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The Nature of Movement:
Finding the Connection Between Dance and Climate Science

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History of Dance Theater

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The Nature of Movement:

Finding the Connection Between Dance and Climate Science

In light of its ability to convey emotion, its accessibility through narrative, and its cultural power, dance can act as a powerful tool for climate change communication. Traditionally, the scientific community works to educate the public about their findings and spread awareness about their discoveries through the publication of scientific journals, lecture, outreach programs, and collaboration with journalists. However, these methods have not always been sufficient in connecting with outsiders and, subsequently, science has long struggled to communicate effectively, particularly in the field of climate science. Facing this challenge, climate science needs to find alternate methods of communication, such as dance, to better connect with and educate the public. Recognizing the power dance can have in communicating ideas about climate change, choreographers such as Karole Armitage and Jody Sperling have taken on the topic of climate change in their works, combining the analytical field of science with the emotive field of dance. In this paper, I explore the potential of dance as a method of communication for climate change and discuss Armitage and Sperling's pieces, looking at how they translated the highly data-focused topic of climate change into the artistic, emotional form of dance.

Over the past few decades, the field of climate science has rapidly expanded as more researchers have tackled projects aimed at understanding climate change and its effects. Going beyond just global warming, NASA defines climate change as a term that encompasses global warming as well as the wider changes happening to our planet. As Yale professor Anthony Leiserowitz discussed in a 2016 lecture, climate science has reached a consensus on five key

points that we, the public, need to understand about climate change: (1) scientists agree, (2) it's real, (3) it's bad, (4) it's us, and (5) there's hope. Climate science aims for greater education of these points in order to change behaviors and policies that might limit the effects of climate change going forward through mitigation of our own harmful actions and adaptation to a permanently altered climate. By spreading these ideas to the greater public, climate science hopes to stop the increase of climate change denial and skepticism and promote legislative changes to protect the planet against further harm.

Despite overwhelming evidence in their favor, the climate science community has struggled with effectively communicating these ideas to the public. Because they use large amounts of complex data and theoretical scientific concepts, the field has struggled to convey the information and facts they know to be true to the public in a way that is easy to understand and process. The first to widely acknowledge this gap between scientific knowledge and public perception, Bill McKibben, a leading environmentalist and author, commented in an article for *Grist* in 2005 that climate science has not yet become a "part of our culture." Since then, universities such as Yale and George Mason have created entire programs surrounding climate change communication, conducting research studies about factors shaping public opinion and behavior and working with outside organizations to improve their public communication initiatives (*Yale Program, Center for Climate Change Communication*). For the public to truly embrace climate science, the community needs to re-evaluate their communication tactics and find ways to connect with the public and become a part of the larger culture defining our society.

Although dance and science seem at first like fields that would be at odds with each other, they share some key similarities that ease the ostensibly difficult connection between the two subjects. Donna Sternberg, a Los Angeles based choreographer who has a strong interest in

bringing together dance and science, sees a strong link between in the process of discovery. In an email correspondence we had as part of my research, she stated that she sees discovery to be “at the core of both dance and science. Scientists spend their lives studying phenomena that lead them to discoveries. Similarly, choreographers spend their lives probing movement and discovering truths of their own.” Allied by their shared process of continuous exploration, choreographers and scientists relate to each other remarkably well, enabling dance and science to go hand in hand. For the field of climate science, dance has emerged as a compelling method of communicating ideas. As researchers Lesen, Rogan, and Blum noted in *Trends in Ecology & Evolution*, the arts “are particularly well suited to climate science communication because they can foster understanding of the science and outcomes of climate change” (657). With its ability to convey information in a more engaging way, connect to our emotions, and bring science to life in a relatable way through narrative, dance complements the field of climate science and enables more effective and engaging communication.

Traditionally, science presents information through writing and speech, in forms such as research papers, charts and graphs, and lecture. As Leiserowitz noted in an interview with *Grantmaker in the Arts*, these types of presentation work well with engaging the “analytical brain,” but are not highly effective at engaging the emotional part of the brain (Frasz). Dance, however, “offers a way of moving beyond academic knowledge into a realm of non-verbal communication,” promoting a different type of learning that allows for greater emotional engagement (Sternberg). Where science struggles to connect to emotion through its traditional presentation mediums, dance, and art overall, can “inspire people on a deeply emotional level” and has the power to “elicit visceral, emotional responses” (Sternberg, Lesen et al. 657). Art, which Leiserowitz views as “one of the most effective ways of engaging us emotionally,” acts as

the accompaniment to the more analytical tendencies of science, bringing the complex ideas of science to life (Frasz). In its efforts to better connect with the people, climate science benefits from dance's greater emotional capability.

The narrative ability of art also serves the climate change efforts well, allowing audiences to encounter ideas and experiences they might not have previously considered. In its traditional form, science, like dance, uses narrative to convey a story and present a progression of ideas. Building on this similarity between the two fields, dance narrative can help to enhance the narrative tendencies of science by presenting a story through movement rather than words. Narrative can be a tremendously effective vehicle for conveying ideas in a way that engages audiences. As climate change psychologist Adam Corner notes in an article for *The Guardian*, "it is human stories, not carbon targets, that capture people's attention." The arts, and dance in particular, thrive through their ability to tell a story and let the audience vicariously experience something they can't go through directly, "leading audiences on a journey removed from the everyday world" (Frasz, Sternberg). By doing this, the arts can open audiences to ideas they might not have thought of before. In terms of climate science, this helps to jump start audience conversations both in the theater and outside of it about climate change ideas. Narrative, a key component of the arts and science, can serve as a powerful starting point for raising awareness about climate change.

Lastly, dance has tremendous cultural power. As a central part of our culture, the arts can shift ways of thinking and bring about wide-scale change in the perceptions and attitudes surrounding an issue such as climate change. As Australian National University researcher Tim Hollo noted in his research paper about the role of the arts in climate change action, culture itself acts as "an immensely powerful tool of social and political control and change," shaping the

ways we think and act in response to situations happening around us (7). By shaping culture, dance, in turn, has the capacity to play a part in political and social changes, contributing to “a shift in consciousness” and having “a real impact on our ability to change laws” (Jacobson et al. 30, Hollo 8). Recently, this was seen in the increased presence of LGBT characters on TV shows such as “Modern Family,” which aided in changing perceptions of same-sex marriage in the US (Rasmussen). By utilizing this cultural power in a similar way, dance can aid climate change communication by changing cultural perceptions of climate science, adding to the growing cultural shift towards action to protect our planet.

Recognizing these similarities of dance and science and the complementary benefits the connection of the two fields can provide, choreographers have recently made attempts to tackle climate change communication through dance. Gloria Benedikt, a trained dancer who serves as the first science and art associate at the International Institute for Applied Systems Analysis, sees dance as a particularly well-suited medium for science because “as dancers, we can physically illustrate scientific findings” (Brand). Drawing on the capabilities of the arts overall to promote the message of climate change as well as the unique aspects of dance to be able to “physically illustrate” these complex scientific ideas, choreographers have used dance as a means to spread awareness of climate change. Karole Armitage, artistic director of Armitage GONE! Dance and choreographer known for her “punk ballerina” style, explored the context of climate change in “On the Nature of Things” and Jody Sperling, artistic director of Time Lapse Dance and choreographer who emulates the style of early modern dancer Loie Fuller in her works with her use of fabric and colored lights and artistic director of Time Lapse Dance, created “Ice Floe” and “Ice Cycle” after being part of a scientific expedition to the Arctic. Together, Sperling and Armitage’s pieces stand out as strong examples of combinations of dance and climate science.

Performed in 2015 in the Hall of Ocean Life at the American Museum of Natural History in New York, Armitage's "On the Nature of Things" is an hour-long ballet about climate change and its cultural context. In creating the piece, Armitage worked with the museum curator, Rob DeSalle, and Stanford professor and biologist Paul Erlich, who narrated the performance with excerpts of his essay "On Closing the Culture Gap" (Brooks). The choreography parallels the narrative of Erlich's essay, which contends that climate change is deeply misunderstood in our society and proposes a series of cultural and policy changes he believes are necessary to avert the negative impacts of climate disruption (Erlich, "New Dance"). Beginning in the center of the hall underneath the looming whale model hanging from the ceiling, the light focuses on a single ballerina soon joined by a partner for a strong yet delicate duet. As the piece continues, chaos grows, with thirty dancers dressed in bright orange leotards performing on three stages across the hall, drawing audience's eyes to various points of the room ("On the Nature of Things," "New Dance"). Representing the disruption and restoration of harmony, the chaos of movement moves toward synchronism by the end of the piece when only one dancer remains on stage. Collapsing toward the ground, young dancers from Manhattan Youth Ballet enter the stage, representing hope for the future and heartening the audience ("Armitage Gone Dance," "New Dance"). Jessica Abejar, in a review for *Broadway World*, commented that the piece is "less about performing or personifying and more about humanizing" to "realize that the Earth has a soul much like ours." In creating the piece, Armitage aimed to add a sense of humanity to the often-dry field of science, stating she hoped to add a "visceral, emotional layer to the science" ("New Dance"). Combining the emotive power of dance with the educational aspect of Erlich's narrative, Armitage depicts a narrative of the looming danger of climate change, encouraging audiences to consider their own impact.

Jody Sperling's 2014 "Ice Floe" and 2015 "Ice Cycle" also tackle the topic of climate change. A year before, Sperling was invited to accompany a scientific expedition to the Arctic sea as the first choreographer in residence. Made up of ice scientists, marine biologists, photographers, writers, and other artists, the expedition studied the effects of global warming on the shrinking ice flows but also focused on climate science communication, aiming to increase conversations about science in the public arena. As a part of the voyage, Sperling videotaped herself dancing on more than a dozen ice floes in the Arctic, using fabric to allude to the changing shape of the melting ice floes over time ("Jody Sperling Interview," *Time Lapse Dance*). After the conclusion of the expedition, Sperling put the footage together into "Ice Floe," a short film showcasing her dancing in the Arctic. In the film, Sperling overlays videos of herself dancing on the ice floes in a Loie Fuller style dress, suggesting the passage of time and alluding to the changes caused by climate change ("Ice Floe"). After her return and the publication of the short film, Sperling choreographed "Ice Cycle," a thirty-minute modern piece performed at the JCC Manhattan by her company, Time Lapse Dance. Inspired by "Ice Floe," Sperling translated her choreography from the sea ice to the stage, adding colored lights and projections of ice imagery onto the flowing white costumes the dancers wear. The choreography is similar to that of "Ice Floe," with the dancers entering and exiting the stage in a swirl of fabric and limbs (*Time Lapse Dance*, "Ice Cycle"). In creating the piece, Sperling said she hopes that by bringing the "plight of sea ice 'home' to different theaters, the work will inspire action to protect it" (*Time Lapse Dance*). Like Armitage's work, Sperling's short film and performance aim to spark conversation about the topic of climate change and lead audiences and viewers towards considering the part their own actions play.

By incorporating ideas about climate change into their choreography, both Sperling and Armitage work to utilize the advantages of dance in communicating climate science. Presenting the scientific ideas of the museum and the Arctic expedition in the more fluid and expressive language of dance allows the choreographers to bring emotion to the field of climate science, letting the data and facts behind the choreography come to life through movement. Both choreographers also aimed to create a sense of vicarious experience, especially in Sperling's pieces, which aspired to bring the Arctic "home" to the stage, and employed the power of narrative to tell a story of climate change and its effects. Finally, the choreographers attempted to use the strong cultural power of dance to bring climate science closer to the forefront. By incorporating climate concepts into dance, they intend to spread awareness of the topic, in hopes that "by engaging audiences and creating a trigger and space for discussion, they will encourage people to learn more and get involved" (Hollo 20). It is interesting to note the role that location played in both pieces in priming audiences for the larger message of the works. By setting her piece in the middle of the American Museum of Natural History, full of educational scientific exhibits, Armitage readies her audience to learn. For Sperling, literally dancing on the ice floes that her piece is about establishes a clear connection between her choreography and climate science. Using location, narrative, emotion, and cultural power to their advantage, Sperling and Armitage bring climate science and dance together in different, but both effective, methods and aid in raising awareness of this topic.

When it comes to combining climate science with the arts as a form of communication, dance provides a strong opportunity to spread awareness about climate change and affect cultural change. However, choreographers face a multitude of challenges when looking to bring dance and climate change together and must take care to ensure their work portrays their ideas

effectively and in a way that has lasting impact. Choreographers must work to create a message that appeals to a broad audience, puts the art into context with the help of advocacy groups, and ensures “that as many people as possible get the fundamental message intended” (Rasmussen, Frasz). Some question whether art promoting causes such as climate science is truly effective in changing people’s minds or if, like an echo chamber, it just confirms the beliefs of those who already support the ideas; Lesen et al. state that “it remains unclear whether arts-based science communication is uniquely effective in raising awareness or shaping policy” (657). One New York Times reviewer criticized Armitage’s piece for “falling short” as a work of persuasion, showing that even the most successful pieces in this niche genre have a way to go (Seibert). While the potential benefits of the connecting of dance and climate science are abundant, it remains to be seen if choreographers’ works can have a lasting, wide-scale impact and present their ideas in a concise and understandable way.

In my own research, I witnessed these challenges, or the failures of, firsthand at one of Donna Sternberg’s shows entitled “Awe and Wonder,” which paired together guest choreographers and scientists to create works inspired by the scientists’ research. One of the pieces, choreographed by Ricky Palomino, was supposedly about climate change and I hoped to be able to use the piece as an example for my research, but, even after a Q&A session in which the choreographers explained their work, the piece remained unclear to me in its message and what it was trying to portray. Sternberg acknowledged that one of the greatest challenges of this type of choreography is the difficulty for audiences to “see” the science in the dance, noting that the “connection between the dance and science is illusive to many audience members.” She advises that choreographers should work to gain a sufficient understanding of the scientific concepts in order to achieve a balance between a literal showing of the science and use of the

science as inspiration for the choreography. Although some of the other works in Sternberg's show did a good job of depicting science through dance, Palomino's work about climate science missed the mark, highlighting the difficulties of connecting dance and science.

Despite these challenges, the potential power of dance as a tool for climate change communication is clear and the dance community should continue to strive to find ways to connect to science in meaningful ways. Even if beginning efforts to do so are on a small scale, Hollo notes "even initial low level engagement can lead over time to even deeper engagement" (47). Albeit the difficulties they face, choreographers shouldn't shy away from the linking of dance and climate science. Dance brings special advantages to the scientific community that should continue to be explored through future works undertaking the topic of climate change.

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