CEEO DEIJ Research Practices

Statement

Mission Statement: *Tufts Center for Engineering Education and Outreach (CEEO) is dedicated to creating the problem solvers of tomorrow by empowering all students, kindergarten through college, with innovative, research-based engineering experiences. A leading innovator in engineering education, Tufts CEEO brings together researchers in engineering, computer science, education, and child development to conduct research on learning and teaching, develop technological tools to transform the classroom, and create outreach experiences that bring our research to kindergarten through college students and teachers around the globe.*

We support CEEO's mission by conducting fundamental and applied research. Our research studies how people learn, explores innovative teaching practices, and creates supportive tools and technologies. We believe that all educators and youth possess skills and assets that should be recognized in engineering learning contexts. We seek to amplify their assets by removing barriers to participation, engagement, and development of engineering skills.

Our research is intended to expand the knowledge base in the field of engineering education and includes the development of tools and curriculum. We value co-design and work with a range of stakeholders, including educators, schools, and other organizations, to jointly design solutions that center their culture and values.

Within CEEO, we strive to include diverse viewpoints and to provide all members opportunities to pursue their interests and develop their research skills. This document intends to help researchers consider DEIJ at all points in the research process.

Sections:

- [Throughout: *on-going*](#)
- [Beginning: *conceptualizing / planning research*](#)
- [Middle: *conducting research*](#)
- [End: *writing & dissemination research*](#)

- Also: [Resources we've found so far](#) (please feel free to add!)

Throughout/On-Going

	Topic (i.e., decision point or question to answer about the research project)	<mark>Resources</mark> (to make the decision or answer the question in an anti-oppressive way)	Tasks or Practices (i.e., work to do or steps to take to make the decision or answer the question)
1.	**INDIVIDUAL** *Personal reflection of how individuals work in teams and interact with communities involved in research*	[Questions I Ask Myself as a White Researcher | informalscience.org](#) [Secules, S., McCall, C., Mejia, J. A., Beebe, C., Masters, A. S., L. Sánchez-Peña, M., & Svyantek, M. (2021). Positionality practices and dimensions of impact on equity research: A collaborative inquiry and call to the community. Journal of Engineering Education. jee.20377.](#) [Milner IV, H. R. (2007). Race, culture, and researcher positionality: Working through dangers seen, unseen, and unforeseen. *Educational Researcher*, 36(7), 388-400.](#) Berger, R. (2015). Now I see it, now I don't: Researcher's position and reflexivity in qualitative research. Qualitative Research, 15(2), 219–234. https://doi.org/10.1177/1468794112468475 Peshkin, A. (1988). In Search of Subjectivity. One's Own. Educational Researcher, 17(7), 17. https://doi.org/10.2307/1174381	From Tucker-Raymond - What does community mean to me, and which community or communities do I identify with? - Why am I doing work with Communities of Color? - What are the relationships I have in the communities in which I am working (Moses & Cobb, 2002)? - Are my relationships with one person? Multiple people? Multiple people of all ages? What are the power dynamics in those relationships? - How do I function in a team? - What biases do I have?
2.	**TEAM** *What are the different roles in the research project?*	Here's one for project team structure, but I'm not sure if people use it: -https://scientific-publishing.webshop.elsevier.com/research-process/research-team-structure/#:~:text=A%20scientific%20research%20team%20is,the%20project%20as%20a%	- Is there an explicit project coordinator role? How do we monitor that all participants are developing knowledge and expertise appropriately? Documentation of roles - Regular check-ins

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		20whole. An article about building an inclusive research team: -https://onlinelibrary.wiley.com/doi/full/10.1111/jar.12076	- Bi-directional assessments - Does everyone have the materials and equipment they need?
3.	**POWER STRUCTURES** *What are the dynamics (power, positionality, etc) for making research decisions structured?*	To lodge a complaint: - CEEO Anonymous Reporting Form - Grad Student Union (will be updated in the summer and added) Johnson, M. (2020). Undermining Racial Justice: How One University Embraced Inclusion and Inequality. Cornell University Press.	From CLEAR: "A crucial part of accountability in consent is refusal. Without an honest chance for refusal, there is no real consent." - How is DEIJ considered? - How are the roles assigned within a project? Who gets to do what? Who gets to make decisions? How is DEIJ considered? Are there structures in place for people to anonymously log a grievance? What structural inequalities or oppositions to social justice exist as institutional barriers that our research might have to work a round?
4.	**MEETINGS**	CLEAR Lab Notebook, p. 11 "Anti-oppressive Facilitation for Democratic Processes," http://aorta.coop/wp-content/uploads/2017/06/AO-Facilitation-Resource-Sheet.pdf Singleton, G. E. (2014). *Courageous Conversations About Race: A Field Guide for Achieving Equity in Schools* (Second edition). Corwin.	What is the structure for regular meetings by project team members? Who meets, and when? How are meetings documented? Who facilitates each meeting? Who sets the agenda? Ideas for how to structure the conversations in a meeting: - Invite input on a topic by "round robin," where everyone has an explicit turn to speak (though they can pass), rather than waiting for people to volunteer to speak, since expecting people to volunteer to speak can mean that certain people dominate the conversation - Invite newer or most junior members of the group to start the round-robin by sharing their

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			reactions or questions first - Include check-ins on how people are doing in the meeting time, and be open to changing the topic or process for meeting if that's possible and appropriate given people's status Practice active listening by re-voicing how you understand what someone has said, and give them an opportunity to correct or refine. Start the meeting with an agenda and end the meeting with a discussion of what everyone thinks their next steps are Give time for people to process before they have to answer questions/reflect publicly.
5.	SUPERVISION *Who is supervising whom?*	PI's roles, and some training can be found here. https://www.vitae.ac.uk/doing-research/leadership-development-for-principal-investigators-pis	Have conversations to check-in regularly. - Explicit conversations to see what everyone's priorities are, but also recognize that some people (grad students) may not know what their strengths are yet, how feasible something is, whether something is good for their future - Regular check-ins to make sure tasks/management assignments are still appropriate and working well, seeing what support people need
6.	ONBOARDING *What is the process of onboarding new researchers mid-project?* *Onboarding to a project versus onboarding to the CEEO vs. CEEO research- all needed!*	Grad students recommendations Postdoc mentoring plan that is submitted as part of a proposal. Proposal if someone is part of a grant. Annual report(s) if they already exist.	Process for connecting people to resources & community (elists, events, etc) - Be sure to include postdocs because they are often left off - Be sure that everyone meets all the research faculty in the CEEO community (even folks not on the project)

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		Three CEEO papers to read??? - Papers for current projects - Annual Report	Cheat sheet for faculty, useful classes - Who are experts in different methodologies? Share grant resources - proposal, case studies, etc - CEEO Annual Report - CEEO Mission Statement - CEEO DEIJ Action Plan Project info - Material organization (big project overview first, and then increasing detail incrementally) - Data analysis, etc - Do new project members get given the proposal when being onboarded? - Annual report for the grant (if available)
7.	EDUCATIONAL PEDAGOGY	Trevion Henderson's work Bie, A. de, Marquis, E., Cook-Sather, A., Luqueño, L., & Giron, A. (2021). Promoting Equity and Justice Through Pedagogical Partnership. Stylus Publishing. Calabrese Barton, A., & Tan, E. (2020). Beyond Equity as Inclusion: A Framework of "Rightful Presence" for Guiding Justice-Oriented Studies in Teaching and Learning. Educational Researcher, 49(6), 433–440. Lee, J. J., & Rice, C. (2007). Welcome to America? International student perceptions of discrimination. Higher Education, 53(3), 381–409. https://doi.org/10.1007/s10734-005-4508-3 Leonardo, Z., & Porter, R. K. (2010).	How do we work with participants in educational settings in anti-oppressive ways? How do we address particular DEIJ issues (groups, gender, classroom management) in formal or informal instructional settings? How do we do instructional design with a DEIJ lens?

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		Pedagogy of fear: Toward a Fanonian theory of 'safety' in race dialogue. Race Ethnicity and Education, 13(2), 139–157. https://doi.org/10.1080/13613324.2010.482898	
8.	**FINANCIAL TRANSPARENCY** *Compensation and reimbursements* *Being explicit how the financials work to all those in the grant (helps grads understand grant management)* *How does funding work? Explain budgets.*		How is transportation of project team members being handled? Do people have the vehicles/funds/etc they need to get to sites where research and/or meetings are happening? Technology access for grad students; Does everyone have everything they need to succeed? What costs are covered? - Housing - Food - Transportation - Stipend/salary - For what expenses should team members expect to be reimbursed?
9.	**ACCESSIBILITY** *What resources are available to support accessibility?* *How can you get access to resources to get your needs met?* *How can you help other people get their needs met?*	NSF Projects - Dear Colleague Letter: Persons with Disabilities – STEM Engagement and Access (PWD-SEA) (nsf21110)	NSF How do we support researchers (PI, graduate students, staff, students) on a project who have accessibility needs? https://oeo.tufts.edu/accommodations/request-accommodations/#:~:text=The%20Americans%20with%20Disabilities%20Act,safety%20of%20members%20of%20the How do we design tools/resources that are accessible to all students? • UDL	

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		○ https://www.cast.org/impact/universal-design-for-learning-udl ● Speak with CEEO faculty and staff about resources or connections for working with particular populations. Universal Design of Your Research - UW DO-IT center	
10.	**RELATIONSHIPS** *Relationships with teachers / non-researchers*		From CLEAR lab: "We listen to people [teachers] who aren't scientists [researchers] and relate to them as knowledge holders, including them as authors in our publications and paying them like experts when appropriate

Beginning: *Conceptualizing and Planning Research*

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11.	**TEAM FORMATION** *Who will be part of the research team on a new project?*	<mark>Questions I Ask Myself as a White Researcher | informalscience.org</mark>	From Tucker-Raymond: ● Am I working with newer Black, Latinx, and Indigenous scholars in a professional development capacity? How am I uplifting the work of Black, Latinx, and Indigenous scholars?

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12.	IDENTIFYING COLLABORATORS		- For grants that build on old projects, how to decide who is involved? - How will we bring in collaborators with diverse backgrounds (DEIJ)? - Also advisory board – who are we giving this opportunity to? Can we use this role to give access to new researchers? Researchers without as much institutional power? - From CLEAR: "who we choose to cite [or work with] ultimately decides the diversity and richness of a discipline"
13.	FUNDING		How are new funding sources identified and pursued? - Constraints of NSF-type vs. foundation-type - And how does this affect existing grad students who rely on grant funding
14.	COMMUNITY RELATIONSHIPS	Questions I Ask Myself as a White Researcher	informalscience.org Outreach Practices Document (Being developed) Moll, S., Wyndham-West, M., Mulvale, G., Park, S., Buettgen, A., Phoenix, M., Fleisig, R., & Bruce, E. (2020). Are you really doing 'codesign'? Critical reflections when working with vulnerable populations. BMJ Open, 10(11), e038339. https://doi.org/10.1136/bmjopen-2020-038339 Clayton, P. H., Bringle, R. G., Senor, B., Huq,	- Who is tasked with maintaining community relationships? - How do we maintain community relationships? - How do we make sure that we have shared knowledge of past relationships? - How do we choose which relationships to prioritize? Tufts other department/center relationships: Things to think about: - How to ensure this is reciprocal? Not just "what can they do for us?" - How long the contact person will be at the

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	J., & Morrison, M. (2010). Differentiating and Assessing Relationships in Service-Learning and Civic Engagement: Exploitative, Transactional, or Transformational. Michigan Journal of Community Service Learning, 16(2), 5–21.	CEEO (e.g., if a grad student is the main contact, how do we handle when they leave?) But also, want to give grad students that experience - Are we putting too much burden on the teachers? Am I being too pushy? - Who is responsible for maintaining relationships after project/data collection is over? - Good communication among CEEO people about asks of community orgs From Tucker-Raymond: • Did I engage my collaborators at the outset, or did I formulate my question first? Whose research proposal am I trying to enact? • How does my research question reflect the partners with whom I am going to work? What will be the impact of answering my research question? For whom? • Am I collaborating with scholars and educators of Color to co-construct shared, deeper, and more well-rounded understandings? • How do communities in which I am working want me to reciprocate? Money? Material resources? Labor? Political advocacy? (Mangual Figueroa, 2014) • How should I check in with community about project decisions? How are community partners contributing to the research process in ways they value (Eglash, 2016)? Once I analyze the data, how will I do member checking? Are others contributing as I analyze?

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			- Planning for the end: - Will we exit the partnership when the research is over? How will we do that? Have I been explicit about my plans with my partners? If not, what's next? What are expectations from others? (Mangual Figueroa, 2014)
15.	**RESEARCH IMPACT** *How is the future impact of research directions evaluated?*		How do we make sure it reflects diverse groups?
16.	**RESEARCH SITES** *Choosing the schools/organizations we will be doing research in*	https://www.niche.com/k12/search/most-diverse-public-high-schools/m/boston-metro-area/ https://www.bostonindicators.org/article-pages/2020/february/diversity-in-massachusetts-schools	- Choose diverse schools - Recognize that different student groups may have different ways of doing things and that researching on the practices of only one community may reinforce biases of what good engineering practices look like while other communities may have different ways of doing engineering - Choose schools that are in need of more supports vs schools that are easy to collaborate with - Make the CEEO work more visible and provide schools/organizations/public libraries equal opportunities to partner with us on research (maybe we can have an application form that schools can use to reach out with us for partnerships/projects)
17.	**RESEARCH QUESTIONS**	"In a race-conscious society, the development of a positive sense of racial/ethnic identity not based on assumed superiority or inferiority is an important task	How do we form research questions in an anti-oppressive way? (e.g. asset vs. deficit framing of participants and communities, decolonization) How do we include partners (schools, teachers, etc.)

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		for both White people and people of color. The development of this positive identity is a lifelong process that often requires unlearning the misinformation and stereotypes we have internalized not only about others, but also about ourselves." (Tantum 2001 p. 53)	when formulating questions?

18.	**BACKGROUND KNOWLEDGE**
	
	What knowledge of anti-oppressive research and theory should CEEO researchers have?
	
	How do we develop institutional knowledge related to research?
		- Richard Ladner "Design for User Empowerment" on how to do user-centered design where the end-user of the technology takes the lead role
		- Robin Wall Kimmerer "Braiding Sweetgrass" book, more narrative format than prescriptive, indigenous ways of doing science (focused on botany)
		
		Delgado, R., & Stefancic, J. (2001). Critical race theory: An introduction. New York University Press.
		
		Harris, J. C., & Patton, L. D. (2019). Un/Doing Intersectionality through Higher Education Research. The Journal of Higher Education, 90(3), 347–372. https://doi.org/10.1080/00221546.2018.1536936
		
		Hill Collins, P., & Bilge, S. (2016). Intersectionality. Polity Press. http://ebookcentral.proquest.com/lib/umichigan/detail.action?docID=4698012
			- Who at CEEO "holds" that knowledge?
			- How do we find out who to fill in the gaps of knowledge and experience? (Who? How?)
			- Can we point to bibliographies or classes that are recommended?
			- What are key terms and ideas (colonialism, Eurocentric, capitalism, patriarchy, non-Western ways of knowing and doing, **positionality**, feminism, power, control) Huerta ableism
			   - How do these ideas interact with other ideas CEEO researchers need to know (pedagogy, epistemology, research methodology)
			   - -Read articles that are specific to CEEO – Fostering heterogeneous engineering` through whole-class design work

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19.	**INTERNATIONAL COLLABORATION** *Collaborating with scholars/schools/parties overseas*		- Do more work ourselves on the country's social contexts and the work the country is already doing for DEIJ. - Finding someone/scholar/activist familiar with the country's context (who does not have a stake in the project) to give feedback on the project design from a perspective of social harm or inclusion/exclusion. Share with the consultant a suggested list of things that we should look at from a DEIJ perspective. - Making sure we are not just talking to those in positions of power in the other country but are also giving opportunities for participation to marginalized groups of people. - Making sure all parties in the international collaboration are given due credit/compensation for their work - for example, efforts of participating teachers, and efforts of field mobilizers in getting people together. - Understanding (and respecting) the country's culture in conducting the research and in the wording we use in the publication
20.	**LIT REVIEW** *How is the project's theoretical framework constructed? What literature review is conducted to inform new work?*	Dillard, C. B. (2006). When the music changes, so should the dance: Cultural and spiritual considerations in paradigm 'proliferation.' International Journal of Qualitative Studies in Education, 19(1), 59–76. https://doi.org/10.1080/09518390500450185 Mejia, J. A., Revelo, R. A., Villanueva, I., & Mejia, J. (2018). Critical Theoretical Frameworks in Engineering Education: An Anti-Deficit and Liberative Approach. Education Sciences, 8(4), Article 4.	From <mark>Questions I Ask Myself as a White Researcher	informalscience.org</mark> ● In my arguments, have I cited the work of Black, Latinx, and Indigenous scholars?

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		https://doi.org/10.3390/educsci8040158 List of methods literature (theory, methodology, etc. mostly qualitative)	
	Your Grant has been Awarded:		
21.	**GETTING STARTED** *What are the DEIJ aspects of this?*	Harris, J. C., Barone, R. P., & Davis, L. P. (2015). Who Benefits?: A Critical Race Analysis of the (D) Evolving Language Of Inclusion in Higher Education. The NEA Higher Education Journal, Thought & Action (Special Focus: Equity, Diversity, and Social Justice). Harris, J. C., & Patton, L. D. (2019). Un/Doing Intersectionality through Higher Education Research. The Journal of Higher Education, 90(3), 347–372. https://doi.org/10.1080/00221546.2018.1536936	• Reread the grant and see if anything needs to change (sometimes a year later after awarded) • Speak with collaborating schools ○ Which classrooms/teachers are you going to work with? • Start recruitment/hiring for PostDocs/grads/undergrads • Share with all CEEO the award and the abstract • PI should have one-on-one conversations with all people who will be project team members and find out about their concerns and goals for working on the project - what skills, knowledge, and deliverables do they want to get out of it?
22.	**PLANNING WITH PARTNERS** *Conversations you should have with partners/collaborators after grant has been awarded*		- How should I check in with the community about project decisions? How are community partners contributing to the research process in ways they value (Eglash, 2016)?

Middle: *Conducting Research*

	Topic (i.e., decision point or question to answer about the research project)	Resources (to make the decision or answer the question in an anti-oppressive way)	Tasks or Practices (i.e., work to do or steps to take to make the decision or answer the question)
23.	PROCESSES	Deliovsky, K. (2017). Whiteness in the qualitative research setting: Critical skepticism, radical reflexivity and anti-racist feminism. *Journal of Critical Race Inquiry, 4*(1). - "Researchers are required to "gaze back" at their research as a socially situated project and explore the cultural assumptions that influence and historically situate it." - "…Some of the complex power differences and similarities between researcher and the researched … are inscribed with race and gender dynamics." - "Knowledge production and research relationships are "socially situated" activities… My participants are, as are all others, both actor and agent in their "strategic interest" seeking to craft a particular image and impression of their identity" A 'decolonial attitude' means that one has the 'responsibility and the willingness' to consider 'the points of view of those whose very existence is questioned and produced as insignificant' Dietz, G. A., Douglas, E., McCray, E. D., Mejia, J. A., Pawley, A. L., & Revelo, R. A. (n.d.). Themed Issue: Learning from anti-racist theories to reframe engineering education research on race. Journal of Women and Minorities in Science and Engineering. https://doi.org/10.1615/JWomenMinorScien	*What processes (data collection, analysis, checking results, etc) are in place?* What still needs to be in place? - Power differences between researcher and the participant - **Race and gender of both parties affects the researcher-participant relationship and the data that is collected** - Where do the methods I am using come from? Who wrote the foundational lit and how old is it? - Who are we giving credit to by grounding our research in specific philosophies/theories

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		Eng.2022036609	
		Zuberi T. & Bonilla-Silva E. (2008). White logic white methods : racism and methodology. Rowman & Littlefield.	
		Stewart, T. J. (2021). "I don't feel studied": Reflections on power-consciousness in action research with college student sex workers. Action Research, 14767503211023127. https://doi.org/10.1177/14767503211023127	
		-participatory action research with very vulnerable participant population	
		Paris, D., & Winn, M. T. (2014). Humanizig Research: Decolonizing Qualitative Inquiry with Youth and Communities. SAGE Publications, Inc. https://doi.org/10.4135/9781544329611	
24.	**IRB!!!!** *What are DEIJ practices here? Beyond languages?*	Zuberi T. & Bonilla-Silva E. (2008). White logic white methods : racism and methodology. Rowman & Littlefield	- Video Use (tracking students ethically, presenting/using suboptimal interactions) - Using the kids of CEEO employees and what is the guidance here - Balancing inclusion vs complexity of IRB (e.g. translation of consent materials) - Meet with operations/outreach on how to recruit from parents (approve language) - Guidelines of all the things that need to be considered working with kids at the CEEO - How do we get resources translated or interpreted?

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25.	PEDAGOGICAL PRACTICES	"In sum, seen, unseen, and unforeseen dangers may show up when researchers and educators adopt and implement a color- and culture-blind approach in their research of P–12 educational sites."(Milner, 2016) Carello, J., & Butler, L. D. (2015). Practicing What We Teach: Trauma-Informed Educational Practice. Journal of Teaching in Social Work, 35(3), 262–278.	What pedagogical practices should we use (if the research involves our interacting with students in an instructional role) to make sure that all the learners are included in an equitable way in the learning experience?
26.	ACCESSIBILITY	Universal Design of Your Research - UW DO-IT center	Are the research events at sites that are accessible for people with physical disabilities? What other types of disabilities should be considered? Invisible disabilities (autism, ADHD, chronic fatigue or pain, etc) How do we hire interpreters at Tufts? (ASL, non-English spoken languages)

Other potential middle sections:

- Data Collection & Data Analysis: are these big enough to deserve own sections?
- Research Design (or this is during prep; if grad student coming in mid-stream to a project, want to make sure they are thinking about this [in case they "jump" to this middle section and not read rest!)
- "Research Methods" (wording instead of "Processes")

NOTE: in the "Middle: Conducting Research" you should be doing "Internal Dissemination" (see row 33) of partial ideas and works-in-progress to get the diverse feedback of perspectives that a place like CEEO can provide; that is not just an "end" step. Can we leave "Internal Dissemination" in the "End" section, but make reference to it so that people are doing on-going/continual internal dissemination throughout the "Conducting Research" stage.

End: *Writing & Dissemination of Research*

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27.	**AUTHORSHIP**
	
	Who will be the authors of a paper about the research, and in what order will they be listed?
		Max Liboiron et al. Feminist approach: https://catalystjournal.org/index.php/catalyst/article/view/28850
		
		Guidance on Authorship in Scholarly or Scientific Publications
		
		Example Papers??
		
		Something from TERC
			- Have conversation before writing starts (Put notes from that conversation in writing in a shared doc)
			  - Who to include in this discussion?
			  - Who needs to be informed that they are not being included as authors?
			- Consider non-writing roles, like transcribing, data analysis, etc.: who contributed to the work?
			  - Should professor let students know when they try to publish something based on the data students collection?
			- Consider career needs of contributors to the research
			- Guidelines/culture of specific disciplines? (e.g. primary author first vs last on the list)
			
			CEEO Specific:
			- Are teachers involved in the authorship?
			- Consider students who worked on the tech during the summer? Are they authors or acknowledged?
			- What about researchers that started on the project but aren't present when

			paper is submitted?
28.	POSITIONALITY	Resources on writing researcher positionality statements. Martin, J. P., Desing, R., & Borrego, M. (2022). Positionality statements are just the tip of the iceberg: Moving towards a reflexive process. *Journal of Women and Minorities in Science and Engineering*, *28*(4).https://www.dl.begellhouse.com/journals/00551c876cc2f027,3b6558aa06dbcd92,1699e8401c97dade.html Example: CEEO PAPERS WITH POSITIONALITY STATEMENTS De Lucca, N., Watkins, J., Swanson, R. D., & Portsmore, M. (2023). Examining interactions between dominant discourses and engineering educational concepts in teachers' pedagogical reasoning. *Journal of Engineering Education*, 1–23. https://doi.org/10.1002/jee.20563	• Check your journal/conference for submission requirements. Some are requiring positionality statements. •
29.	PUBLISHING WITH COMMUNITY PARTNERS	Questions I Ask Myself as a White Researcher | informalscience.org	From Tucker-Raymond 1. How am I including the voices, words, and actions of my participants? How much space is given to their words, versus my words, in disseminating my findings? How and when am I speaking for them, or how are we speaking together? (Paris & Winn, 2014) 2. Is the research a resource for the people/community with whom I did the research? What kinds of dissemination am I doing? To whom am I speaking? Are community members contributing to

			dissemination?

30.	**PUBLICATION DETAILS**
	
	Deciding what/when/where to publish and the impacts of that.
		CEEO Specific Resources
		
		● Journal/conference list for different majors:
		   📄 CEEO Favorite: Conferences & J…
		
		● Venues for dissemination to teachers?
		     ○ NSTA-ScienceScope
			WHAT
			
			● Make sure to highlight the failures as much as the successes in order to learn from each other. (Failures can be related to research, process, partnerships, etc.)
			
			WHEN - Is this the right time to publish?
			
			● Consider reporting the results to any community or school-based partners (who aren't authors) before publishing, to check that they are okay with how they are being represented (CLEAR Lab Notebook p. 14)
			
			● What is the purpose of the publication?
			    ○ Disseminating findings, disseminating processes, getting feedback on in-progress work, sharing developed resources
			
			WHERE - How to decide where to publish?
			
			● Who are the groups that would benefit from the dissemination of the research?
			    ○ Who is the target audience? Consider teachers? researchers (what disciplines)? international community? general public?
			
			● Who can decide where to submit and publish?
			
			● Ensure this is not a predatory publisher
			
			IMPACTS
			
			● How different journals and conferences "count" for careers of members in different fields?
			    ○ e.g. how conferences and journals are valued differently

			between CS and education
31.	**WRITING PROCESS** *What paper writing processes (language, etc.) are being implemented?* *Journal Article, annual reports, conference papers, grants* *Different audiences and purposes*		Who is doing most of the writing? Did they opt into this role or do they have it because nobody else wanted to do it and they are the newest grad student? Everyone has the opportunity to help write annual reports and get mentorship to do so.
32.	**ACCESS** *Who has access to data and information?*	*Where possible CEEO is committed to Open Access Publication. PIs should try to budget for open access fees which range from 2-5K per article. Projects without resources should discuss with CEEO Director. Example: JEE Open Access Charges - https://onlinelibrary.wiley.com/page/journal/21689830/homepage/fundedaccess#:~:text=Journal%20of%20Engineering%20Education%20offers,read%2C%20download%2C%20and%20share.&text=Authors%20who%20receive%20funding%20from,by%20the%20institution%20or%20funder. Open Access Journals have no charges and are freely available. They may or may not be best for reaching desired audiences and/or for publication goals.. Example: ***Journal of Pre-College Engineering Education Research*** (https://docs.lib.purdue.edu/jpeer/) has no charges and provides free access. However, it is less prestigious than ***Journal of Engineering Education*** and tends to only reach a pre-college audience.	Open Access Publications - who is paying fees?

33.	INTERNAL DISSEMINATION		Disseminating results within CEEO to be able to use in camps/outreach/etc. (and beyond?) - Who can access this? as a marketing opportunity for CEEO CEEO can disseminate free resources to general public Are we making students feel comfortable with sharing their own research? How are we structuring feedback? * making sure this is on-going: sharing partial ideas throughout the research process in order to get feedback
34.	REPORTING RESULTS *What results are being reported?*	Need resource on best practices for presenting with interpreters (ASL or non-English language)	Learn about asset-based approaches to partnerships If the study produced a range of results or leads to a range of possible conclusions (e.g., the tool or curriculum worked in way #1 for X students but in way #2 for Z students), which result/conclusion do you report? Should the paper report conclusions that involve pointing out non-ideal practice by educators or other partners? What is the story that is being told about participants? What narratives in the broader education research community do you want to Sometimes this question can feel like "how neat and tidy should the story that we tell in our paper be?"

35.	**EXAMINE BIAS** *Positionality Statements*	"People in power are often, in discourse, supportive of research, policies, and practices that do not oppress and discriminate against others as long as they—those in power—do not have to alter their own systems of privilege; they may not want to give up their own interests to fight against racism, confront injustice, or shed light on hegemony. Power and interests are connected."(Milner, 2016)	*Decisions you as researcher made towards your research (and differences you observed): in what ways is your own background/perspective affecting those conclusions?*

36.	**PARTICIPANT INFORMATION**
	
	What information about the identities and demographics of participants and other stakeholders is being reported? How is this being reported?
		APA Bias-Free Language (when reporting on educational research):
		
		- https://apastyle.apa.org/style-grammar-guidelines/bias-free-language
		
		How do we collect participant information?
		
		Examples of appropriate survey or IRB forms???
		
		Gaztambide-Fernández, R. A. (2015). Elite entanglements and the demand for a radically un/ethical position: The case of Wienie Night. International Journal of Qualitative Studies in Education, 28(9), 1129–1147. https://doi.org/10.1080/09518398.2015.1074752
		
		- a reflective piece by a researcher rationalizing the anonymization of some information vs. not. The researcher has the power to determine impact of research through this
			"When you refer to a person or persons, choose words that are accurate, clear, and free from bias or prejudicial connotations."
			
			Examples of specificity by topic
			
			- https://apastyle.apa.org/style-grammar-guidelines/bias-free-language/general-principles
			
			Avoid false hierarchies
			
			- "usage of "normal" may prompt readers to make the comparison with "abnormal"
			
			Race:
			
			- Bias: Specific? / Too specific?
			
			  https://apastyle.apa.org/style-grammar-guidelines/bias-free-language/racial-ethnic-minorities
			
			  - Give more choices or space to make sure everyone can provide the specific identity they prefer in the data collection.
			
			  - Some times we missed the race choices, like middle-east may be ignored.
			
			Socioeconomic status:

		- We should provide as much information about SES as possible and not use terms that are subjective and sometimes offensive. - https://apastyle.apa.org/style-grammar-guidelines/bias-free-language/socioeconomic-status - https://apastyle.apa.org/style-grammar-guidelines/bias-free-language/research-participation - User more general words, like "students", "children", "participants", or "subjects" **Disability Status** - There is debate in and between the academic, medical/service, and disability advocacy communities about the language to use when identifying people who are disabled. There is no consensus in academic literature for how to choose between person-first language (i.e. person with mobility impairment, person with autism) and identity-first language (i.e. physically disabled person, autistic person - Disabled people themselves do not have a consensus on preferred language - preferences vary by age, disabled-from-birth or disabled later in life, and other factors - Using the preferred language of the participants is ideal, but may cause pushback from reviewers with different preferences When working with small populations, be careful about reporting demographics that may de-anonymize your participants. E.g. Participant 1 is a deaf, wheelchair-using PhD in STEM Education might be the only one in the world, or one of very few.

37.	CITATIONS *When citing other literature, whose research should we cite, especially if multiple authors write about the same thing?*	https://www.tandfonline.com/doi/full/10.1080/0966369X.2017.1339022 Citation matters: mobilizing the politics of citation toward a practice of 'conscientious engagement'	Work to include research on your topic by authors of color and women authors, and cite their work. It is also helpful to cite Tufts/CEEO authors where appropriate
38.	ENDING A PARTNERSHIP	Questions I Ask Myself as a White Researcher	informalscience.org	From Tucker-Raymond 1. Will I exit the partnership when the research is over? How will I do that? Have I been explicit about my plans with my partners? If not, what's next? What are expectations from others? (Mangual Figueroa, 2014)

RESOURCES WE'VE FOUND SO FAR

Please feel free to add/supplement/expand with anything you find!

APA Bias-Free Language (when reporting on educational research):

- https://apastyle.apa.org/style-grammar-guidelines/bias-free-language
  - WHO: Jazz, Mohammed

Milner IV, H. R. (2007). Race, culture, and researcher positionality: Working through dangers seen, unseen, and unforeseen. *Educational Researcher*, 36(7), 388-400.

- https://journals.sagepub.com/doi/full/10.3102/0013189X07309471

- WHO: Magee, Ethan

De Eguia Huerta, M. (2020). Knowledge Decolonization à la Grounded Theory: Control Juggling in Research Situations. *Social Epistemology*, *34*(4), 370-381. https://www.tandfonline.com/doi/full/10.1080/02691728.2019.1706118

- WHO: Fatima , Merredith

- What have we defined as what is good engineering and how does a good engineer work?

  - These have been defined from the lens of patriarchy, race, and western traditions - but there is room to question what values are being privileged during design. For example, prioritizing the environment over technology and economic advancement.

TERC (Tucker-Raymond) list of questions for community-partnered ed research, with reference list:

- https://www.informalscience.org/news-views/questions-i-ask-myself-white-researcher

- WHO: Jenn, Elissa , Suzanne

- Design of Learning:

  - "What aspects of the environments my colleagues and I design are assimilative and what aspects are transformative."

- Research:

  - "What can I do to mitigate the "othering" that often comes along with this type of research?"

  - "How do I avoid intentional and unintentional appropriation of people's ideas? How do I make sure that I am not speaking for people but alongside them? "

  - "How do I make sure that I am not performing extractive research, but am creating a resource for the people with whom I am working?"

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[CLEAR lab notebook](#)

- WHO: Kristen, Chelsea

Deliovsky, K. (2017). [Whiteness in the qualitative research setting: Critical skepticism, radical reflexivity and anti-racist feminism](#). *Journal of Critical Race Inquiry, 4*(1).

- WHO: Yume, Tanushree

Bibliography on decolonizing methods/research:

- https://docs.google.com/document/d/1TZgHT1vOMBe7w7thSYk0_otR2reWIgwANbJ4OvXpcro/edit

[Resources For Diversity, Equity, Inclusion, and Justice (DEIJ)](#) (from Ecological Society of America)

[Latiné, Latinx, Latina, Latino, or Hispanic: Problematizing terms often used in engineering education](#) (JEE article)

[Strengthening STEM Teaching in Native American Serving Schools through Long-Term, Culturally Responsive Professional Development](#) (NSF project)

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INCLUDES network: https://www.includesnetwork.org/whats-new/resources

ASEE's LGBTQ+ Advocacy in STEM: https://lgbtq.asee.org/

Questions / Concerns from today

Issue: rushing, overworked, busy, etc

- How to slow down?

- Societal structures prioritizes: getting stuff done, being efficient, etc

    - Which can be at tension with being equitable

- "If you are being asked to slow down and prioritize equity over efficiency, then it might feel 'wrong' but it could be a sign you are doing something right in taking a step towards equity and inclusion."

- Slowing down research —> what are the challenges that presents for specific classes of students, e.g., Master's student who needs to complete their thesis in one year? a senior thesis who needs to complete their thesis in one semester?

- "Another activity" vs. "changing our practices"

    - Some practices might be hard/time consuming at the beginning (initially making change) but could become more efficient(?) over time

- "Business as usual" is efficient (and has been "designed" that way)

    - Acceptance of things taking more time?

        - E.g. in teaching space: "only so far we can get of being inclusive in teaching with certain strategies that don't add extra time/energy, but some will take more time/energy"

- Equity and inclusion requires "conversations"

    - Conversations with the stakeholders

- Incentive structures and roots of the system puts pressure on researchers

- **Recognizing when time pressures are the main rationale for the decisions we are making**

    - Can't always change deadlines, etc

    - But if we take note of the way that institutional and other external deadlines and timelines dictate our actions, we can identify where we might need to advocate for policy or value shifts in order to make anti-racist research practices possible

Similarly (to above "busy"/time issue): money on projects

- During the development of a budget for a project, what is "getting cut" in favor of other things?

- What kinds of things are included (and not!)

    - E.g. transportation, housing, food, other compensation

This DEIJ work / current initiatives generally seems very focused on diversity as race – do we also want to include disability and accessibility in diversity (e.g. DEIJA) as part of this work (or is that something to consider separately)?

- Also gender, other structures of power

When someone needs more funding to cover their time - how will we apply this guidance about being selective about finding new funding sources?

How homogenous should CEEO research values/practices be? Are there guard rails/limits?

What is a CEEO structure vs a PI/Lab Group structure?

Should we have a 1-2 page white paper that talks about our aspirations for doing research at CEEO with a DEIJ lens?

Perspective of this document: is it created by the majority for helping the majority do better work? Are our guidelines inclusive and equitable?

- "Cruz (2001) maintained that scholars of color have had to "*create and develop alternative spaces and methodologies for the study of their communities*" (p. 658) to more fully and appropriately capture and represent lived experiences among populations of color." (Milner, 2016)

How can we include community partners and collaborators in the creation of this document? What are their perspective on anti-racist research practices at the CEEO?