

*Invisible but Essential: The Role of Professional Networks in Promoting Faculty Agency in Career Advancement*

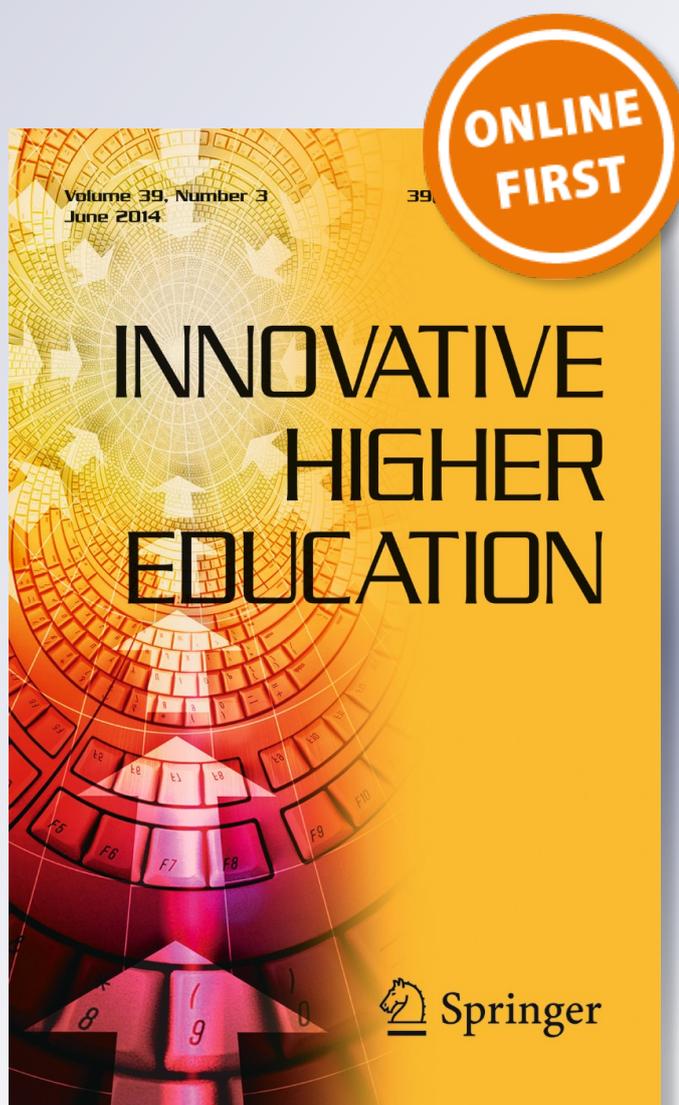
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# Invisible but Essential: The Role of Professional Networks in Promoting Faculty Agency in Career Advancement

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**Abstract** The benefits of professional networks are largely invisible to the people embedded in them (O'Reilly 1991), yet professional networks may provide key benefits for faculty careers. The purpose of the study reported here was to explore the role of professional networks in faculty agency in career advancement, specifically focusing on the overall relationship between the social capital gained from networks and faculty agency in career advancement. Findings suggest that off-campus networks are particularly important for faculty agency but that the benefits of networks may take time to develop.

**Keywords** Faculty careers · Agency · Professional networks

Consider the following story. Two young scholars begin their careers at comparable research universities. They both enter their positions with similar research interests and strong relationships in their doctoral programs. One of the scholars, however, whom we will call "Connected" seeks out relationships with peers and more senior colleagues. These relationships bear fruit in an invitation to become an associate editor and then editor of a new but important journal, and years later several faculty members in this network nominate "Connected" for a career award. We will call the second faculty member "Separated." Separated becomes so involved in research and the demands of the tenure track that there is

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little time to foster professional relationships. Separated watches as better connected peers seem to hear about new funding opportunities and editorial positions sooner. Separated is promoted to associate professor but feels somewhat stuck professionally and sees few avenues for feedback to make a leap to the next level of research success.

It is common for individuals and groups to associate individual success with personal grit and determination, brilliance, leadership abilities, and natural talent rather than with a somewhat invisible professional network that assists in pulling strings, creating opportunities, and generally scaffolding career success. Webs of interaction and the benefits of professional networks are largely invisible to the people embedded in them (O'Reilly 1991), yet there is ample evidence that professional networks matter for career success. Professional networks inside higher education act as invisible levers that advance faculty careers. A key way they do this is by providing information, influence, and allies that grow social capital – “the social relations and resource advantages of both individuals and communities” (Ibarra, Kilduff and Tsai 2005, p. 360).

One of the possible benefits of professional networks that has yet to receive much attention in the literature is the enhancement of faculty members' agency in career advancement. O'Meara, Campbell, and Terosky (2011), defined *agency* as a faculty member “assuming strategic perspectives and/or taking strategic actions toward goals that matter to him/her” (p. 1). This conceptualization of agency builds from an extensive review of social science literature from sociology, psychology, human development, and organizational behavior (see for example, Archer 2000; Emirbayer and Mische 1998; Ganz 2010; Marshall, 2000; Sen 1985). Using this conceptualization, agency has two forms – *perspective*, or making meaning of situations and contexts in ways that advance personal goals, and the *behaviors* or actions taken to pursue goals in a given situation (O'Meara et al., 2011).

In the context of a research university career on the tenure track, agency in career advancement includes believing that one can succeed in getting tenured (*agency perspective*) and promoted and taking specific actions such as asking for needed resources, writing papers, submitting grants, and developing good networks with potential external reviewers in the field (*agency behavior*). Agency in career advancement is important for the retention and advancement of faculty members in research universities and has been linked to a variety of concrete outcomes including satisfaction with life and work, productivity, organizational change, and larger social change (Baez 2000; Cerecer, Ek, Alanis, and Murakami-Ramalho 2011; Elder 1994; Ganz 2010; Germain 2012; Kezar and Lester 2009; Neumann, Terosky and Schell 2006).

Despite the importance of faculty agency in career advancement, higher education scholars are only just beginning to understand the individual, organizational, and societal factors that influence agency perspectives and behaviors. The purpose of our study was to explore the role of professional networks in faculty agency in career advancement, specifically focusing on the overall relationship between networks and agency in career advancement (both perspective and behavior) and whether that relationship differs for different groups of faculty. In the following review of the literature we will explore the key theoretical constructs that inform our understanding of professional networks and the relationship between networks and agency.

## Review of the Literature

In their seminal work on the preparation of future faculty, Austin and McDaniels (2006) identified the ability to cultivate professional networks as one of the key skills for 21<sup>st</sup> century faculty. Whereas older literature on careers in and out of academia focused on individual

mentoring relationships, more recently the focus has increasingly been on the development of networks of mentoring relationships rather than one specific mentor (Baker and Latucca 2010; Seibert, Kraimer, and Liden 2001). These types of networks are related to a wide array of career outcomes, including employment opportunities (Brass, Galaskiewicz, Greve, and Tsai 2004; Ibarra and Deshpande 2004), career advancement (Brass et al. 2004; Ibarra and Deshpande 2004; Seibert et al. 2001), power and influence (Brass et al. 2004; Ibarra and Deshpande 2004), higher salary (Seibert et al. 2001), and cognitive flexibility in thinking about one's career (Higgins 2001). Within academia, networks have been found to influence faculty research productivity (Blau, Currie, Croson, and Ginther 2010; Bryson 2004; O'Meara and Niehaus 2013; Sagaria and Dickens, 1997), grant productivity (Rawlings and McFarland 2011), and advancement on the tenure track (Bilimoria, Joy, and Liang 2008; Williams and Williams 2006).

One of the primary ways that networks may enhance agency in career advancement is through enhancing faculty members' social capital, which is a key component in predicting agency in a variety of settings including prioritization of teaching in research universities (Terosky 2005), the decision to take parental leave (O'Meara and Campbell 2011), and pursuit of interdisciplinary research (Gonzales and Rincones 2008). In higher education institutions the more social capital an individual has, the more status, recognition, and legitimacy he or she can acquire to advance in career. Social capital, by definition, arises from one's connections to others. As Lin (1999) described it, "social capital is captured from embedded resources in social networks" (p. 28). Networks build one's social capital by providing access to information, influence, resources, and career sponsorship (Christakis and Fowler 2009; Ibarra and Deshpande 2004; Ibarra et al. 2005; Lin 1999; Seibert et al. 2001). A faculty member's professional network also sends a message to others about that faculty member's competence, power, and career potential (Ibarra et al. 2005; Lin 1999).

### Network Content and Structure

While networks can enhance social capital for faculty members, not all networks are created equal. Differences in network content and structure can substantially influence the benefits from those networks (e.g., Dobrow and Higgins 2005; Higgins 2001; Polodny and Baron 1997). Ideally faculty members would develop multiple networks across multiple contexts, but the fact is that networks take time and energy to build and maintain. As such, faculty members need to invest their time and energy strategically in order to get the highest return on that investment (Burt 1992). Networks can serve a variety of purposes in an individual's professional life. Some networks may provide instrumental career support, such as access to information and resources, while others may be more expressive or friendship-based (Kezar 2014). These different types of networks may lead to different career outcomes; for example, Higgins (2001) found that instrumental contacts were positively associated with career change.

The number and relative power of contacts in one's professional network is of course important, but size is not everything. Diversity of network connections is more important in providing access to non-redundant information (Burt 1992). There are two ways in which network diversity is typically measured – range and density. Range refers to the number of contexts from which network members are drawn (Dobrow and Higgins 2005; Higgins and Kram 2001) and has been found to be a predictor of access to instrumental resources (Ibarra 1993), cognitive flexibility in one's career, career change, and the number of job offers one receives (Higgins 2001). Density refers to the extent to which members of the network know one another (Dobrow and Higgins 2005). Low-density networks have been associated with

positive career outcomes such as upward mobility (Polodny and Baron 1997) and professional identity (Dobrow and Higgins 2005). Thus, networks with greater range and lower density are likely to provide the most benefit to faculty.

### Conditional Effects of Networks and Agency

Individuals' networks differ in content and structure in predictable ways, and the effects of networks on agency are also likely to differ. In this article we focus on two of those ways – the location of networks (on- or off-campus) and career stage. First, whether faculty members turn to colleagues on- or off-campus is likely to influence the content and structure of those networks. Universities cannot always hire more than a few specialists in any one area, meaning that off-campus networks are more likely to be connected to one's disciplinary area of concentration. Off-campus colleagues can provide instrumental support specific to one's discipline, such as nominating faculty members for awards, connecting them with presentation and funding opportunities, and linking them to other influential scholars (Valian 1998). This support is likely why strong off-campus networks have been shown to be positively related to research productivity (Blau et al. 2010; Creamer 1998; Neumann 2009; O'Meara and Niehaus 2013). On-campus relationships, on the other hand, are able to provide faculty members with knowledge vital to navigating internal politics, reward systems, and opportunities (Ponjuan, Conley and Trower 2011). These on-campus networks, however, are more likely than off-campus networks to be characterized by weaker ties and lower levels of trust (Kezar 2014). Network location may also be related to the range and density of one's professional network. Network contacts drawn entirely from one institutional context (on-campus networks) have, by definition, a lower range than do networks drawn from multiple institutional contexts. While off-campus networks could theoretically be drawn from a single *other* institutional context, faculty members with off-campus networks are more likely to have broader range and lower density in their networks than faculty members with predominantly on-campus networks.

Second, the content and structure of professional networks may change for faculty members over time as their access to different types of network connections and their need for career support changes. Professional networks are critical to pre-tenure faculty members because many off-campus contacts become external reviewers for tenure. Likewise, on-campus colleagues are vital to negotiating the tenure process (Pifer and Baker 2013). Yet professional networks may be even more important for associate and full professors to sustain research momentum and professional growth post-tenure (Baldwin, Lunceford and Vanderlinden 2005; Neumann 2009). A number of studies have shown that associate professors at research universities are least satisfied with their on-campus networks (Baldwin et al. 2005; Trower 2012). Pre-tenure faculty members, however, are particularly vulnerable in their positions (Tierney and Bensimon 1996) and may struggle with conflicting advice from senior colleagues and unclear tenure expectations (Austin 2010).

### The Study

#### Purpose

Professional networks serve an important purpose in faculty members' lives, yet the relationship between networks and agency in career advancement, overall and for different groups of

faculty, is not yet well understood. The purpose of this study was to explore the overall relationship between professional networks and agency in career advancement, as well as the conditional effects of network location and career stage.

## Data

Data for this study come from the 2013 Faculty Work Environment Survey (FWES) at a large research-extensive university in the United States (hereafter, “the University”). The purpose of the FWES was both to assess and measure change in the work climate for faculty at the University and to contribute to the literature on faculty careers and work environments. The 2013 FWES was the second administration of the survey as part of an NSF funded ADVANCE project at the University, and it had been approved by the University Institutional Review Board. Prior to the first administration of the survey at the University in 2011, the instrument was validated through expert review and a small pilot test. Additional edits were made prior to the 2013 administration to strengthen the validity of the survey and to shorten the instrument so as to increase response and completion rates.

These surveys and this study provide a unique contribution to the literature on faculty careers. Although looking at one single institution limits the generalizability of the results, by studying one research university we were able to examine the relationships between faculty networks and agency in career advancement independent of institutional effects likely to differ among institutions, such as resources and prestige (Blackburn and Lawrence 1995; Creamer 1998). Looking at a single institution we were also able to understand these relationships within the context of broader institutional trends. The FWES was part of an institutional effort to strengthen faculty professional networks in order to improve retention, sense of agency in career advancement, leadership opportunities, and support for work-life balance.

All full-time tenured and tenure-track faculty at the University were invited to participate in the online FWES during the early spring of 2013; 47 % of these faculty members responded to the survey (a total of 784 respondents). This response rate is quite high for a faculty survey; for example, the Higher Education Research Institute only requires 20–35 % participation rate for universities and colleges to be included in the normative sample for its survey of undergraduate teaching faculty (Hurtado et al. 2012). Women, White faculty, and assistant professors were slightly overrepresented in the sample compared to the overall University population; full professors were slightly underrepresented.

## Dependent Variables

Faculty agency in career advancement was conceptualized and measured in two different constructs – agency perspective (self-talk or strategic views taken to advance in a given situation) and agency behavior (specific actions taken to help one advance) – previously developed and validated by Campbell and O’Meara (2014). Agency perspective was operationalized using a three-item scale reflecting the extent to which faculty members feel stuck in their ability to advance their careers (reverse coded), feel that they have control over whether they advance in their career, and feel that they are in charge of the direction of their research agendas ( $\alpha=.784$ ). Agency behavior was operationalized using a separate three-item scale reflecting the extent to which respondents reported being strategic in achieving their career goals, able to seize opportunities when they are presented to advance in their careers, and have intentionally made choices to focus their careers in ways that are personally meaningful ( $\alpha=.691$ ).

## Independent Variables

The extent to which respondents perceived that their professional networks enhanced their social capital (hereafter referred to as “perceived network capital”), the key variable of interest in this study, was operationalized using a four-item scale reflecting the extent to which respondents’ networks enhance their visibility in their fields, let them know of professional opportunities, include one or more members who are influential in their field, and provide helpful feedback on their research ( $\alpha=.837$ ). Each item was measured using a 5-point Likert-type response scale, and the mean of the four items was used as the overall measure of perceived network capital. The higher the mean scores across the four items, the more respondents felt that their networks enhanced their social capital.

In addition to measuring respondents’ perceived network capital, we also asked them to indicate whether their primary professional networks were on or off-campus. Although it is likely that most faculty members have at least some network ties both on- and off-campus, as Burt (1992) noted, networks take time and energy to build and maintain. As such, our goal was to measure where faculty members were making the most investment. As described above, based on the previous literature we hypothesized that the relationship between perceived network capital and agency was likely to vary based on the location of respondents’ networks and career stage, so these were included in the analysis. (On-campus was coded as 0, off-campus as 1; rank was dummy coded with full professors as the referent group).

Research on both professional networks and agency has pointed to the importance of social identities (Brandes, Dharwadkar and Wheatley 2004; Ibarra 1993; Steffen-Fleur 2006), so we included gender (male=0, female=1) and race (White=0, faculty of color=1) in the analysis. We also included two other aspects of faculty work environments, collegiality and recognition, as control measures in our study because prior research has shown a strong relationship between these environmental factors and faculty agency in career advancement (Bozeman and Gaughan 2011; Campbell and O’Meara 2014; O’Meara and Niehaus 2013). We wanted to ensure that the relationship we saw between networks and agency was not due to positive or negative climate in one’s department. *Collegiality* was operationalized using a five- item scale reflecting reported satisfaction with collegiality in one’s unit, feeling isolated in one’s unit, satisfaction with the transparency of decision making in one’s unit, satisfaction with the support of colleagues, and feeling like faculty members in one’s unit care about one’s well-being ( $\alpha=.876$ ). *Recognition* was measured in a single item reflecting the extent to which respondents felt that faculty in their units valued their research/scholarship.

## Data Analysis

First, we calculated descriptive statistics to determine whether faculty respondents indicated that their primary networks were on-campus or off-campus and chi-squared statistics to determine whether this break-down varied based on or rank. We conducted one-way ANOVA analyses to determine whether there were significant differences in perceived network capital based on network location or rank. Next, we ran separate regression models for agency perspective and agency behavior, following the framework described above. We entered interaction effects (networks x rank and networks x location) into each regression model, one at a time, to test for significant interactions. Finally, where significant interaction effects were identified, we ran separate regression models by group to illustrate the interaction effect.

## Results

### Location of Faculty Members' Networks

The descriptive analysis showed that just over one-third (37 %) of the respondents indicated they had primarily on-campus networks while just under two thirds (64 %) indicated they had predominantly off-campus networks. This break-down varied by rank ( $\chi^2=11.849$ ,  $df=2$ ,  $p=.003$ ), with assistant professors being most likely to have on-campus networks (ASR=3.1) and associate professors more likely to have off-campus networks (ASR=2.6) than the overall sample. However, it is important to note that the majority of assistant professors, 53.8 %, still responded that their networks were primarily off-campus.

### Differences in Network Capital

We next explored differences in perceived network capital based on network location and rank. Faculty members whose networks were predominantly off-campus reported significantly more perceived network capital (mean=4.12) than did those whose networks were predominantly on-campus (mean=3.87,  $p<.001$ ). Perceived network capital did not vary based on rank ( $F=2.977$ ,  $df=2$ ,  $p=.052$ ).

### Relationship Between Networks and Agency

In the overall regression models to explore the relationship between perceived network capital and agency, perceived network capital was a significant, positive predictor of both agency perspective and agency behavior (see Table 1) – the more respondents' perceived that their professional networks enhanced their social capital, the stronger their reported agency perspective and agency behavior. Having primarily off-campus networks was a significant negative predictor of agency perspective although the coefficient was relatively small (-.089), indicating that faculty members whose primary networks were off-campus reported slightly less agency perspective than did those whose primary networks were on-campus, controlling for the other variables in the model.

**Table 1** Overall regression models

	Agency Perspective	Agency Behavior
Gender	-.048	.016
Faculty of Color	-.032	.010
Assistant	-.074*	.027
Associate	-.109**	-.046
Collegiality	.279***	.008
Recognition	.302***	.202***
Perceived Network Capital	.238***	.259***
Network Location	-.089*	-.030
R <sup>2</sup>	.456	.139

Standardized regression coefficients

\*\*\* $p<.001$ , \*\* $p<.01$ , \* $p<.05$

Conditional Effects of Networks on Agency – Network Location

To explore the differential effects of perceived network capital on agency perspective and behavior, we next entered interaction effects into the regression models. The interaction of perceived network capital and network location was significant for both agency perspective ( $p=.013$ ) and agency behavior ( $p=.011$ ), meaning that the relationship between perceived network capital and both agency perspective and behavior differed for faculty members whose networks were predominantly on- or off-campus.

Based on this result, we ran separate regression models for both agency perspective and agency behavior based on primary network location (see Table 2). Perceived network capital was almost twice as strong a predictor of agency perspective for those who had predominantly off-campus networks as for those who had predominantly on-campus networks. Similarly, perceived network capital was 2.5 times stronger a predictor of agency behavior for those with off-campus networks than for those with on-campus networks. In fact, perceived network capital was not a significant predictor of agency behavior for those faculty members who reported that their primary discussion networks were on-campus.

Conditional Effects of Networks on Agency – Career Stage

The interaction of perceived network capital and participant rank was significant for agency behavior ( $p<.001$ ) – the relationship between perceived network capital and agency behavior differed between assistant and full professors. The influence of perceived network capital on agency perspective did not vary by rank. Based on this result, we ran separate regression models for agency behavior for assistant, associate, and full professors (see Table 3). The results showed that perceived network capital was a strong, significant predictor of agency behavior for both associate and full professors but was unrelated for assistant professors. This was true even if the regression model was run just on assistant professors whose networks were primarily off-campus. In fact, for assistant professors, none of the variables we included in the model were significant predictors of agency behavior, the model itself was not significant ( $p=.249$ ), and the overall model only accounted for 6.7 % of the variance ( $R^2$ ) in

**Table 2** Regression analysis by network location

	Agency Perspective			Agency Behavior		
	Overall	On	Off	Overall	On	Off
Gender	-.048	-.175**	.001	.016	-.026	.023
Faculty of Color	-.032	-.067	-.024	.010	-.032	.033
Assistant	-.074*	-.043	-.072	.027	.046	.028
Associate	-.109**	-.134*	-.100*	-.046	-.093	-.023
Collegiality	.279***	.259***	.284***	.008	-.010	.027
Recognition	.302***	.384***	.285***	.202***	.272**	.176**
Perceived Network Capital	.238***	.146*	.281***	.259***	.131	.327***
Network Location	-.089*	n/a	n/a	-.030	n/a	n/a
R <sup>2</sup>	.456	.505	.434	.139	.124	.171

Standardized regression coefficients

\*\*\* $p<.001$ , \*\* $p<.01$ , \* $p<.05$

**Table 3** Regression analysis by rank

	Agency Behavior			
	Overall	Asst.	Assoc.	Full
Gender	.016	-.059	.025	.040
Faculty of Color	.010	-.034	.043	.030
Assistant	.027	n/a	n/a	n/a
Associate	-.046	n/a	n/a	n/a
Collegiality	.008	.128	.153	-.112
Recognition	.202***	.156	.130	.264***
Perceived Network Capital	.259***	-.001	.244**	.400***
Network Location	-.030	.009	.043	-.107
R <sup>2</sup>	.139	.067	.153	.217

Standardized regression coefficients

\*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$

agency behavior for assistant professors. In contrast, the model predicted 21.7 % and 15.3 % of the variance in agency behavior for full and associate professors, respectively.

### Limitations

Before moving on to a discussion of the results of this study, it is important to note a few key limitations. Most importantly, we were only able to capture a snapshot of faculty perceptions of their networks at one point in time. It is possible that any number of factors could have influenced how faculty felt about their networks in the moment. We were also unable to measure faculty members' networks directly, as much of the research using social network analysis does. Instead, we created one way to measure perceived social capital from respondents' professional networks; but other measures could have led to different results. Finally, there are any number of variables that might influence faculty agency. We included those that seemed most relevant to our particular questions based on the previous literature, but we do not yet have a comprehensive model of the factors that contribute to faculty agency. This is particularly evident in the results described below as our model for this study was not particularly effective for explaining agency behavior in assistant professors. Despite these limitations, we believe that this study makes a unique contribution to our understanding of the role that networks play over the course of faculty careers, and of how different types of networks function differently.

### Discussion and Implications

Consistent with previous research on the importance of professional networks (Bilimoria et al. 2008; Blau et al. 2010; Bryson 2004; O'Meara and Niehaus 2013; Ryan et al., 2012; Sagaria and Dickens, 1997; Williams and Williams 2006), we found that perceived network capital overall was a significant, positive predictor of agency in career advancement, both in perspective and behavior. This study builds on and contributes to the discussion of the importance of faculty networks by exploring how the relationship between perceived network capital and agency in career advancement may differ based on network location and career stage.

## Network Location

Our finding that off-campus networks generally provided greater perceived social capital benefits than on-campus networks was not a surprise. As the focus of our networks measure was on instrumental career support and social capital – enhancing visibility, providing information on professional opportunities, connecting to people who are influential in one's field, and providing feedback on research – one might expect that faculty members who find their support off-campus get more of this. Above and beyond this difference in perceived network capital depending on network location, however, we also found that off-campus networks were almost twice as strong a predictor of agency perspective and more than twice as strong a predictor of agency behavior than were on-campus networks. This finding likely has to do with range and density of those networks: on-campus networks, even if enhancing respondents' social capital, are likely providing more redundant information than are off-campus networks. In a world where national and international reputation is one of the major ways legitimacy is traded, status provided, and power ascribed, those faculty members with off-campus networks were gaining access to more diverse social capital that was valuable to their sense of agency in career advancement.

This finding may also be related to faculty members' views of the transferability of their social capital. On-campus networks are specific to one institution; if things go wrong at that institution, faculty members whose networks are predominantly on-campus are stuck without many options. Off-campus networks and the social capital they provide are transferrable to any institution to which faculty members might go, which enables them to envision more possibilities for their careers. In the face of challenges, this allows faculty members to adopt more agentic perspectives and feel that they have more control over their careers.

## Career Stage

Finally, our findings on the different relationships between networks and agency based on career stage included some surprising findings based on the previous research; but other findings were not surprising. Full professors overall reported higher levels of agency perspective than did associate or assistant professors, consistent with previous research (O'Meara and Niehaus 2013). Of note, however, is the finding from this study that the relationship between perceived network capital and agency behavior is significantly stronger for full professors than for either of the other two groups, despite the fact that we found no differences in perceived network capital based on rank. It is not that full professors just gain more social capital from their networks, but rather that the social capital they do gain has a stronger influence on their agency behavior than does the same level of social capital gained by faculty members earlier in their careers.

Seemingly contrary to O'Meara and Niehaus's (2013) finding that assistant professors had stronger off-campus networks than did post-tenure faculty members, we found that assistant professors were the group most likely to report that they had predominantly on-campus networks. Yet, as noted above, we found no difference in perceived network capital based on rank. It may be that assistant professors, relatively new to their institutions, are more likely to invest time and energy into building networks on-campus. Overall, though, we found that we were unable to explain agency behavior for assistant professors. This group was no less likely to report agentic behaviors, but we do not know what individual or environmental factors contribute to these behaviors. This points to the need for future research to explore assistant professors' experiences with agency in more depth.

The differential effect of networks on agency behavior by career stage may be due to the unique position of assistant professors within their departments. Without tenure, assistant professors know that they are in a more vulnerable position (Tierney and Bensimon 1996) and thus have to be more careful about what they say and do. They may have a more difficult time strategically acting on conflicting advice from senior colleagues and other mentors in their networks, particularly when tenure expectations are unclear or shifting (Austin 2010). The lack of relationship between networks and agency behavior for assistant professors may also be due to the short period of time in which they have been in their careers. As noted in the literature review, a main mechanism through which networks can influence agency is through building social capital, which takes time. It is possible that assistant professors have not had enough time to see the benefits of their networks, and thus their networks have not yet influenced their agency behavior. Future research might consider the role of professional networks, on- and off-campus, in other faculty outcomes, such as work satisfaction (both pre- and post-tenure), achieving tenure and promotion, and research productivity to further discern the differential effect of professional networks across career stage.

## Conclusions

Professional networks clearly matter in the professional lives of faculty. Faculty members get different things, however, from different kinds of professional relationships at different points in their careers. Although ideally all faculty members would be able to benefit from strong on- and off-campus networks, the reality is that they must be strategic in prioritizing their time and energy. We found that off-campus networks are particularly important for fostering agency in career advancement. The findings of this study are important because it may be difficult for early-career faculty members to see the benefits of their network investments in the short term, yet there is evidence that they pay off over time. Government agencies, foundations, and national associations interested in investing in the professional growth, productivity, retention, and advancement of early career scholars should consider the greater need for external relationship building early in career. Programs that connect early career scholars with peers and mentors in their fields should be prioritized, as well as resources to support junior faculty attending disciplinary conferences. Departments should consider ways to have more senior colleagues introduce and connect new faculty to their colleagues in the field. In this way the process of establishing stronger networks can become visible, as well as essential.

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## References

- Archer, M. S. (2000). *Being human: The problem of agency*. New York, NY: Cambridge University Press.
- Austin, A. E. (2010). Supporting faculty members across their careers. In K. J. Gillespie & D. L. Robertson (Eds.), *A guide to faculty development* (pp. 363–378). San Francisco, CA: Jossey-Bass.
- Austin, A. E., & McDaniels, M. (2006). Preparing the professoriate of the future: Graduate student socialization for faculty roles. In J. C. Smart (Ed.), *Higher education: Handbook of theory and research, XXI* (pp. 397–456). Dordrecht, The Netherlands: Springer.
- Baez, B. (2000). Race-related service and faculty of color: Conceptualizing critical agency in academe. *Higher Education, 39*, 363–391.

- Baker, V. L., & Lattuca, L. R. (2010). Developmental networks and learning: Toward an interdisciplinary perspective on identity development during doctoral study. *Studies in Higher Education, 35*, 807–827.
- Baldwin, R. G., Lunceford, C. J., & Vanderlinden, K. E. (2005). Faculty in the middle years: Illuminating an overlooked phase of academic life. *The Review of Higher Education, 29*, 97–118.
- Bilimoria, D., Joy, S., & Liang, X. (2008). Breaking barriers and creating inclusiveness: Lessons of organizational transformation to advance women faculty in academic science and engineering. *Human Resource Management, 47*, 423–441.
- Blackburn, R. T., & Lawrence, J. H. (1995). *Faculty at work: Motivation, expectation, satisfaction*. Baltimore, MD: Johns Hopkins University Press.
- Blau, F. D., Currie, J. M., Croson, R. T. A., & Ginther, D. K. (2010). *Can mentoring help female assistant professors? Interim results from a randomized trial*. Cambridge, MA: National Bureau of Economic Research.
- Bozeman, B., & Gaughan, M. (2011). Job satisfaction among university faculty: Individual, work, and institutional determinants. *The Journal of Higher Education, 82*, 154–186.
- Brandes, P., Dharwadkar, R., & Wheatley, K. (2004). Social exchanges within organizations and work outcomes: The importance of local and global relationships. *Group Organization Management, 29*, 276–301.
- Brass, D. J., Galaskiewicz, J., Greve, H. R., & Tsai, W. (2004). Taking stock of networks and organizations: A multilevel perspective. *Academy of Management Journal, 47*, 795–817.
- Bryson, C. (2004). The consequences for women in the academic profession of widespread use of fixed term contracts. *Gender, Work & Organization, 11*, 187–206.
- Burt, R. S. (1992). *Structural holes: The social structure of competition*. Cambridge, MA: Harvard University Press.
- Campbell, C. M., & O'Meara, K. (2014). Faculty agency: Departmental contexts that matter in faculty careers. *Research in Higher Education, 55*, 49–75. doi:10.1007/s11162-013-9303-x
- Cerecer, P. D., Ek, L., Alanis, I., & Murakami-Ramvalho, E. (2011). Transformative resistance as agency: Chicanas/Latinas (Re)creating academic spaces. *The Journal of the Professoriate, 5*(1), 70–98.
- Christakis, N. A., & Fowler, J. H. (2009). *Connected: The surprising power of our social networks and how they shape our lives – how your friends' friends' friends affect everything you feel, think, and do*. New York, NY: Little Brown & Co.
- Creamer, E. G. (1998). *Assessing faculty publication productivity: Issues of equity. ASHE-ERIC higher education report, no. 26*(2). Washington, DC: George Washington University, Graduate School of Education and Human Development.
- Dobrow, S. R., & Higgins, M. C. (2005). Developmental networks and professional identity: A longitudinal study. *Career Development International, 10*, 567–583. doi:10.1108/13620430510620629
- Elder, G. H., Jr. (1994). Time, human agency, and social change: Perspectives on the life course. *Social Psychology Quarterly, 57*, 4–15.
- Emirbayer, M., & Mische, A. (1998). What is agency? *American Journal of Sociology, 103*, 962–1023.
- Ganz, M. (2010). Leading change: Leadership, organization and social movements. In N. Nohira & R. Khurana (Eds.), *The handbook of leadership and practice* (pp. 509–550). Danvers, MA: Harvard Business School Press.
- Germain, L.J. (2012). *"I have the power to change this": College women's agency and sexual assault*. (Unpublished doctoral dissertation) University of Virginia, Charlottesville, VA.
- Gonzales, L. D., & Rincones, R. (2008). The role of faculty in global society. *Teacher Education and Practice, 21*, 382–406.
- Higgins, M. C. (2001). Changing careers: the effect of social context. *Journal of Organizational Behavior, 22*, 595–618. doi:10.1002/job.104
- Higgins, M., & Kram, K. (2001). Reconceptualizing mentoring at work: A developmental network perspective. *Academy of Management Review, 26*, 264–288. Retrieved from <http://www.jstor.org/stable/259122>
- Hurtado, S., Eagan, M. K., Pryor, J. H., Whang, H., & Tran, S. (2012). *Undergraduate teaching faculty: The 2010-2011 HERI faculty survey*. Los Angeles, CA: Higher Education Research Institute, UCLA. Retrieved from <http://www.heri.ucla.edu/monographs/HERI-FAC2011-Monograph.pdf>
- Ibarra, H. (1993). Personal networks of women and minorities in management: A conceptual framework. *Academy of Management Review, 18*, 56–87. Retrieved from <http://www.jstor.org/stable/258823>
- Ibarra, H., & Deshpande, P. (2004). *Networks and identities: Reciprocal influences on career processes and outcomes*. Working Paper Series – INSEAD (2004/85/OB). Retrieved from <http://www.library.nyenrode.nl/INSEAD/2004/2004-085.pdf>
- Ibarra, H., Kilduff, M., & Tsai, W. (2005). Zooming in and out: Connecting individuals and collectivities at the frontiers of organizational network research. *Organization Science, 16*, 359–371. doi:10.1287/orsc.1050.0129.
- Kezar, A. (2014). Higher education change and social networks: A review of research. *The Journal of Higher Education, 85*, 91–125. doi:10.1353/jhe.2014.0003
- Kezar, A., & Lester, J. (2009). Supporting faculty grassroots leadership. *Research in Higher Education, 50*, 715–740.

- Lin, N. (1999). Building a network theory of social capital. *Connections*, 22, 28–51. Retrieved from <http://www.analytictech.com/mb874/lin-socialcapital.htm>
- Marshall, V. (2000, August). *Agency, structure, and the life course in the era of reflexive modernization*. Washington, DC: Paper presented at the annual meeting of the American Sociological Association.
- Neumann, A. (2009). *Professing to learn: Creating tenured lives and careers in the american research university*. Baltimore, MD: The Johns Hopkins University Press.
- Neumann, A., Terosky, A. L., & Schell, J. (2006). Agents of learning: Strategies for assuming agency, for learning, in tenured faculty careers. In S. J. Bracken, J. K. Allen, & D. R. Dean (Eds.), *The balancing act: Gendered perspectives in faculty roles and work lives* (pp. 91–120). Sterling, VA: Stylus Publishing.
- O'Meara, K. A., & Campbell, C. M. (2011). Faculty sense of agency in decisions about work and family. *Review of Higher Education*, 34, 447–476.
- O'Meara, K. A., & Niehaus, E. (2013, April). *With a little help from my friends: The role of on and off-campus relationships in faculty careers*. San Francisco, CA: Paper presented at the annual meeting of the American Educational Research Association.
- O'Meara, K. A., Campbell, C. M., & Terosky, A. (2011). *Living agency in the academy: A conceptual framework for research and action*. Charlotte, NC: Paper presented at the annual meeting of the Association for the Study of Higher Education.
- O'Reilly, C. A., III. (1991). Organizational behavior: Where we've been, where we're going. *Annual Review of Psychology*, 42, 427–458.
- Pifer, M. J., & Baker, V. L. (2013). Managing the process: The intradepartmental networks of early-career academics. *Innovative Higher Education*, 38, 323–337. doi:10.1007/s10755-012-9243-y
- Polodny, J. M., & Baron, J. N. (1997). Relationships and resources: Social networks and mobility in the workplace. *American Sociological Review*, 62, 673–693.
- Ponjuan, L., Conley, V. M., & Trower, C. (2011). Career stage differences in pre-tenure track faculty perceptions of professional and personal relationships with colleagues. *The Journal of Higher Education*, 82, 319–346.
- Rawlings, C. M., & McFarland, D. A. (2011). Influence flows in the academy: Using affiliation networks to assess peer effects among researchers. *Social Science Research*, 40, 1001–1017. doi:10.1016/j.ssresearch.2010.10.002
- Sagaria, M. D., & Dickens, C. S. (1997). Feminists at work: Collaborative relationships among women faculty. *The Review of Higher Education*, 21, 79–101. doi:10.1353/rhe.1997.0012
- Seibert, S. E., Kraimer, M. L., & Liden, R. C. (2001). A social capital theory of career success. *Academy of Management Journal*, 44, 219–237. Retrieved from <http://www.jstor.org/stable/3069452>
- Sen, A. K. (1985). Well-being, agency and freedom: The Dewey lectures 1984. *Journal of Philosophy*, 82(4), 169–221.
- Steffen-Fleur, N. (2006, June). *Advancing women faculty through collaborative research networks*. Pittsburgh, PA: Paper presented at the annual conference of the Women in Engineering ProActive Network (WEPAN).
- Terosky, A. L. (2005). *Taking teaching seriously: A study of university professors and their undergraduate teaching*. (Unpublished dissertation) Teachers College, Columbia University, New York, NY.
- Tierney, W. G., & Bensimon, E. M. (1996). *Promotion and tenure: Community and socialization in academe*. New York, NY: State University of New York Press.
- Trower, C. A. (2012). *Success on the tenure track: Five keys to faculty job satisfaction*. Baltimore, MD: Johns Hopkins University Press.
- Valian, V. (1998). *Why so slow: The advancement of women*. Cambridge, MA: MIT Press.
- Williams, B., & Williams, S. (2006). Perceptions of African american male junior faculty on promotion and tenure: Implications for community building and social capital. *The Teachers College Record*, 108(2), 287–315.