Learning From Each Other: Faculty Peer Mentoring Circles at ADVANCE Institutions

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Abstract

Peer mentoring circles for women faculty are beneficial to the personal and professional development of the participants and can increase the retention of women in academia. Here, we discuss the history and evolution of faculty peer mentoring circles as part of ADVANCE at Ohio State University, Murray State University, and South Dakota School of Mines and Technology. The three institutions used the same framework, and adapted their peer-mentoring programs for their local circumstances. We describe a brief history of faculty peer mentoring programs and how each institution monitored outcomes. We summarize their successes and challenges based on participant feedback, surveys, and attendance. We share lessons learned across the three institutions, including the need to pay attention to power dynamics, how to structure cohorts, topics for discussion, and the role of facilitators. This article contributes to the peer mentoring literature by sharing the perspectives of three institutions that used the same general model but differed in details of local adaptation.

Despite women comprising 46.8% of the overall workforce in 2022 (U.S. Bureau of Labor Statistics, 2023), they represented only 35% of the science, technology, engineering, and mathematics (STEM) workforce (NCSES, 2023). This disparity is even more pronounced in academia, where women remain underrepresented as faculty in many STEM disciplines. Factors contributing to this include challenges in retention, unsupportive academic environments, implicit biases, and unequal access to professional development opportunities. Recognizing these systemic barriers, the National Science Foundation (NSF) established the ADVANCE initiative to promote gender equity and address these longstanding disparities in the academic STEM workforce in the United States. Increasing the representation of women among STEM faculty has the potential to foster a more inclusive academic culture. For students, particularly women and those from underrepresented groups, having diverse faculty role models can inspire career choices and persistence in STEM fields. Building community and a sense of belonging for women faculty is one way to address these disparities, and mentoring plays a crucial role in achieving this. Positive mentoring relationships provide both psychosocial and practical support, helping to counteract some of the systemic barriers women face (Horner-Devine et al., 2018).

The benefits of mentoring are well-documented, and include networking, research productivity, retention, promotion and tenure, self-efficacy, confidence, empowerment, sense of belonging and socialization into faculty life (Chandler, 1996; Clark & Corcoran, 1986; Chesler & Chesler, 2002; Cropsey et al., 2008; Driscoll et al., 2009; Gibson, 2004; Levinson et al., 1991; Nye, 1997; Thomas et al., 2015a; Varkey et al., 2012; Waltman, 2002; Wasburn, 2007). A report by the ADVANCE Resource and Coordination (ARC) Network based on a metasynthesis of the literature on mentoring for women faculty of color indicated that mentoring programs provide benefits such as navigational capital and problem-solving or advice which can be critical in

career progression (Margherio, 2019). There is even evidence that mentoring can lead to systemic change through inclusive policies and practices (Tran, 2014). Due to the clearly established benefits of mentoring, it has been incorporated into many ADVANCE programs as a strategy for addressing disparity and inequity.

ADVANCE programs support several kinds of mentoring initiatives, including traditional hierarchical mentoring, external mentoring, and peer mentoring. Traditional hierarchical mentoring is perhaps the most common model, in which a senior woman faculty mentors a junior woman faculty. Yet in STEM departments, there is often a shortage of senior women or minority faculty which makes it more difficult to set up hierarchical mentoring (Thomas et al., 2015b). Limbert (1995), who initiated the first peer mentoring group for women faculty and staff at Penn State Shenango in 1991, summarized the advantages and challenges of traditional hierarchical mentoring models. In the "senior male-junior female" model, the senior mentor can provide access to broader professional networks and resources but may lack understanding of the specific challenges faced by women in academia. Similarly, while the "senior-female-junior female" model offers relatable experiences and role modeling, it can be constrained by the limited availability of senior women in many fields and the additional burdens often placed on them to mentor extensively. These limitations led Limbert to establish a peer mentoring group as a more inclusive and supportive alternative.

One multi-institution alternative is the peer mentoring structure outlined in the book *Every Other Thursday* (Daniell, 2008), which describes a group of women scientists from different institutions and work sectors in California who met bi-weekly for over 25 years to mentor one another through their careers. Peer mentoring allows women to solve their own problems and build community, thereby reducing the sense of isolation commonly found

amongst women in STEM. This approach not only fosters resilience and career advancement but also establishes a sustainable, scalable model for creating inclusive academic and professional communities. As a flexible and participant-driven strategy, peer mentoring can be particularly effective in bridging institutional gaps and promoting equity across diverse work environments.

This paper aims to fill the gap in the literature regarding faculty peer mentoring programs that have developed as a result of ADVANCE funding. While our presentation is not exhaustive, we provide a snapshot of some programs supported by ADVANCE that used the same general model but differed in details of local adaptation. This will give leaders a model/template to develop similar programs at their own institutions.

Methods

In this article, we discuss the history and evolution of faculty peer mentoring circles supported at institutions with ADVANCE grants: Ohio State University (OSU), Murray State University (MSU), and South Dakota School of Mines and Technology (South Dakota Mines). Each institution is unique, and organizers made decisions concerning implementation to fit their local circumstances. We first outline the history of mentoring circles for faculty, and then describe how they were structured and facilitated at the three focus institutions.

While peer mentoring is well-defined, the institutions differed in their implementation; the methods used by each institution are described in their respective sections. Given the specific circumstances at each institution, they varied substantially in terms of how faculty were identified for participation, how often they met, how gender and other demographic variables were treated. For some, a research component required approval by an Institutional Review Board (IRB), whereas for others a purely programmatic focus meant that IRB approval was not needed. Even though there were substantial differences in those local implementations, we found

that they produced many benefits in common. A critical assessment of these different models of faculty peer mentoring across various institutions allow us to identify some common lessons learned, as well as suggestions for other institutions considering faculty peer mentoring.

Early Peer Mentoring Circles: Lessons from Colorado State University

Our first case study is an early implementation of peer mentoring circles at Colorado State University (CSU) in 1999, prior to the creation of ADVANCE program by NSF. CSU's Provost Ellie Gilfoyle was deeply interested in fostering women leaders and hired The Mentoring Company to facilitate monthly meetings of women chairs, deans, and academic administrators (described in Gilfoyle et al., 2011). Meetings focused on discussing real-time problems that members brought up, with an emphasis on sharing experiences that might help to solve the problem at hand. The facilitator made sure that confidentiality was maintained, that participants kept a focus on solving problems rather than complaining, and that trust was built within the group.

The CSU program did not include a research component, nor does it have documented accounts of participants' experiences (eleminating the need for IRB approval). However, one of the authors (JMH) who participated in the program found it to be a source of support and personal growth. Important takeaways from this early peer mentoring program include the realization that wisdom is diverse and comes from various perspectives. The program demonstrated that many of the challenges faced by women leaders are shared across different disciplines and institutions, showing that these struggles are not unique to any one individual. This emphasizes the core value of peer mentoring: shared experiences create a collective strength that empowers participants to navigate common obstacles together. One of the most critical insights gained from this program was the role of peer mentors in helping participants identify

and assess the impact of gendered experiences on their professional challenges. Through discussions, women could parse out how their gender may influence how they are perceived, treated, or expected to behave in leadership roles. This aspect of the program aligns with findings in mentoring literature, which suggest that peer mentoring provides a space for women to discuss gender-specific issues openly and receive feedback from others with similar lived experiences (Gilfoyle et al., 2011; Tran, 2014). The program's success underscores the importance of creating peer mentoring networks that foster inclusivity and provide a safe space for women leaders to learn, grow, and support one another.

Ohio State University

The concept of peer mentoring circles was adapted by OSU, a large R1 institution, when it was awarded an ADVANCE Institutional Transformation grant in 2008 (Thomas et al., 2015a). One of the authors of this paper, JMH, PI of the OSU program, brought her experience of peer mentoring from CSU to create the first such program supported by ADVANCE. During the process of developing their proposal, several OSU deans identified a major institutional challenge: gender gaps in the post-tenure years. The data showed sizable differences between men and women faculty in time to promotion, retention, rank at retirement, and a suite of other markers. Erasing those gender gaps became a focus of the Ohio State proposal and led the team to develop several programs, including training for deans and chairs, support for individual faculty members, and peer mentoring.

The peer mentoring program was designed to support women faculty in their post-tenure years through peer mentoring circles. This program ran for five full years. Originally, only Associate Professors were invited to participate, and they were encouraged to consider the circles as professional development. All relevant deans of STEM colleges at OSU were also asked to

publicly encourage women Associate Professors to participate.

Participants were recruited by direct invitation to women Associate Professors in the STEM colleges. Initially, three circles were formed, with participants assigned so as to avoid power imbalances within a circle and to allow for heterogeneity of department and discipline. The OSU program employed a cohort model that limited switching between circles so that individuals could build trust with others in their circles. A professional facilitator led the discussions and set out four guiding principles:

> (1) What is said in a circle stays in a circle; confidentiality is critical; (2) We listen to each other with curiosity and compassion—we replace judgment with discernment and keep an open mind; (3) We ask for what we need and offer what we can; (4) When we are unsure of how to proceed, we pause and reflect.

Initially, the focus was on building trust among participants, and OSU's cohort/circle model served that purpose well. Individuals came to know each other, learn about how other parts of the university function, and found they were not alone in their struggles. For the first two years, circles were relatively unstructured. In initial meetings participants brought issues to their circles and sought support and others' perspectives. In subsequent meetings, participants collectively identified topics, and in some cases the facilitator suggested readings for discussion. Periodically, the circle facilitators provided general feedback to the PI team that did not violate confidentiality. After two years, participants were asked to fill out a survey, submit a reflective essay, and/or be interviewed about their experiences. This evaluative process was repeated in the fifth year of the program.

The circles were not for everyone. Some individuals stopped coming, typically citing time constraints; a few did not find the experience of sufficient value to continue. For those who

participated, however, the experience provided a number of benefits: a feeling of belonging, networking, and problem-solving. Several participants reported feeling empowered to take additional steps towards career success. Furthermore, quantitative data collected via surveys in the second and fifth years of the program across the STEM colleges were highly encouraging: retention improved among participants, and several were promoted during or shortly after participation. The circles were one of several components of OSU's ADVANCE program with emphasis on Associate Professor career development. Together, these programs achieved the desired result: by the end of the ADVANCE funding, gender gaps in retention, promotion to Full Professor, and time as Associate Professor had disappeared (Thomas et al., 2015b). The outcomes of the peer mentoring program at OSU have been described in detail in publications (Thomas et al., 2015a).

Murray State University

Murray State University (MSU) is a public regional comprehensive university offering degrees up to the Masters-level, located in rural Western Kentucky. In 2016, MSU was awarded an ADVANCE grant by the NSF to study the impacts of gender related beliefs and expectations on the recruitment and retention of women in STEM and SBES (social, behavioral & economic sciences) at MSU. While much of the work was based on the analysis of a climate study, MSU also developed a peer mentoring program, known as the MSU ADVANCE Circles, with the hope of impacting the institutional culture. The feeling was that women scientists working in regional institutions, especially those in rural locations, may find additional challenges when it comes to networking and building social capital, and one goal of our mentoring program (where authors MLM and QZ are on the PI team) was to create opportunities for professional and social networking. The MSU ADVANCE Circles were a purely programmatic part of the grant and

were exempt from IRB approval.

The MSU ADVANCE Circles for women faculty were based in large part on the mentoring program developed at Ohio State University. The MSU ADVANCE Circles were chaired by paid facilitators whose role was to guide discussion rather than serve as mentors. In order for peer mentoring to truly occur in the group, it was imperative that the facilitator not be expected to serve as a mentor for the faculty in the group. Prior to the beginning of the peer mentoring circles in the first year, the facilitators participated in a training program conducted remotely by Dr. Christine Grant from North Carolina State University. Dr. Grant discussed the expectations of the grant team, what was expected of the facilitators, as well as key issues in mentoring, such as the different types of mentor-mentee relationships. The facilitators brainstormed a list of topics for the circle meetings and the topics reflected critical campus issues of the time. The training also covered the chairing of meetings with difficult personalities and included role-playing of difficult scenarios. In later years, experienced facilitators from previous years trained new facilitators. All of the facilitators were senior women faculty, although not all of them were from STEM and SBES.

Each fall, all full-time women faculty in STEM and SBES were invited to participate in the mentoring circles. Participation was voluntary. There were 22 participants in 2016-17. This grew to 51 in 2020-21, and stabilized at 28 in 2023-24. The participants were split into groups of six to eight faculty with a mixture of ranks and disciplines. The strong need for support structures for junior faculty was indicated by the high level of participation by Assistant Professors. Confidentiality of the conversations that took place within the groups was maintained. The grant team did not attend the meetings and was not privy to any of the discussions. Circle meetings were held approximately biweekly from October to mid-April, with

nine to ten meetings held over the course of each academic year. Each circle meeting was led by the trained facilitators. Although the topics for each meeting were prescribed, circles deviated from them whenever a member had an issue she wished the group to discuss. This balance of structure with flexibility allowed the circles to persist in meeting regularly while allowing for the needs of the faculty in the circles.

The program was expanded in 2018-19 to include some non-STEM/SBES disciplines. This was partially funded by the deans of the participating colleges, but later, after the ADVANCE funding ended, the Provost funded the facilitator costs for all the circles. The circles are now an integral part of the community of women faculty at Murray State University. After several years, cohorts began to emerge as participants renewed their membership and requested to continue in the same circle. Two social events are held each year at the end of the semester to allow participants to meet faculty from other circles. These are well attended, indicating enthusiasm among the participants for the program.

South Dakota School of Mines & Technology

South Dakota School of Mines & Technology (South Dakota Mines) is a PhD granting, science, engineering, technology, and mathematics (STEM) university. The institution is geographically isolated and located in a region considered Frontier and Remote or FAR (with populations of less than seven people per square mile). Its size (~2,500 undergraduate students, 145 STEM faculty), location, and academic culture provide challenges in the retention of diverse faculty.

South Dakota Mines adapted and implemented Facilitated Peer Mentoring Circles under a NSF ADVANCE Adaptation award, titled “Empower through Inclusivity” (NSF 2121601) where authors LAK is the PI and BLL-F is the Project Coordinator. These Facilitated Peer

Mentoring Circles have been adapted from OSU and MSU ADVANCE programs, which employ a facilitator. These Facilitated Peer Mentoring Circles were specifically developed to address the challenge of limited senior women available to serve as mentors, as peer mentoring has been shown to be more effective than traditional didactic mentoring. These Facilitated Peer Mentoring Circles (herein referred to as Circles) began in Spring 2022 and were fully implemented with the creation of a new position of the Faculty Development Coordinator (FDC) who facilitates all Circles in Fall 2022. The FDC schedules and facilitates the Circles, which are designed to create a space where peers can openly communicate in a psychologically safe environment. In these Circles, participants are encouraged to share their experiences and ideas without fear of judgment or repercussion. Any messages or concerns that need to be passed to the administration are carefully handled by the FDC, ensuring anonymity and confidentiality. This process allows participants to express themselves freely, knowing that sensitive information will be communicated to the appropriate parties without revealing individual identities or compromising their privacy. The South Dakota Mines Circles were programmatic and exempt from IRB approval.

Due to the desire of faculty for mentoring and to increase the sense of belonging, the Circles are open to both women and men to encourage professional development for all faculty and research scientists. Circles are organized by rank and include (1) research scientists, (2) teaching faculty, (3) assistant professors, (4) associate professors, and (5) full professors. As the Circles developed, faculty were surveyed to see if they were interested in the creation and support of new Circles beyond rank. Based on a number of requests, a women-only Circle was established in the Fall of 2022 and a co-ed international Circle was established in Fall of 2023.

Additional Circle that may be formed in the future as demand arises include a first-generation faculty Circle, a department heads Circle, and a research center director's Circle.

The Circles meet once per month from August through May, with end-of-semester socials scheduled in December and April. Circles meet on campus in the same location, day, and time each month to encourage consistent attendance and allow for ease of scheduling for those interested in participating. The first meeting of each Circle during the academic year is an orientation where participants introduce themselves, discuss their goals for participation in the Circles, and review participant guidelines for a respectful and productive conversation. The FDC also provides information on other mentoring-related programming or programming that has resulted from requests from within the Circles. Circle topics are decided upon by participants, and the most common topics focus on career success and promotion. At the end of the academic year, every participant is presented with a certificate for participation, and awards are given for Excellence in Peer Mentoring and Peer-Nominated Exemplary Mentors.

An important aspect of the success of the mentoring program was the creation of the FDC position and the continued support by the highest levels of administration for faculty development (Long-Fox et al., 2023; Surovek et al., 2023; Williams et al., 2023). Although the Facilitated Peer Mentoring Circles are a relatively new program at the institution, Circle participation has increased each year, with 25 participants (~15% of faculty) in Year 1 (Spring 2022), 47 participants (~25% of faculty) in Year 2 (2022-2023), and 56 participants (~40% of faculty) in Year 3 (Fall 2023). Feedback from Circle discussions and surveys is used to create additional faculty development programming, including workshops and panels for promotion and tenure, grant funding, sabbatical, and career success. Notably, a large percentage of faculty that were promoted had also participated in the Facilitated Peer Mentoring Circles.

Results & Discussion

Group mentoring is used in multiple contexts. It is used extensively to help students develop academic skills, navigate their educational journeys, and build professional networks (Collier, 2023). Similarly, group mentoring is now used in business settings to foster leadership development, enhance teamwork, and support career advancement (Peek, 2024). Mentoring programs designed for students and employees often incorporate diverse structures. Some focus on peer-to-peer interactions, fostering mutual support and collaboration among individuals at similar stages in their journeys. Others bring together groups that include a mix of experience levels and seniority, allowing participants to benefit from varied perspectives, insights, and mentorship opportunities. Much of the literature on mentoring in these contexts focuses on enculturation and retention, goals shared by our programs. Here, we focus on mentoring among faculty members, which plays a crucial role in fostering professional growth, enhancing research and teaching skills, and creating a supportive academic community. Faculty mentoring address common faculty challenges, equitable relationships, provide interdisciplinary insights, support underrepresented groups, and have structure with a dedicated facilitator.

The goals of the different peer mentoring programs varied by institution. At CSU, the goal was to help women administrators. At OSU, the focus was to keep Associate Professors on track on their path to promotion to Full Professor. At MSU, the goals were to foster community and to improve retention of faculty. At South Dakota Mines, the goal was to increase the sense of belonging. Despite the different goals, the programs had much in common. All provided a safe space for faculty to express their concerns. All used a facilitator-led model with the facilitator sometimes compensated and generally independent from the mentees.

Lessons Learned

We are aware of other efforts to construct peer mentoring circles that were variably successful (Horner-Devine et al., 2018). The program at OSU recruited individuals from throughout the university, and included faculty and staff; circles were formed, and the first two sessions were facilitated. Thereafter the circles were left to organize themselves (without facilitation), and few lasted more than two months. Yet implementations elsewhere have had longer lifespans. Peer mentoring has become mainstream in higher education for academic faculty and staff (Horner-Devine et al., 2016; Guardia et al., 2023; Shelton et al., 2021) to the extent that some private companies now offer peer mentoring services for academics.

Based on collective experience across various institutions, we have identified several important lessons about the implementation and success of peer mentoring circles. These lessons highlight their potential as vital professional development tools, particularly for women faculty navigating systemic barriers to advancement:

1. **Peer mentoring circles are not for everyone but can be a lifeline for many**: While some individuals may not find peer mentoring circles beneficial, for others, they are indispensable. Circles provide a unique space for mutual support and professional growth, often serving as a much needed resource for faculty facing isolation or specific challenges.
2. **Encouraging participation requires institutional and personal permission**: Women faculty, often stretched thin by their professional and personal responsibilities, may prioritize their needs last. Institutions must explicitly value and support mentoring programs as professional development opportunities. This includes encouraging participation by framing circles as critical for career advancement and

ensuring deans and department chairs accommodate schedules to make involvement feasible.

3. **Cohort models foster trust and deeper engagement**: Repeated interactions within consistent cohorts are essential for building the trust necessary to address sensitive issues. Confidentiality and positive group norms are key to fostering open dialogue about challenges and barriers. Having the same individuals meet regularly as a cohort, therefore, is the best way for women to feel safe to bring up troubling situations and barriers that they are facing. Some of the programs used a cohort model that allowed groups to develop years-long relationships. Cohorts that meet regularly over extended periods allow participants to develop lasting relationships, increasing the sense of community and support. For example, OSU complemented its mentoring circles with an Advocates and Allies program, engaging male faculty to support women faculty. At South Dakota Mines, peer mentoring circles are organized around themes such as academic rank or international status and are open to both men and women.
4. **Facilitators enhance success:** Facilitators play a pivotal role in the effectiveness of mentoring circles. They help maintain group norms, ensure equitable participation, and keep discussions focused on problem-solving. While some self-sustaining circles exist, many without facilitators tend to fail. At OSU, an external consultant served as a facilitator, while MSU utilized senior faculty for this role. At South Dakota Mines, a single facilitator oversees all circles. Facilitators can also propose topics or readings to enrich discussions if requested by the group.

These lessons underscore the importance of designing peer mentoring programs with intentionality, institutional backing, and structural support. Research demonstrates that women

faculty often face greater barriers in accessing professional development resources, including mentoring opportunities (Horner-Devine et al., 2016; Tran, 2014). Peer mentoring circles, when thoughtfully implemented, can significantly enhance faculty well-being and career advancement.

Navigating Power Imbalance

Regardless of how they are formed, a peer mentoring program must acknowledge power dynamics that can affect outcomes. For example, including individuals from the same department can have a chilling effect on participants navigating a tricky local landscape. Administrators may wish to join a program, and their presence can skew discussions, especially if the group includes individuals reporting to others. Groups that comprise participants with various gender identities must work hard to ensure that all voices are heard and respected.

The three institutions discussed here took slightly different approaches to acknowledge and resolve the power dynamics inherent to groups. OSU, as a large institution with multiple STEM colleges allowed for the creation of peer mentoring groups composed exclusively of mid-career women faculty from different departments. By ensuring participants came from separate departments, OSU minimized the risk of hierarchical relationships or local departmental politics affecting group dynamics. This structure enabled participants to engage more openly and honestly, as they were not interacting with colleagues who had direct influence over their evaluations, promotions, or daily work environment. At MSU, groups comprised of women faculty of all ranks from across campus, and assigning direct reports and women faculty from the same department to the same circle was avoided.

South Dakota Mines designed some circles as mixed-gender groups, which introduced opportunities for diverse perspectives but also required careful attention to power dynamics related to gender. Research has shown that in mixed-gender groups, women often face

challenges such as being interrupted more frequently, having their ideas overlooked, or experiencing pressure to conform to dominant norms (Tannen, 1994; Ridgeway, 2011). These dynamics can hinder open discussion and reduce the effectiveness of mentoring circles if not carefully managed. To address this, the facilitator at South Dakota Mines focused on ensuring equitable participation, fostering a psychologically safe environment, and maintaining a strong emphasis on mutual respect and inclusivity. Including men in these circles also served as an opportunity to raise awareness of gender inequities and to cultivate male allies who can advocate for women faculty, helping to address systemic barriers within their departments and institutions.

Engaging men in peer mentoring programs targeted at the advancement of women faculty is crucial. While mixed-gender mentoring circles may not always be appropriate due to the challenges outlined above, an effective alternative is to develop programs that create advocates and allies among men—individuals who can recognize and address local inequities (McGeorge & Bilen-Greene, 2021). OSU and South Dakota Mines have established such programs to complement those designed exclusively for women.

Topics

In peer mentoring circles, topics help direct conversation and encourage meaningful discussions. Providing topics ahead of time allows participants to reflect on their experiences and needs, making the discussions more focused and productive. Facilitators play a crucial role in moderating these conversations, ensuring that they stay on track while steering them away from negativity. It is important to note that what constitutes "negativity" can be subjective, but generally, conversations can become unproductive when they focus on complaining without seeking solutions, blaming others, or dwelling on issues without a constructive direction. Facilitators help guide the group toward discussions that are both supportive and solution-

oriented, ensuring that all voices are heard and respected. At South Dakota Mines, some of the topics that were taken up in the peer mentoring circles included: promotion and tenure, sabbatical, time management, outreach, pedagogy, networking, research support, students, resources, and compensation. At MSU, topics included: making connections, networking, support, teaching evaluations, classroom management, tenure and promotion, speaking up, imposter syndrome, salary and recognition, time management, research, work-life balance, and dealing with stress. For cohorts hat have been meeting for multiple years, it is common to run out of new topics. Participants can be asked to provide additional topic suggestions that are of interest.

Mid-course Corrections

The programs at Murray State University and South Dakota Mines are ongoing. Based on feedback received so far in the ADVANCE program Peer Mentoring Circles, the South Dakota Mines program is making adjustments and adding necessary "specialty" Circles, such as one for international faculty, to address specific challenges related to identity (e.g., citizenship or visa status) and maximize benefits by allowing participants to engage with peers who share similar experiences. These adjustments, based on participant feedback about their needs will increase the sense of belonging and togetherness in faculty and staff as well as enhance the sustainability of the Peer Mentoring Circle program. Considerations in this ongoing "mid-course correction" effort include the format of the circles (e.g., topic-driven vs. open discussion) and updating survey/evaluation questions to target specific gaps in feedback that would help the ADVANCE team make the necessary changes more efficiently and with greater efficacy in response to the feedback received. Additionally, the timing of the surveys and evaluations is under consideration. If surveys are given immediately after a Circle meeting, participants have the

discussions fresh in mind but have not had time to reflect, and enabling self-reflection on Circle discussions is a critical aspect of these programs. Anonymity is also critical for survey responses. If the ADVANCE grant is not coordinating the circles, it becomes difficult to implement meaningful changes, as there may be a tendency for an institution to focus solely on ensuring the circles are taking place, rather than on their effectiveness or impact. Other mid-course corrections implemented at MSU have included changing facilitators if the circles were not going well.

Funding

There are budgetary considerations to setting up peer mentoring circles, especially if a facilitator is hired and/or refreshments are offered. The circles need not be expensive, but logistics assistance (setting dates, securing meeting rooms) is needed. Plans for program sustainability are needed to ensure that the mentoring circles can continue past the support of the ADVANCE grant since they can require facilitators and scheduling.

What Does Success Look Like?

Successful Peer Mentoring Circles are those that best support faculty in the unique environment at a given institution. The common goal of Peer Mentoring Circles is to build a sense of belonging and promote being part of a cohort, which brings faculty together in a team-oriented environment. We find that when discussions are focused on specific topics that are announced prior to each Peer Mentoring Circle meeting and reflect the experiences and interests of participants they lead to more successful and meaningful discussions that benefit the entire group. The increased benefit is attributed to the fact that since topics are posed ahead of time, participants are given the ability to prepare their thoughts and feel confident in their contributions to the discussions.

It is expected that Peer Mentoring Circles will experience varying levels of success, with "success" looking different at each institution depending on their unique needs and the specific goals these programs aim to achieve. At South Dakota Mines where the Circles are separated by rank, we see greater success in the Assistant Professor, Research Scientist, and Teaching Faculty Peer Mentoring Circles attributed to increased access to necessary resources, such as the dedicated facilitator position, the FDC. Separation by rank helps bring those in similar positions and situations together to collectively generate ideas that work for them as well as those in similar positions in the future. OSU assessed a range of personal characteristics in participants of their peer mentoring program, as outlined by Thomas and collegues (2015a). These characteristics included factors such as career satisfaction, leadership development, and personal growth. The objective measure of success for the program was promotion to the rank of Professor, which Thomas and collegues (2015b) identified as a key outcome linked to participation in the peer mentoring circles. This approach provided both qualitative and quantitative insights into the effectiveness of the program in advancing participants' careers. At MSU, success was measured in terms of the enhancement of professional and personal networks by the participants.

ADVANCE projects do not occur independently from one another, and information sharing is key to success (Gold et al., 2022). Peer mentoring is a popular program implemented as part of ADVANCE awards and has been established at numerous universities besides the ones described in this paper, including University of Massachusetts, Lowell (Li et al., 2023), University of Washington, University of Louisville, and the Cross-Institutional Mentoring Communities created by the ADVANCE Midwest Partnership of four institutions (Iowa State, Michigan Tech, North Dakota State, and Western Michigan University). Learning from each

other, as institutions and individuals, supports our contention that peer mentoring is an important tool for institutional transformation. This paper describes the impact of peer mentoring programs at three distinct ADVANCE institutions and contributes to the literature by demonstrating that ADVANCE peer mentoring programs can be immensely beneficial to women faculty in STEM. These models are adaptable to many different types of institutions with relatively low costs and significant impacts.

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