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Board 244: Do DEI Efforts Count in Tenure Evaluations? An Experiment in Two STEM fields

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Do DEI Efforts Count in Tenure Evaluations? An Experiment in Two STEM fields

Abstract

Colleges and universities are urgently investing in diversity, equity, and inclusion (DEI) efforts at the behest of students, faculty, and segments of the public. Many across STEM fields have called for reform to tenure policies and practices to include DEI in decisions made. Yet faculty consistently report that when it comes to tenure and promotion, DEI does not "count," or they are not sure how DEI efforts counted in decision-making. In this study, we investigate whether certain nudge interventions can impact the weight of DEI, and if the race and gender of the candidate influence the effect of those nudges. To do so, we conducted a 4 x 2 x 2 between-subjects experimental vignette methodology, in which faculty in ecology and evolutionary biology (n = 1,101) and mechanical engineering (n = 654) rendered assessments and promotion decisions on fictitious files that had nudge (x4), race (x2), and gender (x2) conditions manipulated. Results indicate that DEI efforts do count in some decisions about tenure recommendations, and that interventions aimed at highlighting DEI efforts were effective for some evaluations related to the candidate's specific institution. There were no statistically significant differences in nudge efficacy by race and gender of the candidate.

Introduction

In light of broader recognition of systemic racism in and outside academe, universities are urgently investing in diversity, equity, and inclusion (DEI) efforts. Many STEM fields have called for reform to tenure policies and practices to include DEI as part of promotion and tenure decisions (NASEM, 2020; Segarra et al., 2020). Yet faculty consistently report that when it comes to tenure and promotion, DEI does not "count," or they are not sure how DEI efforts counted in decisions made (Griffin et al, 2013; Jimenez et al, 2019). Further, faculty (as all employees) have limited time and resources, meaning that above-average efforts in one area might mean slightly below-average efforts in another area. In this study, we examine if small changes to the CV can "nudge" (Thaler & Sunstein, 2009) participants to weigh DEI more in tenure-related evaluations. Specifically, we ask:

RQ1: Can certain "nudges" result in strong DEI efforts compensating for slightly below-average research accomplishments?

RQ2: Do the race and gender of the candidate influence the effect of any nudges?

Methods

To examine our research questions, we conducted a **4** (CV qualification manipulations: (1) control CV with no DEI information, (2) CV with above-average DEI scattered throughout, (3) CV with above-average DEI concentrated in specific section in the CV, and (4) CV with above-average DEI scattered evaluated with a rubric intervention) **x 2** (candidate gender manipulation: female vs. male) **x 2** (candidate race manipulation: Black vs. white) between-subjects experimental study. Our study uses an experimental vignette methodology (EVM) known as "paper people" study (Aguinis & Bradley, 2014) in which participants make an explicit decision

about a fictional candidate. We created (and pilot-tested with subject matter experts) a control

condition CV for two fields (mechanical engineering, ecological and evolutionary biology)

where the research qualifications were slightly below average (e.g., 10 publications since hiring

date would be average and the CV had 8), teaching and service were average, and DEI efforts

were not present. The sixteen conditions are illustrated below in Table 1. "DEI-combined" and

"DEI-rubric" are our "nudge" interventions, aimed at directing the evaluators' attention to key

information and unobtrusively affecting their decisions (Thaler & Sunstein, 2009). Candidates'

names were chosen to signal the race and gender of the applicant, as guided by past studies

(Butler & Homola, 2017).

Table 1
Experimental Conditions

		Demographic Characteristics Condition			
		African American man (Darnell Williams)	African American woman (Latoya Williams)	White man (Brendan Anderson)	White woman (Sarah Anderson)
Intervention Condition	DEI Scattered	Evaluating African American man; DEI Scattered	Evaluating African American woman; DEI Scattered	Evaluating White man; DEI Scattered	Evaluating White woman; DEI Scattered
	DEI Concentrated	Evaluating African American man; DEI Concentrated	Evaluating African American woman; DEI Concentrated	Evaluating White man; DEI Concentrated	Evaluating White woman; DEI Concentrated
	DEI Rubric	Evaluating African American man; DEI Rubric	Evaluating African American woman; DEI Rubric	Evaluating White man; DEI Rubric	Evaluating White woman; DEI Rubric
	Control	Evaluating African American man; control	Evaluating African American woman; control	Evaluating White man; control	Evaluating White woman; control

Participants and Procedure

Participants are tenured/tenure-track faculty from research universities (i.e., Carnegie classifications as Very High or High Research Activity) in two STEM fields – ecology and evolutionary biology (EEB) and mechanical engineering (MechE). All participants are randomly assigned to a condition and provided one of sixteen possible tenure dossiers. In all conditions, participants receive criteria for evaluating the candidate (norms for research, teaching, service, and DEI) and a CV. Norm statements were guided by two of the co-authors' extensive experience researching faculty tenure and promotion processes in research institutions and an advisory board of faculty.

Measures

We developed several items to assess candidate evaluations. Participants indicated the likelihood they would recommend the candidate for tenure if they were on the faculty in the candidate's department (response scale: 1- unlikely to 4- likely), how accomplished they viewed the candidate compared to past faculty they had seen achieve tenure in their own department (response scale 1- way below average to 5 way above average), and if they would advise the candidate to take a one year delay in going up for tenure if offered (1 – advise to 4-advise against). Participants also completed two sliding-scale items to measure respondents' confidence that the candidate would be tenured in the candidate's department and in the participant's current department (response scale: 0- not confident at all, 100- the most confident).

We also included three open-ended questions, asking participants to elaborate on their tenure recommendation, their confidence in the candidate getting tenure, and any advice they would

give the candidate. Table 2 outlines the variables and measures, while Table 3 provides a

descriptive layout of the outcome variables of interest.

Table 2
Variables and Measures

Independent variables (IVs)
Condition: 　　　No DEI 　　　DEI Scattered 　　　DEI Rubric 　　　DEI Concentrated Gender: 　　　Man 　　　Woman Race: 　　　White 　　　Black
Dependent variables (DVs) DV1: How likely would you be to recommend this candidate for tenure if you were on the faculty in this candidate's department? (Scale from 1 to 4: 1 = Unlikely, 2 = Somewhat Unlikely (Leans Against), 3= Somewhat Likely (Leans Toward), 4= Likely) DV2: How confident are you that this candidate would be tenured in ***this*** department? (Scale from 0 to 100) DV3: How confident are you that this candidate would be tenured if they were in ***your current*** department? (Scale from 0 to 100) DV4: Compared to past faculty I have evaluated positively for tenure in my department, or I have seen achieve tenure in my department, this candidate's accomplishments are: (Scale from 1 to 5: 1 = Way Below Average, 2 = Below Average, 3 = Average, 4 = Above Average, 5 = Way Above Average) DV5: This department has an option for assistant professors to delay going up for tenure by one year. Given that information, please answer the following question: I would _____ taking a ***one year*** delay. (Scale from 1 to 4: 1 = Advise, 2 = Lean Toward, 3 = Lean Against, 4 = Advise Against)

Table 3

Descriptive statistics for dependent variables

| | EEB | | MechE | |
	Mean	SD	Mean	SD
DV1	3.19	0.84	2.52	0.93
DV2	63.72	22.38	49.74	25.40
DV3	71.84	28.33	49.69	32.85
DV4	3.02	0.93	2.5	0.95
DV5	2.35	1.06	1.86	1

Analyses

We aimed to collect 2000 participants who are currently tenure-track/tenured professors in the two fields at research universities. We currently have responses from 1101 EEB participants and 654 mechanical engineering participants. To examine our research questions, we conducted preliminary analyses to approach our research questions using multivariate analysis of variance (MANOVA) with a 4 X 2 X 2 factorial design on all evaluation variables. For significant main effects, we use post-hoc Tukey tests to probe which specific conditions are significantly different from one another.

Results and Discussion

Ecology and Evolutionary Biology (EEB)

Participants were more likely to recommend EEB candidates for tenure when presented with CVs that included the DEI-rubric (M=3.31, SD=.06) or DEI-concentration interventions (M=3.33, SD=.06), compared to the control condition (M=3.02, SD=.06; F (3, 799) = 6.37; $p <$ .001; partial η^2 = .023). EEB candidates in the DEI-concentration intervention were also more likely than candidates with DEI-scattered intervention (M=3.14, SD=.06) to be recommended for tenure (F (3, 799) = 6.37; $p <$ .001; partial η^2 = .023). Participants reported greater confidence

that candidates in the DEI-scattered (M=64.40, SD=1.50) and DEI-concentration interventions

(M=66.94, SD=1.61) would get tenure in the candidates' department, compared to the control

condition (M=59.91, SD=1.54; F (3, 799) = 3.45; p = .016; partial η^2 = .013). We did not find

significant differences for CV condition for any other evaluations, and we found no main or

interactive effects for gender and race of candidate.

Table 4
EEB findings by condition, Tukey comparison results

How likely would you be to recommend this candidate for tenure if you were on the faculty in this candidate's department?

	Mean	SD
No DEI	3.01[a]	.89
DEI Scattered	3.15[ab]	.83
DEI Rubric	3.30[b]	.79
DEI Concentrated	3.33[b]	.81

*How confident are you that this candidate would be tenured in **this** department?*

	Mean	SD
No DEI	59.90[a]	23.30
DEI Scattered	64.35[ab]	21.88
DEI Rubric	63.91[ab]	21.63
DEI Concentrated	66.99[b]	22.25

Note. Different subscripts indicates significant difference at p < .05.

Mechanical Engineering (MechE)

Participants were more likely to recommend MechE candidates for tenure when presented with

CVs that included the DEI-scattered (M=2.58, SD=.09), DEI-rubric (M=2.68, SD=.08) and the

DEI-Concentrated (M=2.57, SD=.09) interventions, compared to the control condition (M=2.24,

SD=.09; F (3, 452) = 4.81; p = .003; partial η^2 = .031). MechE respondents were more confident

about candidates getting tenure in candidates' departments in the DEI-rubric (M=53.20,

SD=2.27) and DEI-concentrated (M=52.42, SD=2.34) interventions than they were in candidates

in the control condition (M=42.75, SD=2.37; (F (3, 452) = 4.11; p = .007; partial η^2 = .027). As

with the EEB faculty responses, in MechE we did not find significant differences in the main effects of gender, race or their interaction with CV conditions. We did not find significant differences for CV condition for any other evaluations and we found no main or interactive effects for gender and race of candidate.

Table 5
*MechE findings by condition, Tukey comparison results*

How likely would you be to recommend this candidate for tenure if you were on the faculty in this candidate's department?

	Mean	SD
No DEI	2.25[a]	.87
DEI Scattered	2.58[b]	.94
DEI Rubric	2.67[b]	.94
DEI Concentrated	2.58[b]	.92

How confident are you that this candidate would be tenured in ***this*** department?

|	Mean	SD
No DEI	43.00[a]	23.67
DEI Scattered	49.96[ab]	25.32
DEI Rubric	53.19[b]	25.77
DEI Concentrated	52.55[b]	25.76

Note. Different subscripts indicates significant difference at $p < .05$.

Figure 1
Participants' recommendations for tenure, statistically significant differences in means
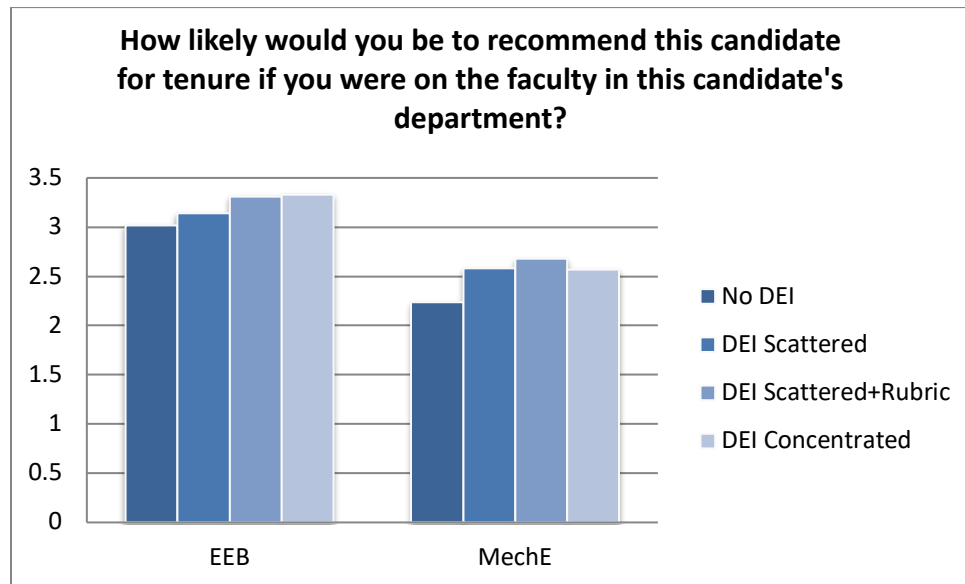
Figure 2

Participants' confidence in candidates getting tenure, statistically significant differences in means

How confident are you that this candidate would be tenured in this department?
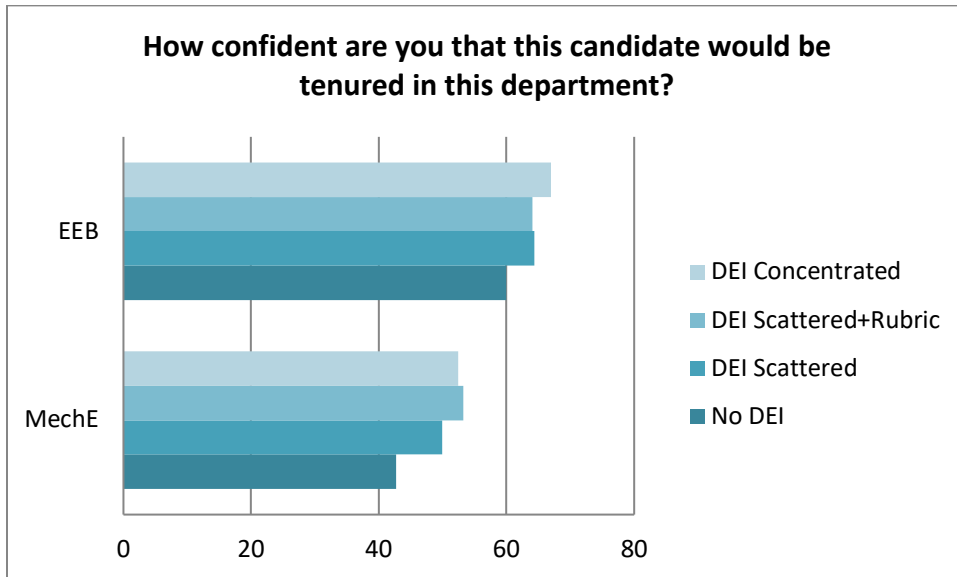
Preliminary evidence reveals that DEI efforts do count in some decisions about tenure recommendations and that interventions aimed at highlighting DEI efforts were effective for some evaluations related to the candidate's specific institution. There were no statistically significant differences in the interventions based on the race and gender characteristics of the candidates. We also plan to expand our findings on participants' decision-making process with qualitative data analysis of open-ended responses that is currently in progress.

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