are still at the core of DMT clinical work today. But also practices that we have grown to minimize and not think of as research methods. Yet indeed these actions—the trial and error of observing and reflecting and striving to make sense of what one is observing by trying out interventions are the classic, early stages of research. Research and practice really are closely connected, or as Harris and Sharon Chaiklin wrote just a few years back “research thinking and practice thinking are identical” (Chaiklin & Chaiklin, 2012, p. 76). My point here, make no mistake, is that research is in the DNA of dance therapy!
In fact, the relationship between DMT and research can be tracked through the very early writing in the field, much of which is located in early conference proceedings (Cruz, 2016). Those conference proceedings and Chace’s continued published writing on DMT are a fascinating accounting of our research history. Chace published in many different forums belonging to different disciplines that included social work, psychiatry, and nursing, among others. This is important because publishing subjected her work to the criticism and critical review of others, actions that are considered the cornerstone of scientific scholarship in Western thought. Publishing pushes knowledge and the field forward. Isn’t it wonderful that DMT has been pushed forward in this way almost since its inception? And we need to continue publishing and critiquing our ideas, formulations, and research.

To give just a little further historical perspective, in the 1940s when DMT was being created, psychotherapy was also in its infancy and theoretical formulations made up most of the available literature. The National Institute of Health, associated with research funding in the US, was also in its infancy and focused only on physical medicine back then (NIH, 2016). Psychotherapy outcome studies did not really begin to appear until the middle of the 1970s. The emphasis on outcomes then increased almost exponentially, once the “evidence-based medicine” movement really coalesced in 1991 (Sur & Dahm, 2011).

The evidence-based medicine movement had a broad impact. Trends in research in the social sciences and psychotherapy specifically were influenced. Even though the randomized controlled trial (RCT) is typically described as emerging in 1948, it was restricted to medical research for decades (Bothwell & Podolsky, 2016). Today, it is widely accepted as the gold standard regardless of whether it is used to study a vaccine or the outcomes of psychotherapy. The application of the RCT in social sciences is not quite as successful as in medicine; that is largely because it is more difficult to correctly theorize about and control the phenomena studied in social sciences than it is to correctly theorize about disease.

For example, understanding differences in resilience or post-traumatic growth in terms of treatment outcomes is a challenging combination that includes complex variables like culture, personal history, and varying differences in response to varying types of trauma. The elevated status of the RCT in social sciences has not diminished, but it is more accepted now that the hypotheses that the RCT is designed to test in social sciences need to be strategically informed by research using qualitative methods. This has spawned a proliferation of phenomenological, qualitative techniques and seems to have helped to create an interest in alternative ways of knowing including embodied approaches like the recent work of Kawano (2017) and Tantia (2014). In fact, thinking of the research on rhythm and neurological resilience I spoke of earlier, in addition to knowing that dance can improve the smoothness of movement for people with Parkinson’s, we might want to examine their embodied experiences of dance, or the embodied experiences of those who have experienced stroke (Timothy, Graham, & Levack, 2016) to understand how to tailor and fine-tune dance and movement interventions for these individuals.

The expansion of research methods that I have been talking about is very exciting but challenging at the same time. Many of us have been indoctrinated to hold very
strict epistemologies. Like Fig. 2 shows, our epistemologies consist of how we know what we think we know; what types of information satisfy questions. And even though many of us think that we know through movement and the body, what we accept as “research,” what we think of as real or important research, is most often experimental designs with quantitative measures like the RCT. Frankly, no matter how much we might rail against how experimental research does not “fit” well with DMT, most of us still think that it is the only kind of research that counts. I only have anecdotal data to back me up on this, but I have been teaching research to MA and PhD students since 1995. I have been teaching exclusively creative arts therapies doctoral students for the past 12 years, and I have run into this same bias over and over and over regardless of what the students are studying. It is the bias that says that “real” research is quantitative and experimental. So here is my reframing message. Yes indeed, it is very useful to have a good RCT on DMT or a good meta-analysis of DMT quantitative research to show to policy makers.

But to keep those types of studies focused on useful theories, we also need to have qualitative studies in which the phenomenology of experience is investigated. For example, if we are working with people who have suffered a stroke, it would be useful to know how they experience the changes stroke has created in their bodies. In a recent study of the embodied experiences of stoke patients, it was found that they can almost simultaneously experience their changed bodies as an object separate from themselves (that arm that won’t behave) and as a cohesive whole, as in “it’s all me,” (Timothy, Graham, & Levack, 2016, p. 1565). In fact, there are lots of areas in which understanding how people experience things related to DMT is useful. For example, we need to know how dance/movement therapists experience and articulate the therapeutic relationship in DMT, as Young (2017) explored recently in order to develop a deeper understanding of our work. We need to know how educators perceive DMT that is used in special education classrooms as Devereaux (2017) sought to illuminate recently. I could go on and on but hopefully this is just enough to illustrate my point that reframing, actively expanding our epistemologies is in our best interests as clinicians and as a profession—and it will lead directly to increasing our excitement about research, and getting excited about research will only increase our desire to consume research.

Fig. 2 Epistemology. Graphic provided by CreativeCommons.org https://creativecommons.org/licenses/by-nc/3.0
So how do we make this happen? Find your research passion, focus on something you find fascinating or engaging about social justice, children, trauma, motor disorder; let your passion for that topic lead you to the research literature, and once you are there make it yours. We do not have to all be specialists in everything, choose one or two things to really be informed about, it is fine. There is something about the social media sharing of life, even of research, that makes us feel we must be doing more and more fabulous things; as if we must all be experts in everything. But it is not true—we can hone in on what we are most interested in. And the more that we do, the more our clients can benefit from our research-informed practice.

DMT is truly a global enterprise now, and that means that even more research is needed and is emerging about how DMT is developed in different cultures such as the research of Ko (2016) in East Asia. More and more, we have increasing access to international DMT research. This is wonderful because it enlarges the profession and moves us all forward. It is important because it indicates the vital spread of DMT so there is more coverage, and eventually greater acceptance and recognition. And especially now, one can’t help but feel excitement that this international growth may also empower us in some way to fight against the politically motivated xenophobia and racism we currently are encountering in the US.

It seems that every time you check your social media there is a new study proclaiming the benefits of dance. We are quite solidly in a new era driven by social media and the meme, and DMT and ADTA have already benefitted from this development (Mau & Giordano-Adams, 2016). ADTA always seems to manage to keep up with the times, sometimes by the skin of our teeth, but we keep up. In the early to mid-1990s the internet was growing and ADTA began a series of websites, listervs, and electronic bulletin boards keeping right in step. I was involved with many of these early efforts in one way or another, writing requests for proposals for new websites, and even trying to figure out how to manage the new ADTA Facebook page in 2008. Our thinking back then was that this social media thing might just take off and attract young people to DMT. As Mau and Giordano-Adams (2016) recently wrote, social media have had quite an impact on ADTA bringing an array of benefits including collaboration and expansion. Specifically for research, social media is now considered a major resource for researchers to disseminate their work across a range of platforms and a way to stay in the research “news cycle.” In the text, *Communicating Your Research with Social Media*, (Mollett, Brumley, Gilson, & Williams, 2017) the authors state that there are many “kinds of opportunities social media can bring to academics and researchers in general,” (p. 11). For some researchers, it is about getting their research to the largest audience possible, and even unfortunately about bullying colleagues as a recent *New York Times Magazine* article revealed (Dominus, October 22, 2017). Most of us are more familiar and involved in the user end of this proliferation of research on social media, for example, the articles that are posted to Facebook and other social media we participate in from web sites we visit. Sometimes we also depend on blogs like the ADTA blog where others might summarize research for us, and there are many, many other ways that content and information are disseminated or shared via social media.
I suppose that with so many developments in technology, it makes sense that there are also changes in publishing. Just as an example, the *American Journal of Dance Therapy (AJDT)* going back to the first volume was digitized and made available online to all ADTA members in the early years of the last decade. In addition to online submission and review, we now have access to new articles online before they come to us in the print journal. Even more wonderful, when Springer, who publishes *AJDT* sells online access packages to groups like universities and library consortia, *AJDT* is included and thus articles on DMT research published in *AJDT* have a broader reach than ever before.

So, what could be bad about all of this dissemination of research and getting the word out about dance/movement therapy? Well, it simply requires more scrutiny and care on our part to make sure that what we find online is valid research from valid sources. Part of the need to be more careful has to do with how we traditionally vet research and the fact that now it is easy to use the internet to create sources that look like standard journals but in fact have only the goal of making big money for their creators by charging unsuspecting authors to publish their work.

In the sciences, social sciences, and medicine juried journals are considered a superior source. These are journals in which papers are subjected to a peer review process before they are ever published, and that is thought to be valuable from a scholarly viewpoint. The publisher Wiley, says “Peer review is designed to assess the validity, quality and often the originality of articles for publication. Its ultimate purpose is to maintain the integrity of science by filtering out invalid or poor quality articles,” (https://authorservices.wiley.com/Reviewers/journal-reviewers/what-is-peer-review/index.html). Figure 3 displays a nice visual of the process modeled from one available on the Wiley website. You’ll see that once submitted the editor and reviewers assess and give feedback and suggestions to the author, sometimes in an iterative process until the editors and reviewers are satisfied that it either can or cannot be published. You can probably also see that the process is a little complex and takes time.

While there are criticisms, the peer review process is generally considered worthwhile and valuable for improving published work by researchers (Wingfield, 2017). Until recently, most scientific journals have been published by large companies such as Springer, Wiley & Sons, and RELX Group’s Elsevier. But as lots of academics like myself have started to recognize, many new journals have sprung up in the last few years and have started to solicit for papers in ways that are suspicious; for example, I can receive up to five email solicitations a day and the solicitations say something like: “Dr. Cruz, we saw your recent article in *American Journal of Dance Therapy* and want you to submit your next paper to *Journal of BioPharma.*” Seriously, so what is going on here? Well, it is interesting indeed; I call this type of journal solicitation pay-to-play, others call it predatory publishing (http://www.cabells.com/about-blacklist). While not every solicitation like this is bogus, Bloomberg News recently reported an investigation of a company, Omrics, started by a graduate student that has set up over 1000 online open-access journals and made millions of dollars by charging researchers to publish their papers (Depez & Chen, 2017). Although these journals claim to use a peer review process that takes less than 24 h, a recent “peer reviewed” paper published in an Omrics journal
consisted only of the words “Get me off your [expletive] list” repeated more than 800 times (p. 3). Obviously that article was not peer reviewed. Omrics journals are banned from PubMed, the US Department of Health and Human Services database, but they are still online and many have names that are almost identical to journals published by valid companies such as Springer, Wiley & Sons, and Elsevier. So be careful when you find open-access articles, check to see who the publisher is or that the article is published in a known journal like *The Lancet* or the *New England Journal of Medicine* for example, or that the article is a journal associated with an organization like ADTA’s *American Journal of Dance Therapy*. Similarly, when looking at other types of Internet sources, focus on trusted or known sources such as, Mayo Clinic, WebMD, National Institutes of Mental Health, and university websites.

I know that you are all as excited as I am about the ways in which dance, and by extension dance/movement therapy, are increasingly recognized as beneficial. Who would not be excited by claims such as, *Dance Magazine*’s recent online headline “We are born to love dance—science says so!” (Stahl, 2017). As fabulous as it is, read it with an investigative eye. See what research the author is reporting on and go read that research. Be a sceptic. Go to the source.

Let me try to wrap this up with some take away messages.

- The rhythms of research in DMT and in medicine and the social sciences are changing and new ways of knowing are increasingly recognized and used in novel ways;
• Review your epistemology so you can expand and truly appreciate the new, broad range of research that is available;
• Find your research passion, the thing that you care most about and read, read, read—get excited! Own it;
• Use the internet wisely, because we have more access to information than ever before. Just check those sources and use trusted sources.

Remember, if you are a dance/movement therapist—research is in your DNA. Research can only help us improve our practice, and our clients deserve our best DMT skills. Acknowledge your relationship with research, and feed it. Do it for your clients’ sake. Finally, understand that now is the time to do this, because we are never standing still, and we are literally moving DMT forward at this very moment. THANK YOU!

Compliance with Ethical Standards

Conflict of interest The author declares that she has no conflict of interest.

Research Involved in Human and Animal Rights This article does not contain any studies with human participants or animals performed by any of the author.

References


**Robyn Flaum Cruz**

Ph.D., BC-DMT, LPC is Professor of Expressive Therapies at Lesley University in Cambridge, MA where she has focused on doctoral curriculum development for the arts therapies in a unique low residency format for the past 12 years. She has served as Co-Chair for the Lesley University Institutional Review Board since 2010, and was featured in the Lesley University 2012 Annual Report. She is a Past Vice President and Past President of the American Dance Therapy Association, and Past Chair of the National Coalition of Creative Arts Therapies Associations. Dr. Cruz’s clinical work has spanned populations such as adults with serious and persistent mental illnesses and children and adolescents with trauma and substance abuse issues. Her doctoral degree is in Educational Psychology with a specialization in Measurement and Methodology. She has worked as a research methodologist, research consultant, and statistician. She has enjoyed teaching doctoral students since 1995, and has taught graduate courses in dance therapy, research methods, and statistics to students from many different disciplines in the US, Europe, and South America. A member of the ADTA Research Subcommittee since 1994, her current research interests include: expanding the evidence-base for dance/movement therapy; enhancing diagnostic specificity using movement assessments; movement disorders; applying research to clinical practice; and using research to advocate for the arts therapies as viable healthcare professions that
bring humanity to caring for those in need. She is a former Co-Editor of *American Journal of Dance Therapy*, and served as Editor-in-Chief of *The Arts in Psychotherapy* from 2002 to 2015. She is co-author of two textbooks – *Dance/Movement Therapists in Action: A Working Guide to Research Options* and *Feders’ Art and Science of Evaluation in the Arts Therapies*, both are in 2nd editions and published by Charles C. Thomas. In addition, she has authored over 50 articles in refereed journals across the disciplines of dance/movement therapy, psychiatry, psychology, neurology, and communications disorders.