

BOARD # 231: Community of Transformation to Support Inclusive and Equitable Change in Engineering: An Unlawfully-Terminated NSF IUSE Project

Kristen Ferris, University of New Mexico

doctoral student in the Organization, Information, and Learning Sciences program at the University of New Mexico. Her research focuses on mindset changes, Organizational Citizenship Behavior, and arts-based practices in STEM higher education contexts. She explores how these concepts support diversity, equity, inclusion, and justice change efforts within Communities of Transformation.

Dr. Susannah C. Davis, University of New Mexico

Susannah C. Davis is a research assistant professor at the University of New Mexico. She holds a Ph.D. and M.Ed. from the University of Washington and a B.A. from Smith College. Her research explores how postsecondary institutions, their faculty, and their

Dr. Vanessa Svihla, University of New Mexico

Dr. Vanessa Svihla is a Professor in Organization, Information & Learning Sciences and in Chemical & Biological Engineering at the University of New Mexico. Dr. Svihla received the National Academy of Education / Spencer Postdoctoral Scholarship and the NSF CAREER Award, which President Biden also recognized with a PECASE. Their scholarship has been recognized for its contributions to diversity, equity, and inclusion by the American Society for Engineering Education and the Professional and Organizational Development Network. Dr. Svihla, a disabled and chronically-ill scholar, studies how people learn as they frame problems in power-laden systems and how these activities relate to identity, agency, creativity, equity, and organizational change.

Dr. Earl E Lee, Arizona State University

Earl E. Lee (they/them) is a Clinical Assistant Professor and Assistant Dean of Inclusive Excellence at the Edson College of Nursing and Health Innovation at Arizona State University (ASU). Their research is at the intersection of science and technology studies, health equity, and education. The employ community-driven, imaginative approaches, like storytelling and speculative design, to challenge systemic injustices and build more inclusive futures in health and STEM, both locally and globally. Dr. Lee holds a PhD in Justice Studies from Arizona State University.

Katharine Getz, Pennsylvania State University

Katharine Getz is an incoming PhD student at Cornell University in Chemical and Biomolecular Engineering. Her research interests include supporting LGBTQIA+ individuals in engineering and how to use queer and feminist theory to reimagine what is possible in engineering education.

Cynthia Viviana Rojas Palacio, Arizona State University

Cynthia Viviana Rojas Palacio is a doctoral student and graduate research assistant at Arizona State University - Polytechnic Campus, pursuing a PhD in Engineering Education Systems and Design. She is a Control Engineer and MSc. in Engineering–Industrial Automation from Universidad Nacional de Colombia. Her main fields of research are engineering education, didactic strategies and dynamic control systems.

Dr. Nadia N. Kellam, Arizona State University

Nadia Kellam (she/they) is an Associate Professor of Engineering and the Associate Director for Research Excellence within The Polytechnic School of the Ira A. Fulton Schools of Engineering at Arizona State University. She is a faculty member in the Engineering Education Systems and Design PhD program. Dr. Kellam is an engineering education researcher and a mechanical engineer. Their research focuses on developing critical understandings of the culture of engineering education, with particular attention to the experiences of marginalized students, faculty, and change agents. They are especially interested in how speculative and arts-based practices can foster critical consciousness, challenge systemic inequities, and support more inclusive and transformative educational environments.

Community of Transformation to Support Inclusive and Equitable Change in Engineering: An Unlawfully-Terminated NSF IUSE Project

Introduction and Research Purpose

Organizational change in academia is notoriously complex, with diversity, equity, inclusion, and justice (DEIJ) initiatives facing persistent and systemic barriers. At the time of writing, these challenges have intensified as higher education institutions and diversity, equity, and inclusion (DEI) initiatives come under direct political attack, with a chilling effect on academic freedom and institutional autonomy. The termination of federally funded DEI-related grants signals an escalation in efforts to suppress research and programming that address systemic inequities. In this context, this study investigates how arts-based practices—specifically speculative design, remixing, and futurisms—can deepen members’ DEIJ change intentions and foster their engagement as change agents. By blending critical reflection with creative methodologies, we explore how these practices equip faculty and institutional leaders to critique existing inequities, imagine transformative futures, and sustain long-term commitment to DEIJ work even amid increasing resistance.

Framework

We leverage research that shows that communities of transformation (CoT) are an important lever for equipping faculty to make substantial changes to their beliefs and practices [1], [2]. CoTs drive systematic change using collective learning and a shared vision. CoTs are distinguished from other communities in that they are guided by a philosophy that typically challenges commonplace norms; they engage members in new practices through modeling; and they provide relational support for members, often across institutions [1].

- **Guided by Accessible Philosophies:** CoTs challenge traditional norms and frameworks, promoting philosophies that align with transformative goals. For this project, we translated the complex theoretical intersection of situated learning, organizational change, and power dynamics into accessible arts-based practices.
- **Modeling and Engaging in New Practices:** CoTs actively involve members in experimenting with practices that support cultural and structural shifts. Arts-based practices were central to our CoT’s activities, including speculative design exercises, remixing, and futurist visualizations.
- **Relational Support Across Institutions:** CoTs thrive on sustained relationships that connect members across institutional boundaries, creating a support network for ongoing change efforts.

Through these principles, we sought to cultivate a space where participants could explore new ways of working and thinking collaboratively. By integrating these principles with arts-based methods, we aimed to develop and test strategies that make DEIJ change efforts more tangible, reflective, and actionable.

While CoTs are an established means to support change efforts, there is little guidance on making the complex theories that guide them into accessible philosophies capable of anchoring

new practices. Specifically, the theoretical framework guiding our CoT is an intersection of three theories: situated learning, organizational change, and power dynamics [3], [4]. We argue that this complex framework can be made accessible through specific arts-based practices, which, in turn, empower change agents to critique systems of oppression, envision transformative pathways, and sustain their commitment to DEIJ initiatives.

CoT Development and Implementation

Funded by an NSF IUSE Institutional and Community Transformation Level II grant that was unlawfully terminated on April 18, 2025, our CoT launched in September 2023 with a virtual two-day kickoff that established shared goals, introduced members to arts-based practices, and fostered trust and collaboration. With 86 members from over 60 institutions and 7 supporting organizations, we provided ongoing opportunities for engagement through bi-monthly virtual events, including:

- Art Teas: Informal, reflective sessions centered on creating or discussing art tied to DEIJ themes.
- Media Clubs: Analytical discussions of cultural works (e.g., films, books, articles) that intersect with DEIJ themes.

A culminating hybrid retreat in April 2024 aimed to deepen members' engagement by offering immersive arts-based activities to explore systemic barriers and possibilities for transformation. Activities included speculative storytelling, remixing problematic representations, and crafting graphic novels to map personal and professional change journeys.

Methodology

This research employed a qualitative design, with data collected at multiple CoT events. Data sources included audio and video recordings of events, artifacts produced by members such as collages, quilt squares, and graphic novels, reflective writings by participants, and weekly design team meetings documenting decision-making and evaluation processes.

We analyzed a graphic novel activity, examining video-recorded discussions with interaction analysis [5] with a coding scheme adapted from Dewhurst's [6] framework for analyzing justice-centered arts to analyze artists' statements and their artifacts. This coding scheme focused on intention, critical questioning, and translating. For intention coding, we focus on what participants sought to achieve through their artwork. Critical questioning allows for exploring alternative perspectives while translating, which involves giving experiences material form. As such, we analyzed how participants explored inequities and alternative futures in their work. For translating, we examined how participants materialized their experiences and ideas through aesthetic choices. The aesthetic choices made by participants play a critical role in how effectively their artwork addresses issues of injustice. This approach allowed us to understand how members engaged in justice-centered arts practices, connected their lived experiences to DEIJ change work, and translated critical insights into visual forms.

Results and Discussion

Our findings highlight the potential of arts-based practices in CoTs. For example, activities like remixing problematic materials fostered members' ability to combine activism and aesthetics, critiquing existing narratives while imagining alternatives. Members' comments during group discussions indicated that the act of remixing enabled them to actively reimagine spaces of exclusion and envision more inclusive systems. Engaging in speculative design and futurist narratives helped members express their desire to persist in their DEI efforts by grounding their work in hopes for the future and creative possibility, even when facing institutional barriers. Additionally, informal opportunities, such as meals and unstructured art sharing allowed members to build trust and exchange insights about their change work. The graphic novel activity, in particular, revealed the power of storytelling and visualization in connecting participants' personal narratives with institutional change goals. Participants' aesthetic choices reflected deep critical engagement, with some choosing to represent barriers as imposing structures (e.g., heavy weights) and solutions as collaborative, dynamic elements (e.g., groups, networks).

This study contributes to research on CoTs by demonstrating how arts-based practices can operationalize complex theoretical frameworks in accessible and actionable ways. We offer a replicable model for integrating arts into DEI-focused CoTs.

Sustainability after Termination of Grant Funding

Despite the premature termination of grant funding due to the federal cancellation of over 600 NSF awards (as of finalizing this paper in late April, 2025), the GATHER CoT remains committed to sustaining the momentum we have built. The relationships, practices, and creative approaches fostered through GATHER have generated significant value that will continue beyond the formal project timeline.

We plan to maintain connection through periodic virtual gatherings, including continuing Radical Hope Circles as an informal space for reflection, mutual support, and learning. Community members have expressed strong interest in sustaining collaborative networks, sharing resources, and leveraging the arts-based activities and storycrafting practices developed during the grant period. Additionally, project resources—including facilitation guides, arts-based activity templates, and community-building protocols—have been made openly accessible, supporting replication and adaptation by other academic communities seeking to foster inclusive institutional change. For instance, one Co-PI has shared the Radical Hope Circle template with another academic community, which is using this approach to build community amongst those with terminated grants.

Although formal funding and infrastructure was eliminated with the termination of the grant, the spirit of GATHER endures. Our work demonstrates that CoTs grounded in accessible, relational, and creative practices can be self-sustaining and scalable. Future initiatives may build on this foundation, adapting GATHER's methods to new contexts and continuing to cultivate change agents across higher education.

Acknowledgments

We would like to express our deep gratitude to the GATHER members, whose creativity, critical insights, and commitment to equity have been central to this work. Their willingness to engage in speculative practices, share their experiences, and envision more just futures has profoundly shaped the ideas and possibilities explored in this paper. In a time of increasing precarity for DEI efforts, their courage and collaboration serve as a powerful reminder of the transformative potential of collective action.

This material is based upon work supported by the National Science Foundation under Grant No. 2236374 and 2236163 prior to the unlawful termination of these grants on April 18, 2025. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation.

References

- [1] S. Gehrke and A. Kezar, "STEM Reform Outcomes Through Communities of Transformation," *Change: The Magazine of Higher Learning*, vol. 48, no. 1, pp. 30–38, Jan. 2016, doi: 10.1080/00091383.2016.1121084.
- [2] A. Kezar, S. Gehrke, and S. Bernstein-Sierra, "Communities of transformation: Creating changes to deeply entrenched issues," *Journal of Higher Education*, vol. 89, no. 6, pp. 832–864, 2018, doi: 10.1080/00221546.2018.1441108.
- [3] V. Svihla, S. C. Davis, and N. N. Kellam, "The TRIPLE Change Framework: Merging Theories of Intersectional Power, Learning, and Change to Enable Just, Equitable, Diverse, and Inclusive Engineering Education," *Studies in Engineering Education*, vol. 4, no. 2, pp. 38–63, Sep. 2023, doi: 10.21061/see.87.
- [4] S. Davis, N. Kellam, J. Sanders, and V. Svihla, "Integrating theories of intersectional power, learning, and change to explore faculty experiences on equity-centered change projects.," *Journal of Diversity in Higher Education*, Sep. 2024, doi: 10.1037/dhe0000601.
- [5] B. Jordan and A. Henderson, "Interaction Analysis: Foundations and Practice," *Journal of the Learning Sciences*, vol. 4, no. 1, pp. 39–103, Jan. 1995, doi: 10.1207/s15327809jls0401_2.
- [6] M. Dewhurst, "Where is the Action? Three Lenses to Analyze Social Justice Art Education," *Equity & Excellence in Education*, vol. 44, no. 3, pp. 364–378, Jul. 2011, doi: 10.1080/10665684.2011.591261.