



Critical Conversations and A Call to Action! *A collective report from the June 2020 virtual gathering*

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Critical Conversations are held by members of the greater Engineering, Social Justice, and Peace network in the activist tradition of reflecting on our public engagement and collectively discovering ways of deepening our action. The participants are selected based on their submissions (Expressions of Interest) in response to the Call for Participation in the Critical Conversations disseminated through the ESJP website (esjp.org). For years, we have gathered in locations immersed in nature. In 2018 and 2019, the gathering took place in Cala Munda, organized by Caroline Baillie and Eric Feinblatt, in the beautiful Catskills mountains in upstate New York in the U.S.A.

We want to *feel* our connection with the land while we engage in critical conversations on the intersection of the engineering field with social justice and peace. Caroline Baillie facilitates these conversations employing forest pedagogy. Through this pedagogy, we open our hearts to the forest for seeking guidance on how our profession can help restore, heal, and serve people, planet, and life instead of its current practice of destroying, pillaging, and harming nature.

In the throes of the coronavirus pandemic, the urgency of action was evident in 2020 like never before. On June 26 and 27, 2020, a group of up to 40 educators, researchers, activists, and field practitioners, from 4 continents, met virtually for the 4th Annual Critical Conversations – almost thrice as large as the 2018 and 2019 groups that met in-person. The virtual format allowed for broader participation – both in numbers as well as geographical locations. Though we were physically separated in the online gathering, situated in our respective modern, often disconnected-from-nature enclaves, our hearts and minds were engaged in envisioning transition to a just and egalitarian society. In keeping with the need of the moment, our focus was on brainstorming action projects that we can implement in the near future. The retreat facilitated the formation of action teams, which spent the summer discussing possible action items moving forward. These teams are now looking for a more permanent structure with team leaders, team members, an infrastructure, and social media presence. This is a call to action!

We carried out these deliberations in an open-space format, wherein the agenda for the two days was set by the participants. In the two sessions on day one, using this participatory approach, we were able to sift six main themes that participants were interested in exploring in-depth. On day two, we divided ourselves into six teams and each team took a deeper dive into their theme of choice. Five of these teams have written summaries of their deliberations and proposed their *Calls to Action* for the engineering community, which we report below.

Key Words:

Social Justice; Engineering; Peace; Reflection; Activism; Critical Engagement.

ACTION TEAM HEALING (Health Engineering Arts Learning Institute for Nature and Personal growth)

Members: Leanne Avery, Caroline Baillie, Minoo Gupta, Katy Haralampides, Kelly Stefanski, Patric Wallin

Action team HEALING came together because of our love of nature but also in recognition of the need for urgent action to address the ways in which we as humans have damaged our ecosystem, creating the imbalances, which we experience as climate change, pandemics, ‘natural disasters’ and so on. We believe it is inevitable that we spend more time outside, connected to nature, both to understand our role and place in the complex system that is our earth, and currently because it is the only healthy place to be. Instead of introducing ourselves as professionals and sharing our work achievements, we spent our time together at the retreat sharing ourselves, our values and how our work merges with and is inspired by nature. This resembled what might happen in a real retreat – dropping the need to think, pair, share and follow an expected structure we broke through the usual bounds of possibilities that an online medium may provide. What emerged was a meeting of spirits – a connection that traversed nation state, epistemology and ways of being. We came together from many different countries, from the Global North and South, from Western, Eastern and Indigenous traditions, from multiple engineering practices and STEAM (Science, Technology, Engineering, Arts and Math) education, from elementary to life-long learning, from rural to urban contexts. We discussed ‘biomimicry’ – or ‘learning from nature’, questioning how nature solves problems such as ‘energy’, ‘waste recycling’, ‘sustainable water’, and how this kind of thinking has guided Indigenous peoples for tens of thousands of years and scientists and engineers for about 50... We considered how this could provide a broad framework for transdisciplinary, outdoor, nature-based STEAM pedagogies for all ages with the potential for developing the learner’s capabilities for addressing the challenges of an unknown future. We considered the possibility of a space (real or virtual)/institution to share and make available approaches to be inspired by nature in education at all levels through intensive STEAM learning. Such a space would include teaching, research and development into: the ways in which ‘we’ (multiple viewpoints and ways of being) connect to nature and how it inspires us to solve our problems as well as invigorate curiosity; to get at the heart and gut and out of our heads about how we experience the world; recognizing science and engineering as not separate, but as part of and contributing to our changing environment and health; and deeper exploration into the deeply rooted complexities of place, and the ways in which all beings interact with their ecologies/habitats on both micro- and macro- levels thus illuminating unique connectivities that may help to guide us forward.

We met monthly and began to explore and reach out to organizations who were like minded. We came across a coalition hosted by ‘GreenschoolYards’ (<https://www.greenschoolyards.org/covid-learn-outside>) which had drawn together multiple working groups and over 1000 teachers, not for profits and Universities supporting the idea of nature as a venue for healthy learning. At the time of publishing this piece, we are working with the team to map the various nature-based learning opportunities nationwide.

ACTION TEAM Community: Developing progressive connections between universities and the broader communities that host them

Members: Mohammed Ba-Aoum, Andrew Cunningham, Steve Fernandez, Rosi Hyde, Darko Matovic, Jerry McCann, Janice McMillan, Lizabeth T. Schlemer, Jessie Zarazaga

A group of ESJP virtual conference attendees were drawn to taking a closer look at the relationship between universities and the communities they are a part of. There was a recognition that the status quo trends towards universities being largely insulated from the broader communities they are situated in. Our group wanted to explore that dynamic and celebrate best practices that demonstrate equitable collaborations driven by the needs of the community while also capitalizing on the skill set of schools of engineering. We acknowledge that there is an entrenched systemic hierarchy in the way universities see themselves in the broader community. While there have been efforts to recognize and engage more with their host communities, the universities continue to demonstrate their disconnect through their missteps in reaching out “to help” communities. This outreach tends to be on the university’s terms, based on their needs analysis, and constricted by their limited budgets and timelines. This is further compounded when schools of engineering reach out, as they tend to look at problems from a technical perspective rather than from a socio-political perspective that would more intentionally consider positionality and intersectionality. Our group reflected on some of the systemic problems, but also appreciated this is an important time, given the need for universities to pivot during and after the pandemic, towards more sustainable institutional models. We believe that a stronger and more collaborative relationship with the broader community they reside within can play an important role in their future sustainability.

At the end of our retreat deliberations, we decided to continue to collaborate and met for several months during 2020. While we are still exploring some concrete ways we, as a community of practice, can positively impact the approach schools of engineering (and the broader university) take in engaging and collaborating with their broader communities, the following are some of the ideas we hope to pursue: (i) sharing of best practices and lessons learned, stimulating greater sharing and a growing network of sharing; (ii) publishing of a series of articles in the IJESJP and other journals to celebrate successful community-university collaborations; (iii) creating a depository for lessons learned and best practices; and (iv) through the stimulation of broader interest, organize a virtual gathering that can further elevate and amplify best practices.

ACTION TEAM Anti-racism: Developing anti-racism practices

Members: Chris Byrne, Paul Kadetz, Donna Riley, Necla Tschirgi, Elicia Yoffee

Our group's project was centered around Anti-Racism in Engineering. Engineers often see themselves and their work as "value neutral". They identify a problem, and they solve it. Their world is numbers, and numbers cannot be racist, sexist, ableist or homophobic. We know that this is not true, as engineering is both informed by racism and continues to perpetuate structures that

enact racism. Our group is interested in identifying and shifting inequities perpetuated by engineering education as well as in the industries and workplaces in which engineers are employed.

We have developed a few action items to help us move toward these goals:

- 1) Support and be guided by Black Engineering Faculty who are organizing for their rights and the rights of BIPOC students, faculty and staff on campuses (they are also organizing for the rights of women, gender non-binary folx, and people with disabilities). (check out: <https://blackinengineering.org/action-item-list/>)
- 2) Focus on both short-term and long-term potential curriculum changes to make engineering education anti-racist and embed an awareness of how engineering contributes to or perpetuates social inequalities. Potential short-term goals could be including case studies of racism in engineering projects in EHS courses, freshman seminars, etc. Deliverable: examples of best practices, course materials. Explore possibilities around Community Colleges and 4-year institutions.
- 3) Determine a strategy to change pedagogy in engineering schools to address fundamental assumptions about learning and implement anti-racist, critical, and culturally responsive pedagogies.
- 4) Examine current survey data about engineers' experiences with racism in the workforce. Determine if we could find funding for a survey to examine experiences with and preparedness to address racism in the workplace.
- 5) Organize: Engineering Alumni, Engineering Students. Across or within Universities/Colleges.
- 6) Join efforts in the environmental justice community to strengthen engineers' accountability to communities of color. (Contact: Yanna Lambrinidou) (for background see, e.g., <https://quod.lib.umich.edu/m/mjs/12333712.0006.102?view=text;rgn=main>)

ACTION TEAM curriculum: Critical modifications to the engineering curriculum

Members: Shehla Arif, Daniel Chapman Lander, Camilo Andres Navarro Forero

Our project was about enhancing cost/benefit models to include the cost of failure, defined comprehensively as the cost to human lives. More specifically, who benefits and who pays the price in human health, prosperity, climate change and so on. In an open-space format, we had the luxury of envisioning substantive changes to the engineering curriculum to that end. Amongst ourselves, as three engineering educators, we brought in a diversity of experiences – one systems engineer and two fluid dynamicists – one from Latin America, one from South Asia, and one from Australia – all three with experiences in teaching in the U.S. institutions as well as in our respective home countries. As we deliberated on changes to the curriculum, it became clear to us that the starting point was to create a balanced system that integrates environmental, social, and economic dimensions. When that happens, the engineering curriculum will follow. Specifically, we noted that the educational values and, therefore, the student outcomes are informed by the neoliberal economic paradigm as often these are shaped by the motivations of big companies. If

the goal is to move towards a system that supports people, planet, and life, then it was important to create a culture of care in engineering and we saw integration of Engineering curriculum with Liberal Arts education as an important step in that direction.

We reflected on the potential of the current moment. There is a widespread acknowledgement of the precarity of our health, climate, subsistence, survival situations AND their links to systemic issues such as racism, white supremacy, resource extraction etc. Understanding that engineering is part of a bigger system would help clarify the context of engineering integrated in the global neoliberal system of impoverishment of masses of people. If we can create tools to communicate and contextualize engineering within a broader economic system, that can help cultivate a culture of care and create a value system that supports people, planet, and life. One example is to include environmental and social dimensions in international engineering accreditation outcomes while providing interpretation tools to engineering educators to include social and environmental aspects in all student outcomes.

We recognized the lonely nature of this work and reflected on the importance of providing tools to deal with discouragement, having space for dealing with the emotional toll of isolation. We also noted that there are examples of this work in history. We do not need to reinvent the wheel. Possibly creating a reading group to learn from that history of engineering curriculum as related to more socially integrated ideas. As a first step, we would welcome help with creating a reading list of such historical and contemporary examples. These lists can be made available to the larger engineering education community through IJESJP's website.

Some easier-to-implement, low-risk ideas that emerged were to create dialogue spaces to talk about how to frame engineering with additional dimensions like social and environmental. These dialogues can be extended to engineering deans, students, their future employers and will entail making them aware of the importance of an equilibrium in the three dimensions.

ACTION TEAM podcasts: is working on ways to start a series of podcasts on “Engineering a Just World” (provisional title)

Members: Sara Baptiste, Meera Petroff, Renee Smit

Our motivation for a podcast series is to create opportunities for storytelling around the intersection of engineering and social justice. Stories are powerful and universal ways of communicating truth – stories cut across cultural and national boundaries; they help shape our perspective of the world and help us to understand our place in the world. True stories about real people, real events and real action do this to an even greater extent. True stories inspire and call to action; they challenge easy answers to difficult questions and teach us about other people and their perspectives; they speak to hearts and minds and hands.

Engineers and engineering as a discipline do not traditionally draw on storytelling as a way to communicate. Our hope is to find the stories of engineers working for social justice, engineering educators developing innovative curricula to teach future engineers about activism and social

justice, and community organizers challenging unjust engineering practices. We want our stories to be global: we want to tell the stories from all parts of the world. It is our desire for the stories to be personal but informative, inspiring and a call to action – stories are what move us.

Our idea is to start in a manageable way drawing on contacts from the ESJP community and retreat participants; potentially to interview some of the participants or contacts of participants. We are committed to seeking stories from all parts of the world, and all kinds of communities. Our plan is to keep it simple as we start out, and to learn as we do.

A CALL TO ACTION!

Though more than a year has passed since this gathering, the issues undertaken remain relevant if not more urgent today. Amidst increasing workloads, tightening resources, and overall stresses caused by the pandemic, this collective action-oriented movement-building experience is met with great enthusiasm by the participants, exemplified by their continued work after the initial gathering in June 2020. The teams are at varying stages of progress on their respective projects and would welcome more support from incoming members. If interested, please contact us at secretary@esjp.org