**Introduction**

- Social networks and intra-organizational networking are predictive of career success (Seibert, Kramer, & Liden, 2001).
- Yet, women may have difficulties building social networks when they enter into an area, such as STEM where they are judged as less competent or as outsiders (Hill, Corbet, & Rose, 2010).
- A key component of analyzing the success of the ADVANCE program at the University of Cincinnati (UC LEAF) involves measuring social climate through various social relationships among faculty.
- Social networks help us understand climate through different types of social relationships and their relationship to outcomes (e.g., productivity, promotion, attrition) (Ofem, Floyd, & Borgatti, in press).
- Two types of relationships of particular interest are those that promote research productivity (e.g., collaboration) and those that provide socio-affective support (e.g., friendship).
- Intra-departmental network data provide insight into workplace perceptions of who faculty go to for these types of supports/contacts at the department level, while comparisons of network structures across departments may reveal systematic patterns within the institution (Ofem, Floyd, & Borgatti, in press).
- Presented here are four STEM departments and their “for research” and “for socio-affective” support networks.

**Method**

- Network surveys were administered to faculty in 4 STEM departments at the University of Cincinnati. Surveys asked participants who they would go to for various types of support.
- Survey results were collected and sent to a third party for confidentiality purposes. Participants were assigned a number to report their survey responses.
- Participants included all faculty, but only those with tenure-track appointments (Assistant, Associate and Professor) were included in the analyses here.
- Survey Materials
  - Participants were asked to select which colleagues they would seek out for help with the following:
    - Administrative Help, Navigating Office Politics, Publication, Mentorship, Grant Funding, Sounding Board, Teaching, Work-Life Balance, RPT, Friendship, Trust, Diversity Issues, Research, Service
- Data Analysis and Reduction
  - UCINET and NetDraw were used to analyze and visualize the data (Borgatti, Everett, & Freeman, 2002)
  - Research network:
    - Weighted, directed graph combining Publication, Grant Funding and Research
  - Socio-Affective network:
    - Weighted, directed graph combining Friendship, Trust and Sounding Board

**Legend**

- Blue= Women
- Red= Men
- Line Thickness: Number of networks the tie exists in (1-3)
- More networks= thicker line
- Node Size: Scaled by centrality/indegree (number of times a node was chosen)
- Bigger nodes were chosen more often

**Results**

- **Department 1**
  - Research—Women appear to be chosen less often than men.
  - Socio-Affective—Although women are chosen an approximately equal amount, they have a stronger role in the overall socio-affective network than for research.

- **Department 2**
  - Research—At least one woman appears to have high centrality (high indegree), although all other women are chosen less than their male counterparts.
  - Socio-Affective—Women are chosen more often than men, and appear to have a higher centrality as a group.

- **Department 3**
  - Research—Women appear unimportant, as most individuals chose to seek out men for support for research related activities.
  - Socio-Affective—Women appear to be equally important to men, and are sought out at approximately equal levels.

- **Department 4**
  - Research—Women appear to be concentrated, but sought out for research in approximately equal proportions to male faculty.
  - Socio-Affective—Men seem to be chosen the most, with women falling to the periphery of the network, with several men having NO relationship to any women in this larger department.

**Discussion**

- Departments 1, 2, and 3 imply that women and men occupy different social roles.
- Women are viewed as friends, are trusted, and appropriate to vent or discuss ideas with, more so than men.
- Men are viewed as more appropriate partners for research-related activities, which tend to be more highly valued in research-focused institutions.
- Department 4 showed a different pattern of role distribution.
- Men are viewed as appropriate friends, trusted and sounding boards, roles occupied by women in the other departments; yet, a substantial portion of men faculty reserve such ties to their male peers.
- Collectively these results imply that departments vary in climate and inclusiveness, and that women’s and men’s experiences vary as a function of roles.
- Furthermore, these results demonstrate that social network analysis is an excellent tool that can differentiate and tease apart differences at the departmental level.

**Future Directions**

- Social network data should be combined with climate survey data to compare perceptions of departmental climate with overall perceptions of university culture.
- While preliminary analyses indicate differences between sexes, additional analysis should be employed to determine how these differences emerge or are constrained.
- To understand the impact of rank on social networks, future research should determine if centrality is a function of appointment status (e.g., Assistant/Associate/Professor).
- Since these four departments are housed in the same college, additional analyses should include a more diverse set of departments to determine if departmental differences are largely homogenous and imply organizational culture or continue to show heterogeneity.

**References**


