



# The Intersectionalities of STEM Men Faculty: An Unexplored Barrier for Recruiting Women of Color?

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**A**n international cultural climate exists in many STEM departments at Florida International University (FIU), similar to other universities throughout the U.S. In STEM fields, about 26% of workers with PhDs are foreign-born (Information Technology Industry Council, 2012). A recent NSF report indicated that 75% of PhD holders have faculty positions in academia (National Science Board, 2014), suggesting that many foreign-born STEM PhDs are employed as faculty in academe.

The cultural diversity of STEM faculty is critical for innovation, creativity, and discovery, but at the same time adds to the complexity of stereotypes and biases that women and underrepresented minority faculty experience. Cultural values may affect gender and racial stereotypes that contribute to implicit bias in hiring, evaluation, and promotion (Cuddy et al., 2015; Ellemers & Barreto, 2015). However, not much is known about the cultural values of international faculty



concerning gender, race, and ethnicity, how they affect the microclimates of STEM departments in the United States, or the extent to which they affect recruitment, hiring, and promotion of women, especially women of color (WOC).

The concept of intersectionality is a useful tool for exploring the specific gender, racial, and ethnic microclimates of STEM departments. Shields (2008) defined intersectionality as “the mutually constitutive relations among social identities” (p.301). Intersectionality pertains to the interconnections of gender, race, class, and cultural identity as they apply to a given individual or group, and the overlapping and interdependent systems of advantage or disadvantage they create.

Intersectionality is applicable to exploring the identities of dominant group members, in this case, STEM men faculty, in order to better understand the barriers that women in STEM confront, particularly African-American and Hispanic-American women. According to Cole (2009), an intersectionality approach: (1) is attuned to diversity within categories, (2) focuses on neglected groups, (3) develops measures from the perspective of the group being studied, (4) is analyzed by attending to diversity within a group and an analysis may be conducted separately for each group studied, and (5) does not interpret any one group’s experience to represent a universal or normative experience.

An intersectional approach lends itself to the study of micro-inequities and biases that are so woven in the fabric of our social life that they have become invisible to most. As Mary Rowe (2008) noted, micro-inequities are “apparently small events which are often ephemeral and hard-to-prove, events which are covert, often unintentional, frequently unrecognized by the perpetrator, which occur wherever people are perceived to be ‘different’” (p.46). The hierarchies and system of advantages in STEM departments are reproduced in the junction of the interaction between dominant and underrepresented groups.

Understanding more about men’s intersectional identities, such as those of Asian or Middle Eastern men in STEM, may be critical in developing effective strategies for advancing women of color in STEM. For example, a foreign-born male professor may be disadvantaged by his out-group status relative to the predominantly U.S. born White professoriate at most universities, but advantaged by his in-group status within a predominantly same-nationality department. This could create pressures or strong preferences to maintain one’s same-nationality as an in-group within the department. Furthermore,

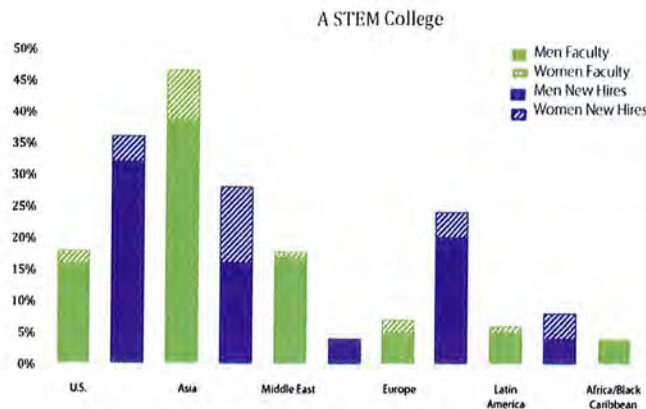


Figure 1- Percentage of Current Faculty and New Hires in a STEM College by National Origin and Gender 2011-2016

nationality-based practices such as speaking one’s native language to one’s graduate students would serve to reinforce the division between the in-group and out-groups. Subsequently, these gender-by-ethnic/racial biases that international faculty members have about U.S. women of color are likely to complicate efforts by ADVANCE programs to recruit and retain those women in STEM.

The issue of achieving a greater level of faculty diversity in terms of gender, race and ethnicity is relevant at FIU because its student population is quite diverse. ADVANCE efforts at FIU, a Carnegie very high research Hispanic and Minority Serving Institution, have been focused on recruiting women of color in STEM to achieve a diverse faculty that better represents its Hispanic and Black student population (64% and 13%, respectively of 55,000 students). Over the past five years of FIU’s NSF PAID grant, significant gains were made in hiring tenure-line women in STEM. Women now comprise 18% of the STEM faculty, up from 14% in 2010. However, less than 2% of FIU’s STEM faculty are Hispanic or Black women.

#### Case Study Approach

We used case studies of one STEM college and two STEM departments to begin to explore the intersectionality of STEM men faculty and as a way to identify cultural-specific barriers and biases to WOC in STEM. First, we looked for possible patterns that occurred in one STEM college in terms of the demographic makeup of the permanent faculty compared to that for all new hires over the past five years, 2011-2016. As shown in Figure 1, the hiring pattern closely mirrored the national origin pattern of the permanent faculty. A majority of the permanent faculty were foreign-born (72%), including Asian (47%), Middle Eastern (18%), and European (7%). A majority of the new hires were Asian, Middle Eastern, and European (56%). When women were hired, they tended to fit within these nationalities as well.



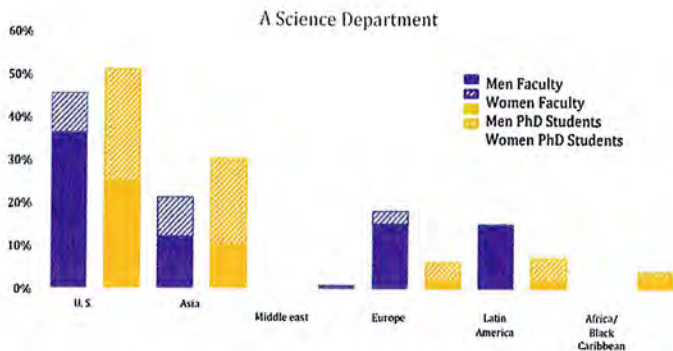


Figure 2- Percentage of Current Faculty and PhD students in a Science Department by National Origin and Gender

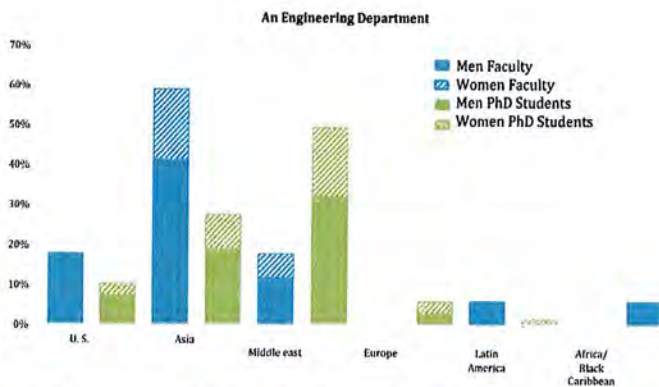


Figure 3- Percentage of Current Faculty and PhD students in an Engineering Department by National Origin and Gender

In terms of gender, most of the women faculty and graduate students were within the dominant nationality groups. This suggests that it may be easier to interest subgroups of faculty in hiring women if the women are of the same nationality.

Our next step was to conduct case studies of two departments, one in the sciences and one in engineering, focusing on the national origin and gender characteristics of the permanent faculty compared to the doctoral student body. For both departments, there was a noticeable similarity based on national origin in the proportion of the faculty and doctoral students. For example, as shown in Figure 2, the Science department had a large percentage of US-born and Asian-born faculty (45% and 21% respectively). It also had a similarly high proportion of US and Asian born graduate students (51% and 30%, respectively). One faculty member confirmed that Asian colleagues recruit students in their trips to their country of origin as a way to ensure they will have successful PhD students, suggesting there is a strong bias among this group for same-nationality recruitment.

Likewise, as shown in Figure 3, the findings from one Engineering department indicated that the dominant faculty groups were foreign born, specifically, Asian and Middle Eastern (58% and 18%, respectively). The composition of the doctoral students fit the same pattern: Asian and Middle Eastern born PhD students comprised 77% of the department's students.

Overall, the three case studies revealed a strong same-nationality and same-gender preference among faculty in terms of hiring and doctoral student recruitment. Interestingly, the few Hispanic and Black faculty in the Science or Engineering departments also were foreign-born, not U.S. natives. Underrepresented ethnic/racial groups from the U.S. such as African-American, Hispanic-American, or Native American were not represented.

In terms of gender, most of the women faculty and graduate students were within the dominant nationality groups. This suggests that it may be easier to interest subgroups of faculty in hiring women if the women are of the same nationality. However, this will not facilitate FIU's intended goal of hiring more WOC. In fact, another barrier to the recruitment of WOC that the data suggests is the possibility that having large nationality subgroups might result in faculty and students communicating in their native language, further creating an additional in-group versus out-group dynamic. The extent to which these patterns reflect a bias on the part of the faculty remains to be explored. It may be that the preference for colleagues and students from the same national origin is at the subconscious level and should be addressed as an implicit bias.

As Shields (2008) points out, "Intersectionality theory, by virtue of its description of multidimensional nature of identity makes investigation through qualitative methods seem both natural and necessary"

Our suggestion is that further research is needed to understand more about the diversity within STEM faculties, especially understanding the interaction between foreign-born STEM men and WOC. In our view, qualitative methods are particularly suitable and necessary to study such intersectionality. As Shields (2008) points out, "Intersectionality theory, by virtue of its description of multidimensional nature of identity makes investigation through qualitative methods seem both natural and necessary" (p. 306). We expect that intersectionality research will provide insight into the patterns of socializing and collaborating among faculty as well as how cultural microclimates operate and affect diversity and inclusion. A more culturally nuanced view of gender by racial and ethnic stereotypes and biases also could be used to design more effective interventions to advance WOC and promote diversity more generally.

### Conclusion

Our findings lead us to question the assumptions that the majority of STEM faculty are White U.S. born men and that their cultural and gender biases are the norm. In many STEM departments, a large proportion or even a majority of the faculty are likely to be foreign-born STEM men that hold culturally-based gender stereotypes about women from their own culture and different gender-by-cultural stereotypes about women from other cultures that create unique barriers to recruiting women of color in STEM. Further research on men's intersectionalities and the departmental microclimates that are created by cultural groupings would help to identify culturally specific barriers to advancing women in STEM, as well as to develop educational programs that address these culturally heterogeneous biases. ●

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### References

- Ackelsberg, M., Hart, J., Miller, N. J., Queeney, K., & Van Dyne, S. (2008). Faculty Microclimate Change at Smith College. In W. Brown-Glaude (Ed.), *Doing Diversity in Higher Education: Faculty Leaders Share Challenges and Strategies* (pp. 83–102). New Brunswick, New Jersey: Rutgers University Press.
- Brewer, M. B. (1979). In-Group Bias in the Minimal Intergroup Situation: A Cognitive-Motivational Analysis. *Psychological Bulletin*, 86(2), 307–324. <http://doi.org/10.1037/0033-2909.86.2.307>
- Cole, E. R. (2009). Intersectionality and research in psychology. *The American Psychologist*, 64(3), 170–180. <http://doi.org/10.1037/a0014564>
- Cuddy, A. J. C., Wolf, E. B., Glick, P., Crotty, S., Chong, J., & Norton, M. I. (2015). Men as cultural ideals: Cultural values moderate gender stereotype content. *Journal of Personality and Social Psychology*, 109(4), 622. <http://doi.org/10.1037/pspi0000027>
- Ellemers, N., & Barreto, M. (2015). Modern discrimination: how perpetrators and targets interactively perpetuate social disadvantage. *Current Opinion in Behavioral Sciences*, 3, 142–146. <http://doi.org/10.1016/j.cobeha.2015.04.001>
- Hurtado, S., Gasiewski, J., & Alvarez, C. L. (2014). *The Climate for Diversity at Cornell University: Student Experiences*. Retrieved May, 5, 2015 Retrieved from <http://dosen.narotama.ac.id/wp-content/uploads/2014/11/The-Climate-for-Diversity-at-Cornell-University-Student-Experiences.pdf>
- Information Technology Industry Council, Partnership for a New American Economy, & U.S. Chamber of Commerce. (2012). *Help Wanted: The Role of Foreign Workers in the Innovation Economy*. Retrieved from <http://www.renewoureconomy.org/index.php?q=content/stem-report>
- Kilduff, M., & Brass, D. J. (2010). Organizational Social Network Research: Core Ideas and Key Debates. *The Academy of Management Annals*, 4(1), 317–357. <http://doi.org/10.1080/19416520.2010.494827>
- National Science Board. (2014). *Science & Engineering Indicators. National Science Board*. Retrieved from <http://www.nsf.gov/statistics/seind14/index.cfm/etc/pdf.htm>
- Rowe, M. (2008). Micro-affirmations and micro-inequities. *Journal of the International Ombudsman Association*, 1(1), 45–48.
- Shields, S. A. (2008). Gender: An Intersectionality Perspective. *Sex Roles*, 59(5-6), 301–311. <http://doi.org/10.1007/s11199-008-9501-8>