Advancing Diversity and Inclusion through
Advancing Interdisciplinarity?

Stephanie Pfirman

Arizona State University

Consider the "Who" of Interdisciplinarity

Disciplinary Stereotypes

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

1. Quantitative
2. Qualitative
3. Concerned about others
4. Communal
5. Tough
6. Self-driven
7. Independent
8. Nice
9. Assertive
10. Welfare orientation
11. Self-promoting
12. Helpful
13. Collaborative
14. Careerist
15. Risky science
16. Mainstream science
17. Consensus style
18. Task oriented
19. Socially sensitive
20. Synthesis
21. Quick to publish
22. Productive
23. Multitasking
24. Focused
25. Competitive
26. Societal good
27. Friendly
28. Democratic leadership
29. Hierarchical leadership

Interdisciplinary Stereotypes

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Characteristics of Disciplinary vs. Interdisciplinary Scientists?

Disciplinary

- Quantitative
- Tough
- Self-driven
- Independent
- Assertive
- Self-promoting, take credit for successes
- Careerist
- Risky science within the mainstream/consensus science
- Focused, task oriented
- Quick to publish, get ideas out
- Productive
- Competitive
- Command-and-control leadership (e.g. lab hierarchy)

Interdisciplinary

- Relational, qualitative
- Friendly, nice
- Concerned about others and their welfare
- Helping
- Socially sensitive, listening
- Communal
- Less careerist
- Interdisciplinary science
- Multitasking
- Synthetic
- Not competitive
- Consensus oriented, democratic leadership

Which side looks like an easier promotion case? How much easier? In %?
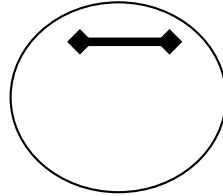
Actually Stereotypes of Men and Women …

Men

- Quantitative
- Tough
- Self-driven
- Independent
- Assertive
- Self-promoting, take credit for successes
- Careerist
- Risky science within the mainstream/consensus science
- Focused, task oriented
- Quick to publish, get ideas out
- Productive
- Competitive
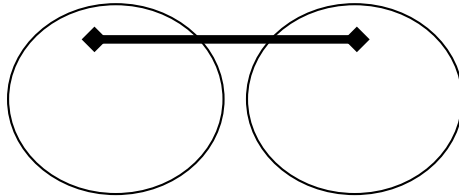- Command-and-control leadership (e.g. lab hierarchy)

Women

- Relational, qualitative
- Friendly, nice
- Concerned about others and their welfare
- Helping
- Socially sensitive, listening
- Communal
- Less careerist
- Interdisciplinary science
- Multitasking
- Synthetic
- Not competitive
- Consensus oriented, democratic leadership

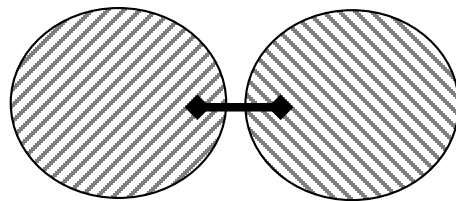# Interdisciplinary Approaches
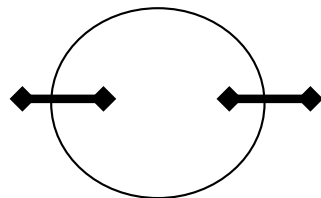## Research, Teaching, Administration

Cross Fertilization – adapting and using ideas, approaches and information from different fields and/or disciplines

Team Collaboration – collaborating in teams or networks that span different fields and/or disciplines
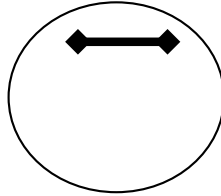
Field Creation – topics that sit at the intersection or edges of multiple fields and/or disciplines
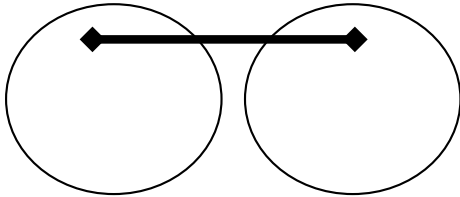
Problem-orientation – problems that engage multiple stakeholders and missions outside of academe, for example that serve society
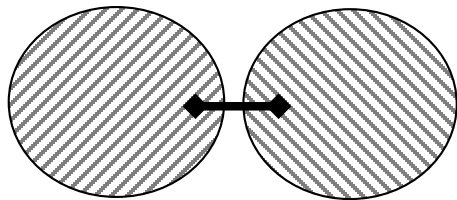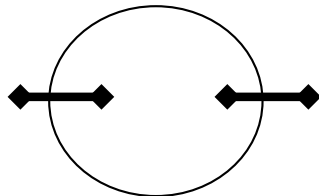
Rhoten and Pfirman, 2007a,b

Why Women & ID?

Cross Fertilization – Stereotype congruence of multitasking for women

Team Collaboration – Collaborating more with peers, so lateral? Men collaborating more hierarchically, within fields?
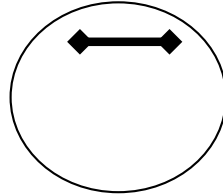
Field Creation – Fleeing the center, the mainstream? Women more often not at R1s, need time and space?

Problem-orientation – Connecting with public good

Rhoten and Pfirman, 2007a,b

Why Women & ID?

Cross Fertilization – Stereotype congruence of multitasking for women

Team Collaboration – Collaborating more with peers, so lateral? Men collaborating more hierarchically, within fields?

Field Creation – Fleeing the center, the mainstream? Women more often not at R1s, need time and space?
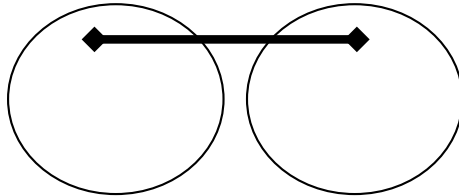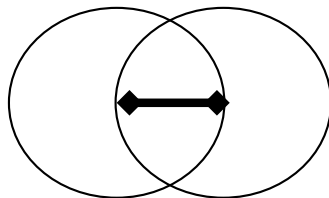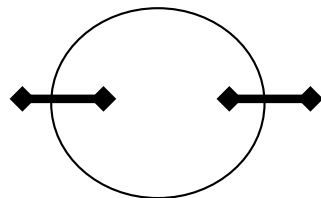
Problem-orientation – Connecting with public good

Rhoten and Pfirman, 2007a,b

"According to professors familiar with what happened, five of the six faculty members not recommended for tenure represent interdisciplinary fields. All six are minorities."

News

SHARE

Interdisciplinary and Out of a Job

March 8, 2013
By Carl Straumsheim

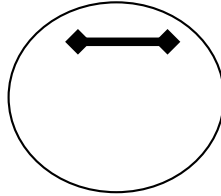Liberal arts professors at the University of Texas at Austin are worried that too many interdisciplinary scholars are losing their tenure bids. Meanwhile, these professors fear that future budget cuts to the university system could further endanger the ethnic studies centers and institutions many of these scholars rely on for programming and research.

Of the 14 instructors up for promotion to associate professor

Why URM & ID?
From 2018 EFRI-Emerging Frontiers in Research and Innovation Discussion …

Cross Fertilization – Always intersectional, always spanning multiple identities, "don't have the luxury of disciplinary focus"

Team Collaboration – Not in power structure of the center of the field? Connecting with others who are also on the margins?

Field Creation – Fleeing the center? More often not at R1s, need time and space?

Problem-orientation – Connecting with public good

No articles were found that directly addressed the question of disproportionate engagement in interdisciplinary research by FOC/URMS

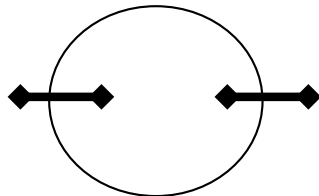14 September 2020 | Developed by Steve Elliott srellio@asu.edu

FOC = Faculty of color, URM = Underrepresented, WR = Well represented

Antonio, Anthony Lising. 2002. "Faculty of Color Reconsidered: Reassessing Contributions to Scholarship." *The Journal of Higher Education* 73: 582–602. https://www.jstor.org/stable/1558434.
> **Finding: FOC more likely to view as career-essential: research, translational research, social change.**

Gibbs Jr., Kenneth D., Jessica C. Bennett, and Kimberly Griffin. 2014. "Biomedical Science Ph.D. Career Interest Patterns by Race/Ethnicity and Gender." *PLOS ONE* 9: e114736. https://doi.org/10.1371/journal.pone.0114736.
> **Finding**: **Biomedical PhD URMs now less interested than WRs in faculty research careers.**

Hofstra, Bas, Vivek V. Kulkarni, Sebastian Munoz-Najar Galvez, Bryan He, Dan Jurafsky, and Daniel A. McFarland. 2020. "The Diversity–Innovation Paradox in Science." *Proceedings of the National Academy of Sciences* 117: 9284–91. https://doi.org/10.1073/pnas.1915378117.
> **Finding: PhD URMs more likely than WRs to connect otherwise disparate *topics*, but with less reward.**
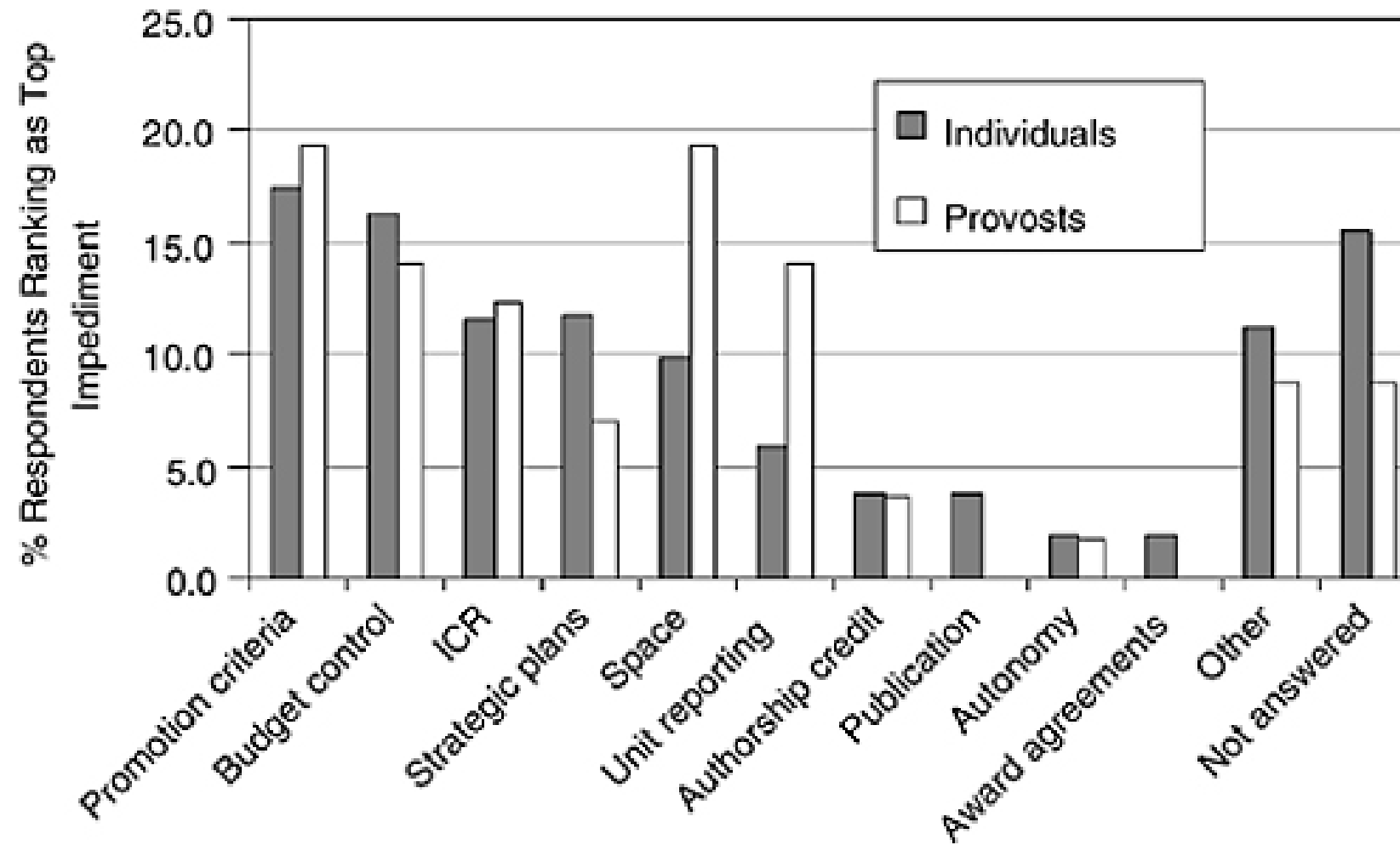
Hoppe, Travis A., Aviva Litovitz, Kristine A. Willis, Rebecca A. Meseroll, Matthew J. Perkins, B. Ian Hutchins, Alison F. Davis, et al. 2019. "Topic Choice Contributes to the Lower Rate of NIH Awards to African-American/Black Scientists." *Science Advances* 5: eaaw7238. https://doi.org/10.1126/sciadv.aaw7238.
> **Finding: URMs more likely to apply for community and population health NIH grants, & not get them.**

Riegle-Crumb, Catherine, Barbara King, and Yasmiyn Irizarry. 2019. "Does STEM Stand Out? Examining Racial/Ethnic Gaps in Persistence Across Postsecondary Fields." *Educational Researcher* 48: 133–44. https://doi.org/10.3102/0013189X19831006.
> **Finding: Compared to other fields, STEM pipelines disproportionately filter out/ select against URMs.**

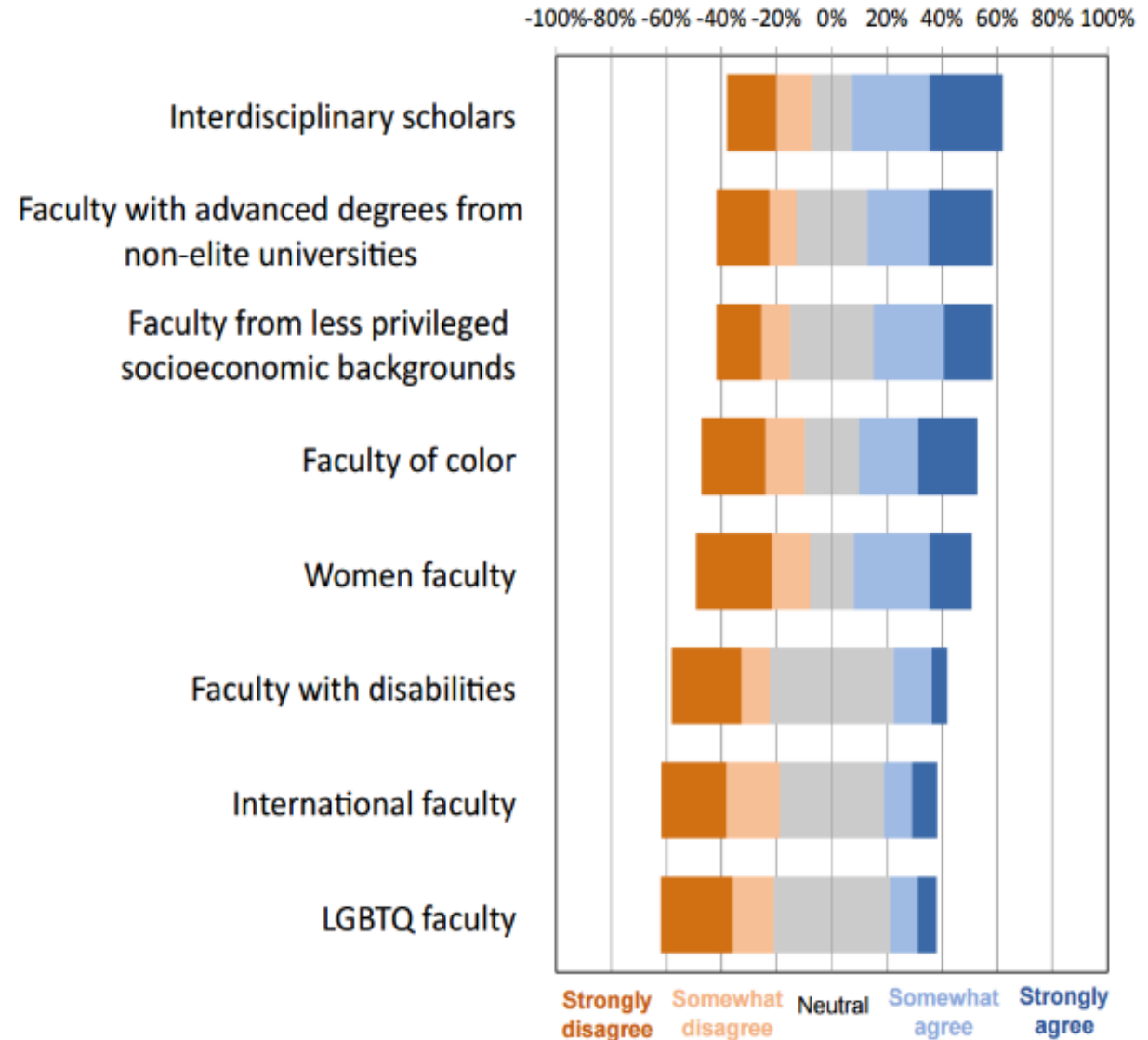# Impediments to Interdisciplinary Research

National Academy of Sciences, National Academy of Engineering, and Institute of Medicine. 2005. *Facilitating Interdisciplinary Research*. Washington, DC: The National Academies Press. https://doi.org/10.17226/11153.

Harder to be Interdisciplinary

Barnard College Climate Survey, Committee for Faculty Diversity & Development, 2015.

Response from 70% of 183 full-time tenure-track (Assistant, Associate and Full Professors) and non-tenure track (Professors of Professional Practice, Associates, and Lecturers) faculty.

Extent of agreement that faculty have to work harder than colleagues to be perceived as comparable scholars

Conclusions

Institutions and organizations interested in <u>increasing interdisciplinary research and teaching</u> may have a greater chance for success if they involve women and minorities

Institutions and organizations interested in <u>increasing their diversity and inclusion</u> may have a greater chance for success if they value interdisciplinary scholarship and teaching

We need to create a culture, implement procedures, and allocate resources that will allow interdisciplinary scholars and students to thrive and prosper