

Findings from LEADER Consortium (AFIT, CSU, UD, WSU) Research

Tamera Schneider¹, Emily Polander¹, Rebecca Riffle¹, Sarah Jackson¹, Peggy DesAutels², David Goldstein¹
Wright State University¹, University of Dayton²



Aims:

- Conduct a comparative analysis of the STEM climate
- Conduct assessments of unconscious bias workshops (pending)
- Conduct persuasion research to promote new norms of expectation

Comparative analysis

Faculty Interviews

- 12 tenure-track STEM faculty across the institutions participated.
- Faculty were interviewed about their workplace.

Results

Recurring themes included:

- Mentoring
- Involvement in decision-making
- Transparency in decision-making (P&T, resource allocation)
- Leadership qualities
- Communication between leadership and faculty
- Support from the department

Climate Survey

- Invited 573 STEM and Social Science faculty. 282 (49%) responded, 252 (44%) had useable data.
- 331 survey items were developed from prior ADVANCE surveys and the interviews.

Results

- Figures 1 and 2 show that women had significantly lower perceptions of the department's view of their productivity than men, despite no significant differences in number of peer-reviewed publications or extent of committee service.
- Figure 3 shows that women rated more sex discrimination in their department (reverse scored) than men.
- Figure 4 shows that women had lower ratings of their department being open to women, compared to men.

Faculty Mentoring – Climate Survey Findings

- This research piece examined the influence of gender similarity (same or mixed sex pairs), perceived similarity (work styles, career aspirations, values and attitudes), and mentoring assignment (relationship type was formally or informally arranged) on mentoring satisfaction and workplace outcomes.
- 45 faculty reported having a career mentor and were directed to questions about their relationship with their primary mentor.

Results

- Table 1 shows that perceived similarity had a greater effect on mentoring relationship satisfaction, affective commitment, and job satisfaction relative to gender similarity.
- Perceived similarity did not mediate the link between relationship type and relationship satisfaction.

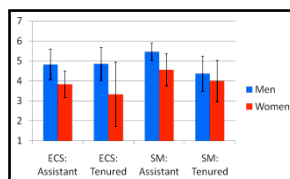


Figure 1. Department Views of Productivity

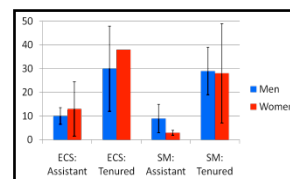


Figure 2. # of Peer-reviewed Publications

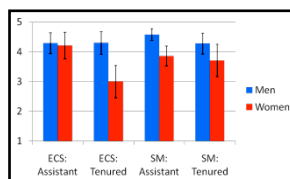


Figure 3. Department Does Not Engage in Sex Discrimination

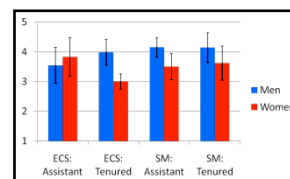
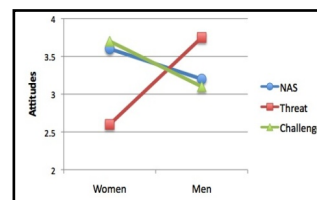
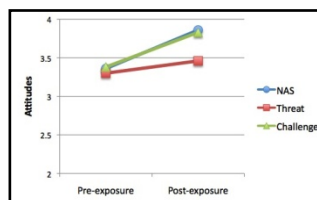


Figure 4. Department is Open to Women

1. Perceived similarity	(.86)					
2. Mentoring relationship satisfaction	.61**	(.89)				
3. Gender similarity	.05	.12	--			
4. Affective commitment	-.56**	-.51**	-.03	(.86)		
5. Job satisfaction	-.54**	-.54**	.09	-.58**	--	
6. Relationship type	.27	.35*	.21	.12	.24	--

Note. N = 45, *p < .05, **p < .01. Alphas of scales are on the diagonal. Gender similarity coded as 1 = same gender, 2 = opposite gender. Relationship type coded as 1 = formal, 2 = informal.

Table 1. Correlations amongst mentoring study variables



Figures 5a, 5b. Attitude Change, and Post-message Attitudes

Persuasion

- This study aimed to foster more hospitable attitudes toward women STEM faculty by uncovering the best persuasive messages for dissemination across the institutions.
- The biobehavioral model of persuasion (Schneider et al., 2009) guided message development. This model posits that effective messages evoke moderate personal concern and high efficacy beliefs to promote attitude and behavior change.
- 125 STEM undergraduates participated.
- They were assigned randomly to one message (see NAS, 2006 below for standard message).

<p>NAS/Standard Concern: Women make up only 1/5 of the nation's scientific and technical workforce.</p> <p>Efficacy: Academic leaders should confront biases and support local senior faculty, male and female, who advocate for fair treatment.</p>	<p>Threat Concern: Women make up a scant 1/5 of the nation's scientific workers.</p> <p>Efficacy: Academic leaders <i>must</i> confront faculty and others who are <i>abusive</i> to students, staff, and faculty.</p>	<p>Challenge Concern: Women make up 1/5 of the nation's scientific workers.</p> <p>Efficacy: Men and women scientists <i>deserve</i> the same amount of respect, opportunity, and departmental collegiality.</p>
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- We assessed pre- and post-attitudes, physiological responses, and behavior (i.e., donating money, donating time, taking a brochure).

Preliminary Results (N = 47)

- Figure 5a shows that the challenge and NAS messages enhanced attitudes toward STEM women over time. There was no change for the threat message.
- Figure 5b shows that STEM undergraduate men's attitudes were more positive given the threat message, whereas women's attitudes were more positive given challenge or NAS messages.
- There were no differences in behaviors between message conditions. However, donations of time appeared highest in the challenge condition (1.7 hours), compared to the NAS (< 1/2 hr) or threat (0) conditions.

References

National Academy of Science (NAS). (2006). *Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering*. Washington, D.C.: National Academies Press.

Schneider, T.R., Lyons, J.B., & Rivers, S.E. (2009). The biobehavioral model of persuasion: Generating challenge appraisals to promote health. *Journal of Applied Social Psychology*, 39(8), 1928-1952.