Aligning Your Research Methods with Your Social Justice Values

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Cara Margherio is the Assistant Director of the University of Washington Center for Evaluation & Research for STEM Equity (CERSE). Cara manages the evaluation of several NSF- and NIH-funded projects, primarily working with national professional development programs for early-career academics from groups underrepresented in STEM. She is also currently serving as a Virtual Visiting Scholar of the AD-VANCE Research and Coordination Network. Her research is grounded in critical race and feminist theories, and her research interests include community cultural wealth, counterspaces, intersectionality, and institutional change.

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Emily Knaphus-Soran is a Senior Research Scientist at the Center for Evaluation & Research for STEM Equity (CERSE) at the University of Washington. She works on the evaluation of several projects aimed at improving diversity, equity, and inclusion in STEM fields. She also conducts research on the social-psychological and institutional forces that contribute to the persistence of race and class inequalities in the United States. Emily earned a PhD and MA in Sociology from the University of Washington, and a BA in Sociology from Smith College.

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University of Washington Center for Evaluation & Research for STEM Equity (CERSE)

The vision of the CoNECD Conference is to provide a forum for exploring current research and practices to enhance diversity and inclusion of all underrepresented populations in the engineering and computing professions including gender identity and expression, race and ethnicity, disability, veterans, LGBTQ+, 1st generation and socio-economic status.

Aligning Your Research Methods with Your Social Justice Values

We at the Center for Evaluation & Research for STEM Equity operate with a critical orientation, meaning issues of social justice inform our thinking and acting in research methodology, design, data collection, and analysis. For us at CERSE, social justice means advancing diversity, equity, and inclusion in STEM fields. These social justice values are central to what questions we ask, how we ask them, what methodologies we use, and how we work with partners to advance equity in STEM. This work requires unlearning how we were trained as researchers: we still revert to dominant research conventions that advantage some and disadvantage others on a daily basis (Hardiman, Jackson & Griffin, 2007).

This interactive workshop explores the power and possibility of transformative research methods, looking at how research methods themselves can have an impact on either the reinforcement of the status quo (hegemonic epistemology), or shift it equitably. We will offer discussion on a variety of decolonizing methodologies (Smith, 2012) that we aim to employ as a team, such as working collaboratively with research participants to co-create questions and projected outcomes (McNicoll, 1999), member-checking (Ivari, 2018), collaborative analysis of results (Kindon, Pain & Kesby, 2007), and highlighting the impact of our collective positionality (Roegman, 2018) on the work that we do.

The workshop will not position us as experts of social justice research (as the notion of expert in these endeavors can reinforce the hierarchy between researcher and researched), but instead, will solicit knowledge from the attendees. We will ask: How do your research methods employed to study engineering education align with your social justice values? In what ways could you examine or improve upon your research methods to reflect a critical intersectional frame? How might that frame be relevant to your work and change-making in the field of engineering education? Participants will leave the workshop with an increased awareness of how to do engineering education research that reflects social justice values, paired with concrete methodological ideas to run with.

Aligning your Research Methods with your Social Justice Values

Plan for the workshop session: 90 minutes total

—15 minutes

Welcome and recognition of indigenous land (1 minute)

(9 minutes) **Who is in the room?** Invite names, people's pronouns, and how this topic (social justice values imbued in research methods) is relevant to them. Start with workshop facilitators.

If there are many people in the crowd, we can ask people to raise their hands if: they are researchers, administrators, faculty, students, in the non-profit sector, or in the for-profit sector.

Ask attendees to raise their hands if: They are currently involved in research with students; they are currently involved in research with faculty/staff in higher education; they are currently involved in research with industry, or otherwise.

(2 minutes) **Learning objectives and outcomes for the session**: Workshop attendees will leave with an increased awareness of the alignment between their own social justice values and research methods, and gain exposure to culturally responsive (Gay, 2018) ideas and frameworks to employ in future research endeavors.

Participants will receive a Handout with Presenter information, a glossary, and a Critical Research Questioning Guide.

(3 minutes) **Introduction of our Center**: Introduce the Center for Evaluation & Research for STEM Equity broadly. What motivates our work at CERSE:

- We believe that STEM fields should be equitable and accessible to all people, not just people from STEM's dominant identity groups (who are often white, cis-gendered, heterosexual, able-bodied, and/or male identified).

- Significant changes must be made in order for STEM fields to be accessible, welcoming, and desirable to individuals belonging to excluded identity groups.

- Our program evaluation and research offer evidence-based insights toward reforming systems and improving policies and practices.

Our applied research and evaluation has contributed to highlighting numerous issues of inequity in engineering, with specific focus on women and other systemically minoritized groups. For example, we have found there to be a lack of mentorship for women in higher education engineering arenas, and that has contributed to the continued underrepresentation of women in engineering. Where faculty mentorship is not available, we have found that establishing peer mentoring circles among those in systemically minoritized groups greatly bolsters their belonging and advancement in engineering and STEM fields at large.

This workshop is primarily designed for researchers but can also be meaningful for educators/program administrators and other engineering related practitioners in thinking through how research can be used for advancing social justice in the work they do.

(5 minutes) We believe in the importance of <u>Diversity, Equity, and Inclusion</u> as central to our research. [As indicated in Handout]

Diversity in STEM means the representation of an array of different identities, backgrounds, and experiences. We see diversity as intersectional. It encompasses a number of identities, including: gender, sexual, racial, ethnic, linguistic, socioeconomic, spiritual/religious, (inter)national, and (dis)ability. Different identities are accompanied by different levels of access to power and privilege in different contextual spaces.

Inclusion: welcoming, recognizing, and valuing the strengths in people's differences. An inclusive academic department builds policy and behaves in a way that values and solicits an array of identities and experiences.

Equity is the fair treatment of people. Acknowledging that all identity groups are not treated equally in U.S. society, some groups may need more support than others. (Transforming Engineering Culture to Advance Inclusion and Diversity, 2018) Inequity is unequal distribution of access and opportunity, including access and opportunity to material and non-material resources (Gorski, 2018). So **Equity** requires a redistribution—not a mitigation, not an add-on program, but a structural **redistribution of access and opportunity.**

(5 minutes) Discussion: We named how DEI is central to our understanding of social justice. What are your central social justice values? (Share with whole group if there are other values not covered within our DEI framework)

How can/do our Research Methods Align with Our Values? 35 minutes

(5 minutes) Introduction to Critical Research Framework: We are interested in challenging the colonizing nature of research. Often in research, there's a dichotomy between researcher and researched that is power-laden. This can be illustrated by dehumanizing research jargon like research "subjects," the proprietary nature of research findings as owned by the researchers, and the utility of research to the benefit of the researchers. We are social scientists, so to us it's relevant to think about people as the focus of our research, but considering values, ownership, and impacts of research are relevant for researchers across disciplines.

(5 minutes) Think, pair, share: How have you observed research benefit some groups more than others? [Either in your familiarity with others' research, or your own]

(15 minutes) Introduction to the Guide with Scenarios that Illustrate Successes or Challenges

Participants will be prompted to open their Critical Research Questioning Guides.

A note on the guide: we at CERSE created this list of questions, that is meant to hold us accountable to research with integrity. An Institutional Review Board serves the purpose of protecting research participants and centering research ethics. Our aim is to go a step further, and examine how our research is achieving social justice aims (or not). Often we will ask ourselves these

sorts of questions informally, but in this workshop, we are inviting you to help flesh out a guide for making social justice values more central to the design and implementation of research in engineering education. We welcome your contributions! The guide is organized as follows:

1) Motivation & Vision;

2) Project Design;

3) Data Collection;

4) Analysis & Interpretation;

5) Communication & Dissemination.

We will give a brief summary of the kinds of questions asked in each category, and let the attendees know they will engage with them further, shortly.

We will share real-life scenarios that fall into different sections of the guide with respect to successes and missed opportunities that we have encountered, and invite you to share other scenarios that come to mind.

Motivation & Vision

A College of Engineering Admissions Research study.

Missed Opportunity: We didn't adequately think through how the research would be used, and the research question was framed too much on the most obvious indicators of success (GPA, retention in engineering) without unpacking what other indicators might more meaningfully reflect success (satisfaction, graduation from university).

Success: We revisited the research using the CRQG to interrogate how closely our project aligned with our SJ values and identified areas that need our attention. Some ideas that came out of this exercise included: thinking about how our research findings could potentially be used in ways that don't align with our values (and things we could do to mitigate this); acknowledging that the large quantitative dataset used in our analyses is an artifact of an unequal social structure, and being prepared to interpret our findings with an eye to the context from which the data were born.

Motivation & Vision II

Success: One of the programs we work with started a project in conjunction with a family farm in Hawaii. There were several research questions regarding changing groundwater quality that were born out of concerns of the farmers. This was truly a community-driven project with research questions that were voiced/surfaced by farmers, that could only be answered in conjunction with geoscientists.

Project Design

What scenarios can you think of with respect to project design that have either been successes with respect to social justice, missed opportunities, or both?

Data Collection

Missed opportunity: Google face recognition software case. The database of photographs used to calibrate Google's face recognition software was comprised mostly of white faces, so the software didn't recognize Black or brown faces as accurately.

What other scenarios can you think of with respect to data collection that have either been successes with respect to social justice, missed opportunities, or both?

Analysis & Interpretation Scenario

We did focus groups with STEM faculty leaders who were deaf and hard of hearing that was supported by two interpreters. The focus group participants suggested seeing the transcript and reflecting upon it to see if the interpreters accurately translated their thoughts.

Success: Many changes were made to the transcript with the participants' comments, and it dramatically changed the meaning of the focus groups.

Missed Opportunity: The participants had to reach out to us to suggest member checking. We could have been proactive on this front.

Communication & Dissemination Scenario

One of our colleagues did research on AIDS in S. Africa and created a public health pamphlet to distribute based on the findings. (success!)

Two of us did not deliver results from our dissertations to the communities involved in a timely manner, even though there were actionable recommendations embedded in the results. (missed opportunity)

Critical Research Question Guide Engagement 25 minutes

(5 minutes) Participants will be prompted to read through CRQG, considering the questions on the reverse side.

(10 minutes) Discuss the thoughts you jotted down regarding CRQG in small groups (3-4). We'll ask you to report back to the larger group in about 10 minutes. Note these questions appear in the Handout.

1) To what extent are you already engaging with these questions in your own research?

2) Which questions do you find most challenging to address adequately?

   a. Where will you seek help if you need it (to address those challenging questions)?

   b. What areas are less familiar/less part of your research practices/hygiene?

3) Which areas would you like to focus on refining/improving upon moving forward?

   a. What steps will you take to do this?

4) What would you add to this list?

(10 minutes) Each small group shares their high level findings with the larger group.

<mark>**Workshopping & Closing Discussion**</mark> 15 minutes

The first 10 minutes are introspective, and small groups can share amongst themselves as desired. The subsequent (and last) 10 minutes involve a whole group share. Engineers represent myriad learning styles and we tailored this workshop to a diversity of learners.

(5 minutes) Thinking back to the social justice values you identified at the beginning of the workshop, how do you see your own research methods aligning with your social justice values?

(5 minutes) Please take about five minutes to think about the kind of work you do, and write down other ways you could examine or improve upon your research methods to reflect a social justice values?

(5 minutes) Closing: What other questions remain?

<div align="center">References:</div>

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APPENDIX: Workshop Handout Content

Critical Research Questioning Guide

This guide is meant to serve as a check/reflection on your research process, from motivation & vision through communication & dissemination. The answers don't necessarily need to result in change, and the guide can be re-visited throughout the research project. Not all questions will be applicable to every research context. For instance, some questions may be more relevant for qualitative research, some more applicable for quantitative research. The guide is organized along stages in the research process, but many questions are applicable to multiple stages.

Questions to ask yourself while reading the Critical Research Questioning Guide:

5) To what extent are you already engaging with these questions in your own research?

6) Which questions do you find most challenging to address adequately?

7) Which areas would you like to focus on refining/improving upon moving forward?

8) What would you add to this list?

The Guide

Motivation & Vision

a) How were the research question(s) constructed? Whose voices were at the table? Whose voices were not, and why? What are the implications of those choices?
b) What are the intended outcomes of the research? How were they envisioned? Why is that meaningful?
c) What might be unintended outcomes of this research project? How can you mitigate negative impacts on the participants and the community?
d) Does the research grapple with/make visible/combat/address structural systems of oppression?
e) How does the research challenge dominant ideologies, such as objectivity, meritocracy, colorblindness, and equal opportunity?
f) Who is cited in the literature review? Who is not? If the literature review does not represent an identity-diverse group, are you aware of potential bias that presents? How will you attempt to mitigate that bias moving forward?

Project Design

g) Who are the individuals on your research team, and how are roles distributed? Are you cognizant of power dynamics within the group, and working to challenge existing hierarchies through an equitable distribution of roles?
h) What individuals/communities will be impacted by the research? How do you identify them? What are your plans to engage them?
i) Is there a distinction between researcher and research participants (how involved are participants in the entire research process)?
j) Does this research incorporate trans/interdisciplinary perspectives?

Data Collection

k) Are data collection instruments built with community knowledge and participation?
l) How are issues of confidentiality and protecting participant identities handled?
m) How is data collection done? How can it be co-driven by community stakeholders?

Analysis & Interpretation

n) How do you engage participants or members of impacted communities in the analysis? Are participants involved in verifying/validating findings?
o) Do you incorporate member-checking so that participants can indicate something as identifiable that the writers missed?
p) How are participants' voices or those of impacted communities being incorporated into the story you tell?

Communication & Dissemination

q) How are data shared between the researchers and the research participants or members of impacted communities?
r) How is research disseminated/made useful for participants? Is there an eye toward action in the research presentation? Is the language used in research presentations accessible to a lay audience?
s) How are participants invited to help share the results from the research?
t) Are participants invited to weigh in on implications of the research and directions for future investigation and practice?

UW Center for Evaluation & Research for STEM Equity (CERSE)

ABOUT US

The Center for Evaluation & Research for STEM Equity (CERSE) at the University of Washington focuses on improving STEM diversity, inclusion, and equity through research, evaluation, and consulting in higher education. We believe that STEM fields should be equitable and accessible to all people. Significant changes must be made in order for STEM fields to be accessible, welcoming, and desirable to individuals belonging to systemically marginalized groups.

RESEARCH

CERSE conducts research on the educational climate for undergraduate and graduate students, models of academic change, and culture in engineering departments. CERSE also seeks to identify factors that contribute to the recruitment, retention, and advancement of students, faculty, and researchers in STEM fields. We examine how systemically marginalized groups bring community cultural wealth or funds of knowledge with them to their educations and workplaces.

EVALUATION

CERSE has been involved in evaluation in STEM fields for more than 20 years. We adapt rigorous research methodologies to assess the impact of programs designed to diversify and improve the climate of STEM fields. Evaluation reports provide program administrators with user-friendly information about program outcomes and to identify areas for improvements.

EQUITY CONSULTING

CERSE provides consulting to address our clients' organizational needs regarding diversity, equity, inclusion, and social justice. CERSE's consulting includes interactive professional development trainings, assistance in strategic planning, and guidance on culturally responsive curriculum.

OUR POSITIONALITY

We are a team of researchers with complex intersecting identities and experiences. Our positionalities inform and fuel our advocacy for those from Excluded Identity Groups (EIGs) in STEM fields. Collectively, we have both dominant and non-dominant identities, but all identify as white, cis-gendered women. Two of us are queer and two have children, and each of us lives with a domestic partner or spouse. One of us has provided in-home family eldercare. We grew up in rural, suburban, and urban environments, and experienced a range of socio-economic contexts in our families of origin. We are an interdisciplinary team, with backgrounds in sociology, education, women's studies, and statistics. The graduate and undergraduate research assistants on our team broaden our social identity pool significantly in terms of ethnicity, nationality, native language, sexual orientation, age, prior work experience, and academic discipline. Ultimately, our backgrounds and social identities inform how we make sense of and share others' stories. We believe it both essential and responsible to acknowledge the impact of our positionalities on the work we do, while striving to share others' experiences in a way that most accurately and honestly reflects their truths.

Glossary

Diversity in STEM means the representation of an array of different identities, backgrounds, and experiences. We see diversity as intersectional. It encompasses a number of identities, including: gender, sexual, racial, ethnic, linguistic, socioeconomic, spiritual/religious, (inter)national, and (dis)ability. Different identities are accompanied by different levels of access to power and privilege in different contextual spaces.

Inclusion is welcoming, recognizing, and valuing the strengths in people's differences. An inclusive academic department builds policy and behaves in a way that values and solicits an array of identities and experiences.

Equity is the fair treatment of people. Acknowledging that all identity groups are not treated equally in U.S. society, some groups may need more support than others (Transforming Engineering Culture to Advance Inclusion and Diversity, 2018). Inequity is unequal distribution of access and opportunity, including access and opportunity to material and non-material resources (Gorski, 2018). **Equity** requires a redistribution—not a mitigation, not an add-on program, but a structural **redistribution of access and opportunity.**

Source: http://culturalorganizing.org/the-problem-with-that-equity-vs-equality-graphic/
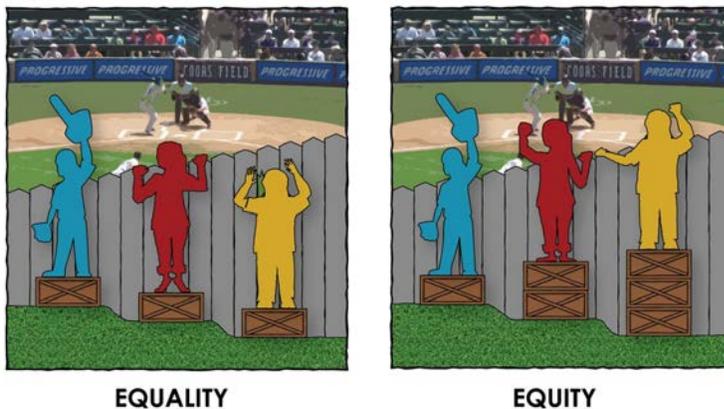
Excluded Identity Groups in STEM or Systemically Marginalized Populations in STEM encompasses all people who are excluded from full participation in STEM fields. This can include, but is not limited to: Blacks/African Americans, Native Americans, Latinx, Pacific Islanders, women, English language learners, newcomers or immigrants to the U.S., LGBTQ people, first generation college students, individuals from low-income backgrounds, and people with disabilities. We recognize that individuals belonging to excluded identity groups in STEM are not defined by only one of their identities, but have intersecting identities. We borrow the term of excluded identity groups from researchers at OU RISE (Walden, Foor, & Trytten, @WEPANCLF2017), because we feel it better expresses the institutional barriers and interpersonal norms that exclude people, and does not focus on "otherness" the way the term "underrepresented minority" does. Based on further conversations about this term at CoNECD 2018, we are considering a shift to Systemically Marginalized Populations, due to concerns about the term Excluded Identity Group.