

## Cross-Institutional Mentoring Communities Program

### Adrienne Minerick (Director, The ADVANCE Initiative and Professor, Chemical Engineering)

Adrienne R. Minerick is Director of ADVANCE at Michigan Tech and Professor of Chemical Engineering. She has served as Associate Dean for Research and Innovation in the College of Engineering, Assistant to the Provost for Faculty Development, Dean of the School of Technology, founded the College of Computing, and most recently served as Interim Dean of the Pavlis Honors College. She has received numerous honors and awards, including the distinction of Fellow of AAAS and ASEE, a National Science Foundation CAREER Award, the Raymond W. Fahien Award from the Chemical Engineering Division of ASEE, and Michigan Tech's Fredrick D. Williams Instructional Innovation Award. She and her students have published over 100 archival journal publications, book chapters, or proceedings articles and earned 23 best paper/presentation awards. Adrienne previously served as the President of the AES Electrophoresis Society and on the ASEE's Board of Directors as First Vice President and Professional Interest Council I Chair. She also chaired ASEE's National Diversity Committee. Her research and service interests regularly intersect and involve underserved individuals with an emphasis on research experiences to increase engagement and retention.

### Cinzia Cervato

Dr. Cinzia Cervato is the lead PI of the NSF-funded ADVANCE Midwest Partnership project and Morrill Professor of Geological and Atmospheric Sciences. She has served as faculty fellow for early career and term faculty in the Office of the Provost and faculty fellow for strategic planning in the College of Liberal Arts & Sciences. She earned a doctor of geology degree from the University of Padova (Italy), and a Doctor of Natural Sciences and Doctor of Science (Habilitation) from the Swiss Federal Institute of Technology (ETH) in Zurich, Switzerland. Her geoscience research focused on geochemistry and sedimentology. She led the CHRONOS project, a collaborative NSF-funded geoinformatics project to connect stratigraphic, sedimentological, and geochemical data. A Fellow of the Geological Society of America, she has led numerous projects funded by NSF focused on reforming science education especially in large enrollment introductory courses and labs. She was coPI of two Howard Hughes Medical Institute's awards to transform math and science courses and embed research projects in introductory labs.

### Sonia Goltz

Sonia Goltz is Mickus Endowed Faculty Fellow of Business Impact in the College of Business at Michigan Tech and teaches organizational behavior and organizational change. She received her Ph.D. in Industrial/Organizational Psychology from Purdue University. Her research examines topics such as organizational change, social power and coercion, and gender equity and has been published in business and applied social sciences journals including: Human Relations, Journal of Applied Social Psychology, Decision Sciences, Journal of Small Business Management, and Journal of Organizational Behavior Management. She is a co-PI on Michigan Tech's NSF ADVANCE Adaptation grant, a collaborator on the NSF ADVANCE Midwest Partnership grant led by Iowa State, and received Michigan Tech's diversity award in 2021.

### Canan Bilen-Green

Canan Bilen-Green is Vice Provost for Faculty Affairs and Equity at North Dakota State University. She is also Dale Hogoboom Professor of Industrial and Manufacturing Engineering. She received her Ph.D. from the University of Wyoming. She holds additional degrees from Middle East Technical University (B.S.), Bilkent University (M.S.), and University of Wyoming (M.S.). Dr. Bilen-Green's primary teaching and research interest is in quality engineering and management of people systems. She served as lead investigator and director of the National Science Foundation funded ADVANCE FORWARD Institutional Transformation program and the ADVOCATE FORWARD PLAN-D partnership

project. Dr. Bilen-Green formed, led, and/or served on various institutional committees including Commission of the Status of Women Faculty, Women with Disabilities Task Force, Promotion to Professor Task Force, and the NDSU Childcare Center Committee.

## **Mark Rouleau**

Associate professor in the Social Sciences department at Michigan Technological University with a background in computational social science, research design, and social science research methods for assessment and evaluation purposes

## **David Wahl**

David W. Wahl is a social psychologist currently working as a research associate with the ADVANCE Midwest Partnership at Iowa State University.

## **Patricia Sotirin**

Dr. Patricia Sotirin is a Research Professor in the Department of Humanities at Michigan Tech. She earned a Ph.D. in Communication from Purdue University and her research areas include interpretive qualitative methods, feminist theory, embodied gender in organizations, and kinship communication. She has co-authored or co-edited six books on such topics as poststructuralist qualitative research; feminist resilience; feminist vigilance; women on the homefront; aunts in popular culture and aunt/niece/nephew communication. Her published articles include analyses of dual career issues, embodiment in change management, DEI training, and organizational resistance. She has published in such journals as the Journal of Organizational Change Management; Qualitative Inquiry; Review of Higher Education; Organization Management Journal; Journal of Social and Personal Relationships; and Organization: The Critical Journal of Organization, Theory, and Society. She has been President of the Organization for the Study of Communication, Language, and Gender (OSCLG) and Editor of Women & Language. She has been on over fifty graduate committees and received an Outstanding Mentor Award from OSCLG. She is a Co-PI on an NSF ADVANCE Adaptation grant at Michigan Technological University.

# Cross-Institutional Mentoring Communities Program

## Abstract

This paper describes the development and implementation of a Cross-Institutional Mentoring Communities (CIMC) program. CIMCs were designed to create networks of mentoring as a robust support and feedback mechanism for faculty facing compounded challenges related to their personal characteristics and/or specific identities, especially intersectional identities traditionally underrepresented in STEM (e.g., women of color, LGBTQIA+ faculty, faculty with disabilities), or simultaneous demands of an academic career and family caregiving responsibilities. Communities were formed with two to three junior and/or mid-career faculty, women, and men, from four midwestern institutions; each CIMC was facilitated by one or two more senior mentors. Virtual meetings were held at roughly bimonthly intervals. Mentors were regularly provided guidance on mentoring and topics to discuss with their mentoring groups.

The CIMC networks facilitated career obstacle problem-solving, as well as enhanced a sense of community and belonging. The program worked to reduce the isolation, exclusion, and silencing of non-majority individuals within the typical academic career progression in addition to adapting to support during pandemic-altered faculty challenges. Key advantages of CIMCs included enabling inter-institutional exchanges and reflective learning among committee members about similarities and differences in climate and opportunities on different campuses. This paper will review the premise and literature on peer and peer-plus mentoring as well as describe the process of forming and supporting the CIMCs. Formative assessments for this ongoing program will also be discussed. This paper can serve as a guide for other institutions to form communities of support for diverse faculty.

## Background

The concept of a tipping point has become broadly utilized in a variety of fields since Malcolm Gladwell's book by the same name was published in 2000 [1]. Within the context of women and underrepresented individuals in science, technology, engineering, and mathematics (STEM), the premise upon which NSF's ADVANCE program was founded was to identify the behaviors, policies, and programs that could enable equity in STEM faculty ranks. The ADVANCE program launched in 2001 and has enabled extensive programming and research into this challenge. Twenty years later, studies continue to relay the isolation and hostile professional obstacle course that excluded groups face in STEM [2]. In short, a tipping point has not yet been reached and much work remains before people within the system accept that inequities exist and revamp the system to enable equity to be achievable.

While all ADVANCE programs, education, and policy efforts play a role in reaching that tipping point, this work focuses on creating and cultivating communities that support individuals from similar disciplines and identity groups. A steadily increasing body of work is exploring mentoring within community contexts have attributes beyond the traditional one-on-one mentoring approaches. Examples include learning communities [3], mentoring circles [4], networks [5], collaborative [6], collaborative cohort [7], and episodic mentoring [8]. Compelling arguments have indicated that these alternative forms of mentoring better support faculty whose identities tend to lead to isolation in STEM; identities include BIPOC faculty [8, 9], women [10], LGBTQ [11-14], and other underrepresented individuals. We briefly review the compelling reasons for peer mentoring groups and then describe our adaptation of these to a cross-institutional format.

Group mentoring approaches can be advantageous for the mentee(s) and can simultaneously be efficient. A single mentor is unlikely able to provide a wide range of needs, experiences, and perspectives for a mentee. The strengths and weaknesses of one mentor may complement the weaknesses and strengths of another mentor [15]. In addition, available mentors with the ability to dedicate time on a regular basis can be a bottleneck. This thus leads to the advice to mentees to cultivate multiple mentoring relationships [16]. The foundation behind such advice is to solicit and value multiple perspectives, which can help identify alternative pathways and options for the mentee [17]. Such feedback can come in informal, short sessions or longer, more formalized meetings. Collectively, these newer models of mentoring include “multiple ‘mentoring partners’ in non-hierarchical, collaborative, cross-cultural partnerships to address specific areas of faculty activity” [17]. Women and faculty with underrepresented identities may especially benefit from peer-mentoring and cross-mentoring [18]. Examples include “writing mentors, teaching mentors, work/life balance mentors, mentors from their racial/ethnic group and mentors from other racial/ethnic groups, etc.” [19]. These peer-, circle-, network-, collaborative-, cohort-, and multiple-mentoring models all can position the individual to make their own, more highly informed, decisions and move beyond the “fix the individual” approaches which were a common theme in prior equity efforts. These inclusive mentoring models enable more systemic perspectives that engage the deeply embedded inequities and intersectional oppressions pervasive in academic culture [20].

Communities of practice are groups of individuals engaged in collective learning around a common goal or domain of expertise and are usually described via three attributes: domain of interest, community, and practice [21]. The longer-term interactions increase competencies and learning, enable opportunities to practice the competencies, and give space for altering the practice based on shared knowledge. This is described as a “shared repertoire of resources: experiences, stories, tools, ways of addressing recurring problems—in short a shared practice” [21]. Within the academic faculty domain, communities of practice have been shown to be effective for discussing strategies in an “inherently individual and competitive reward system” [22]. Topics such as teaching dilemmas, co-authorship issues, merit and promotion criteria, processes, and decisions, or professional conflicts and barriers that were once wrestled with in isolation can be shared and offer collective learning within the cooperative group [23, 24] The roles of mentor-mentee or master-apprentice can flex based on lived experiences of each member of the group [25]. In general, the community-based model has been credited with benefits such

as “goal setting, connection to the broader institutional community, interdisciplinary group makeup, friendship, being connected to a group, and support of professional development” [26]. From these foundations and those with which the PI team had lived experiences, we refined an approach to support individuals from similar disciplines and identity groups.

From the premise of setting new faculty up for success, the University of Michigan began Launch Committees in 2012 [27]. These regularly scheduled meetings with a committee of five members (new faculty member or ‘launchee’), department chair, senior faculty member with related interests from within the department, senior faculty member with related interests from outside the department, and senior faculty member who moderates the meeting) showed success in helping the new faculty orient to the institution, talk through items that ranged from teaching and mentoring students, to research, publications, funding, and many other expectations of the faculty role [28].

Michigan Tech’s ADVANCE members visited the University of Michigan in 2015 as part of research for developing an ADVANCE grant proposal and were extremely impressed with the feedback from members of the U of M launch committees as well as the new faculty, and decided to adopt the program when an opportunity arose on their own campus. They launched a year-long pilot of what were termed Early Career Management (ECM) committees in the academic year 2015-2016 with a cohort of about 10 new faculty, a subset of all new faculty hired that year [29]. Due to the difference in institutional size, committees were reduced to four members and were composed of a new faculty member, department chair, senior faculty advocate from within the department, and a senior faculty advocate from outside the new faculty’s department. The external advocate served as the chair of the committee, scheduling the meetings, and moderating as needed. The ECM program was a resounding success, so much so that in the second year, it was institutionalized into the Provost’s Office for all new faculty hired in 2016-2017. Further, any faculty who were not a part of the ECMs the prior year were invited to participate in 2016-2017. All but one new faculty member agreed: in addition some new faculty in years 3 and 4 requested committees. Michigan Tech’s ECM program continues to thrive at the institution and became the inspiration for an initiative within another ADVANCE program that was later developed across four educational institutions, as will be discussed next.

In 2018, four midwestern research universities partnered to submit a proposal to the ADVANCE Partnership program. Institution sizes range from 7,000 to 32,000 students; two are urban and two are in rural settings; all have strong reputations for STEM research. Three, including Michigan Tech, were recipients of ADVANCE grants awarded between 2006 and 2018 prior to this Partnership effort. All showed gains in equity, diversity, faculty retention, and career advancement as a result of institutional efforts and commitment to increasing diversity, with a 2-15% growth of women in tenure-eligible positions in STEM fields between 2008 and 2018, especially at the assistant professor rank. Additional context on the Midwest Partnership institutions can be found in Cervato et.al. [29].

During planning for the Partnership grant proposal, the lead PIs from each institution shared the challenges for women and other excluded groups on their campuses. Commonalities were compiled to identify emerging themes. Goals to address issues of retention, advancement, and work-life balance were identified as paramount, especially for faculty from excluded demographics or those with caregiving responsibilities. It was noted that regional issues inherent

in the upper Midwest culture make it challenging to address caregiving, including history, entrenched biases, and a lack of community resources for family care services, especially for individuals with non-Christian religions and ethnic traditions. Sotello et al. concluded that a “chilly climate” existed for ethnic and racial minority faculty in Midwest universities [30] combined with biased perceptions of incompetence (see the stories in *Presumed Incompetent*, edited by Gutiérrez y Muhs et al. [31]).

Within the PI team, discussions around the intersection of women faculty, faculty of color, and faculty caregivers became a central focus because each institution had single-digit percentages of women faculty of color in STEM and could point to retention issues. How could programs at each institution realistically provide relevant support and mentoring for these isolated individuals?

It was decided that the partnership would create an integrated set of programs designed to address these problems across the four institutions. These programs would originate from previous ADVANCE grants at these institutions that would be adapted with specific intersectionalities in mind. Furthermore, the programs were also designed to be portable to other campuses to ultimately enhance cross-institutional connections and resources for addressing conditions impacting URWM and WFC across Midwest universities beyond the four original Partnership members. Five overarching goals drove partnership efforts: (1) to increase retention of underrepresented women minority (URWM) faculty and women faculty of color (WFC); (2) to support career progress for URWM and WFC; (3) to increase satisfaction and success of URWM and WFC; (4) to stimulate advocacy for systemic change based on awareness of gender equity issues emerging from the programs implemented; (5) to create an integrated set of cross-institutional programs that will be exportable to other regional universities that aim to support, retain, and advance the careers of URWM and WFC.

### Cross-Institutional Strategy

Michigan Tech’s contribution to the Partnership’s set of initiatives was its previous experience in creating the ECM committees. In terms of the proposed Partnership mentoring initiative, termed CIMC (Cross-Institutional Mentoring Communities), it was envisioned that by coordinating across the four institutions, sufficient senior mentors could be engaged to create a community of support for individuals that tended to be isolated due to their gender, underrepresented status, and/or caregiver responsibilities. The vision was for cross-institutional synergy to reduce isolation for women faculty with intersectional identities, encourage those faculty to gain optimism about their futures in academia, and through sharing, help transform academic cultures and practices. Thus, the program aims to reduce the isolation, exclusion, and silencing of WFC and URWM faculty particularly regarding caregiving issues and tokenism. Communities were envisioned to centralize support and retention, which aligned closely with the overarching goals of the partnership project. CIMCs actively create networks of mentoring to provide robust support and feedback for assistant and associate rank faculty. The networks emphasize problem-solving for career obstacles as well as enhancing a sense of belonging. The CIMCs also facilitate inter-institutional

exchanges and reflexive learning among committee members about similarities and differences in climate and opportunities on different campuses, thus seeding fresh ideas across institutions. The program fosters a culture of listening, awareness, and responsiveness to the concerns of women faculty; collectively, this camaraderie intends to support WFC and URWM in career progression and their own advocacy for change.

Invitations were circulated via email at each of the four Midwest Partnership institutions. General emails were distributed in addition to personal emails directed to key colleagues. All were invited to complete a google form that asked for their contact information, institution, research areas, and identities. Groups were formed to span all four institutions, relatively similar research areas, and with as many overlapping identities as was possible.

The first year involved 58 faculty in ten CIMC groups that met biweekly or monthly via virtual meetings with a mentor and multiple mentees. In addition, the Partnership hosted four cohort-wide virtual meetings for CIMC members to build additional camaraderie, assess progress, and celebrate accomplishments. The second-year implementation involved 32 participants in eight groups. The increased ratio of groups to participants was a balance between continuing groups, some with attrition of members, and available mentors to start additional groups. The drop in participation was attributed to COVID burnout and what has been termed “faculty disengagement” after nearly two years of pandemic fatigue [32].

In addition, we acknowledge the impact that COVID-19 had on this initiative from the start given the timing of the receipt of the grant award, then we provide some description of key methods used with the CIMCs, such as guiding questions and periodic prompts for the mentoring groups as well as virtual Jamboard meetings across the groups. Finally, we provide some results based on the evaluation of the program followed by an overall discussion and recommendations.

## COVID-19 Impact

The global COVID-19 pandemic became a serious concern in the United States in March 2020, less than six months after the Partnership project’s official start date, and just prior to the intended launch of the CIMCs. Thus, the pandemic had a serious impact on the original implementation plans of the project components. It quickly became apparent that the pandemic, with its forced closures of campuses, schools, and daycare centers, and sudden transition to distance learning, was having a disproportionate impact on women with family responsibilities and women faculty of color. In addition, faculty of color faced the trauma and stress of racial events, demonstrations, and difficult campus conversations in 2020, as well as the trauma experienced by students of color who often turned to women faculty of color for support [33].

While the pandemic impacted the original timeline and topical foci of the CIMCs, the virtual format of the CIMCs provided an opportunity to offer resources to assist women faculty in navigating these unprecedented challenges, something that had not been anticipated when the program was proposed. In other words, a pivot was needed to support the faculty in ways beyond simply addressing pre-pandemic issues. As such, the CIMC mentors and groups followed a “just in time” format in terms of topics addressed in their discussions, such as

mentoring on remote teaching, support for graduate students as research labs were shut down, balancing work with childcare, and many other relevant and timely topics. As an example, mentors learned from their new faculty mentees that, due to the pandemic, they were having a lot of trouble adjusting given socialization (e.g., lunches with colleagues) that would have given them much-needed information about their departments and the university. This also extended to the minimal networking with colleagues at other universities that was occurring since academic conferences were canceled or moved online. Mentors and mentees together explored ideas for alternative mechanisms to meet new faculty needs, something that the faculty members would have otherwise had to come up with on their own.

### Guiding Questions

Prior to launching the CIMCs, extensive thought and effort were put into crafting discussion prompts for the mentoring groups. These topics have evolved from an initial listing of topics with prompts for the 2015-2016 Early Career Management (ECM) committees mentioned previously. The ECM prompts were refined and improved each year based upon mentor and mentee feedback. Thus, the 2019-2020 version of the ECM guiding questions were utilized to craft an initial 2020-2021 CIMC guiding question list paying careful attention to generalizing and expanding the questions and prompts to include specific discussions on identities and intersectionality of those identities in professional careers. Additional topics were included that pertained to COVID and associate professor career decisions. The full list of guiding questions is available to partnership members on our ADVANCE website [34].

A brief summary of topics covered include:

- Strategies to improve both physical and mental health and resiliency;
- Identity-related dynamics within departments, broad professional environments, and persona interactions?;
- Academic culture - dimensions that are supportive and how to navigate through those portions that are not;
- Research strategies with respect to proposals, collaborations, managing grants, etc.;
- Managing a budget;
- Publishing and scholarship with prompts focusing on presubmission, mentoring students with writing, responding to reviewers, and many other related topics;
- Safety covering laboratory setting, IRB, or related topics;
- Mentoring researchers at the student, postdoctoral, technician levels;
- Teaching and advising both in person and online including responding to evaluations and managing disruptive students and situations;
- Service ranging from the department through to national and international level;
- Tenure and promotion including strategies for best presenting a package;
- Networking - how best to allocate time and resources to connect with other researchers in your field.

Mentors are able to share their own experiences and strategies they have learned to excel in their careers alongside each of the guiding questions prompts. In addition to the use of these



questions during the CIMC meetings, the organizers also hosted virtual sessions with all CIMC mentors and participants as well as shared regular current topics, articles, and resources to dynamically respond to participant needs.

### Virtual Synchronous Sessions with Jamboard

Virtual sessions were organized for the CIMC Kickoff, midway through the academic year (e.g. early Spring), and as a CIMC graduation event. These sessions were hosted by the ADVANCE Partnership PI team, most of whom also served as mentors to CIMC groups.

The CIMC Kickoff included an overview of the program as well as some interactive ice-breaker activities for participants to get to know each other. In addition to explaining the purpose of the CIMCs, as well as explaining the process and timeline for the final organization of the groups, the participants were able to join breakout sessions to discuss what they hoped to gain from the CIMCs. A Google Jamboard was used so that participants could record their thoughts by anonymously adding sticky notes to a virtual whiteboard. Responses, organized by themes, included:

- “I hope to learn how to accept that there’s always more I can do, but sometimes it’s enough.”
- “I hope to learn how to better balance my many roles.”
- “I hope to learn about methods for effective time management.”
- “How to stay afloat and still accomplish important (societal) goals.”
- “I hope to gain a better work-life balance with small children at home.”
- “I hope to learn about work-life balance.”
- “Motivation to publish.”
- “How to navigate my tenure and how to get funding.”
- “How to overcome racial discrimination.”
- “Someone to talk to about ‘sticky’ situations at work and how to work through them.”
- “How to avoid toxic colleagues.”
- “I hope to learn more about others’ experiences and struggles with academia, to learn tips and tricks, and to help others.”
- “Good to know colleagues and to see what their experiences are!”
- “I hope to gain perspective from colleagues in a variety of areas.”
- “I hope to find mentors that can show us the way to academic and personal growth.”
- “I hope to share experiences and learn from colleagues.”
- “Hope to share “what not to do” experiences.”
- “I hope to share the things I wish I had known as a jr faculty member.”
- “I am hoping to connect with colleagues from different institutions and create my academic community.”
- “I am looking forward to expanding my professional networks across my institution.”
- “I hope to build a network of colleagues and collaborators.”
- “I hope to have a support team.”
- “Network opportunity.”
- “I hope to gain a network of colleagues.”
- “Expand my professional networks.”
- “Add to network for research.”

During the first year of the program, the midway virtual session was held the second week of January 2021. Results from the mid-CIMC survey (conducted in December 2020) were shared with the participants. These results indicated that the groups that were thriving with the most positive feedback came from participants who were meeting every other week at a fixed time. Those CIMCs that were floundering were meeting less frequently and struggling to find a regular time to meet—often some participants could attend one session, but not the next. We also introduced improvements and additions to the guiding questions at this session. Lastly, we shared a video helping define intersectionality for the participants and staged breakout groups to focus discussions on each person’s intersectional identities and any situations in which they found their identities to be incongruent with academia or academic practice. Nothing was recorded from these breakout sessions; instead, these were for the growth and benefit of the group.

At the end of the academic year, a CIMC graduation celebration was held virtually. Jamboard was again used to enable mentees and participants to share their CIMC nostalgia (e.g., best moments) as well as advice they would give to participants in the next year. Figures 1 and 2 illustrate the responses to these prompts. (Note: A small amount of spatial reorganization has occurred to group similar topics together on the board.) Consistent with the goals of the CIMC, participants noted the common backgrounds and identities with other individuals in their group.



Figure 1: CIMC participant responses at the end of the 2020-2021 academic year to the prompt, “What memories would you like to share?”



Figure 2: CIMC participant advice for any future CIMC participants. This advice was shared at the 2021-2022 Kickoff Event.

### Bi-Weekly Mentoring Prompts

The PI team on the ADVANCE Partnership project helped brainstorm topics to feature in the bi-weekly emails to mentors and participants. The PI team also forwarded any relevant articles or resources they identified throughout the academic year. These were consolidated into an organized outline in a Google Doc and adjusted as priorities shifted.

Emails following the CIMC kickoff reinforced some of the group participation guidelines that were shared in the virtual session. These included:

- Step Up, Step Back: If you haven't talked (posted), step up. If you have talked (posted), step back.
- If there are X people, talk 1/X of the time, and wait 10X seconds to talk if already spoken.
- Speak for yourself by relying upon "I" statements to avoid generalizations.
- First and most importantly, each member of the CIMC should feel heard. A tool to show someone is being heard is to summarize what they said followed by a question.
- Second, each member of the CIMC should gain broader perspectives they can leverage for their own careers.

Subsequent emails were crafted and sent to the mentor list or the mentor and participant list depending on the topic. Most emails began with a greeting and a short story about the topic and its importance. Three example emails are provided in the appendix. Program Evaluation

As a foundational reference, the four institutions within the partnership have single-digit percentages of faculty with some of the identities of focus in this project, such as URM faculty. Thus, success can mean a change in the career trajectory or satisfaction of a few individuals. Further, success is also retention of faculty, which is quantifiable as no change in faculty counts, or a reduced rate of attrition. Separate initiatives focused at the hiring level have a direct impact on increasing numbers. Acknowledging these foundations prior to examining assessment data is important to put expectations of the success of a program in context.

With that goal of retention at the forefront, quantitative and qualitative assessments of the CIMCs were designed to enable formative feedback to guide improvements to the CIMC support network as well as further implementation phases. While it was not originally the intent, the CIMCs also provided an opportunity to more deeply examine how the pandemic impacted women faculty with identities that compound disadvantage.

For quantitative assessment, a feedback survey was emailed to 21 mentors/co-mentors and 34 mentees who participated in the Cross-Institutional Mentoring Communities (CIMC) during the Fall/Spring 2020-2021 academic year. Eight mentors/co-mentors completed all or part of the survey (response rate = 38%) and 11 mentees completed all or part of the survey (response rate = 32%). All percentages are rounded to the nearest whole number. Response rates are typical for this surveying method.

Feedback from all participants in year 1 (2020-2021, 35% average response rate) indicated that 79% agreed or strongly agreed they were better able to navigate or manage career challenges due to the CIMCs. Similarly, 79% agreed or strongly agreed they were better able to navigate or manage work/life challenges, although there was a shift to a greater extent toward 'agree' with this question. When asked if they were more confident in their promotion and tenure process due to the CIMCs, 58% responded they agreed or strongly agreed. Only 37% agreed or strongly agreed that they were more satisfied with their position at their university as a result of the CIMCs. This question is particularly hard to decouple from the satisfaction or dissatisfaction effects of the COVID pandemic, a sentiment noted by McClure & Hicklin Fryar [32] in their 2022 "Great Faculty Disengagement" opinion piece.

As one CIMC mentor noted, a survey of this type is fairly effective at discerning the perceived impact of something like a 1-hour event but is only minimally effective at measuring the impact on growth and persistence of individuals meeting every other week for most of a year. During discussions and debriefings, mentors did articulate that the COVID-19 pandemic exposed the range of needs and challenges that made these communities a sought-after source of support and guidance across institutions and ranks [29].

Because of this challenge in measuring impact, new qualitative assessments are being planned to augment quantitative assessments. Instruments and data sources include institutional data, participant demographics, online surveys tailored to each event and program, interview protocols, and analysis of comments, notes, and questions posted by workshop participants in shared online documents (e.g., Google Doc, Google Jamboard, Google Forms). As demonstrated above, feedback is being shared in a transparent continuous improvement manner with the CIMC participants; the goal is to involve each of them in strategically evolving the CIMCs to best serve the needs of historically excluded individuals functioning in systems that are not entirely compatible with their identities and demands on their time.

Given the limitations of using short, closed-ended survey questions to evaluate the impact of the richly detailed CIMC experience and the relatively small number of overall CIMC participants, the ADVANCE evaluation team is planning to modify its approach to program evaluation in the upcoming years. This new approach will use a mix of focus groups, semi-structured interviews, and participant observation to delve more deeply into the CIMC experience from the perspective of individual participants as well as investigate the group dynamics that evolve as participants interact. Participant observation will be used to first identify how focus group prompts should be developed in a way that makes it possible to recreate the key group dynamics responsible for the CIMC's success or barriers to more productive relationships. Focus groups will then be conducted with prompts designed to encourage participants to identify aspects of the CIMC relationship responsible for a successful working relationship that is directly relevant to career advancement and/or work-life balance. Finally, semi-structured interviews will be used to provide participants an opportunity to confidentially reflect upon their CIMC experience separate from their mentor/mentee as a way to identify areas in need of improvement for future CIMC rounds.

Additionally, there are a few notable limitations to the project's evaluation, especially in characterizing its impact on faculty with varying levels of caregiving responsibilities (e.g., single parents, elder care, geographic isolation from a family of origin) beyond what they self-report in surveys. Privacy concerns and lack of detailed demographic information tracked at the institutional level make this level of detail not possible.

## Discussion and Recommendations

NSF ADVANCE is focused on women faculty in STEM fields in tenure-eligible positions. However, women represent the majority in non-tenure eligible positions at the partnership institutions. While we acknowledge cultural differences within STEM fields and between STEM and non-STEM disciplines, the Partnership's approach is based on inclusivity, and participation in the programs is open to all faculty, regardless of rank, tenure status, or discipline. The Partnership draws on a cross-institutional, regional lens to provide camaraderie and support to all who self-selected themselves into participating in the CIMCs in its pilot year. In implementing the CIMC communities, there have been both struggles and pleasant surprises which we will discuss here. Our recommendations stem from many of these experiences.

First, one difficulty was creating groups from similar disciplines that remained mindful of additional participant identities. This was easier for some groups than others. Since the focus of ADVANCE grants is on STEM disciplines, often these groups were easier to form because more people from these disciplines were participating in the program. Groups that had several disciplines represented within their set of mentors and mentees (e.g., art, economics, business) often struggled to find common ground to have a conversation around since these disciplines operated very differently. This tended to affect the cohesiveness of the group and the helpfulness of its discussions. Certain groups also struggled with having consistent attendance by members. It is possible that being from different institutions and departments reduced group loyalty or the perceived obligation to attend meetings.

Another difficulty has been discussed to some extent already, which was launching the groups during a pandemic. In some ways, this was both a difficulty and an opportunity: the PI team was able to respond to the needs of the mentoring communities with relevant prompts. Also, people were becoming comfortable with meeting over Zoom given this was required in almost all their work arenas. Third, they were able to get the support they so direly needed. At the same time, it created issues for the program. For example, mentors and mentees were struggling with issues that were often quite confounding, such as learning new teaching technologies within very short periods of time and redoing their courses to be able to teach them remotely. Mentors didn't always have clear answers for the questions mentees posed about these situations. The need to revamp courses also created time demands that no doubt made it more difficult to meet regularly with others for self-development purposes.

Some of the benefits of the CIMCs that were expected were realized. For example, very personal and difficult situations, such as being bullied by more senior faculty, could be shared within the CIMCs since mentors were typically from another institution and/or department. Fears that might arise from sharing honestly within a unit did not arise. Additionally, mentors felt freer to share their own experiences without a fear that the story would "get back" to the individuals involved in the situation being shared.

Other benefits of the CIMC structure were unexpected and pleasant surprises. An example is that the structure lent itself to being used within another initiative, the cross-institutional chair professional development initiative (CI-DCPD). When it became clear within the CI-DCPD that department chairs enjoyed hearing the experiences of department chairs at other institutions, the PIs decided to institute a separate initiative: cross-institutional chair peer mentoring communities (CICPMC) [34]. Thus, a key goal of the overall Partnership, which was to find and leverage synergies among both institutions and programs, was realized.

## Conclusions

As a result of our various experiences shared previously in this paper, we conclude with the following recommendations:

- CIMC communities are effective at providing support particularly for issues that faculty find difficult to express to mentors within their own units as well as for faculty who may feel isolated at their own universities due to low representation of certain intersectionalities at those universities.
- It is very important to remain flexible in CIMC programming, to not only take into account institutional differences, but also overall contextual issues (such as the presence of a pandemic).
- It is good to remain vigilant about synergistic opportunities that are presenting themselves—i.e., sometimes the structure of an initiative could be useful elsewhere (e.g., within the CI-DCPD program and the newly established CICPMCs).
- Because of their unique characteristics, CIMC communities offer both more freedom to communicate difficult situations and possibly also less loyalty to the group. This dual aspect needs to be managed. For example, groups should not be too diverse in terms of disciplines so that members can have some common ground from which to connect in meaningful ways.
- The benefits of mentoring communities may be difficult to surface using traditional evaluation methods. For example, survey items may provide little information as to why a certain number was chosen, and one may not want to identify and compare URM responses to majority group responses given low numbers and privacy/confidentiality concerns. Thought needs to be put into nontraditional and/or additional evaluation strategies for these types of initiatives.

In general, the CIMCs have leveraged growing cross-institutional relationships to create near-peer and senior-peer mentoring spaces for individuals seeking support and professional mentoring. These unique communities of practice and mentoring model are being adapted into communities at the department chair level. Future papers will explore that program and its impact.

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## Appendix

An example email early after the formation of the CIMCs to mentors is as follows:

*In these first meetings, your team is getting to know each other. Confidentiality is a key consideration that we recommend you discuss openly. These Cross-Institutional Mentoring Communities should be safe places for which individuals who are isolated due to their identities can open up and talk more openly. As a community, each member can take their turn asking for support and offering perspectives. Collectively, these conversations can provide a richer set of options to support individuals to thrive in their careers. The trust that your groups will develop will be harmed if any damaging information were to exit the CIMC. Thus, if you have not already, please approach this topic with your group and engage them in defining and endorsing the importance of confidentiality.*

*Your mentees (and/or you) may be struggling with childcare issues (please see attached article). Many of us have seen schools suspend in person classes for a period of 2 weeks or more to slow the spread of COVID. Others may be juggling younger kids around the clock. Thus, childcare is a good topic to bring up for discussion. Once individuals are able to describe their constraints/challenges, it is a good strategy to steer the conversation towards coping or solutions. Strategies that people have adopted to juggle children alongside their careers are diverse with varying degrees of success. Many households have to experiment and regroup on a someone regular basis to find something that works.*

*If you experience a lull in the conversation during your session this week, consider discussing the importance of establishing boundaries:*  
[https://www.bbc.com/worklife/article/20200929-how-feierabend-helps-germans-disconnect-from-the-workday?ocid=global\\_worklife\\_rss](https://www.bbc.com/worklife/article/20200929-how-feierabend-helps-germans-disconnect-from-the-workday?ocid=global_worklife_rss)

*"Keep the boundary between work time and relaxation clear by adopting the German practice of "Feierabend," which has been understood as a way to recharge both body and mind. "[U]sing free time adequately makes one fit for working again and, at best, even increases one's performance," says professor Caroline Rothauge."*

An example email around the midpoint of the CIMC to mentors and participants was as follows:

*Let me start by extending my humblest apologies for falling behind on updates to this wonderful community. I'm currently functioning on the mantra that "it is never too late to regroup" and that each of you is juggling enough moving targets that this reminder may be helpful for you as well.*

*As you head into a well-deserved break, it can be valuable to voice what you hope to achieve from the time off. A valued colleague told me, "I want to stay in my comfy pajamas for 3 days, nap, read books (alone or with kids), and just turn off the need to be doing 2 or 3 things at once." To not introduce new stress to my family, I've found it useful to acknowledge that ideal relaxation target and then augment it with reality. Mine goes something like the following. "Reality is that the kids will interrupt and it will help if I redefine these moments as a treasured time to connect with them in a meaningful way (instead of getting irritated and introducing stress.)" However you are able, I hope this week you can relieve some pressure so you can recharge!*

*The resource for this week was shared by Dr. Cinzia Cervato, the ever encouraging PI of our NSF ADVANCE Midwest Partnership grant. The following quote is from the Chronicle of Higher education article indicating that the CIMC model is really the best medicine to avoid burning out: "If the pandemic has stripped teaching of what makes it invigorating, it's also exacerbated aspects of academic life that were already challenging professors' mental health, such as the impulse to work hard to meet students' needs, even at the cost of depleting themselves. But professors can take a few steps to help themselves stave off burnout, Pope-Ruark says. While hopping on yet another Zoom call may not feel like the most appealing option, she has advised professors that creating virtual networks with colleagues is important."*

*Recall that it is never too late to regroup — and never too late to (re)engage with your CIMC! Reach out to your mentor or accept the next invite from your mentor for a meeting. Together, we will figure out new ways to thrive in these challenging times.*

Another email late in the academic year was as follows:

*Many of us are experiencing a touch of spring sunshine and temperatures this week leading up to Daylight Savings Spring Ahead (12:01 am March 14th). Sending you an email has been on my list for over a week and due in part to Seasonal Affect Disorder, I've struggled to come up with the perfect topic. Thus, I've decided to merge together some topics that have been weighing on my mind.*

*The first topic is related to the nebulous timing of applying for full professor. We recently examined the years each gender spent in the rank of Associate Professor before being promoted to Full Professor at my institution. The data were binned into 3-5, 6-8, 9-11, and 12+ year categories. Data for promotion of women in STEM was skewed to the 9-11 year bin while the data for men was \*heavily\* skewed in the 3-5 year bin. If I think back to the informal conversation I had with my department chair about applying for full professor, it leads me to suspect this conversation is the critical point where bias creates the disparity in years in rank. The literature has become quite extensive documenting how individuals who embody the 'norm' are granted de facto assumptions of credentials while those who are not the typical identities are not granted the benefit of the doubt. In my case, my chair, who I felt was a pretty strong advocate, suggested I needed more funding without examining my CV or any other materials. I contemplated this, but there was a grant I really wanted to lead where I knew the review panel would not look favorably on an Associate Professor as PI. So, I decided to take the risk and apply anyway. The result was favorable. In reflecting upon this and the major skew in the data (even though actual credentials don't differ on a scale that warrants a 4+ year disparity), I'd really encourage those of you at this juncture to seek additional opinions, push the envelope, and take the risk. The de facto assumptions of credentials won't change unless more non-majority individuals are visible and active in the Full Professor rank. This could be a valuable topic to discuss in your CIMCs.*

*The second topic is related to student advising. In my own career, I've cherished those supervisors who were concerned with my success and helped position me to be successful. This was in contrast to supervisors who actively positioned roadblocks (if you submit this grant and need to do YYYY, you will have to do that on top of all of your other responsibilities) or worse yet, didn't share the whole picture such that I reached a 'gotcha' point. As advisors to graduate students, we have the responsibility (and power/influence) of supervisors/sponsors. Our students do better when we think through their path and help smooth out the road by pointing out potential roadblocks and guiding them on what to expect to meet and exceed expectations. In your CIMCs, spend some time thinking about things you wish your advisor had relayed to you and if you can proactively share that wisdom with your students. Please let me know how conversations on this topic develop since mentoring is such a complex subject.*

*Lastly, I also discovered this writing resource [35] and thought it would be valuable to share. Those are the three somewhat disparate topics from which I thought our CIMC community could benefit. Feel free to suggest topics for the coming weeks.*