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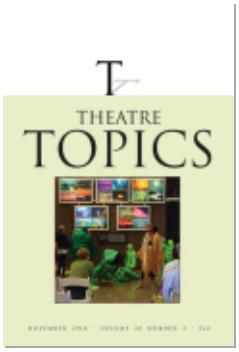

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Shine is a performance for youth-led community engagement for resilience planning. It weaves climate science and artistic expression into a funny and powerful story that spans 300 million years of geological time to convey the interrelationship among energy, humanity, and climate. Rehearsing each part of the musical immerses youth in the lexicon surrounding climate and energy, and leads participants in embodying different aspects of climate science and human development that brought the earth to this point, where our use of fossil fuels is impacting our climate. The first half of the show is professionally scripted, composed, and choreographed to tell the story that has already been told by history; the second half—our future story—is authored by local youth to generate solutions for their city's resilience challenges. The design for this performance experience is based on the belief that if people are guided in proposing solutions aligned with their values and priorities, they are more likely to feel ownership for and act on those solutions (Markowitz et al. 24). The purpose of this essay is to demonstrate the efficacy and value of using performance for including the contributions of adolescents, primarily ages 9–14, to their city's plan for resilience.

Shine has been performed by local youth in eight different communities from 2015 to 2017, five of which are cities that are a part of the Rockefeller Foundation's 100 Resilient Cities (100RC) initiative: Boulder, New York City, London, New Orleans, Chicago, and three that are not—Tuba City, Arizona, within the Navajo Nation; Malope, South Africa; and Brookfield, Connecticut. This show falls beneath the *applied theatre* or *applied performance* umbrella, since it enlists the participation of nonperformers in mostly nontraditional performance spaces, and uses performance as a tool to work through areas of concern that participants identify (Prendergast and Saxton; Rohd; Taylor; Thompson). As an associate professor of theatre and environmental studies at the University of Colorado Boulder (CU Boulder), I wrote and created this performance experience in collaboration with nationally recognized performing artists and climate scientists. Three-time Grammy winner Tom Wasinger composed the music, and master teacher with the New York City National Dance Institute and former Broadway performer Arthur Fredric developed the choreography. Primary scientific collaborators include Paty Romero Lankao of the National Center for Atmospheric Research (NCAR) and Joshua Sperling of the National Renewable Energy Laboratory (NREL). It is noteworthy to mention that both scientists actively engaged in the rehearsal process and performed beside youth performers in several performances. I traveled to each location of the tour to facilitate each of these performances, which were mostly hosted by a school with student performers ranging from fourth to eighth grade, although I also worked with high school students in Tuba City and university students in Boulder and London. The intention of the tour was to learn best practices from each city's process to contribute to a deeper understanding of how performance can effectively engage youth in authoring their city's plan for resilience. A book on *Shine*, titled *Performance for Resilience: Engaging Youth on Energy and Climate through Music, Movement, and Theatre* (Osnes), shares the lessons learned and recommendations from all the locations reached by the tour and the open-source materials for producing *Shine*; it is available at *http://www.insidethegreenhouse.org/shine*.

Background

The Rockefeller Foundation launched the 100RC initiative to help cities around the world become more resilient to the physical, social, and economic challenges that are a growing part of the twenty-first century. Boulder was among the first group of thirty-two cities chosen by this initiative in December 2013. I was invited to attend Boulder's first all-day meeting with community stakeholders and the 100RC team in May 2014. There, I saw the opportunity to contribute the use of performance for youth to participate in authoring our city's plan for resilience. I was attracted to working in conjunction with this initiative for three reasons: 1) it puts my performance contribution in community with cities throughout the world that are leading the movement in resilience planning; 2) it provides an international platform for sharing best practices that emerge from this performance experiment; and 3) it has an inclusive approach toward resilience. As stated on the Rockefeller Foundation's website, "100 Resilient Cities supports the adoption and incorporation of a view of resilience that includes not just the shocks—earthquakes, fires, floods, etc.—but also the stresses that weaken the fabric of a city on a day to day or cyclical basis" ("About Us"). *Resilience* can be defined as the capacity of our communities to function, so that everyone, particularly those who are under-resourced and vulnerable, survive and thrive no matter what social stresses or climate shocks come our way (Fox et al.).

Theoretical Foundation

Instead of top-down, expert-driven dissemination of information, this project seeks to harvest local knowledge, especially knowledge and perspectives held by adolescents, and invigorate community-based solutions. Embodied and fun, this performance is designed to be a fresh way for inviting a wider constituency into the planning process for community resilience. It is based on the principle of *active culture*, which recognizes that people frequently get more out of making art than seeing the fruits of other peoples' labors (Cohen-Cruz). If citizens participate in the creation of a performance, then the process will likely help guide their thinking in and out of the theatre (Kattwinkel). A focus on local resilience issues brings both social and climate solutions to the community level; many people can feel overwhelmed by climate change when it is framed as a global crisis and disengage from the issue. Research on climate communication reveals that the most effective scale for framing climate change for engagement is at the local level (Weber et al.).

One way of categorizing this performance is within "community-based adaptation to climate change," which is a relatively new field that focuses on innovative participatory methods that are developing to help communities analyze the causes and effects of climate change, integrate scientific and community knowledge of climate change, and plan adaptation measures (Reid et al.). This is closely aligned with an emerging practice called *ecodramaturgy*, a term coined by Theresa May, one of the editors of *Readings in Performance and Ecology*, which she defines as "theater and performance making that puts ecological reciprocity and community at the center of its theatrical and thematic intent. Ecodramaturgy carries with it new frames for thinking about theater and new approaches and challenges to making theater" (Arons and May 4).

At the heart of this project are the expressed beliefs, creations, and ideas of the youth of each city. Research shows that by involving youth, especially those from underprivileged communities, in planning and implementing urban improvements, there are enormous benefits for the participants, the wider society, and the future (Chawla). Actively involving adolescents while they are still relatively young is important regarding climate-related issues, since research reveals that pessimism about addressing climate change increases with age, particularly from early to late adolescence (Ojala; Stevenson and Peterson). This performance project recognizes adolescents as potential thought-leaders not just as future adults, but as current members of their communities, because they often constitute a sector of heavy users of the city's infrastructure and resources. Through *Shine*, performance is being

used to diversify who has a voice in a city's plan and whose needs are prioritized, such that the city benefits from the contributions of every sector, especially youth, who are traditionally underrepresented, yet arguably are any city's greatest asset.

Design and Outcomes of *Shine*

The intention behind the design of this performance experience is that preparing for and rehearsing act 1 prepares the participants to author act 2. The first act begins 300 million years ago during the Carboniferous period and enacts ancient plants and animals becoming fossil fuels. It traces humans' use of these fuels from the forming of human communities due to agriculture through the Industrial Revolution, eventually reaching the crisis point wherein our excessive use of such fuels impacts the climate. Act 1 infuses movement and emotion into the process of understanding what led us to this point in history. The second act responds to our climate crisis by inviting youth to devise what we can do to meet this challenge within our local communities (fig. 1).

To actively introduce participants to the use of performance to address aspects of resilience, we begin with a human-machine activity. One person comes to the center and repeats a mechanical sound and movement. One at a time, others join in with their own sounds and movements, so that each movement is interrelated to another person's, thus making a human machine. Then each participant is asked to think of themselves as the different parts of their city that help it function, such as trash removal, police, schools, hospitals, and water treatment. With that in mind, another machine is created representing their city. In Boulder, while that machine was moving at full force with everyone involved, I announced that a flood was coming through and asked them to react as parts of the machine. Some participants fell over, but still reached to repeat their movement and sound in conjunction with those near them; some helped others restore or maintain balance under the strain of the water, while a few seemed unaffected. Announcing that the flood had passed, I then said that a wildfire was approaching, and after that a drought. Through each disaster different people faltered or thrived.

Afterward, we reflected on how each natural disaster impacted different parts of Boulder and the capacity of each part of the city to be resilient in the face of these climate shocks. For example, the person representing the water-treatment facility was a CU Boulder student who was nearly overcome by the flood, floundering with broadly reaching arm gestures and hoping just to keep up with the excessive water. Indeed, during the 2013 Boulder flood, wastewater volume increased from 10 million to 50 million gallons a day (MacClune et al.). When this same participant responded to the wildfire, she simply performed her set gesture with more force and intention in order to keep up with the additional need for water to fight the fire. When it came to the drought, she became listless and weary in her movements to express the lack of fresh water into her system. This participant drew upon her local knowledge and personal experiences of the flood, fires, and drought while performing this activity in a sort of movement-conversation as she actively responded to each climate-related resilience threat.

There are several ways in which the participants in this activity demonstrated the key characteristics of resilience as identified by 100RC; they were resourceful in their alternative uses of their physical resources to accommodate disruption, and also flexible in their willingness and ability to adopt alternative strategies to respond to changing circumstances. In the activity, by focusing on only the limited number of climate threats prominent at the local level, the group seemed to avoid becoming overwhelmed; participants thought about and physically experienced local resilience issues that relate to the larger human story of climate and energy communicated through the first act of *Shine* (fig. 2).

FIG. 1 Performers making a human machine. (Photo: Conner Callahan.)

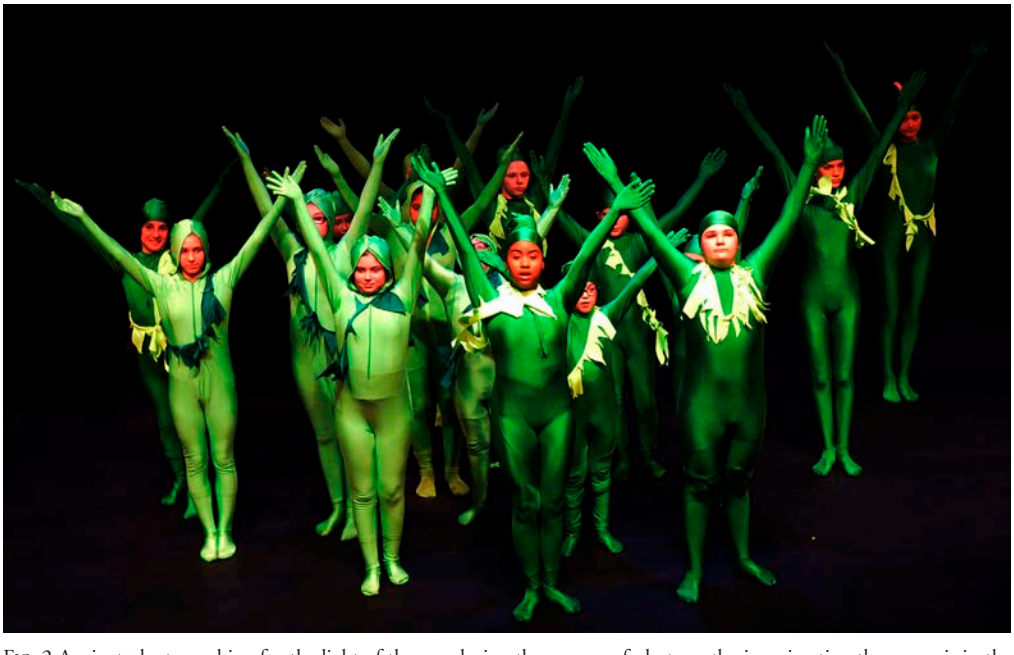

FIG. 2 Ancient plants reaching for the light of the sun during the process of photosynthesis; animating the synopsis in the July 2016 performance of *Shine* in Brookfield, Connecticut. (Photo: Steven Sutton/Duomo.)

Act 1 opens about 300 million years ago during the Carboniferous period. The ensemble is costumed as ancient plants in green suits that cover their entire bodies with a sash of green leaves. The plants gather toward Sol (representing the Sun) and dance the various parts of photosynthesis, while she (Sol) narrates their actions. In this scene, the students portraying the plants are invited to generate their own choreography to convey photosynthesis, such as getting energy from the sun, absorbing water through their roots, and breathing in CO_2 from the atmosphere. In each location where *Shine* was performed, youth worked together to create and agree on a wide variety of movements that they believed best enacted each process of photosynthesis. Comic relief ensues when the ancient animals (costumed in capes of ancient trilobites, dragon flies, and lizards) feast on the plants by munching outstretched arms. When Sol announces that all of them will eventually die, the ensemble enacts the most prolonged and dramatic death they can devise. Once dead, they are covered by a huge brown cloth representing hundreds of feet of mud, rock, and sand. While under the cloth, the performers remove their green suits and capes and silently roll out from the sides of the cloth in only their all-black street clothing (that they were wearing beneath). This black represents their transformation into coal under the weight of the earth's pressure.

In rehearsal, the performers are reminded to push their discarded costumes to the cloth's center (to be fully hidden) before exiting so that their transformation to fossil fuels reads visually to the audience. When the cloth is then gathered up and taken away, all signs of the lush green of life are gone. This is just one example of the many ways in which the physical tasks of performing are intricately linked to the science being conveyed to the performers and the audience of *Shine*. There is evidence that embodying concepts is beneficial to learners (Abrahamson). This claim is substantiated through an example from a New Orleans performance of *Shine*, when one youth whispers to another about hiding his plant costume beneath the brown cloth, "Make sure they can't see that—we're coal now," making clear that the participant understood the science he was performing. This could be interpreted as an example of active culture, in which student performers likely learn more of the energy and climate science embedded in the performance by laboring to *perform* it than they might learn from simply *witnessing* it. Months after a Boulder performance, one student noted that this scene helped him with a science test on energy—evidence that the experience helped guide his thinking both in- and outside the theatre (fig. 3).

From beneath the pile of discarded costumes, "Foss" (short for fossil fuels) emerges and claims to be Sol's little brother. As he and his sister converse, the action progresses along geological time to encounter dinosaurs, humans' first use of fire, and the settling of communities due to agriculture. Here, the performers representing harvesters create a human loom and weave together the fabric of their community, represented by long strips of paper decorated with all the identifying features of the community. While the weavers beautifully display their creation, Foss's followers circle the fabric carrying flags decorated with the ways in which fossil fuels are being used to spur progress in their community, representing the Industrial Revolution. It is during this phase that humanity's excessive use of such fuels interrupts the natural carbon cycle. Their circling is transformed into a violent storm that throws these flag-bearers off balance, causing them to rip through the fabric of community. In the wake of the storm, amid the ruins left behind, Foss looks up to his sister and asks, "What now?"

In a post-show conversation in Tuba City, one of the Navajo students said, "Because weaving is such an important part of our culture, when the weaving got ripped during the storm, people in the audience gasped." This element of the performance—the dramatic metaphor of ripping through the fabric of community as representing the destruction of culture by climate change—was especially powerful. Another student noted that that part of the show really meant something to them, especially because so much environmental damage has destroyed parts of their community and the culture that relies upon the environment, such as the sheep that provide the wool for the weaving and the way of life that sheep herding offers. This integration of elements of the community's culture seemed to invigorate and deepen the conversations about the meanings in the play, both during rehearsal and after the performance. After a Boulder performance, a seventh-grade student shared in a post-show

FIG. 3 Ancient plants and animals being covered by mud, rock, and sand in the July 2016 performance of *Shine* in Brookfield, Connecticut. (Photo: Steven Sutton/Duomo.)

discussion, "I felt like at the final scene where the big bad people broke the fabric of community that *we* caused this. *We* did this. It wasn't anyone else. *We* did this, and it's our responsibility to fix it." This feedback relates to the goals of community-based adaptation to climate change, which are to use participatory methods to help communities analyze the causes and effects of climate change and to integrate scientific and community knowledge. Here, we even see evidence of a youth performer assuming the responsibility for taking collective adaptive measures to fix it.

What follows in the second act are youth-authored solutions that address Foss's question, "What now?" at the local level. These solutions to local resilience challenges are expressed through short skits created by the adolescent performers, prompted, informed, and inspired by their involvement in rehearsing and performing in act 1. The intention is that the scientific and cultural knowledge and the artistic excellence invested in the first half of the performance will be carried over by the youth into their creation of the second half. In rehearsal, they are asked to focus on a single solution and frame it locally, identify benefits, and keep the skit under two minutes. What follows is a brief description of a youth-created solution performed as a short skit:

> The actors playing Sol and Foss enter still in costume. Sol announces that Boulder should receive all its energy from her. The audience cheers. Foss glares at the audience with a heavy brow. He apologizes for what he did at the end of act 1, but argues that Boulder cannot just get rid of him. He reminds the audience all he has done for the people of Boulder and warns that if only clean energy use is enforced, only the rich will be able to afford access to energy. Sol agrees to transition to a clean energy future gradually, project by project, first installing solar-powered street lights, requiring building regulations that are eco-friendly, and by starting a youth-led energy-education program in their schools.

In this solution, performers use their characters inside the theatrical experience to help guide their thinking outside of the theatre, deciding how to transition from fossil fuels to a clean energy future at the local level by using solar. They also integrated personally held values of a just transition by considering the impacts on economically disadvantaged citizens.

For the performance at CU Boulder's Sustainability, Energy, and Environment Complex (SEEC), Casey Middle School youth engaged the audience in authoring skits directly after they performed the first act. Months before this event, Boulder community leaders were contacted and asked to serve as expert guides in creating solutions for resilience planning at the event during the creating of the act 2 skits. They were told that they would be paired with a youth to help identify a local resilience issue and create a viable solution to perform for the audience. Their specific job

was to reflect back to the group if the idea seemed plausible, but not to lead it, since that was being done by the youth themselves. We received commitments from ten local experts, including a Nobel Prize–winning physicist, various directors of research institutes, grassroots organizers, and a senior environmental planner for the city. After the final tableau of act 1, ten Casey students spread out evenly around the lobby, each holding high a poster with a number on it ranging from one to ten. Audience members were asked to gather into ten equally sized groups with one of these students. Each student was assigned an adult community leader, who stood with the student holding the number. We explained to audience members that they were going to participate in identifying a local resilience challenge, devise a solution, and create a skit to communicate that solution. Although everyone in the group was asked to contribute to the process, not everyone had to perform. To start, we provided an example skit performed by two CU Boulder and three Casey students that identified the carbon impact of family vacations as a local challenge, and a "stay-cation" as one possible solution. They enacted two parents talking with their kids about planning a stay-cation in Boulder, which even allowed them enough financial savings to buy new bikes for them. The groups were given about ten minutes to create their own skits, which were to be no longer than two minutes in duration.

In the performances of these that followed, the transitions from one skit to another were spirited and timely, covering space in a fun and efficient manner. These transitions were truly youth-led, as the performers had rehearsed using two refrains of the "Bounce forward, rebound, that's my resilient town" chant to switch from one group to the next in the performance space. Beyond being entertaining and fun, this was an extremely efficient way to obtain input and involvement from 150 people in such a short amount of time:

- They organized into small groups to consider a local solution to energy use impacting the climate and how to move the city toward being more resilience.
- They decided how to express all this in a skit that contextualized the solution in their city.
- They presented this to the larger group through a short skit.
- Finally, they were able to witness and celebrate one another's ideas.

It was a great way to involve all ages in the action, as children in the audience rose and performed alongside their parents. What follows are two skits that emerged from this process:

> A woman asks "Who wants to go to the SEEC opening party?" to which everyone responds enthusiastically "Yes." She announces that she will be taking the bus and invites everyone else to join her. Two people decide to drive their cars instead. The people on the bus chant "Fun on the bus, fun on the bus" and make their way to the event. The two drivers buzz around in their cars until they crash into each other and have to abandon their vehicles. The bus approaches and offers them a ride, and they get on and add to the chant.

> One young man announces he is a farmer. The others in his group line up to gain entry into the farmer's compost pile. He asks each one what it is. The grass clippings are allowed, as are the rotting banana peel and the watermelon rind. The chicken bone is asked to go to the county compost instead, but the broccoli is allowed in. The compost pile is shoveled together as the group forms a clump. They decomposed down to the ground together. From their center, a young girl hiding within pops up and announces that she is a flower.

Leading this process was an empowering experience for the youth performers. One female student said, "When I was leading my group in the skit, I tried to get everyone involved so I asked for volunteers. They were really into it. I feel like people didn't realize that we young people have a say, and I don't think people really took us seriously until we showed them that we could lead this whole thing." Brett KenCairn, Boulder's senior environmental planner, shared this in an email after serving as an adult community leader in the SEEC performance:

> A significant part of the challenge we face in working with the public in developing effective responses to our climate crisis is the increasing emotional and psychological fatigue that most people feel about what appear to be rapidly diminishing prospects for creating a livable, prosperous, and equitable future. The *Shine* experience is a powerful tonic and antidote for this fear and despair. That it engages our youth as part of this process is part of its beauty, and part of its wisdom. To be reminded by these young faces both why we are doing this work and that there is every reason to have hope that when we come together around our deepest and most cherished values—love of place, family, community, and the natural world—we have what we need to transform our situation.[1]

After the performance, a parent, Cathy Deely, shared this via email: "I love how so much intelligent activism that's going on now is going towards our youth directly, while many adults are still arguing over what's problematic or whether or not certain problems really exist (i.e. global warming). The kids are more than ready to take the baton and run with it. This realization makes me feel much more optimistic."[2]

Not only does witnessing youth performance give adults hope, as we find in the above testimonials, but by engaging youth in a solutions-oriented performance concerning climate change, we can increase youth levels of empowerment and promote a commitment to positive action. In their article "Motivating Action through Fostering Climate Change Hope and Concern and Avoiding Despair among Adolescents," Kathryn Stevenson and Nils Peterson reveal that by giving youth a feeling that solutions to climate change are within their control, the resulting hope can motivate behavior that benefits other people, their local community, and the world. The final song and dance number, "Shine," celebrates what is accomplished and strengthens the community's resolve to put these solutions into action. Soren Ramsing, a music teacher who hosted a performance of *Shine* for his East London school, reported that students were singing the final song in the hallways weeks after the performance, indicating that the spirit of their experience as captured in the song was still resonating with them.

In terms of specific outcomes of *Shine*, the Boulder performance at NCAR stands out as having achieved the initial aim of youth authorship being included within a community's plan for resilience. The guest of honor for the NCAR afternoon performance was Boulder's chief resiliency officer with the 100RC initiative, Greg Guibert. Each group that created a skit was also charged with writing their idea on a piece of paper. At the end of the show, after the final bow, the youth performers ceremoniously present an envelope containing their solutions to Guibert. Months later, *Shine* was included in Boulder's city plan for resilience, titled "City of Boulder Resilience Strategy." In this official document, the outcomes from *Shine* were used as an exemplary example for Action Item 1.6, titled "Foster Artistic Engagement," which called for "Engag[ing] the creative power of the arts to convey and involve people in complex risk and resilience themes" (Guibert 34).

Inviting audience members who have power and influence within the community, such as chief resilience officers, city planners, and scientists, to a performance can validate youth expression and increases the chances that their ideas, needs, and perspectives are included in city resilience planning. Rehearsing and performing in places of positive social power, such as a national laboratory (NCAR) or a university (SEEC), can validate adolescent voices and their contributions. The social importance of these places was transferred onto youth expression. The use of these spaces for performance allowed for an inversion of the politics of the spaces. At NCAR, the scientists received information from youth participants during the performance, rather than what usually happens there: that youth groups visit the gallery to receive the scientific messaging from the displays based on the research of resident scientists. As Erika Fischer-Lichte and Benjamin Wihstutz argue, "[a]lthough every performance is inscribed in a place and space within a specific social order, as an artistic event it can just as well distance itself from this order, reflect it, or even endow it with utopian qualities"

(3), such as a nonhierarchical sharing of influence and inspiration among youth, scientists, policymakers, city planners, and academics.

Performance can serve as an activating framework that accelerates the creation of social capital—characterized by social relations that have productive benefits—which is critical for resilience. In *Building Resilience: Social Capital in Post-Disaster Recovery*, Daniel Aldrich demonstrates that a community's capacity for resilience lies most strongly in the depth of its social capital as evident through robust social networks marked by reciprocity, trust, and cooperation. The *Shine* experience fosters social networking around a shared exploration and purpose; participants make connections, build trust, and cooperatively help one another toward the common aim of performing and authoring a show that contributes to their city's plan for resilience. An example of this capacity for resilience is shown by the cooperation and trust between the youth in Chicago as they devised a way to portray a Jurassic-period dinosaur that crossed the stage. The smallest performer perched on the tallest cast member's shoulders and extended her arms forward as the jaws of a Tyrannosaurus Rex, fingers curled in as teeth. The next tallest cast member walked behind wearing green dishwashing gloves that extended out in front as the small arms of the beast, with the rest of the cast linked in line to form the body and tail. Their ability to create and perform this attests to their productive social relations toward a common aim. Audiences attending *Shine* also contribute to their community's social capital. Since viewing is an "action," a viewer of *Shine* actively "observes, selects, compares, interprets. She links what she sees to a host of other things that she has seen on other stages, in other kinds of places" (Rancière 13), and thereby actively participates in the performance and the community's meaning-making.

City policies and plans that are published then placed on a shelf can collect more dust than results. What is needed is community buy-in so that *real* individuals integrate those policies and plans into action in their daily lives and the lives of their communities. Since performance as an expressive tool is rooted in action, it seems uniquely well-suited for planning resilience: "Drama means action. Theatre is the place where an action is taken to its conclusion by bodies in motion in front of living bodies that are to be mobilized" (ibid. 3). Being embodied, collaborative, and creative, performance can be a highly effective and deeply nuanced tool for exploring yet unimagined possibilities for solutions. It provides a forum for witnessing these proposed solutions in real time with real community members who can be inspired to mobilize them in their daily lives and throughout the community at large. It gives a community the chance to witness possibilities being played out before actual resources are invested and with minimal risk of unintended damage or consequences. It provides the opportunity to improve upon ideas, try them again, improvise, and to stimulate creative energy and new ways of imagining. Especially when youth-led, it infuses joy and creativity into the entire process. It could be that this inclusion of joy is possibly the most sustaining ingredient in ensuring continued engagement by a larger constituency, because we will always return to something time and again if it makes us feel good. Youth-led performance offers a highly time-efficient, cost-effective, nuanced, and joyful approach to resilience planning.

Conclusion

This project is designed primarily for cities that are a part of the 100RC initiative, because these cities are currently undergoing the process of creating a plan or strategy for resilience, thus making the contributions of youth toward this aim useful. However, any community can benefit from the use of performance for activating adolescents to engage in the authorship of their future resilience. After all, "theatre remains the only place where the audience confronts itself as a collective" (ibid. 5). This performance can be used in any community to initiate a wider community conversation. By nature of the fact that it is most often mounted in schools, the performance notifies youth and the larger community that their city is undergoing a resilience-planning process. Often, citizens are unaware

of city efforts like this. Many city planners would be grateful for the contributions of young people to their plans, but lack methods for conversing with or receiving such input. It is hoped that if this performance is implemented as part of a larger community effort, the sustained support of youth in resilience planning may result. It is my hope that the example of this performance will inspire other creative offerings that can involve youth through performance toward envisioning resilient cities.

Adolescents are often identified as being disruptive. *Shine* invites and celebrates the disruption of the status quo by them. Wasinger, the composer and accompanist of *Shine*, lovingly describes the rehearsal process as "controlled chaos." The freedom of thought, preposterous ideas, radical concern, piercing focus, and outright silliness that youth have brought to city planning through the tour of *Shine* has been a pleasure to witness. This approach offers a viable alternative mode for exploring, thinking, and creating modes for living in this world. What we plan to do during these coming decades will determine if we can survive and even thrive on this planet as a species. *How* we make this plan and *who* we include in the planning may determine our future just as much.

Beth Osnes is an associate professor of theatre and environmental studies at the University of Colorado Boulder. She is co-director of "Inside the Greenhouse," an initiative for creative communication on climate (*www.insidethegreenhouse.net*). She recently toured her original musical, *Shine*, to cities in the Rockefeller Foundation's "100 Resilient Cities" initiative to facilitate local youth voices in resilience planning, and her book on this, *Performance for Resilience: Engaging Youth on Energy and Climate through Music, Movement, and Theatre*, was published in 2017. Open-source materials for using *Shine* to engage youth are available at *http://www.insidethegreenhouse.org/shine*. She is currently developing a method toward vocal empowerment for young women that she is researching in Guatemala, Tanzania, and the United States. Her book *Theatre for Women's Participation in Sustainable Development* includes her work specific to gender equity in Panama, Guatemala, India, Nicaragua, and the Navajo Nation. She is featured in the award-winning documentary *Mother: Caring for 7 Billion* (*www.motherthefilm.com*).

Notes

1. Brett KenCairn, personal communication (email) with the author, 7 Oct. 2015.

2. Cathy Deely, personal communication (email) with the author, 15 June 2015.

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