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Difficult Dialogues: Faculty Responses to a Gender Bias Literacy Training Program

Carol Isaac

Mercer University, isaac_ca@mercer.edu

Linda Baier Manwell

University of Wisconsin-Madison, lbaier@wisc.edu

Patricia G. Devine

University of Wisconsin-Madison, pgdevine@wisc.edu

Cecilia Ford

University of Wisconsin-Madison, ceford@wisc.edu

Jennifer T. Sheridan

Women in Science and Engineering Leadership Institute (WISELI), sheridan@enr.wisc.edu

See next page for additional authors

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Difficult Dialogues: Faculty Responses to a Gender Bias Literacy Training Program

Abstract

Diversity training is challenging and can evoke strong emotional responses from participants including resistance, shame, confusion, powerlessness, defensiveness, and anger. These responses create complex situations for both presenters and other learners. We observed 3 experienced presenters as they implemented 41 gender bias literacy workshops for 376 faculty from 42 STEM (science, technology, engineering, mathematics, medicine) departments at one Midwestern university. We recorded questions and answers as well as participants' non-verbal activity during each 2.5-hour workshop. Employing content analysis and critical incident technique, we identified content that elicited heightened activity and challenging dialogues among presenters and faculty. Results from analysis of this observational data found three important findings: (1) presenters continually reinforced the idea that implicit bias is ordinary and pervasive, thus avoiding participant alienation by allowing participants to protect their self-worth and integrity; (2) difficult dialogues were managed calmly without verbal sparring or relinquishing control; (3) the presenters created an environment where individuals were more likely to accept threatening information.

Keywords

Gender Bias, Faculty, STEM, Prejudice, Nonverbal Communication, Difficult Dialogues, Challenging Discussions

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Authors

Carol Isaac, Linda Baier Manwell, Patricia G. Devine, Cecilia Ford, Jennifer T. Sheridan, and Molly Carnes

Difficult Dialogues: Negotiating Faculty Responses to a Gender Bias Literacy Training Program

Carol Isaac

Mercer University, Atlanta, Georgia

Linda Baier Manwell, Patricia G. Devine, Cecilia Ford, Angela Byars-Winston,
Evelyn Fine, Jennifer T. Sheridan, and Molly Carnes
University of Wisconsin-Madison, USA

Diversity training is challenging and can evoke strong emotional responses from participants including resistance, shame, confusion, powerlessness, defensiveness, and anger. These responses create complex situations for both presenters and other learners. We observed 3 experienced presenters as they implemented 41 gender bias literacy workshops for 376 faculty from 42 STEMM (science, technology, engineering, mathematics, medicine) departments at one Midwestern university. We recorded questions and answers as well as participants' non-verbal activity during each 2.5-hour workshop. Employing content analysis and critical incident technique, we identified content that elicited heightened activity and challenging dialogues among presenters and faculty. Results from analysis of this observational data found three important findings: (1) presenters continually reinforced the idea that implicit bias is ordinary and pervasive, thus avoiding participant alienation by allowing participants to protect their self-worth and integrity; (2) difficult dialogues were managed calmly without verbal sparring or relinquishing control; (3) the presenters created an environment where individuals were more likely to accept threatening information. Keywords: Gender Bias, Faculty, STEMM, Prejudice, Nonverbal Communication, Difficult Dialogues, Challenging Discussions

Gender Inequity Interventions in Academia

Women in STEMM disciplines (Science, Technology, Engineering, Mathematics, and Medicine) at U.S. academic institutions experience slower rates of career advancement, higher rates of attrition at all career stages, and disproportionate representation in senior ranks (Committee on Gender Differences in Careers of Science, 2010; Martinez et al., 2007). When examining reasons for these inequities, a committee of national experts concluded that systematic bias deeply rooted in assumptions about gender pose the greatest barrier to achieving gender equity (National Academy of Sciences, National Academy of Engineering, & Institute of Medicine Committee on Maximizing the Potential of Women in Academic Science and Engineering, 2007). This conclusion was derived from the social psychology experimental research that shows that cultural stereotypes about men and women influence behaviors and judgments often unintentionally and in spite of sincere individual and institutional commitments to equity (Biernat, & Fuegen, 2001; Devine et al., 1989; Eagly, 2002). Despite universal anti-discriminatory policies to explicitly reduce stereotype-based gender bias since the 1960's, subtle systems of gender bias unintentionally persist across disciplines and nationalities, and this research confirms that gender bias is rooted in cultural stereotypes that portray women as less competent than men, especially in male-dominated fields of science and leadership (National Academy of Sciences, National Academy of

Engineering, & Institute of Medicine Committee on Maximizing the Potential of Women in Academic Science and Engineering, 2007; Isaac, Lee, & Carnes, 2009; Moss-Racusin, Dovidio, Brescoll, Graham, & Handelsman, 2012).

Various approaches have been taken to ameliorate gender inequity in academia. Most involve professional development programs, enhancing diversity by recruiting women students and faculty, and infusing multicultural content into curricula. Research studies, many from the corporate arena, indicate that mandated diversity training may improve diversity (Bendick, Egan, & Lofhjelm, 2001; Fraser & Hunt, 2011; Rynes & Rosen, 1995). In academic settings, leading faculty to change is challenging (Brown & Moshavi, 2002; Eckel et al., 1998): some may not recognize or accept the need to change, and coercive efforts such as mandatory diversity training have the potential to backfire (Dobbin & Kalev, 2013; Kidder, Lankau, Chrobot-Mason, Mollica, & Friedman, 2004). Diversity discussions evoke strong emotional reactions including shame, shock, guilt, self-blame, confusion, powerlessness, defensiveness, fear, anger, and sadness (Garcia & Van Soest, 2000; Harro, 2000; Mildred & Zúñiga, 2004). Responses such as blame-the-messenger or challenge-the-evidence (Adams, 2007) create complex situations for both presenters and participants. Studies on student reactions to diversity discussions report polarized fronts in mixed-gender classes (Culley, 1985). Male participants may respond with anger, resistance, and feelings of being threatened (Sinacore & Boatwright, 2005; Orr, 1993); acts of retaliation such as refusal to read certain topics (J. Nadelhaft, 1985); poor course evaluations (R. Nadelhaft, 1985); vocal objections to the male's decentralized role (Rakow, 1991); and marginalizing or attacking the presenter (Bell, Morrow, & Tastsoglou, 1999; Culley, 1985; Lewis, 1993; J. Nadelhaft, 1985; R. Nadelhaft, 1985; Rakow, 1991). Women students are torn in these situations; some react neutrally or retaliate by male-bashing (Drenovsky, 1999; Musil, 1992), some attempt to rescue male colleagues by minimizing inflammatory statements, and others engage in silent self-protection (Lewis, 1993). Regardless of gender, defensive behaviors drain energy as participants monitor their contributions to these difficult discussions, considering how to be seen more favorably and how to avoid being viewed as too dominant or hostile (Gibb, 2008).

Non-Verbal Communication

While cognition is communicated verbally, emotions are frequently expressed via nonverbal behaviors (Burgoon, Buller, & Woodall, 1996). Hall (2006a) referred to these behaviors as the "front lines" of contact between people. Nonverbal behaviors are not necessarily under conscious control (Anderson, Guerrero, & Jones, 2006; Hassin, Uleman, & Bargh, 2005), and are not easily managed even with effort (Lakin, 2006). Because of the automaticity of behavior, observers can often accurately detect emotional information from appearance and movement (Dovidio, Kawakami, & Gaertner, 2002; Dovidio, Kawakami, Johnson, Johnson, & Howard, 1997; Harrigan, Wilson, & Rosenthal, 2004; Lakin, 2006). Research shows that men engage in less head nodding (affiliative behavior) and more arm crossing (disaffiliative behavior) which are associated with gendered behaviors (Carli, LaFleur, & Loeber, 1995; Dovidio, Ellyson, Kenting, Heltman, & Brown, 1988; Hall, 2006).

Experienced teachers who are savvy enough to recognize both verbal and non-verbal signs of resistance as evidence of learning (Arnold, Burke, James, Martin, & Thomas, 1991; Goodman, 2001) can employ techniques to defuse conflict and facilitate learning. Intergroup dialogue, which involves facilitated encounters between groups with a potential for conflict, can lead to meaningful engagement (Zúñiga, Nagda, & Sevig, 2002). Intergroup dialogue can be used to provide information, guide discussions, and constructively intervene when defensiveness or perceived threat is triggered (Gibb, 2008; Zúñiga et al., 2002). If defensive

postures can be mitigated, self-affirmed individuals are more likely to respond to information in an open-minded manner and may subsequently change their beliefs – and even their behaviors – in a desirable fashion (Sherman & Cohen, 2002, 2006; Sherman, Kinias, Major, Kim, & Prenovost, 2007).

Bias Literacy

Bias Literacy, a term initiated by the American Association for the Advancement of Science (Sevo & Chubin, 2010), involves the concept that change begins by bringing tacit knowledge into consciousness – and make the implicit explicit – before action can occur (Howell, 1982; Nonaka, 1994). The Bias Literacy Workshop is based on a premise that implicit bias is a “habit of mind” (Devine et al., 2012) resulting from lifelong bombardment with stereotype-reinforcing cultural messages. The 2.5-hour program is part of a larger study of STEMM faculty focusing on facilitating changes in habitual gender-biased behaviors (Carnes et al., 2015). The workshop incorporates effective practices from adult learning, continuing professional development, and health behavioral change (Boonyasai et al., 2007; Overton & MacVicar, 2008) and provides participants with experimentally-tested strategies from social psychology to promote effective self-regulation of implicit bias (Blair, Ma, & Lenton, 2001; Dasgupta & Asgari, 2004; Devine, Plant, & Buswell, 2000; Devine, Tauer, Barron, Elliot, & Vance, 1999; Galinsky & Moskowitz, 2000; Glick, Zion, & Nelson, 1988; McGlone & Aronson, 2007; Monteith, 1993; Vescio, Sechrist, & Paolucci, 2003). The workshop focuses on motivating participants by sharing research on habitual cognitive patterns and providing an opportunity to identify the workings of bias in case studies developed from real-life experiences in highly evaluative encounters (e.g., faculty retention and grant application discussions). The Bias Literacy Workshop is comprised of a brief introduction and three modules that explain the origins of implicit bias, constructs that describe six ways in which implicit bias may occur in academic settings, and cognitive techniques to practice to mitigate one’s own implicit gender bias. The workshop is described in detail in Carnes et al. (2012).

Bias Literacy Intervention

In this paper, we describe faculty verbal and non-verbal reactions and mediated difficult dialogues from 41 workshops designed to promote *bias literacy* (Sevo & Chubin, 2010) as a step toward academic institutional transformation with regard to gender equity. We focused on faculty because they are the drivers of academic change (Eckel et al., 1998; Nonaka, 1994; Schroeder, 2001) and can effect institutional transformation to ensure the advancement and participation of men and women in STEMM (National Science Foundation, 2007). The Bias Literacy Workshop, offered to STEMM departments at a large public university, moves beyond diversity training to focus on reducing habitual engagement in so called *implicit* gender bias that is frequently inadvertent and unintentional (Carnes, Devine, Isaac, et al., 2012).

By approaching implicit bias as a “habit of mind” (Devine et al., 2012), we implemented one of the first interventions to focus on faculty who are the change agents for academic institutions (Carnes et al., 2015; Nonaka, 1994; Schroeder, 2001). Analysis of this randomized cluster study indicated significantly greater post-intervention outcomes in experimental departments on several measures (Carnes et al., 2015). Faculty reported greater self-efficacy in promoting equity behaviors and perceptions of fit, as well as perceptions of being valued for their research and more comfort in raising conflict in the personal and professional domains. Also when greater than 25% of a department’s faculty attended the

workshop (26 of 46), significant increases in self-reported action pertaining to gender equity. This paper contextually describes a successful faculty intervention that facilitated intentional behavioral change and increased personal awareness, internal motivation, perception of benefits, and self-efficacy within academic STEMM (Carnes et al., 2015).

Methods

Participants

Eligible departments comprised of six colleges that contained predominantly STEMM faculty. Beginning in September 2009, investigators attended scheduled department meetings and described the study. Ninety-two departments were invited and 41 were randomized for the intervention (Carnes et al., 2015). Twenty-seven percent of those invited to the workshops chose to attend, comprising of professors, associate professors, assistant professors, department chairs, and department administrators (Table 1). Ninety-six percent (361) of the 376 attendees provided written consent for participant observation at the beginning of the workshop; data were not recorded for those who opted out. Seating diagrams were made to indicate which participants did not give consent and their behaviors and comments were not included in the field notes for analysis. All procedures were approved by the University of Wisconsin-Madison Institutional Review Board.

	Invited	Attended	% Attended
All	1442	384	26.63%
Women	528	190	35.98%
Men	914	194	21.23%
NW	198	52	26.26%
White	1244	332	26.69%

Procedures

The final version of the workshop was presented to 41 university STEMM departments from October 2010 through February 2012 by one or two of three experts in gender equity research; two are full professors (MC, PD), one is a scientist with ten years in the field (JTS). Other research team members included three experienced qualitative researchers (CI, LBM, CF), one career theory researcher (ABW), and one researcher with a historical focus on women practitioners in science and medicine (EF). All members of the team are female and have 10-20 years of research experience focusing on gender equity including participation in grant funding for gender equity.

Prior to starting data collection, the observers independently recorded eight non-verbal behaviors from videotapes of the pilot workshops, achieving an inter-rater reliability of 82%. Two behaviors exhibited most frequently during the pilot workshops (and elicited the highest inter-rater agreement) were subsequently used to identify critical content of the workshop: (a) crossed arms, indicative of negative affect or “protectiveness, reticence, and unrevealing obstruction” (Harrigan, Rosenthal, & Scherer, 2005); and (b) nodding, indicative of positive affect and associated with listeners following the presenter’s comments (Harrigan et al., 2005). The categorizations of these behaviors into negative or positive affect are validated by the literature (Elkman, 1999; Harrigan et al., 2005) and ranked by the research team.

Data Collection: Field Observations

Forty-one individual workshops consisting of over 107 hours of participant observation, conducted by one trained observer, resulted in 338 pages of field notes recording nonverbal behaviors and comments of participants related to the content of the bias literacy workshop. No video recording was allowed because of the sensitivity of subject matter for the university and faculty so participant observation was selected to record interactions during the workshop that gave meaning to certain behaviors or beliefs, rather than relying on the perceptions of participants (Bogdewic, 1992). Observation by an individual is less obtrusive (Grbich, 2013; Tashakkori & Teddlie, 2003). Field notes from the first seven workshops were reviewed by the presenters (MC, PD, JTS) and both observers (CI, LBM) for clarification of findings.

As the workshop was primarily lecture, the written field notes consisted of nonverbal behaviors and comments/questions made by participants with corresponding answers for each PowerPoint slide. Slides evoking discussion (i.e., case studies, Q&A), were dropped from analysis. Forty-six lecture slides were included in the non-verbal behavior analyses. Participant names and department roles were anonymized and no identifying characteristics were included in the field notes. To improve the validity in this study, we used triangulation of results, peer review and debriefing as well as the clarification of researcher bias (Glesne, 1999). Participant comments were reviewed and validated by presenters (MC, PD, JS) and by another qualitative researcher (LBM) as needed until dialogue from questions and comments were saturated (18 observations) although field notes were completed for every workshop as multiple observations can provide a systematic ethnographic perspective of a cultural group (Johnson, Avenarius, & Weatherford, 2006).

The observer recorded: (1) two patterns of defensive (arms crossing) and supportive communication (head nodding) among participants, (2) content that elicited difficult discussions, and (3) challenging dialogues (Gibb, 2008). This observer was assisted by the workshop coordinator, also a qualitative researcher who organized all logistics for the study.

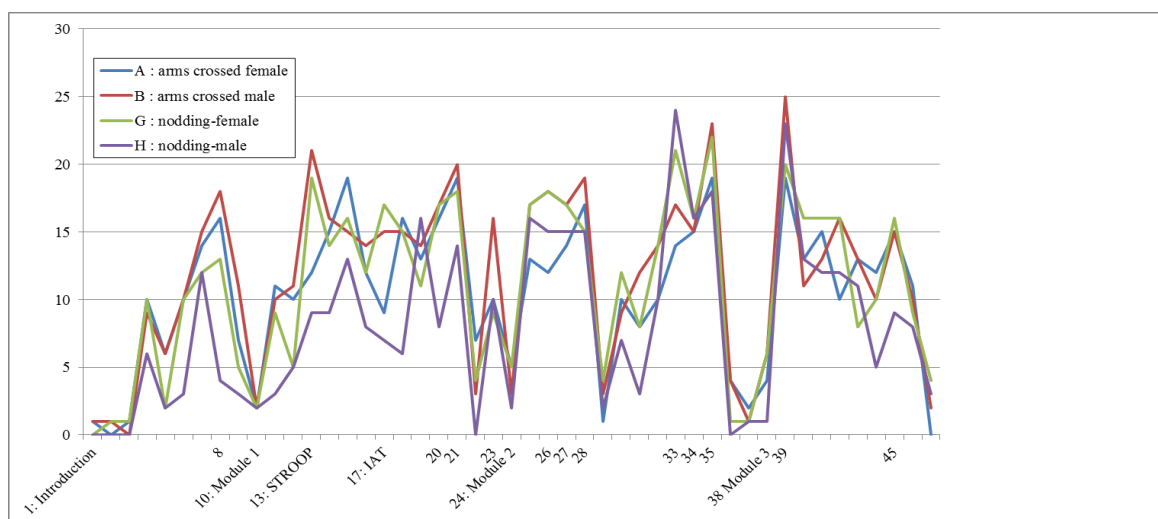
Data Analysis

For each slide, nonverbal behaviors were documented for each participant as well as any participant dialogue such as questions and comments. Of the 56 PowerPoint slides used for non-verbal analysis, 10 were removed because they contained participant group exercises and question and answer. 46 remaining slides consisted of lecture material including: introduction; implicit bias as a habit (Module 1); identification of bias constructs (Module 2); strategies to reduce the influence of implicit bias (Module 3). All data were imported into NVivo 9 qualitative software (Richards, 2006), and frequencies were derived from slides of observations of arm crossing and head nodding in male and female workshop participants with subsequent enumerative content analysis. Enumerative content analysis identifies trends and patterns of words, their frequency, and their relations (Grbich, 2013). These nonverbal codes were transformed into frequencies incorporating attributes of hermeneutic content analysis where the number of times a particular code occurs may establish further understanding of a hermeneutic unit (Bergman, 2010). Field notes that elicited the highest frequencies of nonverbal behavior were analyzed using Critical Incident Technique (CIT). CIT is a process of collecting and reporting observed incidents with special significance (Keatinge, 2002), and is routinely used by researchers to study transformative learning (Brookfield, 1990; Mezirow, 1990). We used CIT to identify recurring patterns of challenging dialogues between experienced presenters and participants. Because interviews with a subset of participants suggested that there were differences between how men and

women reacted to the workshop (Carnes et al., 2012), we compared gender differences. Results were organized in order of the slides presentation with the highest frequencies of nonverbal behavior.

Results

An examination of non-verbal responses during the workshops indicated minor gender differences: men engaged in less head nodding (affiliative behavior) and more arm crossing (disaffiliative behavior) activity as confirmed by the literature. Both men and women exhibited more disaffiliation during module 1 (origins of implicit bias) and module 3 (techniques to mitigate bias activation) than during the less-controversial module 2 (six bias descriptions with examples showing their impact in the workplace). A graph associated with each slide illustrates non-verbal behaviors that were present at each slide of 41 workshops (Figure 1). What is noteworthy is that the nonverbal behaviors are similar for both male and female participants. There were some discrepancies between genders until Slide 20-especially in the defensive versus supportive postures, but then male and female non-verbal behaviors were similar throughout the rest of the workshop.



Critical Incident Slides and Co-Occurring Difficult Dialogues

In addition to non-verbal behaviors, we examined participants' questions and comments during the workshop, and the manner in which the presenters responded. The first large change in nonverbal behaviors was in response to introductory Slide 8.

Slide 8 - What the Research Shows:

- Women scientists who submit RO1 proposals to NIH are significantly less likely to have their proposals funded than are men.
- When the author's gender is known, women are 8% less likely to have their publications accepted.
- Letters of recommendation for women faculty are shorter, have more references to her personal life, and contain fewer "outstanding" descriptors than letters written for men.
- Women faculty are provided fewer institutional resources and lower pay.
- Women faculty are more likely to be assigned "institutional housekeeping duties."
- Over the last 30 years, dozens of experimental studies with a randomly assigned a male or female gendered name that have found that both men AND women will rate the

quality of the work lower if they think it was performed by a woman.
 -Research evidence shows that men and women are equally committed to their careers, want similar things from their institutions, want better definition of job expectations, more protected time for research, and want to feel valued for their contributions.

Workshop participants of both sexes were observed to assume defensive postures; however, male professors offered verbal challenges to the studies:

Are those data for all universities? That's different than the pool we hire from.

What about clear cultural differences?

How can you measure that you've done the best you can?

I think a portion of [implicit bias] is a lie.

To mitigate finger-pointing, the presenter appealed to the academic mindset: "Many people in academia don't like when there is an inconsistency between their values and bias – what you are pointing out is that this is a multi-faceted problem." The following discussion about the slide depicting women's disadvantages occurred among faculty in a male-dominated department. Here the presenter responds to male faculty #2 with a neutral response and refocuses the discussion after the chair's statement.

Note in the following example how the presenter neutralizes the dialogue and refocuses this discussion among faculty in a male-dominated department:

Male Faculty #1: Lower pay AND institutional housekeeping! One of the issues here, we have two women faculty (nodding toward a junior female colleague) she's on every search committee on campus; it's self-fulfilling, they have to be careful (speaking directly to woman) you have to learn to say "no."

Presenter: He's giving you good advice, the first thing that comes out of your mouth [should be] "I need to ask my chair."

Male Faculty #2: Was that assigned or volunteered? In my very limited sample, women are more willing to volunteer; guys are willing to let things to go to hell.

Presenter: The socialization of behaviors is very strong; this cognitive alignment just occurs.

Male chair: I'm going to be the Grinch – are they assigned these duties, or do they choose these duties? I'm just saying that you are making statements. (The two women participants remain silent throughout, glancing at one another.)

Presenter: "Both men AND women rate the quality of work lower [Goldberg paradigm]; that's what we want to talk about."

Most participants—particularly women—began to exhibit engagement as the presenters moved from the introduction of Module 1 which introduced bias as a habit. All participants responded with laughter to two optical illusions and a color-naming task (Stroop, 1935) that illustrated how prior experience affects our interpretations and how unconscious thought processes can interfere with our intentions. Slide 14 created another spike in nonverbal and verbal behavior.

Slide 14 - General Points:

- Social perception is analogous to object perception, automatic, unintended processes can unfold that may actually lead to bias or discrimination when we are evaluating members from particular social groups.
- Social stereotypes are the frames or assumptions for how we respond to the behavior of others resulting from prior experience.
- Social stereotypes – whether we believe them or not, whether we endorse them or not, whether we think they are acceptable or not – are automatically, unintentionally activated and can serve as the basis for evaluation and judgment that create relative disadvantages for some social groups.
- Because these stereotypes are embedded into the fabric of our culture, they can be quickly activated. These implicit biases become prejudice habits that have the potential to conflict with our conscious beliefs.

The presenter normalized implicit gender bias by stating:

We learn these stereotypes at a very early age; often kids as young as three, four, and five can articulate gender stereotypes. We learn these things long before we have the capacity to judge the validity of these quickly-activated associations. These implicit biases become prejudice “habits” that have the potential to conflict with our conscious beliefs.

As a prelude to discussing the gender and leadership Implicit Association Test (IAT), an explanation of direct versus indirect measures of bias was offered:

If you ask people about their beliefs using direct measures, such as surveys that tap people’s conscious processes, you’ll conclude that prejudice is declining and that we’ve made substantial progress since the 1950’s and 60’s. However, indirect processes that can include nonverbal behaviors such as eye contact or how far you sit or stand from someone, demonstrate that prejudice is still prevalent even among those who renounce it at the conscious level.

At this point, several males wondered if prejudice is learned or “hard-wired,” leading to discussions on whether bias is beyond our control. For example, one male faculty commented: “You are using the word ‘prejudice’; how much is it rooted in evolution? You look at animals and plants that have different roles.” To which the presenter responded:

There is a debate among some scholars about how much of this might be a function with evolutionary roots and how much is a function of the socialization process. We argue that people ARE wired to perceive differences. But what’s important is what we, as an evolved species, DO with those differences. Think about how women are evolutionarily prepared to bear children and how they have historically done housework. Yet women are

considerably talented in a variety of other domains and have expressed a desire to pursue those activities. We deny them opportunities when we fall back on their historical roles. Even if we believe it's an evolutionary process, can we overcome it – using the power of our conscious minds – to promote change?

A discussion about the gender and leadership version of the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998) elicited negative initial responses from most participants. This dual categorization task assessed the strength of association between male or female gendered names and words categorized as leader or supporter.

Slide 17 - 19 - Explanation of the Implicit Association Test (IAT) Results:

Tony Greenwald at the University of Washington developed this measure. He argues that the IAT provides a measure of the strength of the associations between mental categories, in this case “male and female,” and attributes, in this case “leader and supporter” roles. The strength of the association between each mental category and attribute is reflected in the time it takes to respond to the stimuli while trying to respond quickly. The recognition of implicit responses that conflict with our conscience beliefs is very important. Understanding these issues may shed light on a paradox seen in the prejudice literature regarding whether sexism or racism or other forms of bias have declined in our contemporary society. It turns out that answer to that question depends on how you ask the question. If you ask people about their beliefs using direct measures, such as surveys that tap people's conscious processes, you'll conclude that prejudice is declining. But that didn't fit with some people's experience. If you look at responses to indirect measures that bypass conscious processes, you'll get a different answer. If you look at these indirect measures, you'll conclude that prejudice is still prevalent even among those who renounce it at the conscious level.

Men's reactions remained fairly consistent throughout the conversation; women's reactions, however, fluctuated. One woman commented: “I was very irritated by the test (...) the all or nothing; I didn't like being forced to put people in the categories.” Another stated, “I felt like I was being manipulated,” while a third expressed that she was, “too angry; it was feeding into stereotypes (...) it's not my gut thing.” Male faculty agreed: “I felt like I was being interrogated” said one, while another was “annoyed with the definition of supportive roles – good leaders have a blend.” Some, like this male physician, reproached themselves: “I thought I was a complete bastard.” A woman faculty mused, “It tells me that I associate leaders with the male role; I'm a PI and I failed—I was so disgusted with myself.” Only one woman stated, “Cool way to figure those things out—actually feeling it happening—your inclination to make generalizations.”

The most frequently-asked questions during the entire workshop challenged the validity of the IAT. In an effort to invalidate the results, participants queried the effects of trial order, the disadvantage of being left-handed, and the feasibility of manipulating the IAT by intentionally going slowly when stereotype-congruent pairs appeared. Some argued that the test was wrong: “I can't be biased; I grew up in a feminist household.” Slide 20 concluded the IAT section.

Slide 20 - Implicit Gender Science Stereotypes:

There is a very strong bias linking men with career and women with family. There is also a very strong bias linking men with science and women with the liberal arts. Findings from Nosek et al. (2009) that 70% of men and 71% of women show a bias associating

men with science and women with the arts. Here, we have thousands of responses from both men and women. Thus, these biases are equally prevalent in both genders. We want to avoid the perception that it's just males who are biased against females. All of us are socialized into a similar culture. Bias resides in the back of our minds and influences our responses.

While the data irritated the STEMM participants, it also elicited comments leading to a critical shift in thinking.

Male faculty #1: So women are as gender-biased as we are; I find that very interesting, interesting and disturbing!

Woman Faculty #1: If you have different reaction times, and this provides evidence that your internal assumptions may have some bias, is there evidence that you will behave that way?

Presenter: It predicts people's behavior better than their intentions (women are nodding); looking at the score on the IAT and behavior, the IAT is a predictor of whether you will sit on a bus next to an African American.

Here the presenter often explained that participants' IAT responses did not mean that they were prejudiced, but that the IAT can reveal associations that may conflict with beliefs (i.e., awareness). Slide 21 summarized the characteristics of implicit bias.

Slide 21 - Characteristics of Implicit Bias:

1. Ordinary; they help us organize our social world.
2. Learned from culture. Implicit biases reflect the "thumbprint of culture" on our minds.
3. Pervasive. They are prevalent among blacks and whites, among the young and the old, etc.
4. Conflict with our consciously endorsed beliefs. In fact there is a dissociation—an inconsistency—between our conscious beliefs and these implicit processes.
5. Consequential. They tend to predict behavior better than – and often at odds with – our conscious beliefs.

In one department, a discussion about racial bias helped make the points salient: One male stated, "How do you know that number 2 is true – learned from culture?" The presenter replied:

It's complicated, but we need to recognize that in our culture bias is pervasive. There are versions of the IAT for 6-7 year olds, who recognize cultural stereotypes. We are bombarded by stereotypes all the time. Eighty percent of whites show a pro-white bias, and 50% of blacks show a pro-white bias.

Another white male recalled the Clark doll experiment in this context.

To reinforce that implicit biases are consequential, the presenter then mentioned the Green et al. (2007) study which found that African Americans were less likely than Whites to be given lifesaving treatment when they arrived at an emergency room. The final slide in module 1 illustrated a shift in the conceptualization of prejudice.

Slide 23 - Shift in Conceptualization of Prejudice:

Over the past years, there has been a dramatic shift in how we think about prejudice. The old framework was based on the idea that “Prejudice is bad so if I think or act with bias I am a bad person.” And you wait for the finger to point ... “You are a racist!” “You are a homophobe!” The new framework is based on the idea that “Prejudiced thoughts and actions are habits that we all have, and that breaking these habits requires more than good intentions.”

In all 41 workshops, participants were initially quiet then had mixed reactions:

Woman physician: My four-year-old boy asked me if he could be a doctor.
(laughter)

Male physician (wife is also a physician): I was shocked that when our son, when he was three, was role playing with a woman doll as a nurse.

Male faculty #1: We have gone so far the other way, we can't express what we think even if they have a kernel of truth; we haven't talked about affirmative action; look I'm a white male – I'm toast.

Male faculty #2: Since 1972, are there measures that we are doing better or worse? My impression is that we are getting better.

Presenter (responding with a metaphor): It may be “passive diffusion rather than active transport.

At the end of module 1, participants were asking questions, looking for solutions. “I'm anticipating that we will learn how to deal with bias and prejudice,” “Can you move someone to explicit from implicit...if the goal is zero bias, are people capable of that?” Phrases such as “let's see what the data says” and “hold that thought as we'll address it later” were employed to diffuse confrontation and delays. Before techniques to manage bias could be introduced, however, participants had to understand processes that can lead to the perpetuation of bias. Module 2 explained six bias constructs: expectancy bias, prescriptive gender norms, role incongruity, reconstructing credentials, stereotype priming, and stereotype threat. Throughout Module 2, both men and women engaged with the information by offering examples from their own experience, debating the meaning of study results, and discussing implications for careers. Of the constructs, expectancy bias, semantic priming and stereotype threat produced the most interaction.

Slide 25 - 26 Expectancy Bias:

To understand Expectancy Bias, we have to remember that we're all members of various social categories, such as gender, race, and religion. The fact that you are members of a specific department or a specific organization puts you in a social category, and from that commonality, stereotypes emerge. It's how our minds organize our social world. These stereotypes create an expectancy bias. If you attend a national meeting, and someone knows they'll be meeting you, they will have some expectations about you. For example, someone from Wisconsin might be expected to like cheese. It's important to recognize that certain social categories in our society are of higher status (e.g., male, white, educated), and studies have repeatedly shown that members of higher status groups are assumed to be more competent across a broad array of activities.

Correll tested this construct in a mock hiring study. She drafted a highly-credentialed resume where the candidate was applying for a mid-level marketing position. In the first level of randomization, she assigned a male or female gendered name to a copy of the resume. In the second level of randomization, the male or female applicant was either a coordinator of the Parent-Teacher Association (PTA signaling parenthood) or a fundraiser for a neighborhood association. Results showed that women who were coordinators of the PTA were perceived as less competent, less committed, less likely to be hired, and offered lower salaries if hired. Men, however, benefited from the PTA statement and were perceived as more committed, were slightly more likely to be hired, and were offered the highest salaries if hired.

In response to *expectancy bias*, a female participant noted: “This trend is exactly what was described in the Wal-Mart suit where 85-90% of new jobs went to men.” Women seemed more receptive throughout Module 2, but participants of both sexes showed great interest in examples of how implicit bias can constrain opportunities for certain social groups. During a discussion of *prescriptive gender norms*, faculty spontaneously tied *expectancy bias* and *prescriptive gender norms* together in their own words. One male stated: “I would make the guess that men are rewarded for going to PTA (Correll, Bernard, & In, 2007) – are rewarded for being more nurturing – and women are not rewarded for being decisive and ambitious.”

Participants demonstrated their understanding of the concepts. For example, when the presenter asked “when there is an employment gap in a resume, what do we assume if the candidate is a woman? What if the candidate is a man?” Without fail, the participants mentioned “childbearing” for the woman. For a male, the faculty responded: “Deadbeat.” “Can’t hold a job.” “Prison.” “Alcohol or drug rehab.” Participants were surprised by the ease with which they completed gaps in information with stereotypes. The inclusion of this study showing how the male participants also could be disadvantaged by stereotyping (Smith, Tabak, Showail, Parks, & Kleist, 2005) seemed to mitigate tension.

Slide 33 introducing a study that assessed semantic priming-the male-associated word “risk” in the NIH Director’s Pioneer Award process (Carnes, Geller, Fine, Sheridan, & Handelsman, 2005) elicited the most positive nonverbal responses from participants.

Slide 33 - NIH Director’s Pioneer Awards:

The Pioneer award provides \$500,000 in direct costs per year for 5 years to an investigator to support innovative research. Being willing to take risks is consistently associated with men. In 2004, both the grant solicitation and the instructions to the reviewers contained the word “risk” multiple times. For example, the NIH wanted to fund scientists willing to “take...risks”, and scientists who would engage in “aggressive risk-taking”. Even the application URL included “risk”... it was www.highrisk.nih.gov. In 2005, “risk” is gone. In 2004, no women scientists were funded. Since then, the NIH wanted to fund “pioneering approaches”, and research with the “potential to produce an unusually high impact” and “highly innovative” work. The URL no longer includes “risk,” so the potential for semantic priming is gone. Notice that another big change occurred. In 2004, the focus was on funding the scientist. And as we explained earlier, the word “scientist” is strong associated with men. In 2005, the focus is on the work.

One spirited discussion highlighted the key message of the workshop:

Woman faculty #1: I just remember “high risk” for me – my body does not want to apply – it’s not for me.

Male faculty #1: Is there any evidence that women take less risk than men?

Woman faculty #2 to Male faculty #1: What is your question...that men conduct higher risk research? I don't think there is any assumption that women do less risk in research than men.

Male faculty #1: But this is something we have to look at; should we avoid it [risk] in our national goals?

Male faculty #2: The same language is in the R21. I don't think that has influenced the percent of success of women.

Woman faculty #2 to Male faculty #2: But you haven't seen that; it wasn't changed.

Woman faculty #3: "I actually wrote an R21 – wasn't funded because it was too risky.

Woman faculty #4: Women on the committee can influence who gets selected; I would think that you would have the same implicit expectations.

The construct of *stereotype threat* (Slide 34) generated a lot of discussion. Several examples illustrated this bias construct, but the ones concerning math stereotypes heightened emotions (Shih, Pittinsky, & Ambady, 1999; Spencer, Steele, & Quinn, 1999).

Slide 34 - Stereotype Threat:

Since stereotype threat was first described by Claude Steele in the mid-1990's, over 3000 studies have looked at it. Many have looked at females versus males in math because of the tenacious societal stereotype that boys are better at math. This stereotype persists even though research shows that, once the number of math courses is taken into account, there is no difference between the sexes. A study shows the power of this threat. If students have to identify their sex at the beginning of a math test, the girls will underperform the boys. If they identify their sex at the end of the test, girls and boys will perform equally well. This becomes even more interesting for Asian girls because of the stereotype that Asians are better than non-Asians at math. If Asian girls have to identify their race at the beginning of a math test, they will outperform the non-Asian boys. If they have to identify their sex at the beginning of the test, they will underperform the non-Asian boys! So even though it seems to be a trivial thing, this priming can have profound effects.

Women faculty were particularly concerned that something so simple as noting your sex prior to taking a math test could result in poorer performance for females (Danaher & Crandall, 2008). Many men reacted negatively, vocalizing disbelief:

Literally, on a math test, just the order you put your identifying information?

What level of test is this, elementary?

You are saying one is causing the other just by the order of that?

Is the conclusion, they don't know that they are women unless they check the box?

What happens after Viagra ads?

In a manner appealing to academics, the presenter defused these situations with the response:

Multiple attempts have been made to explain this phenomenon including comparison of male and female brains using magnetic resonance imaging. Some investigators think stereotype threat may be due to anxiety that interferes with performance when someone is reminded of a stereotype that they might underperform. Recent studies indicate that stereotype threat interferes with learning as well. Slide (35) of Module 2 tended to elicit negative responses.

Slide 35 - Constructs	Intervention	Example of study
To reduce expectancy bias and promote role congruity...	Provide evidence of specific job-relevant competence & experience	Heilman, 1984
To reduce the impact of stereotype priming	State that "there is no gender difference in the ability to perform this task."	Davies, Spencer & Steele, 2005
To reduce the impact of stereotype threat	Remove stereotypical images/text	Good et al., 2010

Faculty of both sexes expressed concern about the need for a woman to state that she is communal and a few viewed this as manipulative. Women in one workshop were indignant:

Woman #1: It's disturbing that women have to go out of their way.

Woman #2: It's interesting that the males were not stereotyped.

Woman #3: Because no one cares that they are not caring! (Woman #4 nodding).

Woman #2: To me, I feel like I would really resist doing this...hard to convince myself of that.

After the first two modules outlined the origins and repercussions of implicit gender bias, the third module provided information on how participants could use five evidence-based strategies to mitigate "habits of bias" at a personal level. Although the workshop built toward a discussion of these strategies, the slides generated little engagement except when the presenter introduced two strategies (Slide 39) that are intuitive, but have been shown to be ineffective for decreasing implicit bias.

Slide 39 - Stereotype Suppression & Belief in Personal Objectivity:

Stereotype Suppression (e.g., Galinsky & Moskowitz, 2000; Monteith et al., 1994)

Banish stereotypes from one's mind (i.e., gender or race "blind") (Macrae et al., 1994)
 Produces rebound effects

Belief in personal objectivity (Uhlmann & Cohen, 2007) Leads to biased evaluations of women.

So we caution you against these strategies and suggest that we might be better off accepting the humbling possibility that we might be biased – that we could be unwittingly complicit in the perpetuation of discrimination – and then learn some strategies that would help us reduce the activation of associations that lead to bias; stereotype replacement, counter-stereotype imaging, individuating (instead of generalizing), perspective-taking, and increasing opportunities for contact with counter-stereotypic women (Galinsky & Moskowitz, 2000; Monteith, Zuwerink, Devine, Hamilton, & Ostrom, 1994).

The presenter's statement that "it may be better to accept the humbling possibility that we might be biased" generated negative reactions in workshop participants. A key question regularly arose at this point: "Is there any research that would indicate you can change behavior but not attitudes – we do learn to not use racial epithets – whatever people's personal beliefs, maybe people come around to it"? The presenter responded that "most of us who are white have learned not to use racial slurs, but that doesn't affect implicit biases."

Discussion

The presenters facilitated difficult dialogues with a large cohort of STEM faculty and challenged "learned" men and women about notions of gender using experimental literature thus raising awareness of implicit bias (Carnes et al., 2015). The bias literacy workshop elicited a wide range of reactions including statements of remorse and verbal challenges dismissing the evidence. Addressing these reactions promotes active learning (Mezirow, 1990).

There were several findings that were consistent with the literature. Surprisingly, but analogous with the bias literature, both men and women exhibited defensive behaviors equally but different contextually (Drenovsky, 1999; Musil, 1992; Orr, 1993), likely in response to perceived threats to their self-image (Aronson, Cohen, & Nail, 1999; McQueen & Klein, 2006; Sherman & Cohen, 2002, 2006; Sherman & Hartson, 2011; Steele, 1999). In at least 50% of the departments, one male challenged the female presenters and the research cited to which presenters responded non-confrontationally with data from additional research studies. Presenters assumed the role of a 'motivated questioner' (Isaac, Chertoff, Lee, & Carnes, 2011). Carli and Loeber (1995) and others (Phelan, Moss-Racusin, & Rudman, 2008; Rudman, 1998) have found that women are most influential when they deliver their messages in a manner that is not assertive. During these difficult dialogues, other participants responded with self-protective behaviors including watchful waiting and silence (Lewis, 1993).

Overwhelmingly, the concept of gender bias produced amusement among male faculty. This behavior is not unusual according to the literature, which finds that gender bias does not trigger the same kind of moral opposition as race bias (Czopp & Monteith, 2003). However, participants frequently brought up race, as they sought to understand the bias

constructs in a context with which they were familiar, such as discussing the Clark doll experiment. Surprisingly, they then were able to extrapolate the information to gender bias.

Both men and women needed to clearly understand that implicit bias is not malicious intent. After processing the surprise arising from biased IAT scores in conjunction with evidence that implicit biases are not gendered, tensions within the room seemed to ease. We postulate that there was a neutralizing effect of the workshop to diminish defensiveness to the content, and as the workshop progressed, both these men and women scientists had similar reactions to sensitive topics. The gradual shift from non-affiliative to affiliative verbal and nonverbal activity during the course of the workshop warrants further investigation.

This paper illustrates several important points for effectively introducing difficult dialogues around gender bias. First, the presenters continually reinforced the idea that implicit bias is ordinary and pervasive, thus avoiding participant alienation by allowing participants to protect their self-worth and integrity. Second, difficult dialogues were managed calmly without verbal sparring or relinquishing control. Third, the presenters created an environment where individuals were more likely to accept threatening information (Sherman & Cohen, 2002, 2006; Sherman et al., 2007); specifically, they used scientific research to introduce and teach the concepts rather than appealing to “social justice” or emotional arguments. In Module 1, optical illusions and a color-naming task (Stroop, 1935) introduced the concept of implicit processes. In Module 2, the bias constructs were illustrated with examples from the literature, and included a study in which men were disadvantaged by implicit prejudice. Modules 2 and 3 both included materials relevant to the participants (i.e., rigorous experimental studies or compelling real world examples and case studies compiled from actual events). The inclusion of techniques that fail to manage implicit bias, as well as evidence-based techniques that have been shown to prevent its activation, resonated with scientists. Finally, participants were provided with experimental evidence indicating the success of similar strategies in a race context with college students.

As far as limitations, the authors acknowledge that researchers must be cautious when drawing conclusions from observational notes on nonverbal behaviors, as the subject’s intentions may be different from the dispositions inferred by the observers (Montepare & Dobish, 2003). Observations, however, can be consistently interpreted correctly despite the complexities of cultural and situational factors (Gifford, 2006). Restricting our analyses to two non-verbal behaviors, both well-documented in the literature as indicating positive and negative receptivity, helped to prevent incorrect inferences and identify critical incidents during the workshop. Although videotaping would have provided more “trustworthy” data, the sensitivity of this material might have reduced participation and thus prevented this type of data collection. The fact that all the investigators and presenters were women may introduce systematic bias that must be acknowledged in a qualitative study as well as limited transferability of the results.

By approaching implicit bias as a “habit of mind” derived from culture (Devine et al., 2012), we implemented one of the first interventions to focus on faculty who are the change agents for academic institutions (Carnes et al., 2014; Nonaka, 1994; Schroeder, 2001). The slides that elicited the greatest amount of nonverbal behavior and dialogue need to be the focus of future workshops as this type of intervention is disseminated to conserve an institution’s resources. The techniques we used to engage participants and manage difficult dialogues may be helpful for others seeking to improve diversity in higher education

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Author Note

Dr. Carol Isaac is assistant professor, Mercer University, Atlanta, Georgia. Correspondence regarding this article can be addressed to: Carol Isaac, PhD, Tift College of Education, Department of Educational Leadership, Mercer University, 3001 Mercer University Drive, Atlanta, Georgia 30341. E-mail: isaac_ca@mercer.edu.

Linda Baier Manwell, MS, is the Research Program Administrator for the Division of General Internal Medicine at the University of Wisconsin School of Medicine and Public Health. Since 2007, she has also been the National Training Coordinator for VA Women's Health Services.

Dr. Patricia G. Devine is professor and chair, Department of Psychology, University of Wisconsin–Madison, Madison, Wisconsin.

Cecilia E. Ford is professor, Department of English, University of Wisconsin-Madison, Madison, Wisconsin.

Angela Byars-Winston is associate professor, Department of Medicine Division of General Internal Medicine, University of Wisconsin-Madison, Madison, Wisconsin

Evelyn Fine is researcher, Women in Science & Engineering Leadership Institute (WISELI), University of Wisconsin-Madison; Madison, Wisconsin.

Jennifer Thurik Sheridan is executive and research director, Women in Science & Engineering Leadership Institute (WISELI), University of Wisconsin-Madison, Madison, Wisconsin.

Dr. Molly Carnes is director, Center for Women's Health Research, professor, Departments of Medicine, Psychiatry, and Industrial & Systems Engineering, University of Wisconsin-Madison, Madison, Wisconsin, and part-time physician, William S. Middleton Memorial Veterans Hospital, Madison, Wisconsin.

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