2018 CoNECD - The Collaborative Network for Engineering and Computing
Diversity Conference: Crystal City, Virginia Apr 29

Empowering Faculty and Administrators to Re-Imagine a Socially Just Institution through Use of Critical Pedagogies

Michelle Kay Bothwell, Oregon State University

Michelle Bothwell is an Associate Professor of Bioengineering at Oregon State University. Her teaching and research bridge ethics, social justice and engineering with the aim of cultivating an inclusive and socially just engineering profession.

Kali Furman, Oregon State University

Kali Furman is a PhD Student in Women, Gender, and Sexuality Studies at Oregon State University. Her research interests are in feminist pedagogies, social justice education, and history.

Dr. Qwo-Li Driskill, Oregon State University

Qwo-Li Driskill is an Associate Professor in Women, Gender, and Sexuality Studies at Oregon State University. The hold a PhD in Rhetoric & Writing from Michigan State University.

Prof. Rebecca L. Warner, Oregon State University

Rebecca Warner is Professor Sociology in the School of Public Policy at Oregon Sate University.

Dr. Susan M. Shaw, Oregon State University

Dr. Susan M. Shaw is professor of Women, Gender, and Sexuality Studies at Oregon State University and a co-PI on the NSF ADVANCE Institutional Transformation grant at the university.

Prof. H. Tuba Ozkan-Haller, Oregon State University

Empowering Faculty and Administrators to Re-Imagine a Socially Just Institution through Use of Critical Pedagogies

Abstract

Oregon State University received an NSF-supported ADVANCE Institutional Transformation award several years ago. The innovation and core of the project is a 60-hour seminar for STEM faculty and administrators, most of whom have positional authority. The ADVANCE seminar addresses the need for ideological and structural changes across the university grounded in an intersectional understanding of identity and social structures. Participants are introduced to theories of systems of oppression and encouraged to reflect on their own location within structures of power and privilege. Critical pedagogies are particularly useful in challenging participants to explore structural inequities within the university, to examine how policies, procedures, and practices have been constructed in ways that reproduce hierarchy and dominance, and to imagine a transformed future in which institutional structures and individual behaviors are socially just. This paper describes two types of transformative learning practices that have been found particularly effective in helping ADVANCE seminar participants meet learning outcomes: critical imagery and messaging analysis, and the theatre of the oppressed. Specific examples of each type of transformative learning practice are presented and discussed, and transformative outcomes that can be linked to seminar participation presented.

Introduction

Women have historically been underrepresented within the ranks of tenured or tenure-track faculty with Science, Technology, Engineering, and Mathematics (STEM) disciplines [1]. This is especially so at higher academic ranks. The National Science Foundation (NSF) has recognized this issue and has been funding Institutional Transformation (IT) projects geared towards remedying this shortcoming. In fall 2014 Oregon State University (OSU) received such an award, created OREGON STATE ADVANCE, and established its overarching goal to serve as a catalyst for advancing the study and practice of equity, inclusion, and social justice for women and others from historically underrepresented groups who are STEM tenured or tenure-track faculty. OREGON STATE ADVANCE's efforts to shift power relations and restructure institutional arrangements are guided by three major objectives: 1) Influence academic recruitment and promotion policies and practices to assure equitable, inclusive, and just advancement; 2) Contribute to an institutional climate that reflects a shared value for equity, inclusion, and justice; and 3) Provoke faculty and administrators' personal awareness of difference, power, and discrimination in the academy and actions that contribute to equitable, inclusive, and just treatment.

Theoretical underpinnings
Theories of systems of oppression understand institutions, such as OSU, as places within larger intersecting systems of sexism, racism, classism, heterosexism, ableism, and ageism that reproduce and maintain hierarchies based on differences of gender, race, class, sexual identity, among other socially constructed identities. Intersectionality is a term first designated by Critical Race theorist and Black feminist scholar Kimberlé Crenshaw to describe the social and legal

position of Black women who are simultaneously and multiply marginalized by systems of racism and sexism [2]. Intersectionality is essential to understanding the ways that systems of oppression function and interact. The ideologies and institutional structures that sustain oppression are often invisible, particularly to those who hold social advantage based on social and cultural identities and yet they produce concrete consequences that maintain power and privilege in the hands of the dominant group [3]-[5]. For example, research suggests that subtle and hidden barriers that result from systems of oppression affect hiring and promotion of women faculty in general and women of color faculty in particular [6]. These barriers are even more evident at research extensive universities, like OSU [7].

One of the consequences of privilege for those in dominant groups is that one is able to experience one's own perspectives and experiences as normal and "human" rather than gendered, racialized, classed, etc. One is then able to function rather easily out of this perspective, assuming that one's behaviors reflect generic human behavior [8]. For members of subordinate groups, however, the experience of multiple barriers that are not accidental or incidental but are systematic and interrelated means that options are limited and movement is restricted [9]. This system of barriers is complicated by the intersections of various forms of difference, which are not simply additive but give shape to individual and groups' experiences of oppression [3],[5]. The issue, however, is not one of seeing the situation as made "worse" by these intersecting oppressions. Refusing to rank oppressions or create hierarchies of oppression is essential to dismantling oppressive systems [10]. Attention to differences among women is central to the work of systemic transformation.

Systems of oppression are structured along three dimensions: the individual, the symbolic, and the institutional [5]. The individual dimension has to do with how gender, race, class, etc. frame our personal biographies and the ways we participate in institutions and relationships. The symbolic dimension acknowledges the impact of ideologies, especially as they take shape in language and stereotypes, in reproducing hierarchies. Finally, the institutional dimension names the systematic ways social institutions, such as higher education, structure relationships that maintain power and privilege or confer subordination [5]. Each activity of OREGON STATE ADVANCE addresses one or more of these dimensions with the goal of disrupting systems of oppression by challenging them at individual, symbolic, and institutional levels. Achieving institutional transformation within this theoretical context means working to shift power relations and restructure institutional arrangements by disrupting the invisibility of power and privilege for those who benefit from these arrangements, and building egalitarian structures that change the ways people interact—from the hiring process to promotion and tenure to advancement of women into leadership. Research suggests that successful institutional transformation must target the "mechanisms that produce inequality" [11]. We argue that such transformation must also target mechanisms that produce inequity, as well as address the needs of individual women.

Approach: The ADVANCE faculty seminar

The core activity and innovation for this transformation at OSU is the 60-hour ADVANCE seminar for STEM faculty and administrators. The seminar provides a facilitated immersion experience to 12-15 participants over the course of 9 days (6 hours a day interrupted only by a long 3-day weekend) and involves further follow-up sessions. Through readings, lectures, films,

discussions, and experiential activities, this seminar introduces participants to theories of systems of oppression. It also asks participants to engage in personal reflection about their own locations in relation to power and privilege, and challenges them to examine how policies, procedures, and institutional practices have been constructed in ways that reproduce hierarchy and dominance. It further provides opportunities to explore structural inequities within the university and to imagine a transformed future in which institutional structures and personal behaviors are both professionally and personally life-affirming for all people across their differences. Specifically, the seminar addresses the need for ideological and structural changes across the university in an effort to realize gender equity that is attentive to differences among women. That is to say, the seminar advances a framework for equity that is grounded in an intersectional understanding of both identity and social structures [2],[12]. Recognizing that gaining an understanding of inequity is necessary, but not sufficient, for institutional transformation, participants complete the seminar with an Action Plan that applies their new knowledge to practices within their sphere of influence. The OREGON STATE ADVANCE leadership team follows up with participants through quarterly all-cohort gatherings, and connects individuals across colleges who propose similar actions.

The power of the seminar for institutional transformation comes in large part from its "sensemaking" of personal experiences of discrimination within institutions. Literature on general institutional transformation suggests that sensemaking is an important factor in successful transformation. Researchers have found a number of effective strategies for institutional change in higher education: solid administrative leadership; collaboration; good communication; engaging vision; long-range orientation; and support strategies [13]-[16]. What makes these strategies effective is that they make sense of change for constituents [17]. Sensemaking allows people to construct and accept significant new understandings of the institution and then act in ways that are consonant with the new understanding [18]-[21]. People make sense of power through ideologies they already bring to the seminar from their own social locations. By using systems of oppression theories as a consistent thread throughout the project, we help faculty and administrators make a different kind of sense of the experiences of subjugated populations at OSU and help them act (personally and institutionally) in ways that reflect the sense they have made of the situation [22],[23].

Critical pedagogies

Critical pedagogies emphasize social and political critique and subsequent engagement in collective action to disrupt oppressive systems [24],[25]. These practices are used in the ADVANCE seminar to help participants examine how STEM culture has been constructed in ways that reproduces hierarchy and dominance along each of the three dimensions of oppression. They are also used to motivate participants to actively re-imagine structures, practices and relationships that are socially just. Two types of transformative learning approaches have been found particularly effective in helping ADVANCE seminar participants meet learning outcomes: critical analysis of imagery and messaging, and Theatre of the Oppressed. Each of these methods will be discussed below.

Critical analysis of imagery and messaging
Stereotypes, understood as shared beliefs about who people are and what they should be, are deeply rooted in our language as well as displayed in imagery. When workplace environments are saturated with images suggesting that some are more welcome than others, the result can be greater biases in the way people are treated in that workplace [26]. The ADVANCE seminar involves learning activities to address the symbolic dimension of oppression, including instruction in critique of institutional messages conveyed through both images and language. While images from university marketing materials, as well as OSU STEM-specific materials from marketing, digital advertising boards, and laboratories are used in the seminar, here we use two more general STEM images for illustrative purposes. Early in the seminar, participants receive brief instruction on important components of image analysis. Obvious observations of who is represented in an image and who is not (based on assumed visible difference - usually along lines of gender, race, visible (dis)ability, among others) are important, but critical analysis pushes beyond this. We encourage participants to identify what elements or people are centrally located in the visual field and which are situated at the periphery, and to take note of lighting and shadowing, focus and blurred features, and the camera angle, as these techniques are often used to draw the viewer's gaze.

Another central feature to critical analysis of images and language is identifying when techniques have been used that dehumanize people. Roberts [27] claims that in order for oppression to exist, a dynamic human being must be fragmented such that a particular trait of the person is extracted and then elevated to stand as though it were the sum of the whole self. All other aspects and characteristics of this person are forgotten, diminished or pushed into the background. Illustrations of this can be identified across the myriad of differences among humans (gender, race, age, abilities, religion, etc.) and is reflective of Martin Buber's [28] I-It perspective. In particular, Buber argues that when people relate to one another in a manner that reduces whole, dynamic selves into individual and discrete characteristics or isolated qualities they are interacting in a subject-to-object way, which reduces both people's humanity. For example, if an African American is walking across the campus of a predominantly white university, the skin color of this person will be noticed immediately and, in most cases, elevation of this characteristic reduces the person to this "thing," which then is what the person becomes [27]. This fragmentation of whole dynamic selves allows for the possibility of a value hierarchy to be enforced where those with social, political, and economic power define norms by which others are compared. Enhancing seminar participants' capacities to identify techniques used to dehumanize people is an outcome we seek. The most obvious and straightforward examples can be noted when humans are represented as possessing characteristic of "less evolved" animals such as apes. This type of imagery can be linked back to ideologies promoted through scientific racism and social Darwinism [29]. Recent media examples would include Pamela Ramsey Taylor describing Michelle Obama as an "ape in heels," or the 2008 cover of Vogue featuring LeBron James and Gisele Bündchen posed to resemble an old King Kong poster. Other imagery techniques used to diminish one's humanity include the blurring or complete removal of facial features (e.g., see Disney's Song of the Roustabouts video). Some images will even present beheaded figures as means of dehumanization, or will focus on a singular body part (e.g. the legs of a woman), which literally fragments the body in ways that then present people as reduced "things."

Here, we will discuss two images related to STEM professions that are analyzed during the ADVANCE seminar. The first is the July 11, 2014 Journal Cover of *Science*, an American Association for the Advancement of Science publication (http://science.sciencemag.org/content/345/6193). This is a special issue covering strategies to combat HIV/AIDS. The cover depicts several transgender sex workers in Jakarta, a population with elevated risk of acquiring HIV/AIDS. There are two women centered in the photo, one with her entire head cut out of the frame and the other with the lower portion of her face showing but blurred due to an overlaying header. The women are wearing very tight, very short dresses, and the body positions, camera angle, and lighting and shadowing patterns draw the observing gaze to the women's crotches. This image is particularly problematic because of the way it sexualizes trans women. This example of racist and imperialist transmisogyny [30] combines a transphobic concern with genitals with misogynistic notions of women as primarily sexual objects at which to be gazed, particularly if they are women of color from the Global South. Additionally, the image reinforces the notion that HIV/AIDS is a personal problem with individual solutions, especially for sex workers, rather than a systemic pandemic located in the social, political, and economic conditions that force trans women into sex work. *Science*'s Editor-in-Chief expressed regret for "any discomfort" that might have been caused, and conveyed they "will strive to do much better in the future to be sensitive to all groups and not assume that context and intent will speak for themselves." While this statement is important, it does not attend to the fact that even if readers understood the context of the image and the good intentions behind its selection for the special issue cover, the image would still obscure the humanity of the women, and work toward the maintenance of well-established social hierarchies that enforce subordination and dominance.

The second image we present is a laboratory safety poster that was available through Flinn Scientific. The simple poster is black and white, and depicts a woman using a white cane to navigate her path. The text reads, "Carol never wore her safety goggles. Now she doesn't need them." While the intention of this poster is to motivate students to wear properly personal protective equipment in the laboratory, a few, perhaps inadvertent, oppressive messages are also conveyed. First, this message relies on people categorizing disability as a "Bad Thing" [31]. This well accepted conceptualization of disability has been established and maintained by the dominant ways our culture frames disability as problems faced by individual people, and locating those problems in our bodies, and defining those bodies as "wrong" [32]. Using possible acquisition of a disability as a scare tactic to induce compliance with laboratory safety procedures further subjugates those with disabilities. Second, the message could be interpreted as implying blind people cannot be scientists or engineers who work in spaces that require safety goggles, or it may imply that eyes lacking capacity for normal functioning do not require (or deserve) protection. Obviously, both of these conjectures are problematic.

In contrast to representing people through text and imagery that ultimately reduce their humanity, institutions should create messages that affirm our wholeness. Buber's I-Thou perspective is reflective of this attitude, as "the melody is not made up of notes nor the verse of words nor the statue of lines" [28]. Rather, this subject-to-subject relation involves the whole being of each person and reflects reciprocity, mutuality and love. Roberts [27] concludes, "As whole persons, unfragmented and unreduced, each of us is unique. Where oppression requires an I-It attitude, I-Thou logically precludes the very possibility of oppression. There is no basis on which to compare and rank a series of unique beings. If there is no hierarchy, there is no

oppression." By providing ADVANCE seminar participants with tools for engaging in critical imagery analysis and opportunities to practice using these tools through examining OSU specific materials, participants are able recognize the power of the symbolic dimension of oppression and to disrupt the reproduction of stereotypes within their spheres of influence.

Theatre of the Oppressed

Theatre of the Oppressed (TO) is a community-based theatre form credited to Augusto Boal, a Brazilian activist and actor, and a formally trained chemical engineer. It emerged independently in the same political context at the same moment as the *Pedagogy of the Oppressed* [24], and is meant to create dialogue and to provoke social and political transformation through theatre. In particular, activities and games present opportunities for participants to engage in interactive performance towards the end of gaining deeper awareness and understanding of realities they experience and to explore paths of transformation. Note that there are no bystanders during these activities; participants are either actors or "spect-actors," a word coined by Boal to describe audience members who engage in the events in any way [33]. Boal developed a number of unique theatrical styles under the TO umbrella, each designed to produce different outcomes, and we will describe two of these below in the context of seminar activities. A common aspect used across the various categories of TO, however, is the involvement of a facilitator or director. This person serves as a bridge between the actors and spect-actors, but remains separate from both so as to not influence the interpretation of events. Boal refers to this role as the "Joker" in reference to the Joker card's neutrality (with regard to suit) in a deck of playing cards [34]. Note that TO activities and games provide a very flexible and dynamic platform through which to explore hierarchy and domination. It allows for complicated and nuanced scenarios to emerge, often revealing for participants the ever present and intertwined nature of all three dimensions of oppression.

Transformative learning has both cognitive and affective aspects. Because STEM faculty rarely identify learning as having affective components, most come to the seminar not attending to their bodies or emotional states. Theatre of the Oppressed can be categorized as an embodied learning practice, one where "the whole person is treated as a whole being, permitting the person to experience him or herself as a holistic and synthesised acting, feeling, thinking being-in-the-world, rather than as separate physical and mental qualities which bear no relation to each other" [35]. Boal [33] describes a myriad of activities and games that can be used to stimulate and connect the senses and emotions while also cultivating trust among participants and building a space for creative exploration of difficult topics. We engage these activities early in the seminar, and they serve as an effective means of disrupting participants' otherwise dissociated selves. Below we detail one such activity, but refer the reader to Boal [33] for a more comprehensive list of games and activities that serve this purpose (see in particular, The cross and circle, Following the master, Without leaving a single space of the room empty, The blind series: The point of focus, The embrace and the handshake).

The very first embodied learning activity we introduce in the seminar is an adaptation of Boal's "Noises" [33], entitled "Find Your Mother Like a Little Penguin" [36]. In this game, participants are paired, preferably the two are not well acquainted. After introducing themselves, each chooses which role they will play in the game: one will have their eyes closed (the baby penguin), the other will serve as a guide (the mother penguin). The one playing the mother role

will make a sound that the "baby" memorizes. Then, all the babies are instructed to close their eyes and each mother guides their baby by producing her sound. When the mother stops making the sound, the baby should stop. The mother is responsible for the safety of the baby, and should ensure the baby does not collide with an object, a wall or another participant. The guide can control the baby's movement by remaining silent or redirecting the location of their call. The game requires the mother to move about the room. If the baby is a capable follower, the mother is encouraged to move yet farther away. Because the baby's eyes are closed, they must focus carefully on their mother's call to hear the sound, even when there are lots of other noises all around them. After several minutes, the pairs switch roles and the exercise is carried out a second time. This can be repeated using people's names as replacement for particular sounds.

Some participants find this activity challenging simply because they are not used to being asked to engage with their whole selves in professional settings. They find themselves being particularly vulnerable when playing the baby, as most participants rely heavily on their sense of sight for stability and perception. This exercise asks them to shift this primary sensing pathway and replace it with "selective functioning of the ear" [33]. This feature of the game reminds participants that there are different ways of sensing, knowing, and moving through one's world, which is an important truth we build upon when moving into critical dialogues. Selecting a game that invites participants to travel into a space of vulnerability is intentional as well, in that the subsequent days of the seminar require a great deal of participant vulnerability. This exercise slowly begins opening that possibility. Finally, during the follow-up discussion, besides expressing vulnerability, participants also describe feeling a deep sense of responsibility while leading the baby penguin about the room. This is another important concept we carry forward to subsequent parts of the seminar.

Image Theatre. This category of theatre is used to uncover truths of society without reliance on language. Images serve as a language in and of themselves and also as a surface which reflects projections upon it [33]. During image theatre participants create human "statues" and still images of lived experiences that reflect oppression, transformation, or liberation towards the end of discovering mechanisms and relationships between individuals, systems, and logics of power. Boal claims that the silent images present a truer reflection of participants' feelings as the censoring mechanisms of the brain (engaged during the production of spoken word) are circumvented [33].

This category of theatre creates images from the bodies of participants and simple objects found in the room (chairs, tables, etc.). In some games, participants autonomously place themselves into images, and in other activities an individual "sculptor" uses techniques of mirroring and sculpting to create images comprised of their peer participants. When using mirroring, the sculptor shows the participants how she wants them positioned using her own body, and then they reflect that position accordingly. This is especially useful when conveying facial expressions. Complimenting this, the sculptor can simply mold the bodies as if they were clay, bending and moving the participants' bodies into desired forms.

As stated above, one aim of the ADVANCE seminar is to empower participants to effect positive change in policies and practices towards transforming the institution into an equitable and just workplace. Thus, a great concept to explore through image theatre is the academy itself, and this

is done through building a machine. Towards this end, the Joker asks each participant to select one action (a simple movement that can be repeated) and one sound or phrase that represent a particular element of academic institutional culture or practice. The building of the "academic machine" begins when one participant performs their action and sound, repetitively. Following, others are encouraged to add to the image by contributing their own action and sound. As the machine evolves, the Joker asks the Spec-actors if the image reflects their understanding and experience of the institution, if important elements are missing, etc., all towards the end of encouraging reflection and further evolution of the machine itself. A discussion of the activity follows, where participants share their perceptions of the overall image, which often reveals very different yet related themes.

Image theatre can also be used to explore experiences with oppression. An example activity we use in the seminar involves sculpting images of heterosexism. Participants are divided into groups of four, and each person in the group recollects an event in their life that reflected heterosexism or homophobia. Each takes turn molding and mirroring the remaining three group members into a representative sculpture of this event. This is all done in silence. The role of "sculptor" then shifts to another person in the group and the exercise is repeated. Each person gets an opportunity to build their image. Following, the groups come back together into the greater cohort, and the images are recreated, now for spect-actors. This is done one group at a time, each member building their image. When an image is complete and being viewed by the greater audience, the sculptor is instructed by the Joker to name the image. This is a particularly powerful and moving part of the activity, often connecting participants' cognitive interpretation of the image to their emotional response to the piece. Boal [33] states that it less important to understand the meaning of a particular image than to feel the image. This has been our experience as well.

Forum Theatre. This category of theatre explores unresolved oppressive situations through construction of a play in which both the oppressor(s) and victim are visibly present. The problem being conveyed is usually a personal experience of the one directing the action, and often a common themed experience of many of the spect-actors. The play is shown in its entirety and then repeated so that spect-actors can stop the action, replace one of the actors, and then alter the path of the play once it begins again. In essence, forum theatre provides an opportunity for participants to imagine and then enact different solutions to oppressive situations, a dynamic Boal refers to as a "rehearsal for reality" [33]. Scenarios explored through forum theatre during the ADVANCE seminar generally involve microaggressions, defined by Delgado and Stefancic [37] as "…one of those many sudden, stunning, or dispiriting transactions that mar the days of women and folks of color. Like water dripping on sandstone, they can be thought of as small acts of racism, consciously or unconsciously perpetrated." Particular examples include navigation of a negative performance review, sexist behavior of a visiting candidate for an open faculty position, and power dynamics on display during a faculty meeting. While the topics explored during forum theatre are often somber, the actual game itself is fun, with "laughter of recognition at the tricks of the oppressors, laughter at the ingenuity of spect-actors' ruses, and triumphant laughter at the defeat of the oppression" [33]. It becomes a contest between the spect-actors who are invested in altering the original ending towards one of justice and the actors trying to remain on original course, holding tightly to power and control. This particular category of theatre provides non-targeted participants with an embodied experience of disrupting oppression,

practicing skills needed to move beyond being a bystander. It also conveys confidence and strength to those directly experiencing the oppressive situations such that they feel more capable of pushing against their oppressive circumstances.

Results

At the conclusion of the 60-hour seminar, participants are asked to complete an evaluation questionnaire, providing feedback on the core concepts learned by participants, key activities that fostered their learning, ways they will integrate their new knowledge into their work within academia, as well as overall seminar strengths and areas for improvement. These data, part of the larger project evaluation, provide evidence to the effectiveness of the seminar at introducing theories of systems of oppression and the use of critical pedagogies. In identifying core concepts learned, participants consistently name a new or deepened understanding of systems of oppression, privilege, and intersectionality, as well as specific dynamics of these systems such as white fragility, microaggressions, and unconscious bias. Participant responses also indicate their own process of sensemaking in relationship to seminar concepts and how they can act within their institutional position. For example, one participant wrote "I have a better understanding of systems of oppression and how to frame conversations around diversity, equity, inclusion, and social justice from that starting point. The phrase 'your sphere of influence' was helpful in learning how to think of individual actionable items I could do to contribute to institutional transformation. I gained a better understanding of –isms that have often been neglected in our work as a division." Seminar participant evaluation data also speaks to the results of using the transformative learning approaches of critical imagery analysis and messaging and Theatre of the Oppressed.

As a result of the ADVANCE seminar, marketing and messaging changes are being seen at the institutional and college level. At the institutional level, a cohort of University Relations and Marketing team members completed a custom adaptation of the ADVANCE seminar to address institutional marketing and communications structures and practices at the request of division leaders. Following their seminar, participants from this cohort provided feedback that demonstrated their commitment to applying the knowledge gained in the seminar, "We need to change the way we collect stories, we need to go out and proactively build the relationships… we're really looking to tell better, more inclusive stories." Another participant wrote that they will begin "using a social justice lens to evaluate my own work and choices about who and what is featured." The participant action plans also reflect these commitments to applying a critical analysis of imagery and messaging at the institutional level. Some examples of these action plans include implementing more inclusive hiring practices, auditing inclusion in university materials, and creating more inclusive style guides and content.

Changes in messaging can also be seen at the college level. In winter 2017, the College of Engineering focused their regular newsletter, *MOMENTUM!*, on building greater inclusivity and collaboration. In his message the dean, an ADVANCE seminar graduate, wrote, "At the College of Engineering, we are keenly aware of how traditional institutional systems, practices, and ways of thinking have created barriers and caused imbalances in many areas related to inclusion and collaboration. The first goal in our strategic plan addresses this issue. It's important to understand that creating a truly inclusive and collaborative community goes far beyond adapting

our hiring and admission practices. It encompasses the ways we talk with each other, how we choose and design our research project, how we prioritize our time and energy, and much more" [38]. This type of symbolic representation not only visibly represents an understanding of systems of oppression, it also demonstrates the policy commitments undertaken by the college in order to work towards greater equity.

Evidence for the second transformative learning approach addressed in this paper, Theatre of the Oppressed, can again be seen in the seminar participant evaluations. As discussed in the prior section, TO encompasses a variety of activities and games used to ground participants in their bodies and connect to their emotions while building trust and creatively exploring difficult topics. In every cohort, multiple people listed at least one TO activity as one of the key experiences that fostered learning (knowledge, skills, and attitudes) related to the core concepts they identified as new concepts learned as a result of the seminar. For example, one participant wrote in identifying what went well in the seminar that they "appreciated the various role-playing, theater of the oppressed, and other activities – they forced me to get out of my head and more into a space where I was less comfortable but probably learning and experiencing more." Multiple participants spoke to the effectiveness of Forum Theater and the ability to play out responses to microaggressions and practice how they might respond in situations moving forward.

The results from the seminar are still in their infancy, but taken together reveal a kind of "small wins" approach to organizational change [39]. Research shows that positive short term change is often revealed through participants claiming a greater understanding of what needs to change as well as greater confidence to lead change. The Action Plans are situated within the participant's sphere of influence and are currently working to assess longer term outcomes of the Plans as well as to identify alignments and possible synergies of Plans across colleges and the institution as a whole.

Summary

The underrepresentation of women in academic STEM disciplines is a persistent fact. While there have been many different approaches to addressing this challenge, most institutions of higher education have tried to initiate change through educational programs as well as attempts to revise/create policies that are more socially just. OREGON STATE ADVANCE is a program that is designed to do both of these things. Our approach is unique in several ways. First, we provide a two-week immersion educational program that incorporates critical pedagogies allowing us to address all three dimensions of oppression. Individual experiences with, and responses to, oppression are acted out in various forms of theater. The symbolic dimension of oppression is studied via image critique and construction. Finally, participants craft Action Plans that apply their new understanding (their sense-making) to the policies and practices within their units.

Acknowledgements

are those of the authors and do not necessarily reflect the views of the National Science Foundation.

References

[1] S. Ceci and W. Williams, "Understanding current causes of women's underrepresentation in science," *Proceedings of the National Academy of Sciences of the United States of America*, vol. 108, no.8, pp. 3157-3162, 2011.

[2] K. Crenshaw, "Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics," *University of Chicago Legal Forum*, vol. 140, pp. 139-167, 1989.

[3] S. Pharr, *Homophobia: A Weapon of Sexism*, Little Rock, AR: The Women's Project, 1988.

[4] P. McIntosh, "White Privilege: Unpacking the Invisible Knapsack," *Peace and Freedom*, pp. 10-12, July/August 1989.

[5] P. Hill Collins, "Toward a new vision: Race, class and gender as categories of analysis and connection," *Race, Sex and Class*, vol. 1, no. 1, pp. 25-45, 1993.

[6] A. Evans and J. Chun, "The theoretical framework: Psychological oppression and diversity," *ASHE Higher Education Report*, vol. 33, no. 1, pp. 1-26, 2007.

[7] R. Wilson, "Women underrepresented in sciences at top research universities, study finds," *ADVANCE Library Collection*, vol. 50, no. 20, 2004. [Online]. Available: http://digitalcommons.usu.edu/advance/307. [Accessed Dec. 18, 2017].

[8] A. Johnson, *Privilege, Power, and Difference*, New York, NY: McGraw-Hill, 2005.

[9] M. Frye, *Politics of Reality: Essays in Feminist Theory*, New York, NY: Crossing Press, 1983.

[10] A. Lorde, "There is No Hierarchy of Oppressions," in *I Am Your Sister: Collected and Unpublished Writings of Audre Lorde*, New York, NY: Oxford University Press, 2009, pp. 219-220.

[11] S. Morimoto" Beyond binders full of women: NSF ADVANCE and initiatives for institutional transformation," *Sociological Spectrum*, vol. 33, no. 5, pp. 397-415, 2013.

[12] V. May, *Pursuing Intersectionality, Unsettling Dominant Imaginaries*, New York, NY: Routledge, 2015.

[13] R. Cowan, "Prescription for small-college turnaround," *Change*, vol. 25, no. 1, pp. 30–39, 1993.

[14] A. Roberts, J. Wergin, and B. Adam, "Institutional approaches to the issues of reward and scholarship," *New Directions for Higher Education*, vol. 81, pp. 63–86, 1993.

[15] J. Kaiser and P. Kaiser, "Persuasive messages to support planned change," *College and University*, vol. 69, no. 2, pp. 124–129, 1994.

[16] A. Taylor and A. Koch, "The cultural context for effective strategy," *New Directions for Higher Education*, vol. 94, pp. 83–86, 1996.

[17] A. Kezar and P. Eckel, "Examining the institutional transformation process: The importance of sensemaking, interrelated strategies, and balance," *Research in Higher Education*, vol.43, no. 3, pp. 295-328, 2002.

[18] L. Smircich, "Organizations as shared meanings," in *Organizational Symbolism*, L. Pondy, P. Frost, G. Morgan, and T. Dandridge, Eds. Greenwich, CT: JAI Press, 1983, pp. 55-66.

[19] J. March, *A Primer on Decision Making: How Decisions Happen*, New York, NY: The Free Press, 1994.

[20] K. Weick, *Sensemaking in Organizations*, Thousand Oaks, CA: Sage, 1995.

[21] D. Gioia, J. Thomas, S. Clark, K. and Chittepeddi, "Symbolism and strategic change in academia: The dynamics of sensemaking and influence," in *Cognition Within and Between Organizations*, J. Meindl, C. Stubbart, and J. Porac, Eds. Thousand Oaks, CA: Sage, 1996, pp. 207–244.

[22] S. Hall, "The problem of ideology: Marxism without guarantees," in *Stuart Hall: Critical Dialogues in Cultural Studies*, D. Morley and K. Chen, Eds. London, UK: Routledge, 1996, pp. 25-46.

[23] T. Philip, "An 'ideology in pieces' approach to studying change in teachers' sensemaking about race, racism, and racial justice," *Cognition & Instruction*, vol. 29, no. 3. Pp. 297-329.

[24] P. Freire, *Pedagogy of the Oppressed*, New York, NY: Herder and Herder, 1972.

[25] b. hooks, *Teaching to transgress: education as the practice of freedom*, New York, NY: Routledge, 1994.

[26] L. Alfrey and F.W. Twine, "Gender fluid geek girls: negotiating inequality regimes in the tech industry," *Gender & Society*, vol. 31, no.1, pp. 28-50, 2017.

[27] L. Roberts, "One Oppression or Many," *Journal of Philosophy in the Contemporary World*, vol. 4, Spring-Summer, p. 42+, 1997.

[28] M. Buber, *I and Thou*, R. Smith, Trans. New York, NY: Charles Scribner's Sons, 1958.

[29] S. Gould, *The Mismeasure of Man. Revised and Expanded,* New York, NY: WW Norton, 2006.

[30] J. Serano, Whipping Girl: A Transsexual Woman on Sexism and the Scapegoating of Femininity. 2nd ed. Berkeley, CA: Seal Press, 2016.

[31] S. Young, "I'm not your inspiration, thank you very much," TEDxSydney, April 2014. [Online]. Available https://www.ted.com/talks/stella_young_i_m_not_your_inspiration_thank_you_very_much [Accessed Dec. 18, 2017].

[32] E. Clare, "Stolen Bodies, Reclaimed Bodies," Border Crossing Symposium, Michigan State University, 2004. [Online]. Available http://eliclare.com/what-eli-offers/lectures/stolen-bodies [Accessed Dec. 18 2017].

[33] A. Boal, *Games for Actors and Non-Actors*, 2nd ed. New York, NY: Routledge, 2002.

[34] A. Boal, Augusto, *Theatre of the Oppressed*, New York, NY: Theatre Communications Group, 1985.

[35] S. Stolz, "Embodied Learning," *Educational Philosophy and Theory*, vol. 47, no.5, pp. 474-487, 2015.

[36] M. Rohd, *Theatre for Community, Conflict and Dialogue*, Portsmouth, NH: Heinemann Drama, 1998.

[37] R. Delgado and J. Stefancic, *Critical Race Theory: An Introduction*, 3rd ed. New York, NY: New York University Press, 2017.

[38] S. Frandzel, G. Kleiner, and M. Oliver, *Momentum!*, T. Tran, Ed. Corvallis, OR: College of Engineering's Marketing and Communications, Winter 2017. [Online]. Available http://www.journalgraphicsdigitalpublications.com/epubs/OSUALUMNIASSOCIATIONINC/MomentumWinter2017/viewer/desktop/ [Accessed Dec 18, 2017].

[39] S. Correll, "SWS 2016 Feminist Lecture: Reducing gender biases in modern workplaces: A small wins approach to organizational change," *Gender & Society,* vol. 31, no. 6, pp. 725-750, 2017.