Interactive theater: an effective tool to reduce gender bias in faculty searches

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Abstract
Purpose – The purpose of this paper is to describe the development, implementation and impact evaluation of an interactive theater-based workshop by the ADVANCE program at the University of New Hampshire (UNH). The workshop is part of a larger institutional transformation program funded by the National Science Foundation.

Design/methodology/approach – This institutional transformation program relied upon a systems approach to diagnose potential causes for the underrepresentation of women faculty in certain disciplines. This revealed that increasing awareness of, and reducing, implicit gender bias among members of faculty search committees could, in time, contribute to increasing the representation of women faculty at UNH. A committee charged with developing a faculty workshop to achieve this change identified interactive theater as an effective faculty training approach. The committee oversaw the development of customized scripts, and the hiring of professional actors and a facilitator to implement the workshop.

Findings – The workshop’s effectiveness in fulfilling its goals was assessed using faculty hiring and composition data, program evaluations, participant interviews and questions in an annual faculty climate survey. Findings indicate that the representation of women faculty increased significantly at UNH since the implementation of the interactive theater workshop. Analysis of the multiple sources of data provides corroborating evidence that a significant portion of the increase is directly attributable to the workshop.

Originality/value – This paper demonstrates the effectiveness of interactive theater-based workshops in an academic environment and of the systems approach in diagnosing and solving organizational problems.

Keywords Gender, Recruitment, Higher education

Paper type Case study

How can universities increase the representation of women in fields in which they have traditionally been underrepresented? This is one of the questions at the core of the University of New Hampshire (UNH) ADVANCE program. After receiving a National Science Foundation (NSF) ADVANCE Institutional Transformation award in 2012, UNH ADVANCE launched a series of initiatives to improve the representation of women faculty in STEM disciplines as part of its larger goal of institutional transformation. A centerpiece of the UNH ADVANCE program, the Gender Equity and Recruitment of Underrepresented People (GEAR UP) interactive theater workshop was designed to improve the search committee process by increasing transparency at all stages of the search process and
reducing the prevalence of implicit bias. By increasing transparency and reducing implicit
bias, GEAR UP strives to ensure that faculty searches are conducive to increasing the
representation of underrepresented groups, particularly women faculty in STEM
disciplines. In this paper, we briefly describe the 2012 baseline representation of women
faculty at UNH and the systems view of organizations that has guided our work. We then
discuss the development of GEAR UP and present quantitative and interview data that
point to its effectiveness in enhancing the faculty search committee process, and
consequently facilitating the recruitment of women faculty at UNH.

2012 baseline representation of women faculty
Baseline institutional data collected in 2012 underscored the need to improve the
representation of women faculty at UNH, particularly in STEM disciplines. In 2012,
37 percent of UNH faculty were women. Women represented the smallest share of STEM
faculty at 21 percent, followed by Social and Behavioral Sciences (SBS) at 36 percent, and
non-STEM disciplines at 48 percent. Across ranks, the category in which women were most
underrepresented was STEM full professors, with only 24 percent of STEM women faculty
at this rank. In contrast, 59 percent of men faculty in STEM were full professors. While the
percentage of SBS women faculty at the full professor rank was higher at 31 percent, it also
lagged the percentage of SBS men faculty (i.e. 40 percent were full professors). At lower
ranks, the representation of women was much higher, although women still comprised only
32 percent of assistant professors in STEM.

Historical trends can explain part of these problems of representation. In the past, men
faculty have traditionally dominated the STEM disciplines, leading to higher percentages of
men in the rank of full professor. It is possible, however, that this historical legacy has also
created a lingering culture of values, beliefs and norms that fosters implicit bias, which
impedes the hiring and promoting of women in fields in which they have long been
underrepresented (Eagly and Karau, 2002; Fine and Handelsman, 2012; Phelan
et al., 2008; Trix and Psenka, 2003). To reach its goal of increasing the representation of STEM faculty
women, UNH ADVANCE would have to find a way to change this aspect of the
organization’s culture.

UNH ADVANCE uses a systems view of organizations (Nadler and Tushman, 1980) to
diagnose and address potential causes of suboptimal organizational outcomes. This
approach takes into account how external forces, work processes, people, informal
organization and structure interact to produce the outcomes of interest. Using this approach,
we determined that in order to increase the representation of women STEM faculty, UNH
would need to address potential bias in the faculty search process. Thus, UNH ADVANCE
mapped out a strategy to work with all stakeholders (i.e. deans, department chairs and
faculty search committee members) to build awareness, change norms and alter behavior
related to the hiring of women faculty.

The GEAR UP workshop
In order to achieve lasting change, UNH ADVANCE involves as many faculty as possible in
designing and implementing its initiatives. In keeping with this strategy, we recruited
faculty from both STEM and non-STEM disciplines to develop a program that would
improve the representation of women and other underrepresented groups at UNH. The
committee met weekly from May to August 2013 and evaluated university hiring practices
and what other ADVANCE programs had done to increase the representation of women and
other underrepresented groups. They reviewed a host of information relevant to faculty
hiring, including what should be included in a hiring packet, suggestions on how to broaden
the applicant pool, how to develop evaluation criteria, what people can and cannot say
during a hiring interview, and how to write the job description and the job advertisement.
In the end, the committee became convinced through their research that implicit bias in applicant screening was a significant impediment to hiring women in disciplines in which they have traditionally been underrepresented. Borrowing from the work of the University of Michigan’s ADVANCE program, the committee decided to raise awareness about implicit bias through a faculty search committee workshop that used interactive theater to portray and deconstruct subtle and not-so-subtle instances of bias that sometimes stand in the way of hiring women for STEM faculty positions.

Interactive theater has become an increasingly popular method of engaging audiences in simulated activities for teaching purposes, ranging from sexual assault prevention to improving doctor–patient interactions (Finelli and Kendall-Brown, 2009; Kaplan et al., 2006; Kumagai et al., 2007). In one study, Skye et al. (2014) examined the efficacy of using interactive theater to teach medical students how to break bad news to patients. Post-workshop evaluations showed that participants found the scenarios to be realistic and helpful in thinking about different perspectives involved in the way patients and healthcare providers communicate. Using post-performance evaluations as well as three months to one-year follow-ups, Kaplan et al. (2006) demonstrated the efficacy of using interactive theater to change faculty behavior. As they reported, faculty are drawn into making sense of the issues portrayed, relating them to personal experience and strategizing about how to transform a difficulty situation. Several empirical studies indicate that such interventions can significantly reduce the impact of bias in search process and promote transparency and diversity in candidate selection (Carnes et al., 2012; Fine et al., 2014; Smith et al., 2015; Stewart et al., 2004). In the present paper, we evaluate the effectiveness of interactive theater by examining multiple objective, quantitative and qualitative indicators to determine whether institutional change has been achieved.

The committee invited Jeffrey Steiger, an expert in using interactive theater in diversity-related workshops at the University of Michigan and in medical education to work with the UNH ADVANCE team and Department of Theater and Dance. Together, they developed an in-house capability and customized the scripts based on interviews and focus groups with UNH faculty to maximize attendees’ ability to relate to the scenarios. The workshop utilizes applied theater techniques to examine institutional climate and culture, unconscious biases and issues of status through the lens of a fictional search committee. To develop the script, the committee consulted several sources to understand how bias incidents arise, and their impact in academic settings (Fine and Handelsman, 2012; Jones and Urban, 2013; O’Connell, 2010; Smith et al., 1996; Sue, 2010a, b; Steinpreis et al., 1999).

The resulting workshop begins with a 20 min “activation play” called The Search that follows five members of an academic search committee: the “old guard” tenured professor reluctant to change; the progressive junior faculty member not wanting to make too many waves; two long-standing colleagues wrestling with messy interpersonal dynamics amid conflicting views of the future direction of the department; and the search committee chair trying to hold it all together. The play consists of five brief scenes that were the same for all the workshops:

1. The faculty meeting: the department chair announces the formation of the search committee and asks for volunteers to serve on it.
2. The job posting: the committee meets for the first time. The chair quickly loses control of the meeting as issues of gender bias dominate a conversation about where and how to post the opening.
3. The gripe: a retiring faculty member expresses his concerns to the department chair, arguing that hiring one of the candidates (who is apparently underrepresented in this field based on her gender and race) would undo his whole career’s worth of work, which has made the department what it is today.
The conversation: two candidates remain. We follow the five committee members as they engage in contentious back-room conversations, deliberating the different ways in which the hiring of each candidate would impact the future direction of the department.

The welcome: the department chair has flown to a conference, leaving the long tenured, “old guard” senior faculty member to awkwardly welcome the new hire.

The play includes several instances of implicit bias. For example, while male candidates are usually referred to as Dr or Professor (last name), some committee members frequently refer to the woman candidate by her first name. One committee member (man) mistakenly assumes and argues that she was not the first author on a research publication. In another instance, one committee member (man) approaches another committee member (woman) about her disagreeing with him at a committee meeting. He ends the exchange with the statement “why can’t you just be nice?” The play also integrates examples of gender bias in how recommendation letters are written and read, how bias can be used to diminish accomplishments and the false assumption that increased diversity comes at the cost of merit.

A facilitated discussion session follows the play, and the moderator asks audience members to identify moments of tension they had witnessed within this department and try to explain what went wrong. Audience members are then able to question the characters directly in a “public” or “private” manner as they remain in, and speak from the point of view of, their assigned roles. In the public mode, all characters are assumed to be present and able to hear other characters’ replies. In the private mode, a character can respond to an audience member’s question without other characters hearing the answer. The actors give “public” or “private” answers about their motivations, actions and inner thoughts as they grapple with the tough decisions, problems and challenging behaviors present in their institution’s hierarchy, history and culture. This interactive model highlights any differences between what a character might say when he or she knows that other, perhaps more senior “faculty” are listening and what they might really be thinking. It is a useful way to uncover character implicit biases or internal, emotional reactions to bias incidents that may not be directly aired or addressed in real life. Audience members are given the opportunity to suggest alternative strategies to navigate these sticky situations, and the actors can replay the scenarios to see how effective those strategies might have been. It also allows participants to bear witness to familiar interpersonal dynamics and then play Experimenter and Director from the comfort of their own chairs, with trained actor improvisers taking on the emotional risk of role-play training.

GEAR UP workshops were held on seven separate occasions from December 2013 through October 2016. From the outset, the UNH Provost’s Office was a staunch advocate of the program and its goal of increasing the representation of women in disciplines in which they were underrepresented. All of the leaders and faculty under the Provost’s Office have the potential to influence the hiring of a woman in STEM or SBS either now or in the future through search committee membership or by making the final hiring decision (in the case of an academic leader). Therefore, the Provost instructed all members of the search committees for senior administrative staff to attend the GEAR UP pilot held in December 2013. Deans, associate deans, Provost Office staff and faculty serving on senior administrative staff and STEM faculty search committees attended the workshop. While our focus was on increasing the representation of women faculty in STEM disciplines, we invited faculty from all disciplines to attend as we argued that institutional transformation via the removal of bias in the search process must be comprehensive. During the period from Fall 2013 through Fall 2016, 275 UNH faculty and staff attended a GEAR UP workshop.
GEAR UP’s effectiveness

Faculty composition

During the four-year period from 2012 to 2016 when GEAR UP workshops were held, the number of tenured and tenure-track faculty at UNH increased from 607 to 637. During the same period, the representation of women faculty at UNH overall increased from 224 (37 percent) to 268 (42 percent). The representation of women tenure-track faculty in STEM increased from 21 to 26 percent. In SBS, the women tenure-track faculty increased from 36 to 44 percent of faculty. While the numbers are small (i.e. 54 and 41 women tenure-track faculty in STEM and SBS, respectively, in 2016), the increase is significant.

By rank, a similar change has occurred. During the four-year period from 2012 to 2016, the number of women tenure-track faculty at the full professor rank in STEM increased by 80 percent from 10 to 18. In contrast, the number of men STEM faculty at the full professor rank decreased by 13 percent from 94 to 82, reflecting the high representation of men faculty at retirement age. Both of these changes contributed to an increase in the percent women STEM faculty at the full professor rank from 24 to 33 percent, and a decrease in the percent STEM men faculty at that rank from 59 to 53 percent.

In SBS, the number of women faculty at the full professor rank decreased from 10 in 2012 to 9 in 2016, while the number of men faculty at the full professor rank remained the same at 23 in 2012 and 2016. The percentage of women at the full professor rank in SBS decreased from 31 percent in 2012 to 22 percent in 2016. This change is due to an overall increase in the number of women SBS faculty, particularly at the associate professor rank. During the same period, the percentage of men at the full professor rank in SBS increased from 40 percent in 2012 to 43 percent in 2016. Overall, women represented 25 percent of full professors at UNH in 2016 compared to 21 percent in 2012.

In order to determine the extent to which GEAR UP may have contributed to the increased representation of women faculty at UNH, we rely upon workshop evaluations and participant interviews, answers to relevant questions on the annual UNH ADVANCE faculty climate survey and gender composition of faculty hired. All of these methods revealed many direct and indirect benefits of the interactive theater approach for increasing and overcoming implicit bias in the hiring process.

Workshop participant evaluations and interviews

The external evaluator for UNH ADVANCE conducted surveys and interviews to determine whether GEAR UP was achieving its goals as part of the program’s annual evaluation and to report successes from which others can learn. The workshop was evaluated against the following desired learning outcomes:

- increase participants’ ability to recognize biases in self and others;
- increase participants’ understanding of how biases operate and their negative impact;
- assist participants in developing strategies to eliminate such biases and improve search committee processes; and
- increase the number of women and underrepresented faculty in STEM and more widely.

Analysis of post-workshop evaluations indicated that, from the beginning, over 90 percent of participants who completed the form “agreed” or “strongly agreed” that the workshop had increased their understanding of how gender impacts the evaluation of candidates. Further, over 85 percent of the participants “agreed” or “strongly agreed” with statements that GEAR UP had increased their understanding of how subtle and unconscious put-downs based on implicit biases related to an individual’s social identity group(s) impact the faculty search process. Finally, over 70 percent of participants “agreed” or
“strongly agreed” that they had learned ways to: reduce gender biases in the evaluation of candidates, eliminate or reduce the impact of microaggressions and/or implicit biases in the evaluation of candidates, and create or support group discussion in which everyone is able to contribute equally.

The external evaluator provided additional evidence of GEAR UP’s positive impact. In interviews with GEAR UP participants, the external evaluator found that participant evaluations were overwhelmingly positive, with participants reporting that the workshop shaped their own behavior:

GEAR UP taught me to pay attention to how candidates are being evaluated. It also taught me to look at the larger context in terms of the political culture and the people involved. They are all human and have insecurities and fears. It helped me understand where others might be coming from and I learned skills for listening and communicating.

Participants also noted a difference in the dynamics of their search committee post-workshop because it reinforced institutional norms around equality and provided a practical vocabulary for addressing inequities in the process:

It provided a language, a set of vocabulary, that could be used to ensure the committee’s evaluation of candidates was fair. If someone raised an issue that was perhaps a source of bias, we could say, “Remember in the search committee training – we aren’t supposed to use that (sic) criteria.”

I had served on search committees before this training. I would say that there were stark differences [...]. One thing that I would attribute to the ADVANCE program was the ability to rein in discussion when perhaps it was digressing into areas that were illegal or not following the institutional norms. I think that was something that I noticed was very different that we didn’t have before.

Participants also emphasized the value of GEAR UP’s training to the university. One observed, “It’s a big investment to hire faculty. The institution needs to invest in this, as it makes our faculty better.” Additionally, those interviewed considered the interactive component to be an extremely successful and even enjoyable way to relay the information, a viewpoint consistent with the results from the evaluation forms.

Workshop participants also provided some constructive feedback, noting that it would be helpful to provide “more concrete” and “more specific” strategies and best practices to apply in the faculty search process. Participants noted that the discussion around these strategies should incorporate issues of diversity, race and sexuality more effectively.

In response, UNH ADVANCE has continued to improve on the GEAR UP workshops, with content evolving from a focus on awareness to action and including characters and issues that reflect the experience of faculty at the intersection of gender, race/ethnicity, gender identification and sexual orientation.

Climate survey results: tenure-track faculty
Since fall of 2013, UNH ADVANCE has conducted an annual faculty climate survey that has included questions about GEAR UP to gauge the workshop’s impact on the faculty search process. The survey questions asked about respondents’ perceptions of the following desired organizational outcomes:

- department and/or search committee deliberately engages in strategies to enhance gender diversity in the applicant pool;
- evaluation criteria are applied consistently across applicants;
- committee members are made aware of unintentional biases that can affect everyone’s evaluation of applicants;
increasing gender diversity in the department is a priority of the committee; and discussions are not dominated by one or two committee members.

Results from the 2016 faculty climate survey suggest that faculty members who attended GEAR UP have a significantly more positive perception of search committee processes compared to those who did not attend. Specifically, the climate survey asked participants about the extent of their agreement on each of the above goals (on a 1–4 scale, from strongly disagree to strongly agree). As shown in Table I, tenure-track faculty who attended GEAR UP reported a higher overall mean (i.e. M = 3.15 for attendees and 2.97 for non-attendees) on each of the items. Importantly, responses on the questions related to gender diversity (i.e. the first and fourth items) were significantly different for attendees and non-attendees.

**Longitudinal climate survey results**

In addition to analyzing the most recent survey data, we also examined longitudinal trends to determine if faculty perceptions of the search committee process had improved over time. We compared data from 2013 to 2016, using Analysis of Variance to determine significant differences based on group membership, and a Tukey test to confirm where the differences occurred and whether perceptions were significantly higher in later years of the data compared to earlier years. The results suggest that the workshop had a significant impact on at least one aspect of the search committee process. That is, compared to 2013, in 2016, faculty were more likely to agree that search committee members were aware of unintentional biases that might influence evaluation of applicants (M = 2.68 in 2013, M = 2.96 in 2016, f = 4.25, p < 0.01).

Finally, we examined whether change over time in search committee process evaluation — particularly on the third goal, that faculty were made aware of unintentional biases — could be attributed specifically to the GEAR UP workshop. Perhaps more so than any of the five dimensions of search committees we measured, this most directly related to the interactive theater presentations and other portions of the GEAR UP program. In our annual faculty climate surveys, we asked faculty to provide a survey code that we could use to connect responses from the same individual over time while retaining anonymity. This code allowed us to match pre- and post-workshop ratings of respondents’ search committee perceptions. Of the 141 respondents who attended GEAR UP, 50 took the survey at least one year prior to attending the workshop and also had at least one year of post-workshop data.

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<th>SD</th>
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Overall mean: No 3.03, Yes 3.11

Scale reliability: \( \alpha = 0.803 \)

**Notes:** *p < 0.05; **p < 0.01**
We found that after attending GEAR UP, faculty were more likely to agree that committee members were made aware of unintentional biases that can affect evaluation of applicants. The pre-workshop mean was 2.63 for faculty who would eventually attend GEAR UP, and it increased to 3.04 following their attendance, a statistically significant difference ($t = -3.218$, $p < 0.01$). We ran subsequent paired-sample $t$-tests among faculty who never reported attending GEAR UP to determine if any perceptions of search committees changed among non-participants over time. We did not find any significant changes for faculty who never participated.

**Faculty hiring data**

We also evaluated the impact of GEAR UP by tracking faculty hiring by gender over time. First, we noted that more faculty were hired at UNH overall in 2016–2017 (42) compared to 2011–2012 (10). In 2011–2012, 40 percent of the faculty hired at the assistant professor rank were women. In 2016–2017, 78.2 percent of faculty hired at the assistant professor rank were women. Great strides were also made in the hiring of women STEM faculty, where the percentage of women hired increased from 40 percent in 2011–2012 to 63.6 percent in 2016–2017.

**Summary and conclusions**

Our analysis finds strong support for the effectiveness of the UNH ADVANCE GEAR UP workshop. Using interviews and survey results, we find evidence that attending GEAR UP changes faculty perceptions of the search process and faculty gender representation, especially in the STEM disciplines. A series of analyses from annual faculty climate data related to perceptions of search committee processes reveal three important trends. First, those who participated in GEAR UP have significantly more positive perceptions of faculty search committees compared to those who never attended the workshop. Second, one important dimension of the search committee process improved over time — faculty reported that they were increasingly aware of unintentional biases that might impact everyone’s evaluation of the applicants. Third, changes in awareness of unintentional biases occurred only for those who participated in GEAR UP, and only after having attended the workshop (faculty who did not participate in GEAR UP did not experience such an increase between 2013 and 2016). Thus, the change over time of faculty’s awareness of unintentional biases can be attributed to the GEAR UP workshop, as only faculty who participated experienced any change in this important dimension.

The above findings align with actual hiring pool data that indicate an increase in percent women hired over time since 2011. By altering aspects of UNH’s faculty search process to increase the awareness of the impact of bias in candidate evaluations, GEAR UP contributed to changing outcomes in favor of improved faculty gender representation. During the period studied, there was an increase in the percentage of women faculty hired, including in the STEM disciplines, as well as a sharp increase in the percentage of STEM women at the full professor rank.

While we have attempted to demonstrate GEAR UP’s impact using various methods, there are many other forces at play that may also have contributed to the increased representation of women in underrepresented disciplines at UNH. Since the inception of UNH ADVANCE, there have been three different provosts at the helm of the UNH’s academic mission. Throughout the years, they have been strong supporters of the initiative. During the same period, deans of the STEM colleges have been involved in the ADVANCE leadership team and steering committee and have been strong advocates for increasing the representation of women and other underrepresented faculty in hiring pools. While our results point to GEAR UP’s contribution in this regard, it is by no means the only influence on faculty hiring decisions.
One notable limitation of our analysis is that we can only examine hiring data and not the retention rates of these new hires. Still, while other factors are also at play, the results of analysis of annual survey responses, workshop evaluations, faculty composition and hiring data together provide corroborated evidence that a significant portion of the change is directly attributable to the workshop.

An important indirect result of this work has been its contribution to the development of a world-class interactive theater capability at UNH. The impact of these highly trained professional actors has reached beyond our campus to other institutions that have retained their services to create realistic, customized scenarios for their faculty and staff.

References


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