

Using power, privilege, and intersectionality to understand, disrupt, and dismantle oppressive structures within academia: A design case

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Introduction

Many of us are working to create a more inclusive and socially just culture within engineering education and engineering. Despite significant effort, marginalization and discrimination continue, buoyed by systems of oppression. How can we disrupt and dismantle oppressive systems? In our work, we (throughout this paper, we refers to Nadia, Vanessa, and Susannah) explore how power and privilege are enacted within leadership teams that aim to create revolutionary changes within engineering departments. Based on this work, we developed the POWER protocol (Privilege and Oppression: Working for Equitable Recourse), a workshop that guides engineering educators to identify and understand the intersectional nature of power and privilege before planning strategies to disrupt, disarm, and dismantle it. In this paper, we present a design case to show how this workshop has evolved. We provide the POWER protocol in the appendix so that others can adapt this workshop for their own contexts.

In the interactive session at CoNECD, we will take attendees through part of the POWER protocol (we will scope the workshop to fit in the time allotted; the full workshop is 1.5 hours) to examine how power, privilege, and intersectionality can help attendees frame their experiences and begin to understand how their everyday experiences may be influenced by systemic oppression. To guide this process, we orient around the question: How can we become aware of power and privilege on collaborative academic teams in order to better affect social change and improve interdisciplinary and cross-identity/boundary interactions, communication, and inclusivity? We hope that through interactive sessions such as this that we can all become more persistent and sophisticated in our efforts to dismantle some of these forms of power and privilege within the university, especially those aspects that continue to oppress and oftentimes push marginalized people and perspectives out of academia. Our interactive approach will position attendees to bring this protocol back to their institutions and adapt it to their own contexts.

In the tradition of the design case [1], such as those published by the *International Journal of Designs for Learning*, we detail how our contexts and the literature informed the iterative development of the POWER protocol in this paper. We provide a vivid account of the POWER protocol and a facilitation guide that others can use and adapt in their own contexts. Using a narrative format, we share a forthright account of our development process. Design cases are valuable in highlighting distinctive aspects of how a design came to be. By sharing our design decisions along with the design, others may gain insight into both what has made our design successful, and where it may be brittle when used in new contexts [2]. Finally, we describe how we will engage attendees in the CoNECD session.

Context

Within our Partnering Across Insider-views of RED (PaiRED) project, we are working to develop an understanding of how power and privilege play out on leadership teams within NSF-sponsored Revolutionizing Engineering Departments (RED) projects. The RED program aims to support departments to make “significant sustainable changes necessary to overcome long

standing issues in their undergraduate programs and educate inclusive communities of engineering and computer science students prepared to solve 21st-century challenges” (<https://www.nsf.gov/pubs/2017/nsf17501/nsf17501.htm>).

The RED leadership teams provide an opportunity to study power and privilege, as the teams include a PI who is a department head, and co-PIs who are disciplinary engineering faculty, social scientists, and engineering education researchers. Because of this NSF requirement regarding team composition, many of the teams are diverse in terms of gender, race, position in the university, role in the university, and age, among other social identities. In an effort to understand what is happening on these teams and how they are (or are not) moving towards revolutionary change, we are using lenses of power, privilege, and intersectionality. We define these terms following the definitions others have used below.

Power. We situate our definition of power in the work of Foucault, who describes power as being distributed across and throughout numerous relationships and social forces [3]. This definition of power differs from traditional interpretations that describe power as one group dominating over another group. Instead, power produces and circulates, with identities and power positions being fluid and unstable.

Intersectionality. Following Crenshaw [4], [5] who originated the term *intersectional* as used here, we define it as the intersection of identities (e.g., White, man, full professor; Black, woman, untenured professor) and the ways in which these multifaceted, intersectional identities impact people’s experiences of privilege and oppression. For instance, White women experience sexism differently than Black women. In addition, we extend intersectionality beyond the description of identities to an analysis of structures of inequality [6], including ruling relations [7], [8].

Privilege. Following McIntosh’s conception of privilege, privilege not only disadvantages groups of people, but also puts groups of people at an advantage in society [9]. According to McIntosh, people are taught to not recognize their own privileges (such as being White and/or a man). McIntosh characterizes privilege as an invisible knapsack that contains assets that help propel a person every day. By recognizing privilege, one refutes the myth of meritocracy, recognizing that some people’s success is related to privilege they carry because of aspects of their identity, such as race, gender, sexual orientation, class, nationality, religion, or ethnic identity.

While our research study will not be the primary focus of this interactive session, some of the results will be shared as we illustrate an intersectionality wheel derived from analysis of RED projects. To date, we have interviewed five faculty from a range of institution types, and these faculty identify in diverse ways across gender, race and sexuality. In addition, these faculty represent multiple positions in the university, academic ranks, and disciplinary backgrounds. Despite still being in early stages of data collection and analysis, we are already beginning to uncover some important patterns and themes. For instance, we have noticed that shame plays out in multiple ways, causing team members to hide innovations until perfected. Participants have also reported their contributions being erased and not valued, academic rank impacting the likelihood of standing up for one’s self, mid-career faculty deciding to go up for full professor so that they have more voice in their teams and departments, and turnover of White men in leadership teams (and replacement with more White men) leading to more issues related to

power and privilege on these teams. In addition to these themes, we have begun to identify some salient -isms within participants' stories, including tenurism, rankism, engineeringism, ableism, racism, and sexism. These lenses help us understand the interactions of faculty within RED teams, with a goal of uncovering ways of dismantling some of this power and privilege within teams and the university.

Theoretical Framework

Intersectional and interdisciplinary teams include and create power dynamics that affect the experiences of team members as well as the success or failure of project goals. In particular, we are interested in understanding how aspects of gender, race, disciplinary affiliation, and university role impact the experiences of team members and, in turn, impact the change that is enacted within departments. In other words, we are interested in how power and privilege are enacted within RED teams. While scholars have focused on the roles of power and privilege within educational settings [10], [11], little research has been conducted to develop an understanding of power and privilege within faculty teams that are attempting to create revolutionary change. This work is critical as research begins to focus efforts on large centers and collaborations to begin to tackle some of our world's most pressing problems. While this project is focused specifically within the context of RED, it can serve as a model for developing an understanding of the roles of power, position, privilege, and perspective within large centers and collaborations. In addition, this project can help smaller faculty teams as they work towards a common goal and navigate instances of power and privilege.

We situate this work in critical theory [12]. Using critical theory enables us to better situate, interpret, and understand our findings, potentially bringing light to inequality at both the structural (e.g., university, program, institutional change teams) and individual levels through understanding the effects of gender, class, race, sexuality, discipline, university role, etc. Using this lens, we aim to empower individuals through their stories, and thus confront issues of injustice directly as we question privilege and inequality within institutional change leadership teams. Critical theory will equip us, as researchers, to elucidate through this project an understanding of "what is" and "what should be" in a way that might enable us to change society's discourse around faculty leadership teams in change efforts in a novel way[13].

The POWER Workshop Design

After engaging in the POWER workshop, attendees will be able to:

1. Identify intersectional -isms that produce boundaries and power differentials on academic teams;
2. Evaluate the impacts intersectional -isms may have on such teams;
3. Develop strategies for surmounting, managing, and mitigating boundaries and power differentials;
4. Develop strategies for collaborating more effectively across boundaries, including disciplinary boundaries, identity differences, and power imbalances; and
5. Guide their own teams in investigating and addressing power and privilege using the provided protocol.

The POWER workshop begins with an introduction and then a series of three activities (see Figure 1). As described in the Story section below, we found that the introduction was an important part of the workshop as it sets up the dialogue to be one that is more inclusive. This includes a set of ground rules and framing workshop attendees as change agents with the intention of empowering attendees to make a difference instead of becoming defensive and potentially blocking change. In the appendix we include the POWER protocol (Appendix A) so that others can replicate or modify this workshop for their own contexts. Please contact the authors for more workshop materials, including handouts and a slide deck. Here we provide a brief overview of the POWER workshop design.

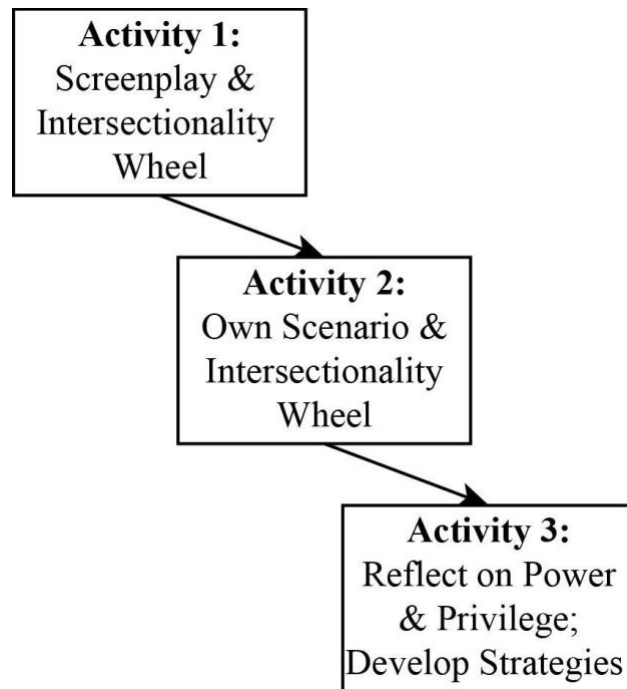


Figure 1: Structure of the POWER workshop

Activity 1. After the introduction, setting of ground rules, and definition of critical concepts, we move into activity 1. In activity 1, we elicit volunteer actors to read through a screenplay (this can be done as a large group or at each table). We then enact the screenplay with one participant acting as the narrator who sets up each scene and announces scene changes. Attendees can engage with the story through reading along as it is acted out, through listening to the screenplay, or through watching the screenplay. In this part of the workshop, we intentionally created a screenplay that can be engaged in with multiple modalities so that all attendees can meaningfully engage with the story. After the screenplay is enacted, attendees create an intersectionality wheel by identifying more privileged or oppressed identities that may have impacted experiences within the screenplay. Examples of this could be engineering/non-engineering or White/people of color. Next attendees fill out power lines on the intersectionality wheel by placing more privileged identities on the top half of the wheel and more oppressed identities along the same line and at the bottom of the wheel (see Figure 2 for an example of this). After creating power lines that emerged out of the scenario, the attendees are encouraged to identify -isms that will appear on the power line. In Figure 2, this is the addition of engineeringism along the engineering/non-engineering power line. Finally, at the end of activity 1, the entire group reports

out examples of power lines and -isms. Attendees are encouraged to write down any that emerge from this discussion that were different from their own. Finally, we encourage attendees to consider how their own backgrounds and subjectivities influenced which power lines they identified in the scenario.

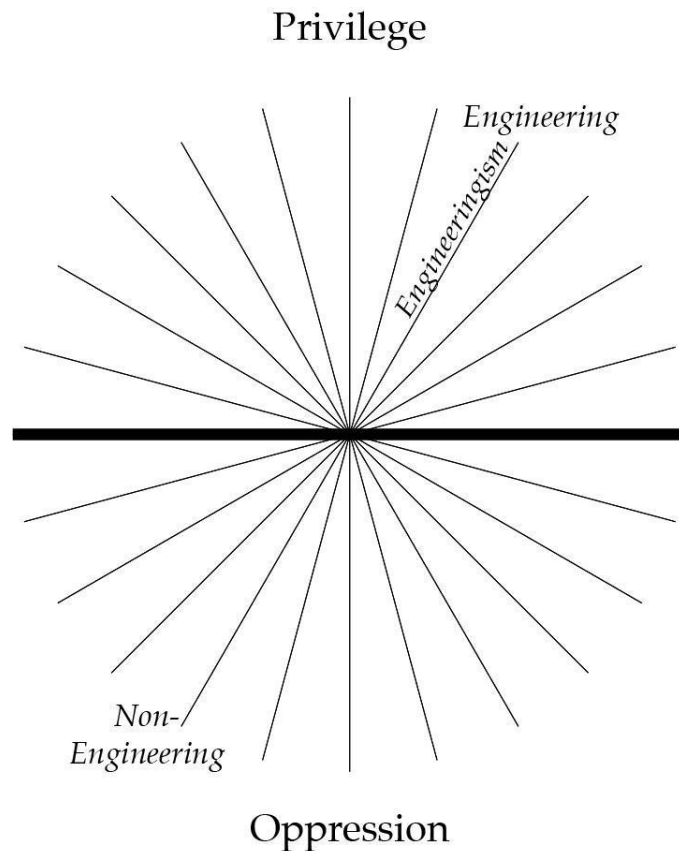


Figure 2: Intersectionality wheel with one example power line and -ism, adapted from [14]

Activity 2. In this activity, we encourage attendees to identify an experience from one of their interdisciplinary teams and to write down some details around the interaction and experience. Because these experiences may be sensitive, we do not have them share the experience with others at their table or with the larger group. Instead we focus any discussions or report outs on the power lines and associated ‘isms.’ Then we encourage attendees to take the steps that were completed with the storyboard, including identifying privileged/oppressed identities, filling out the power lines on the intersectionality wheel, and creating -isms on the intersectionality wheel.

Activity 3. In the third and final activity, we continue to reflect on power and privilege and develop strategies to address and mitigate power relations on teams. This activity is a continuation of activity 2. We begin by giving each attendee a team change wild card that includes a detailed description of a new member who joins their team. Attendees then place this person on the intersectionality wheel so that they can identify ways that this new member may be joining from positions of power or oppression. We encourage attendees to identify ways that team members could react to the new member that could limit the new member’s meaningful participation. Next, attendees act in the role of a change agent and identify strategies that they

could enact that would help mitigate potential issues, including division of labor. Attendees then fill out the strategies table (see Table 1). We then have a discussion of identified strategies at each table and have groups report out and record strategies with the larger group. We end the session with an invitation to continue this dialogue around power and privilege on intersectional teams.

Table 1: Strategies table

<i>What are ways power and privilege might prevent the new member from contributing as meaningfully as they could? What are some ways another team member might – whether intentionally or not – interact with the new member that could limit their impact?</i>	<i>What strategies could you – as a change agent – use to mitigate potential issues and division of labor as you incorporate this new member?</i>

Positionalities and Perspectives

As members of RED teams, we brought our own observations of successes and struggles to our work. As White women (the ongoing team, the first three authors of this paper, Nadia, Vanessa, and Susannah), we share some experiences of privilege and oppression with study and workshop participants, and have seen these intersect with other power dynamics on RED teams. For example, as we began working on our respective RED teams, we held different academic ranks (associate professor, assistant professor, postdoctoral scholar), disciplinary roles and backgrounds (in engineering, engineering education, and learning sciences), and life circumstances that can impact academic productivity/availability (one member is a primary caretaker for children, another has an invisible disability). These similarities and differences focused our attention on intersections, and specifically the contextual nature of intersectional privilege and oppression.

In addition, we have begun to bring other workshop facilitators on board to help facilitate sessions and bring their unique perspectives to our workshops. Jasmine and Susan are doctoral students, with Jasmine being a Graduate Research Assistant on the project at the University of New Mexico and Susan being a volunteer and graduate student from Arizona State University who is interested in facilitating these types of workshops. Jasmine and Susan also have

intersecting identities of their own that will influence their engagement on this project, including their perspectives as they assist in facilitation of this session at CoNECD.

Our Story of the POWER Workshop

This POWER workshop has evolved in an organic process. As explained above, we are all members of RED teams from different universities. At annual RED consortium meetings, we were a part of a larger group of RED team members who began having conversations around difficulties that we were having on our teams and decided to begin meeting regularly over video conferencing (Susan Nolen from University of Washington led this effort with Zinta Byrne from Colorado State University as an additional member of the group). We began having discussions and quickly realized that our experiences were not being shared formally at RED meetings, in RED evaluation reports, in publications, or in annual NSF reports. Instead, these experiences around team dynamics were being kept private. This is in part because of the identifiable nature of team members, especially when reporting at a team level.

Our First Workshop (2018). As we continued these conversations, we began to notice that many of these team interactions seemed to be grounded in power and privilege. A small group of three of us (the first three authors of this paper), decided to hold a workshop at the 2018 RED Consortium Meeting that was focused on power dynamics and roles on RED teams. The outline of this workshop is included in Figure 3.

10:30-10:40 Introductions (our motivation, ideas, team)
10:40-10:55 Discuss role play and context/ go through each role and solicit volunteers to engage in the role play/ Give instructions for the observers to note any power dynamics that they observe.
10:55-11:15 Role play/ fishbowl activity
11:15-11:25 Think/pair/share. Discuss different forms of power differentials that were present in the meeting
11:25-11:40 Individually reflect on your own role on your RED team and any power dynamics that are present. What is your role? How did you acquire that role? How do you affect others on the team? How do others affect you? How could you change your role to encourage more productive, positive, and inclusive interactions?
11:40-11:50 In small groups, discuss power dynamics on your teams, your role, etc.
11:50-12 Large group discussion

Figure 3: Outline and timeline of first workshop in 2018

We specifically proposed that “power dynamics can stifle or empower individual team members to be change agents in their RED projects. Power differentials can manifest from differences in university roles (e.g., chair, assistant professor, associate professor, graduate student), gender, race, disciplinary affiliation, and other characteristics (e.g., sexual orientation, socioeconomic status).” To address these issues, we proposed a fishbowl role-play scenario:

The department chair/PI of the RED project at New University has left for another institution and a new chair has just been hired and will occupy the role of PI. Each volunteer role-player

(PI, social scientist, engineering education researcher, project manager, post-doc, disciplinary faculty) will be given a detailed description of their role (including gender, race, disciplinary affiliation, and other characteristics). The PI will facilitate a team meeting where they quickly discover the RED project is not going well. The PI will attempt to get the team back on track so that they can meet their year three objectives.

Following the role-play, we debriefed the activity and discussed different forms of power differentials that were on display, then asked participants to individually reflect on their role on their own RED team and power dynamics that are present within their team. Participants were challenged to think beyond their assigned roles and reflect on their unique role, how they acquired that role, how they affected others on the team, how others affected them, and ways they could take risks and try out new roles on their team to help encourage more productive, positive, and inclusive interactions.

Reflecting and Revising. Being part of RED teams engaged in “revolutionary” change projects may have led us to believe that attendees would all be like-minded. We were unprepared, then, when a participant made an explicitly oppressive remark. Another participant responded to the man who made the remark, but the space we had envisioned was broken. In a later conversation with a colleague in engineering education, Alice Pawley, we learned that because of privilege, “safe spaces” can become spaces in which privileged individuals feel safe to make oppressive remarks, much as we had seen. This would lead us, in revising, to avoid the term “safe spaces” and consider ways to request forms of respectful participation.

We argue that it was important that we were doing this as a team. It opened space for us to reflect on that first workshop and instead of giving up, figure out how to revise it. Had any of us been working on this alone, we doubt we would have had the resolve to revise and persist. We also expanded our network to learn more, calling on colleagues for feedback and resources. We followed up with a participant from the first workshop, Kelly Cross, who advised us on a “fire drill” approach; just as we rehearse for the real emergency ahead of time so you know what to do, we should rehearse and prepare ourselves to respond to displays of oppression. And, just as with a fire, getting victims out of harm’s way takes priority over extinguishing the fire, tending to the victims before responding to the aggressor. But how should we respond? It would be satisfying to call out the aggressor as sexist and racist. But would this be effective?

Here, we considered other precedents in the form of colleagues who found themselves facing ineffective strategies for dealing with racism or sexism. First, shortly after the 2016 election, a colleague was working on a research project in a school in Texas, where he heard White students making racist comments about their Latinx peers. In realizing that the teachers were aware but not intervening, the colleague accused them of being racist, and was disinvited from the school. This limited the colleague’s capacity to do his research, but more importantly, to offer protection to vulnerable youth. We discussed the ineffectiveness of call-out culture in changing behavior.

Later, in talking to a member of an NSF ADVANCE grant (a grant specifically aimed to increase the number of women faculty in STEM fields), we found that newly mandated sexual harassment prevention trainings had backfired on her campus. This uncomfortable finding led us to revisit the literature to learn more about these commonly used training approaches and why they might

backfire. Sexual harassment prevention training can actually increase the number and severity of incidents, and this is not just due to differences in rates of reporting [15]–[17]. When a training only provides roles as victim and aggressor—a relatively common approach—participants tend to cast themselves into one of these roles, neither of which is a productive role to dwell in. Analysis of the impact of such training over a 32 year timeframe has clarified that these trainings often backfire [15]. Instead, research suggests that providing training for those already in changemaking roles and asking participants to envision their role as changemaker can be beneficial [15]–[17]. Based on this, we decided to focus on positioning participants in changemaker roles in our workshops.

Funding to Pursue our Ideas. At the end of the 2018 RED PI meeting, we talked to Julie Martin, an NSF program officer at the time, about our project and our experiences on RED teams and our workshop. Julie encouraged us to write an EAGER proposal to help support this project as we began data collection. In this proposal, we situated ourselves as taking an insider point of view and collecting data from people in specific roles on RED teams that span across multiple teams. We were specifically interested in developing an understanding of how RED team members navigate and negotiate power dynamics and differences across a five or six year NSF grant. Given our experiences in the first workshop, we identified critical friends to help us in this work [18]. After securing funding, we were able to spend more time engaging in a research project to understand how roles, perspectives, and relationships shape how teams face, frame, and navigate challenges and tensions. We began to develop an understanding of how RED team roles, relationships, and structures evolved over time. We began the process of conducting interviews and collecting narratives from RED team members to address some of these questions. As we began analysis of these interviews, we also began to see how the intersectionality wheel [14] could be a useful analytic lens in developing an understanding of the lived experiences of RED team members.

We found the intersectionality wheel [14] when Nadia was talking to her colleague, Jennifer Bekki, about our project. Jennifer shared an article [19] about intersectionality wheels and said that she has used it in her work and in workshops. When we looked into it and read more about it, we thought it might be a useful tool for data analysis and also for introducing people to privilege, oppression, and power structures in workshops.

With this funding, we also spent additional time reconsidering the POWER workshop by reviewing research protocols (e.g., [5], [20]) as a means to guide change process (e.g., <https://www.schoolreforminitiative.org/protocols/>), and to inform our analysis of how members of RED leadership teams navigate power and privilege within their teams.

A Year Later, the Revised Workshop (2019). After another year of learning about power and privilege and reflecting on our previous workshop, we implemented a revised workshop at the 2019 annual NSF RED Consortium Meeting. The 2019 workshop is very similar to the workshop that is provided in the appendix and described earlier in this design case. Early in the workshop, a participant complimented us as being inclusive by providing a few copies of the handout in large print, something Nadia had suggested because she had been involved in a workshop in which a participant could not participate because they had forgotten reading glasses.

At this workshop, we completely revamped our workshop with much attention to and discussion around how to frame the workshop so that we could create an environment conducive to

exploring power and privilege in our interdisciplinary teams, with a focus on changemaking. We had the attendees read through descriptions of characters and three vignettes related to a scenario, which we created based on our own experiences and that incorporated a few of the issues we had begun uncovering in our research. For instance, we noted that tenurism and engineeringism have played out powerfully in several RED teams.

For the first activity (as detailed above in the design), participants readily considered -isms related to demographics, but as they considered their own teams, they focused more on -isms specific to academia. We modeled inventing labels for such -isms and attendees enjoyed engaging this way. However, we also wondered if this distracted them from root causes. For instance, several attendees discussed symptoms as -isms like “access to” or “how seriously you are taken,” but these have intersectional roots. Asking attendees to reflect on those intersectional roots may keep them on the hook for getting to the issues that actually matter. Despite this, as a whole group we came up with a long list of -isms that could affect RED teams.

When we first introduced the intersectionality wheel, a few participants wanted the location on the wheel to “mean something”—something quantitative. They wanted to use the angle of each line as a reference to degrees on a circle. Had we anticipated this, or had we had more time, we might have leveraged this as an exemplar of intersectionality—important or consequential for whom and when? And, if we place ourselves on the privileged end of a powerline, can we answer that question for someone on the other oppressed side?

Overall, this workshop went well. The room was very full, and attendees appeared engaged in the tasks at hand. A few gave us feedback in the moment, suggesting we created a space safe for reflective critique, and that participants valued the opportunity to engage. Several stayed after to compliment us on the workshop, though we also sought critical feedback and wrote analytic memos [21] to reflect on the workshop and ways to improve it in future iterations. We also noted that the experience of implementing the workshop was rather stressful, largely because we vigilantly watched for signs of trouble.

Revising and reflecting. Fortunately, one of our critical friends on the grant [18], Julia Williams, attended the workshop and after the workshop she provided a reflection, including details about what she felt worked well and aspects of the workshop that could be improved. Julia felt that it may be helpful to provide the scenario in a form that does not prioritize reading. In response to this critique, we have revised the scenario to be a screenplay that can be acted out during the workshop so that others can access the story through reading, watching, and/or listening. In addition, Julia thought that it would be helpful to tone down the focus on funding in the character descriptions. In reflecting on this point, it made sense that the three of us being in post-doctoral, and tenured faculty positions with a strong focus on research would highlight funding in the characters. However, this inadvertently may discourage engagement in the scenario from administrators and faculty with less of a focus on research. We also took this into account as we revised the characters, the scenario, and the team change wild cards.

CoNECD Session (2020). During our session at CoNECD, we plan to describe this overall workshop and to engage participants in a part of the workshop as time permits. We plan to take steps to ensure that we continue to learn from this iteration of the workshop. One plan is to ask a few attendees to act as critical friends and to provide critiques and feedback on the session.

Future Plans

As we move forward in this project, we are going to simultaneously continue with the research aspects of our project while also conducting workshops that reflect what we are learning in our research. This will intentionally close the research to practice cycle as our goals with this project are not only to contribute to our understanding of power and privilege on interdisciplinary teams, but to also raise awareness around power and privilege and to begin to develop strategies to cope with the power differentials that are present within academia and our broader society.

Through our research and the enactment of these workshops, we have explored the usefulness of the intersectionality wheel as a way of conceptualizing power within interdisciplinary teams. We plan to use the intersectionality wheel as an analytic lens as we continue to analyze the data that we are collecting from specific roles within RED teams. As we develop this analytic lens, we plan to share this with others in conference proceedings so that others can also consider intersectionality wheels as an analytic lens for understanding power and privilege within data.

We also plan to host more workshops at future conferences, including the American Society for Engineering Education and Frontiers in Education. In these workshops, we plan to invite other collaborators to join us in creating workshops that better explore issues around power and privilege in academia. For example, we have proposed a workshop at ASEE where we have invited Alice Pawley, Donna Riley, and Kelly Cross, who have expertise in power and privilege in engineering education, to be co-facilitators. This will enable us to co-construct workshops that will help us build awareness around power and privilege within academic settings. In addition, we would like to conclude this session at CoNECD with an invitation for attendees to engage with us as we continue our work around power and privilege in engineering education.

Conclusion

Many of us are working tirelessly to create a more inclusive and socially just culture within engineering education and engineering. Our community of researchers and practitioners are shedding light on barriers and issues, and developing programs and curricula to make changes to the way we educate within engineering to be more inclusive and to help students who are minoritized in our current system. However, in spite of all of this amazing work, we are still experiencing and learning about experiences of marginalization and discrimination within our engineering education systems. How can we begin to change the larger oppressive system of engineering education? In our work, we have begun to explore how power and privilege are enacted within leadership teams trying to create revolutionary changes within engineering departments and programs so that we can begin to dismantle systemic oppressions, starting on our own collaborative and interdisciplinary teams. Through this work we have begun engaging the engineering education community through workshops. In this paper, we present the evolution of our workshops using a design case model. These workshops emerged organically from our experiences on interdisciplinary teams tasked with revolutionizing engineering departments and focused on issues of power and privilege on interdisciplinary teams. Hopefully others will be able to use this paper and the POWER protocol provided in the appendix to adapt it to their own contexts.

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References

- [1] E. Boling, "The Need for Design Cases: Disseminating Design Knowledge," *Int. J. Des. Learn.*, vol. 1, no. 1, 1969.
- [2] C. D. Howard, "Writing and rewriting the instructional design case: A view from two sides," *Int. J. Des. Learn.*, vol. 2, no. 1, 2011.
- [3] M. Foucault, *The history of sexuality: Volume I: An introduction*. New York: Pantheon Books, 1978.
- [4] K. Crenshaw, "Demarginalizing the intersection of race and sex: A black feminist critique of antidiscrimination doctrine, feminist theory and antiracist politics," *Univ. Chic. Leg. Forum*, pp. 139–167, 1989.
- [5] K. Crenshaw, "Mapping the margins: Intersectionality, identity politics, and violence against women of color," *Stanford Law Rev.*, vol. 43, no. 6, pp. 1241–1299, 1991.
- [6] S. Cho, K. W. Crenshaw, and L. McCall, "Toward a Field of Intersectionality Studies: Theory," *Source: Signs*, vol. 38, no. 4, pp. 785–810, 2013.
- [7] P. McIntosh, "White privilege: Unpacking the invisible knapsack." ERIC, 1988.
- [8] M. W. Apple, "Power, meaning and identity: Critical sociology of education in the United States," *Br. J. Sociol. Educ.*, pp. 125–44, 1996.
- [9] P. Freire, *Pedagogy of the oppressed*. Bloomsbury Publishers, 1973.
- [10] J. L. Kincheloe and P. McLaren, "Rethinking critical theory and qualitative research," in *Key works in critical pedagogy*, Springer, 2011, pp. 285–326.
- [11] K. Weiler, *Women teaching for change: Gender, class & power*. Westport: Greenwood Publishing Group, 1988.
- [12] K. P. Morgan, "Describing the emperor's new clothes: Three myths of educational (in-) equity," in *The Gender Question In Education*, Routledge, 2018, pp. 105–122.
- [13] F. Dobbin and A. Kalev, "The promise and peril of sexual harassment programs," *Proc. Natl. Acad. Sci.*, vol. 116, no. 25, pp. 12255–12260, 2019.
- [14] J. C. Quick and M. McFadyen, "Sexual harassment: Have we made any progress?," *J. Occup. Health Psychol.*, vol. 22, no. 3, p. 286, 2017.
- [15] L. M. Leslie, "Diversity initiative effectiveness: A typological theory of unintended consequences," *Acad. Manag. Rev.*, vol. 44, no. 3, pp. 538–563, 2019.
- [16] A. Costa and B. Kallick, "Through the lens of a critical friend," *Educ. Leadersh.*, vol. 51, no. 2, pp. 49–51, 1993.
- [17] Association for Women in Science, "Intersectionality: A critical framework for STEM

equity factsheet.”

- [18] O. Hankivsky, “Intersectionality 101.,” *Inst. Intersect. Res. Policy, SFU.*, pp. 1–34, 2014.
- [19] J. A. Maxwell, *Qualitative research design: An interactive approach*, 3rd ed. Thousand Oaks: SAGE Publications, 2013.

Appendix

The POWER (Privilege and Oppression: Working for Equitable Recourse) Protocol

A protocol facilitation guide for building awareness of power and privilege on intersectional, interdisciplinary, and inclusive teams

Purpose

The purpose of this facilitation guide is to support facilitators to lead participants to uncover ways power and privilege are at play in interdisciplinary teams and then to plan strategies for mitigation.

Tips

- Print a handout with intersectionality wheels, strategies table, and team change wild cards prior to the session.
- Print a few copies of the handout with very large font.
- This workshop is planned for 1.5 hours and for a room with small tables for collaboration. (note: the session will be shortened to fit into a 40 minute session during the CoNECD conference session)

Introductions

Facilitators ask attendees NOT to sit with their close colleagues and collaborators.

Facilitators introduce themselves. For small groups, ask participants to introduce themselves. For large groups, ask them to introduce themselves at their tables.

Framing

Because power and privilege are uncomfortable topics, workshop facilitators should anticipate issues and frame the space. We deliberately avoid “safe space” language because it can make those in positions of power and privilege feel “safe” to express racist, sexist, and classist remarks.

Facilitator explains:

Be intentional about what you share. Imagine you are speaking TO rather than ABOUT people, even if they are not in the room. In other words, don't say something you would not want someone to hear.

Researchers have found that if your role makes you feel responsible for some form of oppression, you may feel less able to change it, or you may feel defensive. It is not uncommon in workshops like this to recognize that you play a role in oppression. Today, if you find yourself feeling this way, we want you to first acknowledge that structural oppression is coercive and ubiquitous. Next, instead of wallowing in blame, becoming defensive, or feeling helpless, we want you to own your role as an agent of change. This is similar to bystander training. Research shows that if a sexual harassment prevention training only positions attendees as aggressor or victim, the training can backfire, but if

attendees are invited to take up the identity of bystander, it can help change attendees' behavior. We want you to be more than a bystander. We want you to be an agent of change. In this workshop we ask that everyone become change agents and to speak up if there are incidents of bias that happen here.

Defining critical concepts

Facilitator defines concepts of power, privilege, and intersectionality:

We situate our definition of *power* in the work of Foucault, who describes power as being distributed across and throughout numerous relationships and social forces. This definition of power differs from traditional interpretations that describe power as one group dominating over another group. Instead, power produces and circulates, with identities and positions being fluid and unstable.

Following Crenshaw who originated the term *intersectional* as used here, we define it as the intersection of identities (e.g., Black and woman and untenured professor) such that experiences of privilege and oppression vary. For instance, White women experience sexism differently than Black women. In addition, we extend intersectionality beyond the description of identities to an analysis of structures of inequality.

Following McIntosh's conception of *privilege*, privilege not only disadvantages groups of people, but also puts groups of people at an advantage. According to McIntosh, people are taught to not recognize their own privileges (such as being White and/or a man). McIntosh describes privilege as an invisible package or knapsack that contains assets that help propel a person every day. By recognizing privilege, one must deny the myth of meritocracy, recognizing that some people have more success, that this success comes not because of hard work, but because of aspects of their identity such as race, gender, sexual orientation, class, nationality, religion, or ethnic identity.

Activity 1: Collaboratively create an intersectionality wheel based on a screenplay

Facilitator hands out role cards and screenplays.

Facilitator explains:

We have given you a handout with a screenplay. It is an amalgam of experiences we ourselves have had. Working with others at your table, we want you to select actors and a narrator.

Dr. Michael Gregson

Title: Full Professor

Gender: Male

Race: White

Discipline: Biological Sciences

-Highest impact factor in his department and proud

-35 years of experience

-Close government and provost contacts

Dr. Stan Richards

Title: Full Professor and Associate Dean

Gender: Male

Race: White

Discipline: Chemical Engineering

-Very proud of his project, Futures of Energy Excellence (FEE)

-Always has a lot to say and prefers to talk throughout the meeting

Ms. Wanita Yazzie

Title: Lecturer

Gender: Female

Race: Native American

Discipline: Community Planning

-Very interested in impacting tribal populations in the Navajo Nation

-Enjoys her job, but is paid very little

-Is not valued or respected when working with other faculty

-Is very aware she is not tenure-track

Dr. Zach Jeffers

Title: Assistant Professor

Gender: Male

Race: Black

Discipline: Hydrology

-Worked in policy for 12 years

-Recently earned his PhD

-Is excited about being in academia

-Is very nervous about tenure

Read the screenplay aloud and identify identities that may have impacted their experiences. After that, you'll be working with the identities you identify, so you may want to create a list.

Screenplay

You may use the screenplay below, or edit/revise. This is an amalgam experience based on our own academic experiences on interdisciplinary teams. While the characters are fictional, they are based on real people.

FADE IN:

1 CONFERENCE ROOM, 1ST MEETING

The new team of four faculty and administrators sit around a conference room. The chair, Dr. Michael Gregson, begins the meeting.

DR. MICHAEL GREGSON (Full Professor, Sciences, White man)

Let's start the meeting by going around the table and telling a little about ourselves.

DR. STAN RICHARDS (Full Professor, Engineering, White man)

I am the Associate Dean and Full Professor in the College of Engineering. I have a project called FEE, that stands for Futures of Energy Excellence that aligns well with this call for proposals.

MS. WANITA YAZZIE (Lecturer, Community Planning, Native American woman)

I am a lecturer in community planning. As an enrolled member of Navajo Nation, I am excited about the potential of having impact with this project in the states' tribal populations.

DR. ZACH JEFFERS (Assistant Professor, Hydrology, White man)

I am an assistant professor in hydrology. Prior to joining the university, I worked for 12 years in our state as a hydrologist and contributed to policy. Because I am new to academia, I'm interested in learning to write a successful grant proposal.

DR. MICHAEL GREGSON (Prof, Sciences, White man)

I am Michael Gregson, a full professor from the College of Sciences. I am the chair of Geology and Hydrology. I have been at this university for 35 years. For the past 20 years, I have led a long-term ecological research site with continuous funding from NSF, and of course, with support from the Provost's office. That is how the Provost came to appoint this team.

We also have two other associate deans who are going to be a part of the team—Dr. Kosmos Michaelides from the College of Engineering and Professor Darnell Freeman from the School of Architecture.

Next I'll share a powerpoint that describes the call for proposals and our ideas—mine and the Provost's—of how we can create a competitive proposal.

DR. STAN RICHARDS (Prof, Engineering, White man)

Wait! You already have a plan for this grant! I thought we were brainstorming today. I have a program that fits with this call perfectly, FEE. The FEE program is already well-regarded and through it I have established partnerships with the country's top research universities. We also have an annual conference and a special issue. This is the direction that we should take.

DR. MICHAEL GREGSON (Prof, Sciences, White man)

Well, now that Stan has derailed my presentation, are there any other ideas?

MS. WANITA YAZZIE (Lecturer, Community Planning, Native American woman)

[raises her hand]

DR. MICHAEL GREGSON (Prof, Sciences, White man)

Wanita, go ahead.

MS. WANITA YAZZIE (Lecturer, Community Planning, Native American woman)

In preparing for this meeting I read the call closely and noticed that they require the project to have broader impacts. I have an idea focused on inclusivity of students from Navajo Nation that I think could be quite...

DR. STAN RICHARDS (Prof, Engineering, White man)

Sorry to interrupt, but my FEE program has a broader impact component as it includes a research assistant position for a student from an underrepresented group. It really is the answer that we should pursue for this proposal.

DR. ZACH JEFFERS (Assistant Prof, White man)

I'm interested in how we will work with local communities. Without being intentional about how we will work together, I'm concerned this plan won't work.

MS. WANITA YAZZIE (Lecturer, Community Planning, Native American woman)

I agree. Without being explicit about...

DR. STAN RICHARDS (Prof, Engineering, White man)

Sorry to interrupt, but my FEE program does just this, working closely with local communities. We have people from industry on our advisory board. This is the project we should pursue.

DR. MICHAEL GREGSON (Prof, Sciences, White man)

Thank you all for helping us brainstorm for this grant.

[everyone gets up to leave, Michael stops Wanita and Zach in the hallway]

2 HALLWAY, POST MEETING

DR. MICHAEL GREGSON (Prof, Sciences, White man)

That meeting didn't go as I hoped. Stan is being difficult with the "FEE" thing, but we need him on the project. I feel like the two of you have the expertise that we need to do this thing right. Can you both write up a draft proposal and gather up the citations we need?

DR. ZACH JEFFERS (Assistant Prof, White man)

Uh, I guess so... But would this mean we are PIs on the project?

DR. MICHAEL GREGSON (Prof, Sciences, White man)

We would list you as senior personnel. I will be PI, with the Associate Deans will be co-PIs. That only leaves a space for you two in the key personnel.

MS. WANITA YAZZIE (Lecturer, Community Planning, Native American woman)

OK, I guess that is alright. I really do need some extra funding.

DR. MICHAEL GREGSON (Prof, Sciences, White man)

That's great! Wanita, can you organize a GoogleDrive folder with the draft proposal, references, and budget in it? Do you know how to do that? And Zach, I know you know these communities. Can you start getting letters from them agreeing to work with us?

3 CONFERENCE ROOM, 2 WEEKS BEFORE THE DEADLINE

DR. MICHAEL GREGSON (Prof, Sciences, White man)

Now that we have a complete draft, we can begin to finalize some things. I made some edits to the draft that Zach and Wanita created.

MS. WANITA YAZZIE (Lecturer, Community Planning, Native American woman)

Wait! It looks like the inclusivity component of the proposal where we were going to work with Navajo Nation has been removed.

DR. MICHAEL GREGSON (Prof, Sciences, White man)

Yes, Wanita. I have a lot of experience getting funding and this just seems a little over the top. I changed it so that we are going to hire a person from the Navajo Nation to work as a graduate research assistant on the project. That should be plenty for our broader impacts.

DR. STAN RICHARDS (Prof, Engineering, White man)

Also, I added some to the google doc about my FEE project. I put a link to a website in the document and some copies of the special issue. Wanita can create some narrative for the energy section with those resources. I can't believe this wasn't done already! This FEE project really is the way to get funding.

4 CONFERENCE ROOM, AFTER LEARNING THAT THE GRANT WAS FUNDED

DR. MICHAEL GREGSON (Prof, Sciences, White man)

Even though we had some pretty substantial questions about the proposal, it was funded. Thank you all for your hard work.

[everyone smiling]

Now that we have the funding, we can have Zach and Wanita continue to lead this project. As everyone knows, most of us have administrative appointments so don't have much time to work on projects like this. Zach and Wanita - if you could just pull us into meetings maybe once per semester so that we know what is going on as you both implement the project, that would be helpful.

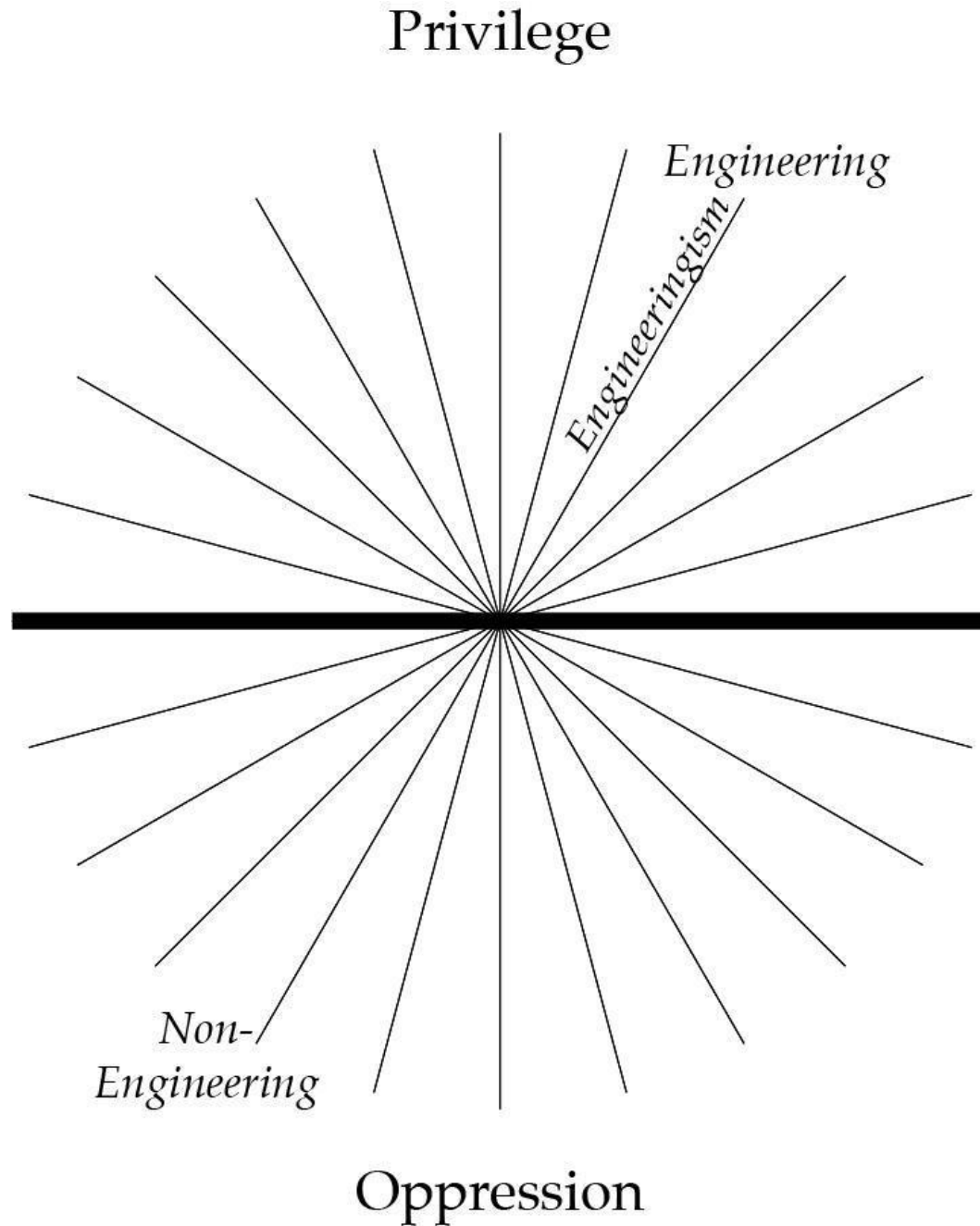
Facilitator reminds them to complete **Step 1. Identify more privileged/oppressed identities that may have impacted experiences.**

Facilitator explains:

Now that you have identified both more privileged and oppressed identities, we'd like you complete **Step 2** and **place these power lines on the intersectionality wheel** on your handout.

Facilitator walks around as there may be questions.

Next, complete **Step 3** to **Create -isms on the intersectionality wheel**. We provided an example on the handout.



Step 4. Report out. For the example scenario, we will report out to the larger group. Write down power lines that others identified and you did not consider. Consider how your background and own subjectivities influenced which power lines you saw in the scenario.

Activity 2: Individually create an intersectionality wheel based on your own scenario

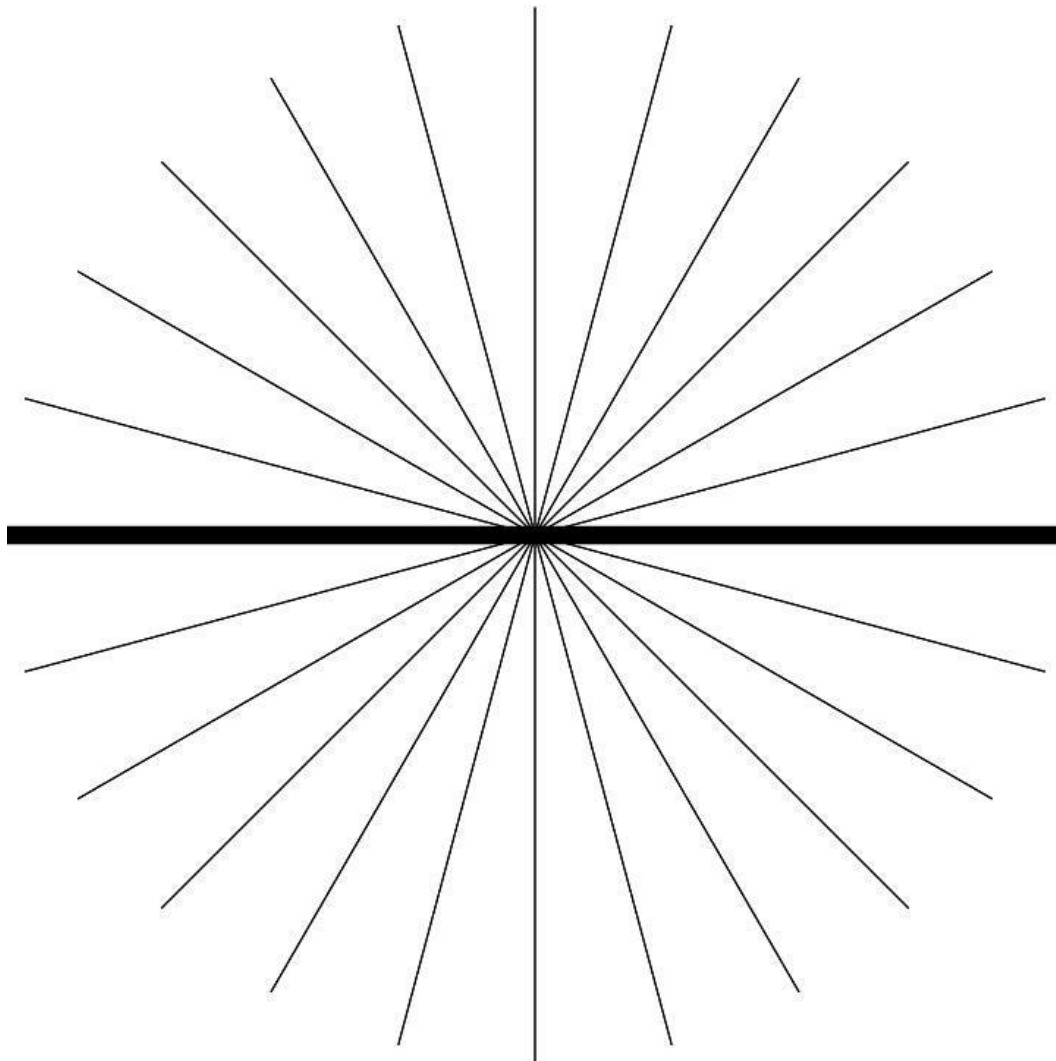
Facilitator:

Now that you have practiced creating an intersectionality wheel with our scenario, we would like you to think about a specific experience that you have had on an interdisciplinary team. Try to remember details about this interaction and experience. In Step 1, jot down some notes about the experience you identified.

Next, complete Step 2. Consider your experience and brainstorm some aspects of people's identities that may have impacted their experiences in this meeting. Consider the identities of all of the members on the team. Also consider hidden identities.

Next, complete Step 3 by **filling out power lines on the intersectionality wheel** with your team in mind. Which power lines are salient? Next, complete **Step 4** by **creating -isms on the intersectionality wheel**.

Privilege



Oppression

What are some power lines and -isms that are particularly salient for interdisciplinary teams?
We'll create a generic intersectionality wheel for interdisciplinary teams.

[Facilitators draw on the large post-its.]

Activity 3: Reflect on power and privilege and develop strategies

Next, we'll think about a new member joining your team as a way to consider unproductive interactions that could limit their participation, and ways we can be change agents to ensure the

team benefits from their full contributions. We'll give you a team change wildcard that introduces you to your new team member.

First, add this person to your wheel. Use color to place them on each line. You may need to add detail. Think about how you might come across other information about them, or what might remain hidden, and left to assumption.

[Hand out new member wildcards]

Team change wildcards should be printed ahead of time, enough for each attendee to take one.

A project manager is hired to help move your project forward. Their name is Sally, they are part of the LGBTQIA+ community, use gender neutral pronouns, are White, and are gender non-binary. They have a masters in Business Administration.

A new lecturer joins your university and is interested in your project. You invite him to join your team meetings and are interested in finding ways to integrate him into the project. He is a Hispanic man with over 10 years of community college teaching experience and recently earned his PhD in STEM Education.

The PI of your project retires. The team decides to have a co-PI move into the PI role. Consider how this change in roles may impact the team dynamics. The new PI is the only Black person on the team.

A lecturer is invited to join your project's team. She has a background in Math and her PhD is in Math Education. She took this job after being in a tenure-track position for four years. She moved because of the undesirable location of the previous college. After you take her out for a coffee to welcome her to the university, you learn that she is only earning \$42,000 per year as the administration set up her salary to be 75% of a 9 month appointment. This is especially concerning as she is a single mother with two young children.

The new Associate Dean for Instruction learns about your project and asks to join your team's meetings. He is a White man from a high socioeconomic background. In other meetings you have noticed that he tends to interrupt women who are speaking and tends to make eye contact and communicate with other White men in the room. He also gets very defensive if anyone makes a mention of improving diversity and inclusion as he feels that the current numbers that are slightly higher than national averages are adequate. He believes that to increase the diversity of the undergraduate enrollment, the rigor of the curriculum would be lost.

Next, identify ways members could react to the new member that could limit the new member's participation. In your role as a change agent, what strategies will you use to mitigate potential issues and division of labor?

Which strategies can you use with your interdisciplinary team? Fill out table 1 with some examples of strategies.

Table 1: Strategies table

What are ways power and privilege might prevent the new member from contributing as meaningfully as they could? What are some ways another team member might – whether intentionally or not – interact with the new member that could limit their impact.	What strategies could you – as a change agent – use to mitigate potential issues and division of labor as you incorporate this new member?

Report out of strategies that were developed.

Conclusion

Provide quick synthesis, including the objectives that were met during the session.

Thank everyone for their participation and invite collaborators for future work in this area of power and privilege.