Inclusive & Creative Climate Education Workshop 
October 2023

Report on Design, Activities, and Lessons Learned

University of Delaware
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The Gerard J. Mangone Climate Change Science and Policy Hub at the University of Delaware collaborated with regional partners to host the “Inclusive & Creative Climate Education Workshop” October 13-14 in Wilmington, Delaware. The workshop was funded by the President’s Advisory Council on University Relations (PACUR) at the University Corporation for Atmospheric Research (UCAR). This report describes the design, implementation, participant feedback, and lessons learned.

The workshop was intended to build a regional community of practice among formal and informal climate change educators, with the goal of improving the ability of educators to build inclusive, creative, and emotionally supportive climate change education.

Three keynote speakers provided context about the importance of inclusion and values, the work involved in integrating knowledge systems, and ways to build creativity. Workshop participants piloted activities and brainstormed solutions to educational challenges in this field.

In their feedback, participants were enthusiastic about workshop. They valued its creativity, positive energy, and said the workshop was changing the way they would engage in climate education – either by adopting a specific activity or by taking a more hopeful, creative approach. Our team is committed to continuing to develop the networks that started at this workshop and are grateful to PACUR for making this possible.

This summary graphic by ImageThink provides an overview of the goals, activities, and takeaways.
A HOLISTIC APPROACH

Climate change researchers, practitioners, and educators recognize that the field needs to foster creativity to develop innovative solutions; to improve diversity in the people, perspectives, and knowledge systems involved; and to develop strategies to address climate grief, anxiety, and apathy. Efforts to address these issues tend to address creativity, inclusion, and emotional health as isolated topics rather than as complex, interconnected challenges.

The Gerard J. Mangone Climate Change Science and Policy Hub, the University of Delaware Associate in Arts Program, the Newark Charter High School, Delaware State University, and the American Meteorological Society Committee on Spirituality, Multifaith Outreach, and Science (COSMOS) designed and hosted a two-day workshop for Mid Atlantic educators to explore these issues and build a lasting community of practice. The workshop was generously funded by the President’s Advisory Council on University Relations (PACUR) at the University Corporation for Atmospheric Research (UCAR).

This report describes the intent and design of the workshop, activities, participant feedback, and plans for next steps. It is intended to capture lessons learned and to inform others who may replicate or improve upon the model.

A note on “Education” language:

We recognize that education occurs both in formal K-12 and college or university classrooms and informally through experiences, workshops, networks, and independent inquiry. We sought to engage both traditional educators and community leaders, nonprofit organizations, museums, and government officials who are engaged in community outreach and communication around climate change. We use the language of ‘students’ and ‘classrooms’ as shorthand in this report, but we recognize lifelong students as any target audience for educational materials in any relevant setting (e.g., museum visitors).
WORKSHOP DESIGN

The Working Group met monthly over the Spring and Summer of 2023 to design the goals and overall approach of the workshop. We agreed on a two-day workshop and on three main goals or principles for its design: (a) build authentic and lasting relationships to start a community of practice in the region; (b) feature keynote speakers who can reframe and connect our major themes (rather than panels); and (c) actively prototype activities and exercises and framings that participants could apply in their classrooms or outreach. Unless stated otherwise, “we” in this section refers to the Working Group (page 2).

FORGE AUTHENTIC & LASTING CONNECTIONS

A two-day workshop can only truly serve as a launching point for building a lasting community of practice. To make this the best launch possible, we sought to:

- Engage a diverse group of participants, in terms of people, perspectives, and organizations;
- Facilitate activities to build authentic connections and to acknowledge how our values, identities, and experiences shape our approaches to and goals for climate education;
- Provide open time for collaboration and further networking building; and
- Create spaces and systems for continued engagement beyond the workshop.

DIVERSE PARTICIPANTS

We recruited participants through general emails to relevant listservs and organizations (e.g., Climate Hub Partners, Association of Environmental Studies and Sciences, American Society of Adaptation Professionals, Delaware Marine Educators Network); targeted emails to department chairs and relevant faculty at regional two- and four-year colleges and universities; social media posts (LinkedIn, Twitter/X, BlueSky); and word of mouth. We created a website (sites.udel.edu/climatechangehub/icce-workshop) where interested people could find more information and apply, and we spoke with journalists in advance to help spread the word (e.g., Delaware Public Media).

We particularly wanted to build connections across K-12 schools, two-year colleges, and four-year universities to enable future work to build pipelines for climate education. We therefore chose our dates (Oct 13 and 14) to coincide with a statewide professional development day for Delaware K-12 teachers. Working Group members from the Newark Charter School connected us with the Delaware Department of Education to have the workshop verified as a way for Delaware teachers to receive “clock hours” for professional development. The workshop was listed in the DoE professional development management system (course #31815), where teachers could enroll directly. The system also sends notices to Delaware teachers, which increased our reach.

We considered dates in the summer that would have allowed teachers from other regional states to attend, but an informal poll of interested groups suggested that many people were planning travel over the summer or were otherwise committed, so fall dates were preferred. Alternatively, we considered partnering
with a set of high schools to support substitute teachers or other arrangements that would allow teachers to attend the workshop. This raised logistical issues and concerns about how to choose the schools engaged. In future, we will pursue professional development credit in additional states.

In our feedback survey, some participants noted that they would have preferred two subsequent Fridays rather than our Friday and Saturday combination. Participants had the option to attend either Friday alone or both Friday and Saturday (as the Saturday sessions built on material from Friday). 55% attended both and 45% attended Friday only.

To ensure attendance from a range of organizations (i.e., to avoid having a workshop of only members from Working Group affiliates), we had an “application” process. Participants were asked about their organization (e.g., K-12, two-year college, government agency), and asked to submit a brief statement about themselves: e.g., what they teach, why they are interested in the workshop, and what they hoped to learn from or contribute to the conversation (see Appendix I). We also noted the themes of the workshop and asked them to tell us about one aspect that they have engaged in or were interested in learning about. The process was intended to be short, and indeed, we noted that it was “not time intensive” on the application itself and described it in emails as “a few sentences” to help us invite a diverse group of people. Nevertheless, we heard back from several people that the word “application” was a barrier. It made people feel that this was competitive or that they needed to put forth a strong case for their attendance. We tried to address this by sending out subsequent emails and posts clarifying the intent and request, but this is likely one reason why our ultimate participation numbers are lower than we had hoped.

We did succeed in gathering a diverse set of participants. Our 47 participants represented 23 different organizations, including the Lenape Indian Tribe of Delaware, community-based and faith-based organizations, a museum and an aquarium, several government agencies (state and local from multiple states), high school and middle school teachers, and two Historically Black Colleges and Universities. Thanks to PACUR funding, we were able to provide travel support to enable two HBCU faculty members to attend. For all participants, we stressed that the workshop was free, and several participants noted that this was unusual and that they would not otherwise have been able to attend.

“The fact that this was a FREE event was phenomenal! Thanks to sponsors for making this workshop so accessible.”

participant

Types of participant organizations at ICCE
48% of attendees said their organization is a minority serving institution, serves an underrepresented population, or works specifically with environmental justice communities. We did not collect demographic information on participants, but through their self-introductions, we know that a majority of participants were white, held faculty positions at two- or four-year colleges (with a mix of teaching and research-focused positions), and were mainly natural science educators. However, we had participants of multiple races, ages, nationalities, faiths, genders, abilities, neurodivergence, and educational backgrounds. We provided a quiet space where participants could take breaks to process as they needed. In future, we need to build more quiet breaks into the day, so participants do not need to step out and fear missing out. We also need to better support participants with limited hearing; the noisy workshop setting made some small group discussions challenging.

We chose to host the workshop in Wilmington, Delaware, rather than Newark, Delaware, on the main University of Delaware campus, because there is a more accessible Amtrak station in Wilmington to enable regional travel. We paid for parking at the venue for those who drove, to make sure the workshop was as low-cost as possible for participants, but one participant suggested that in future years we should pay for public transport instead or in addition. We would also explore venues that better fit the theme and enable additional activities (e.g., at a museum or community college). Even booking dates three months out was too late: we needed to find a venue much sooner and will do so in the future.

KNOWING OUR WHOLE SELVES

Workshop icebreakers often stress titles and affiliations, but we wanted participants to find deeper points of connection and divergence. We therefore used a conocimiento activity (questions below) to ask participants to consider their identities, experiences, and motivations and how those might shape their engagement in this workshop. Conocimiento refers to a range of practices developed by cultural activists and inspired by Brazilian philosopher Paolo Friere. It can be used in a pedagogical way to build knowledge about oneself in relation to others, as individuals and in systems of power.1 We used a model of conocimiento2

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1 J. Mendez-Negrette (2013), Pedagogical Conocimientos: Self and other in interaction, National Association for Chicana and Chicano Studies, scholarworks.sjsu.edu/naccs/Tejas_Foco/Tejas/14

focused on building connections across participants. During the workshop, participants reflected how this activity helped them introduce their “authentic” and “whole” selves, that it made them trust other participants more and therefore feel more willing to take risks (e.g., during artwork and brainstorming activities). In post-workshop feedback, participants described this as a favorite activity:

**Favorite activity?**

“Conocimiento – really loved this activity because it allowed us to get at some of our group’s core values”

“discussing ‘home’ made a strong connection and friendships. I want to use this when I educate others.”

“I found this conference easier to network at than any other I’ve attended [because of Conocimiento & open brainstorming time]”

*(all participant quotes from post-workshop feedback survey or in-workshop feedback board)*

**COLLABORATION & NEXT STEPS**

On Friday, we facilitated group discussions to identify major challenges in climate education, brainstorm solutions, and describe approaches participants are already using. On Saturday, participants worked in small groups to further develop their personal and collaborative projects. One described a climate education podcast and solicited feedback (and potential speakers) from the group. Another group started a collaborative effort to use community gardens as a place for education and engagement. Participants on Friday requested more time for this type of group discussion, and participants on Saturday described how valuable it was to have time to work on implementing the things they learned on Friday.

We are building spaces for these conversations and collaborations to continue. All ICCE participants will be invited to the Spring 2024 University of Delaware Climate Change Education Symposium, where we will implement lessons learned by having a workshop session on particular topics and by having more open discussion space. Participants also expressed interest in having regular informal meet ups. One suggestion is a “field trip” to Delaware Museum of Nature and Science. We are working with DMNS to potentially host the UCAR Traveling Climate Exhibit, and if this occurs, we will invite all the ICCE participants and encourage them to use the exhibit in their classes (as a field trip, homework assignment, or extra credit). For digital spaces, we created a listserv, shared network contact details with participants (with their permission), and created a Google Drive where we continue to collect resources and ideas from the group. As one example, participants are collecting climate fiction and climate change-related board games and video games in preparation for a future discussion on the use of fiction and games in climate education. We considered using a learning management system space (e.g., Canvas) but many of our participants use different systems or are not formal educators and would therefore lack access.
RE-FRAMING THROUGH KEYNOTES

We invited three keynote speakers to draw connections across our activities and major themes of creativity, inclusion, and emotional support (above). The speakers themselves represent diverse backgrounds and identities and different ways of approaching climate education. The key takeaways from their talks are summarized below their photos.

The goal of the keynotes was to help participants re-frame their approach to climate education. Some participants were particularly struck by Chief Coker’s note that we have taken the environment out of environmental justice. Others reflected that Dr. Maldonado’s talk about the importance of culture and livelihoods was reshaping the way they thought about climate change education not just as a set of scientific facts to be relayed but a conversation about values. Others were inspired by Dr. Ulibarri’s talk on how educators can purposefully build creativity as a skill: “the creativity presentation made the most difference to me in how I will teach.”

The day before the workshop, Dr. Ulibarri facilitated a creativity session with doctoral students at the University of Delaware, and the students reported it was very useful in helping them think about their research goals and design. Aside from this session, our workshop focused on educators. However, we are exploring possible sessions focused on students for future events, and some of our participants plan to read the book *Creativity in Research: Cultivate Clarity, Be Innovative, and Make Progress in your Research Journey* (Ulibarri et al., 2019) and discuss how they could apply its activities in their classrooms and labs.

PROTOTYPING ACTIVITIES THROUGH EXPERIMENT & FEEDBACK

The most unique aspect of our workshop is that we spent very little time telling participants about inclusion, creativity, or emotional support. Instead, we asked participants to treat the workshop as a series of experiments: we would engage in activities, reflect on what worked or did not, and consider how we might modify those activities in our own classrooms or educational settings. Our conocimiento icebreaker was one example: rather than describe how icebreakers could be used to create more inclusive spaces, we actively engaged in one such icebreaker and asked participants to reflect on whether it worked for them and how they might use it or modify it in the future.
Similarly, we used a series of activities designed to integrate multiple perspectives, to provide emotional support for participants, and to foster creativity. Some of these were structural: we provided a “quiet space” where participants could step out of the room for a deep breath or a moment of silence; we held one chair empty at each table, labeled “students”, to keep our main audience in mind throughout the discussions. The first was a way to respect neurodiversity and people’s differing levels of social engagement. The second reflected Jovan Kurbalija’s proposal to have an empty chair representing future generations at the United Nations Framework Convention on Climate Change negotiations. More generally, it was an attempt to think about how our physical space and the people in the room can limit or expand our thinking.

Other activities were more direct. Participants worked in groups to create “problem trees” that identify root causes and branching effects; then they switched to a different tree to solve someone else’s problem (a reminder that sometimes a fresh perspective is needed). We used a rapid brainstorming exercise from the design field called “Crazy 8s”: every individual has eight squares of paper and eight minutes to come up with eight possible solutions. Once everyone had eight ideas, then the group could discuss those ideas (implementing the phases of divergent brainstorming and convergent filtering Dr. Ulibarri described in her keynote). A timer every minute for eight minutes created a sense of urgency (and anxiety in some!) but also energy. Participants reflected that they might ask for four or six ideas in their classrooms but said that the activity “felt far more interactive and cooperative. So I plan to implement them in my education.”

“I love a workshop where you get to try out the ideas, not just be told about it. I’m getting all kinds of ideas of things I can try in my classroom.”
- participant

ACTIVITY FEEDBACK
mean score 1-5 (5 best) on post-workshop survey

Problem Trees (4.25)
Crazy 8s & Rapid Brainstorming (4.1)
Prototyping Solutions (3.9)
Gratitude Exercise (3.9)
Acceptance Exercise (3.8)
Re-framing Exercises (Non-Human or Deep Time Messages) (4.0)
Zine (3.25)
We also prototyped exercises from *The Work that Reconnects* (Joanna Macy) to express gratitude, acknowledge loss, and shift our perspectives; all ways of helping process the difficult emotions around climate change. Referencing Chief Coker’s comments about honoring and centering the environment and future generations, participants were asked to imagine that they were either a non-human species (or ocean or mountain – one participant chose a glacier) or a person from 200 years in the future, and to write down what they would say to themselves. We noted that there are many other exercises that educators could use to help students voice the emotions they are experiencing, to express gratitude, or to “see with new eyes” (TWTR), and we provided resources at the workshop and in our shared drive so participants can try other variations.

As a reflection exercise, participants created Zines: a variation of the self-published fanzines historically used as a platform of expression for underrepresented and marginalized voices. For their zines, participants were given a folded paper booklet and asked to sketch, summarize, or otherwise visually represent their main takeaways from the workshop. We provided examples of how zines have been used in more formal climate education (e.g., a Festival for the Future zine on climate change effects, and *The New New York: visions of a climate changed city*), but we also stressed that the goal of this exercise was to process the workshop – not make artistic masterpieces. Some participants struggled to express themselves in an artwork form, but others saw it as a potentially valuable tool for the classroom to help students reflect and identify key takeaways. Art can be challenging for many people, but it has also been shown to develop creativity and to encourage different ways of approaching problems. In future iterations, we would tell participants about the zines in advance so they could brainstorm throughout the day, and provide more time at the end of the day for the artwork.

### LESSONS LEARNED & NEXT STEPS

In describing the workshop, above, we have already identified some specific lessons learned and areas for improvement (e.g., in our recruitment language and participant support), but two additional overarching takeaways are worth emphasizing:

1. Educators need Creativity, Inclusion, and Emotional Support as well as Students;
2. Inclusive & Playful Spaces foster Energy & Creativity.

Our workshop was designed to help educators foster creativity, be more inclusive, and provide more emotional support for their students. What we learned is that it is as or more important to create a space that supports the creativity, inclusion, and emotional

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3 See The Work That Reconnects Network: https://workthatreconnects.org
The support of the educators. At a functional level, it is only possible to trial a limited set of activities in a two-day workshop, but by inspiring educators to leverage their own creativity, we can motivate a whole range of activities beyond those on our agenda. Participants described feeling motivated both to use the activities we tried and to find other variations.

Critically, educators who are burned out, demotivated, or themselves suffering from climate anxiety or grief, will struggle to help their students. Many participants described their motivation for attending the workshop as needing to find hope or inspiration, as feeling “defeated” or “stuck”. They described the workshop as a success both because they left with concrete ideas of things to try but also because they left “re-energized”.

Joy and creativity are pillars of the Mangone Climate Change Science and Policy Hub, and we purposefully focused on creating a fun atmosphere in this workshop. Fun groups are more likely to have lasting networks and to engage creatively. A “playful” approach to work has been shown in many contexts to lead to greater work satisfaction, more productive outcomes, and more creative efforts. Our playful approach also encouraged experimentation: we were open about the fact that we did not know if every activity would work (e.g., the empty chairs lost their impact over the course of the workshop as people shifted groups or placed bags and posterboards on them), nor did we know if these were the very best activities of their type (e.g., we provided more options for rapid brainstorming and gratitude that people could try after the workshop), and we told participants explicitly that we were collecting feedback to share with the group so that everyone could learn which activities were most successful. We had feedback forms at the workshop, whiteboards for real-time feedback, verbal feedback on activities, and a post-workshop feedback survey (the source of the quotes in this report and the activity scores on page 8).

Participants told us that our experimental approach made them feel comfortable sharing ideas – things they had tried on their own (whether they had worked or not) or that they had heard about and wanted to know if anyone else had tried. This kind of community sharing was seen as a major benefit of the workshop.

By starting the workshop with an activity that identified shared values as well as differences, we also created a space where participants trusted that their contributions would be valued by others in the room (e.g., that a middle-school activity could provide insights for a university project, or that both engineering and humanities had insights to share). Participants also felt the workshop gave them both the motivation and the license (for those who needed it) to try something new in their classrooms. Some educators expressed concern that new activities or ideas would face criticism from peers or superiors at their
institution, but being able to say that the idea originated at this workshop or that it was being trialed by several members in the group could provide a justification.

**PACUR funding was crucial for this event.** We could not have achieved this workshop without external support, and PACUR’s funding was unique in the way it allowed creativity, participant support, and administrative support. The logistical challenges in designing and hosting this workshop were significant, and we would not have been able to do it without Erika Chance, the Climate Hub Business Administrator. Many funders limit support for overhead, but this dedicated time was crucial for this project. Second, being able to support not only speakers but also participants (whether hotel rooms, train tickets, or parking passes) was critical for getting a diversity of participants. In future, we would probably dedicate even more funding to participant support for specific types of institutions.

We also learned that the setting matters for more than practical reasons. We chose our venue based on practical concerns: proximity to public transportation, parking, and cost, but in future we will pursue venues that have an environmental connection, more outdoor space and more space for activities, because participants rightly noted that the atmosphere and setting matter in discussions around emotional support and creativity. For example, some ideas from the group involved walking tours.

In future events, we will also engage in fewer activities with more reflection time. In this first round, we wanted to rapidly prototype many activities (one of the brainstorming techniques from design thinking). This allowed people to “test” out many ideas and spark their own. It was less ideal, though, for thinking deeply about how to apply these activities in different contexts. In future, we will trial an activity and then provide time for educators to think through and document how they would apply it. We will structure our next events to do deep dives on a limited set of the activities we covered in the workshop, so we hope participants will get a blend over time. However, anyone learning from this model would do well to pick a subset of our activities rather than replicating the whole.
OUR GOAL
a regional community of practice building inclusive, creative, and emotionally supportive formal and informal climate change education

artwork: NightCafe Al

THANK YOU FOR MAKING THIS POSSIBLE

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Appendix I. Application

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(Optional) Does your organization serve a minority, underserved, or overburdened population? (e.g., Is your college a minority serving institution; does your high school serve a diverse population in terms of socio-economic demographics; does your agency or office work specifically with an environmental justice community)

- Yes
- No
- Unsure

(Optional) We encourage partnerships or small groups of individuals (from the same organization or others) who want to collaborate on these issues to apply together. Each individual should still submit a unique application. If you have other partners who are applying, please provide their name(s) here.

Are you applying for:

- Day 1 Only (Friday Oct 13 Symposium)
- Both Day 1 & Day 2 (Friday Oct 13 Symposium & Saturday Oct 14 Workshop)

We are soliciting applications for the ICCE Workshop so we can invite participants from a broad range of roles and institutions. To that end, please tell us a bit about yourself (e.g., what subjects you teach), why you are interested in this workshop, and what you hope to learn from or contribute to the conversation.

The ICCE Workshop will engage aspects of inclusion, diversity, alternative knowledge systems, mental health support, and creativity. What is one aspect or intersection in this area that you have engaged in or are most interested in learning about?
Appendix II. Agenda

AGENDA
FRIDAY OCTOBER 13th

Please sit with people you do not know!

9am    Welcome & goal setting
915am  Conocimiento Activity
10am   Chief Dennis Coker
1030am Dr. Julie Maldonado
11am   Problem Tree Activity
12pm   Lunch — Switch to a new team!
1pm    Solution Tree Part 1 — Rapid Brainstorming
130pm  Dr. Nicola Ulibarri
2pm    Solution Tree Part 2 — Prototyping
230pm  Break
245pm  Emotional Landscape Activities
       Gratitude | Acknowledgement | New Eyes
330pm  Coffee break!
4pm    Integration Activity: Zine Workshop
430pm  Next Steps & Wrap Up

AGENDA
SATURDAY OCTOBER 14th

Sit at a table with a discussion topic you'd like to workshop!

9am    Welcome
915am  Meet the table
930am  Project ("Solution" or Prototype)
        Think about your: Need / Goal / Partners / Resources / Space
1015am Break
1030am Team Feedback
12pm   Lunch
1pm    Implementation Plans
       Prototyping & Networks
145pm  Feedback + Group Discussion
~2pm   Next Steps + Post-Workshop