PEER MENTORING: THE MISSING PIECE IN GRADUATE PROFESSIONAL DEVELOPMENT

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ABSTRACT

Many academic institutions offer professional development programs to prepare graduate students to meet the changing expectations of science, technology, engineering, and mathematics (STEM) faculty. Peer mentoring is not widely adopted in graduate professional development, yet incorporating this approach can better facilitate the transition from graduate student to faculty member. Using evidence from experience as peer mentors (2011–2017), we examine established characteristics of peer mentoring and evaluate their strengths in the context of a future faculty professional development program. Peer mentors coached mentees by sharing common experiences related to teaching and learning, provided a safe space for mentees to discuss their experiences, and acted as a liaison between mentees and faculty advisors. These benefits translate into increased competency for future faculty to engage in research, teaching, and mentoring.

A call for improved graduate professional development

Recognition that future faculty preparation is insufficient to meet the changing expectations of education has led to a re-envisioning of professional development programs for graduate students aiming at careers in academia (Austin 2002; Cooper et al. 2015). The focus of many existing professional development programs is preparing future faculty to implement and advance effective teaching practices (Pfund et al. 2009). However, few of these programs emphasize mentoring in their goals (Wulff and Austin 2004; Ebert-May et al. 2011). Given that new faculty are expected to fulfill diverse roles that include mentoring as well as teaching and research (Austin 2002), it is essential that professional development programs provide opportunities for future faculty to develop mentoring skills (Schussler et al. 2015).

Many professional development programs employ leadership structures led by faculty advisors, which are an integral part of graduate education (Grant-Vallone and Ensher 2000). Traditional mentoring is generally characterized by a one-way flow of expertise and skills from mentor to mentee (McManus and Russell 2008). Alternatively, peer mentoring is by nature a reciprocal relationship and thus offers the potential for additional mentorship owing to a similar hierarchical level, complementary knowledge and skills, and reciprocity between peer mentors and mentees (McDougall and Beattie 1997; Holland et al. 2012). For peer mentors, immersion in the academic process allows further development as independent scholars (Campa et al. 2000).

Including peer mentoring relationships in professional development infrastructure can provide unique benefits to mentees and peer mentors. To demonstrate these benefits, we examine the established characteristics of peer mentoring and evaluate their strengths in the context of future faculty professional development. Evidence for the efficacy of peer mentoring in future faculty preparation is provided via reflections collected from mentees and peer mentors (i.e., the authors), who are now early-career faculty and instructional consultants contributing to teaching and learning at academic institutions.

FAST: A model professional development program

The Future Academic Scholars in Teaching (FAST) program is a year-long high engagement professional development program that complements the efforts of the Center for the Integration of Research, Teaching and Learning (CIRTL) network (www.cirtl.net). The FAST program has been in existence for 13 years at Michigan State University. Throughout the FAST program, a selected cohort of 10-14 STEM graduate students participated in workshops on pedagogy and instructional design, sessions on professional development for academic careers, and completed a teaching-as-research project in a course within their discipline (Vergara et al. 2014). Participants are mentored by faculty advisors and a graduate student that has previously completed the program (the peer mentor). The peer mentor acts as a liaison between the faculty advisors and mentees and leads a reading group attended only by peer mentors and mentees, that serves as a time to discuss literature on teaching and learning, and to address successes and challenges in teaching–as–research project development.

Throughout the program, peer mentors gain practice in building a supportive learning community, providing constructive criticism, and tailoring mentoring to the specific instrumental (i.e., logistical and academic) and psychosocial (i.e., emotional and interpersonal) support needed by individual mentees. As a result, peer mentoring benefits the mentees as well as the peer mentors themselves (Figure 1). These gains contribute to peer mentors' development as future STEM professionals, particularly as the skills gained through peer mentoring are not often included in formal graduate education (Schussler et al. 2015).
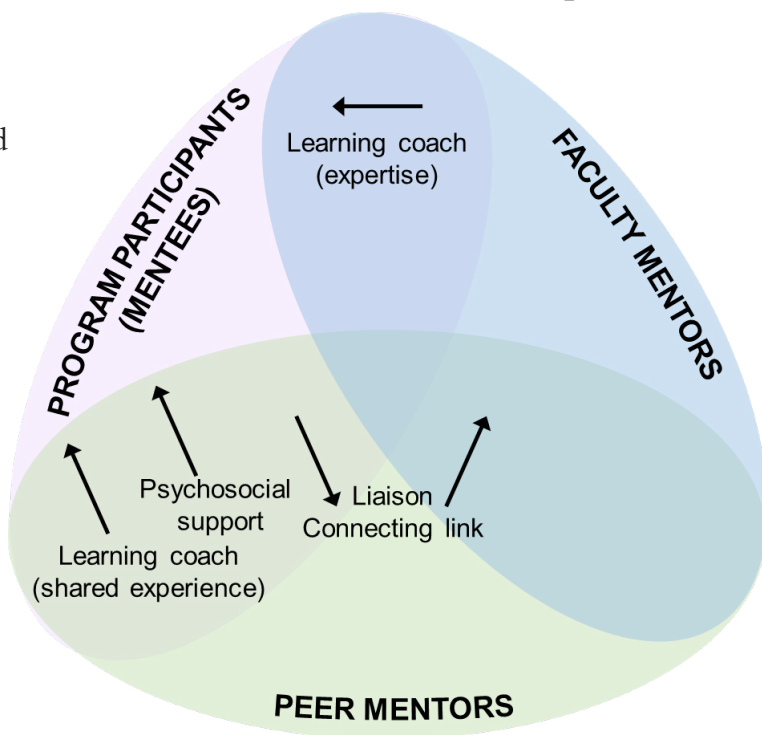

Figure 1. Diagram illustrating the roles and relationships between peer mentors, mentees, and faculty mentors in future faculty professional development.

Benefits of peer mentoring for the mentee

Peer mentoring relationships provide psycho-social support that traditional mentoring relationships are unlikely to provide (Table 1; Grant-Vallone and Ensher 2000). Research on peer mentoring has shown that mentees are more likely to display vulnerability when interacting with peer mentors than with traditional mentors (McManus and Russell 2008). The FAST reading group, attended only by mentees and the peer mentor, provided a space in which mentees were comfortable displaying vulnerability and taking risks (Table 1). Interviews of past program participants have indicated a larger degree of comfort sharing insecurities compared to meetings when faculty advisors were present. For instance, one participant reflected:

It's kind of less pressure to just say how you're feeling about things to group of your peers… one of the more impactful parts of the [reading group] was just having a forum, a venue to talk about your experiences with people who are experiencing similar things, or have experienced similar things.

As both mentees and peer mentor are new to the scholarship of teaching and learning, there is reduced fear of judgment when communicating challenges of their experience (Colvin and Ashman 2010). The peer mentor has often encountered and resolved similar challenges either personally or in their interactions with other participants. The empathy inherent in this relationship encourages mentees to display vulnerability and in turn allows the peer mentor to provide encouragement and shared experience (Table 1). Evidence that peer mentoring can increase the confidence of mentees is demonstrated by a participant that noted:

> [The peer mentor] definitely provided that… I personally need that kind of encouragement to know, 'Okay, you're seeing what I'm doing. What I'm doing is okay.' Otherwise I start to second-guess myself.

The vulnerability and empathy displayed between peer mentors and mentees gives rise to several instrumental support roles (Table 1; Colvin and Ashman 2010). By working closely with program participants in a comfortable setting, the peer mentor can monitor mentees' progress closely and relay challenges to faculty mentors. In this way, the peer mentor acts as a liaison between the two groups (Figure 1). The faculty mentoring team can then resolve issues on an individual basis or shift the focus of future group meetings to address common challenges. Small hierarchical differences between the peer mentor and mentee allows the peer mentor to fill a unique role as a learning coach (Colvin and Ashman 2010). While traditional mentoring by faculty advisors provides a learning coach role through the sharing of expertise, the peer mentor's role as a learning coach is more commonly embodied by sharing recent experience (Figure 1). For instance, the peer mentor in the FAST program has often observed a specific strategy for success through interactions with their own cohort of participants and can help mentees overcome a problem by using this strategy in a similar context. However, it is common for mentees to encounter issues that are outside the expertise of the peer mentor. In these cases, the peer mentor can act as a connecting link with faculty advisors (Sanft et al. 2008). This role often involves consulting with a faculty advisor with relevant expertise who then works with the mentee to address topics such as assessment of student learning, innovative instructional techniques, experimental design, or data analysis.

Benefits of peer mentoring for the mentor

Given the increasingly interdisciplinary nature of education and research in academia (Adams 2007), developing skills to engage diverse audiences in a common dialogue is essential. Serving as peer mentors in the FAST program contributed to our ability and confidence to work with a diverse academic community by providing a psychologically safe environment where the fear of misguidance would not have career-ending consequences (McManus and Russell 2008). Opportunities for us to explore our own developmental needs and having nonjudgmental and supportive feedback was instrumental in facilitating our growth as mentors. The expectations for us as peer mentors were clearly outlined at the onset of the mentoring relationship, which was a crucial component in our development of self-efficacy (Hall et al. 2008). Further, positive reinforcement provided by both mentees and faculty advisors for our willingness to pass along information that we had learned to others was personally rewarding (sensu McManus and Russell 2008, Colvin and Ashman 2010). Having a safe space for peer mentoring to take place helped to foster both professional and personal empathy for our mentees. The ability to engage in dialogue with a diverse group of peers and express empathy was significant given that survey responses from mentees suggest that they found our peer-mentoring relationship to be more valuable for psychosocial support than technical or logistical support related to teaching and learning. These findings are consistent with empirical research on peer mentoring which have shown that psychosocial support in peer-mentoring relationships is a unique characteristic that distinguishes them from traditional mentoring (Kram and Isabella 1985, Grant-Valione and Ensher 2000). Collectively, these experiences have contributed to our ability to bridge differing perspectives (e.g., vocabulary, theoretical framework) and work toward a common goal, a skill that has been critical in the transition from graduate student to professionals.

As peer mentors, we gained a depth of knowledge related to teaching and learning, leadership skills to facilitate instructional improvements, and experience working with university administrators on programmatic priorities. Through this process, we not only became better equipped to contribute to the curricular goals of our future institutions but also to work across multiple administrative levels to act as agents of change (sensu Healey 2012). As a

result, we have been able to transfer many of these skills to a variety of research and education settings, such as advising teaching assistants and mentoring undergraduate and graduate researchers.

Table 1. Peer mentoring offers unique benefits to professional development programs that supplement traditional mentoring by faculty. Experiences from the Future Academic Scholars in Teaching (FAST) program provide evidence to support for the inclusion of peer mentoring as part of future faculty professional development.

Unique attributes of peer mentoring	Evidence from peer mentoring experience
Psychosocial support	
Vulnerability: *Mentees trust their concerns, doubts, and weaknesses will be met in a supportive and non-judgmental way by the peer mentor*[a,b]	Mentees during and after the FAST program commonly ask for advice about conducting teaching-as-research while also maintaining a productive disciplinary research program as well as work-life balance. Given that peer mentors are fellow graduate students who have recently completed the program, the similar hierarchical level and shared experiences helped to facilitate this exchange of information.
Empathy: *Hierarchical similarities give rise to mutual understanding*[a]	Having gone through the program previously and encountering similar challenges, peer mentors display empathy and understanding toward program participants.
Instrumental support	
Liaison: *Mentees share experiences with the peer mentor, who then relays information to traditional mentors from the perspective of the mentees*[a]	As the leader of the reading group, the peer mentor was able to monitor program participants' progress closely. In meetings with the steering committee, the peer mentor acted as a liaison by communicating challenges with traditional mentors and devising a plan together for continued progress.
Learning coach: *Peer mentors teach academic and life skills to mentees, often in the setting of one-step-ahead expertise sharing*[a]	In encountering the need to balance expectations of teaching, research, and mentoring in the FAST program, peer mentors have been able to share these experiences and act as a learning coach in other situations such as conferences and programs for early-career faculty.
Connecting link: *Peer mentors direct mentees toward relevant resources needed to complete a task*[c]	In several situations, mentees experienced challenges outside the expertise of the peer mentor. To fill this gap, the peer mentor connected program participants with faculty members who have the relevant expertise. The role of connecting link has proven useful for peer mentors as they use this expertise-gathering strategy in research and job search settings.

[a]McManus and Russell 2008, [b]Colvin and Ashman 2010, [c]Sanft et al. 2008

CONCLUSION

Mentoring is a critical skill in academia, and peer mentoring in the FAST program provided a formal opportunity to train as a mentor that would not be available in most graduate programs (Schussler et al. 2015). The unique role and support structure demonstrated by peer mentors in the FAST program represents a model that is transferable to a wide range of graduate professional development programs across disciplinary and institutional boundaries. Given increasing recognition for the need to prepare future faculty as independent teacher-scholars (Cooper et al. 2015) and the potential for peer mentoring opportunities to facilitate the transition from mentee to mentor, we advocate that formal peer mentoring opportunities should be built into existing professional development frameworks.

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