GENDER EQUITY IN HIGHER EDUCATION DURING DISRUPTIVE EVENTS:
COMMUNITIES OF PRACTICE IN THE NSF ADVANCE NETWORK

Abstract

Equity-focused initiatives in higher education institutions (HEIs) are particularly vulnerable during times of crisis, as disruptions can stall progress and institutions may deprioritize structural change efforts. This study examines how equity advocates within the National Science Foundation's ADVANCE program, a long-standing initiative to promote gender equity in academic STEM, persisted during the COVID-19 pandemic. We conceptualize ADVANCE not only as a funding mechanism but as a large, multi-institutional community of practice (CoP) that includes overlapping sub-communities that vary in structure and purpose. Using semi-structured interview data, we show how the formal ADVANCE CoP incubated a diverse array of sub-CoPs that played distinct roles throughout the crisis. Peer-led, less formal sub-CoPs were especially vital early in the pandemic response, offering emotional, social, and practical support when institutions were largely immobilized. More formal, institutionally supported sub-CoPs became increasingly important as the pandemic went on, translating short-term adaptations into durable practices and institutional memory. Our findings highlight how different forms of organizational structure within CoPs support different types of needs—cognitive, social, and emotional—at different stages of crisis response. This study contributes to CoP scholarship and research on equity work in HEIs by advancing a relational and temporal understanding of CoPs as infrastructures of support. Rather than privileging knowledge sharing functions alone, we argue that sustainable equity work requires distributed and flexible CoP ecosystems capable of meeting the multifaceted needs of their members. Especially in times of crisis, these networks of care, trust, and collaboration are essential to preserving momentum and enabling long-term institutional transformation.

Keywords: Science, technology, engineering, and math (STEM) Equity; Organizational Change, Community of Practice, Faculty Equity, Change Advocates

Higher education institutions (HEIs) are increasingly vulnerable to disruption from climate change, political upheaval, and global health emergencies (Anderson & Ringer, 2024). These crises can amplify existing gender and intersectional inequalities among faculty and destabilize organizational efforts to promote diversity, equity, and inclusion (DEI) (Frize et al., 2021; King & Frederickson, 2021; Kossek et al., 2021; Yildirim & Eslen-Ziya, 2021). Efforts aimed at structural transformation, such as gender equity programs, are particularly vulnerable to being deprioritized or stalled during times of crisis. Yet, some equity-focused initiatives persist, and even adapt and grow, in the face of adversity. This paper examines one such case: the National Science Foundation's (NSF) ADVANCE program, a long-standing initiative to promote gender equity in the STEM professoriate.

We approach ADVANCE not merely as a funding mechanism, but as a community of practice (CoP): a loosely bounded, geographically dispersed network of change advocates with the shared goal of increasing gender equity in STEM fields, who participate in mutual learning through regular interaction, and build enduring support structures across formal institutional boundaries (Wenger, 1998; Wenger & Snyder, 2000). While much of the CoP literature focuses on grassroots or emergent CoPs, recent scholarship has highlighted the importance of institutionalized CoPs as a mechanism for innovation and dissemination of equity work in HEIs (Gehrke & Kezar, 2017; Hakkola et al., 2021). Across more than two decades of development, the ADVANCE CoP has evolved and expanded through multiple variations and organizational formats that have changed as the program has grown exponentially (Authors 2022), including requiring external advisory boards, organizing semi-annual cohort meetings, and seeing the emergence of smaller sub-communities.

Using ADVANCE as a case, we examine how CoPs within higher education can support and sustain equity-focused work during periods of institutional crisis, with particular attention to how relational structures enable members to interact and share information, co-develop strategies, and persist amid uncertainty. We find that the formally structured ADVANCE CoP, i.e., the community explicitly defined by NSF funding, including assigned roles and leadership and formal integration with member institutions (Dubé et al., 2006), served as an umbrella under which smaller, less-formal CoPs emerged over its 24-year span. These sub-CoPs, formed around common disciplines, shared challenges, or emergent community needs, played a crucial role during the COVID-19 pandemic.

We find that the effectiveness of these sub-CoPs depended on two interrelated factors: the 1) degree of organizational formalism (ranging from non-institutionally affiliated or funded, peer-led groups, to staffed, funded, and centralized initiatives) resulting in varying levels of responsivity; and 2) ability to address different kinds of

support community members needed at different times throughout the pandemic, including emotional, social, practical, informational, and material support. In the case of ADVANCE, less formally organized sub-CoPs were especially crucial in the early stages of the pandemic, offering agility and social support that were vital in crisis management, while more formally organized sub-CoPs became more important later for continued cognitive support (i.e., knowledge sharing) and institutional legitimacy.

This study contributes to scholarship on CoPs and equity in HEIs in three key ways. First, it advances theorization of CoP structure by showing how large, deliberately created CoPs, such as NSF ADVANCE, can incubate nested and overlapping sub-communities that vary in organizational form and function. Second, it demonstrates the value of having robust CoP infrastructure within HEIs before a crisis, and how these multiple layers of sub-CoPs can help sustain equity-focused work in particular. Finally, our findings contribute to a small but growing literature on the role of CoPs during crises, showing that they are not only useful for sharing knowledge, particularly important when programs must rapidly adapt, but also as vital sources of emotional and social support. These dimensions help members maintain professional confidence and continue their work under challenging conditions. This is especially critical for equity in HEIs, where ongoing and major disruptions can sideline structural change efforts and equity initiatives often struggle to remain prioritized.

Literature Review and Conceptual Framework

The following section details the theories we are drawing on to understand the relational and structural dynamics of equity-focused work in higher education during times of crisis. We begin by revisiting foundational conceptions of CoPs and the organizational features that enable or constrain their development. This includes a revised typology of bottom-up versus top-down CoPs, and how different structural features may affect CoP processes and outcomes. We then focus on CoPs in applied contexts relevant to this study: as tools for driving equity in HEIs, and as emergent support structures in recent scholarship on disaster response. Together, these literatures provide the conceptual grounding for this study, and we argue that the degree to which CoPs are institutionally formalized or emergent differentially influences their capacity to sustain equity work during times of crisis.

Communities of Practice: Origins and Structure

CoPs are "groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly" (Wenger-Trayner & Wenger-Trayner, 2015, p. 1). Originally conceptualized by Lave and Wenger (1991) in the context of situated learning among apprentices and newcomers, the framework was developed to explain how knowledge and identity are co-constructed through participation in practice-based communities. While the concept originated in studies of workplace learning and knowledge management (see Bolisani & Scarso, 2014), it has since been adapted as a tool for understanding peer-based knowledge exchange and professional learning across a range of fields, including healthcare (Delgado, Siow, & de Groot, 2021; Delgado, Siow, de Groot, et al., 2021; Hasnain & Darcy-Mahoney, 2023; Silverstein et al., 2022), social work (Karadzhov et al., 2022), and institutional change in HEIs (Annala & Mäkinen, 2017; Buchanan et al., 2024; Gehrke & Kezar, 2017; Hakkola et al., 2021; Kezar et al., 2025; Ma et al., 2019; Margherio et al., 2024; Sidman-Taveau & Hoffman, 2019; Thomson et al., 2022).

A robust body of scholarship has examined how the internal structure of CoPs influences their effectiveness and sustainability. Wenger (1998) introduced the concept of the "paradox of balance," emphasizing that while CoPs thrive on organic, self-organized participation, they also benefit from institutional support, centralized leadership, and strategic alignment with broader organizational goals. To better account for the complexity of CoPs, Dubé et al. (2006) proposed a typology (see Table 1), which offers a multidimensional framework for understanding how varying organizational contexts can shape CoP outcomes. Their approach moves beyond rigid categories and allows for analysis of hybrid forms, particularly within large, multi-institutional CoPs.

Table 1

Organizational Contexts of Communities of Practice – A Typology

Creation Process	Top-down deliberately established with a defined purpose or spontaneously emerging and created by interested members	Spontaneous ←——→ Intentional
Organizational Slack	The general availability of tangible and intangible resources available to the CoP when needed.	Low ←——→ High
Degree of Institutionalized Formalism	The degree to which a CoP is integrated into the formal structure of an organization, including receiving direct funding and legitimacy.	Unrecognized ←——→ Institutionalized
Leadership	The CoP's leadership structure with clearly assigned roles or emergent authority relationships through interaction or expertise	Negotiated ←——→ Assigned

Note: Adapted from Dubé et al. (2006, pp. 76-77).

These structural features shape CoP capacities in important ways. For example, strong institutional support and centralized leadership may enhance longevity, access to resources, and institutional legitimacy (Bourhis & Dubé, 2010), while also creating tensions relating to "hierarchical organizational cultures" that may limit responsiveness to emergent needs (Corcoran & Duane, 2019, p. 167). Conversely, more emergent or loosely structured CoPs may be more adaptable, member-driven, and broadly supportive, but may struggle with long-term sustainability and diffusion of innovation if they are not more formally recognized (Anand et al., 2007; Josserand, 2004). Scholars have noted the enduring tension between top-down and bottom-up approaches in the CoP literature (Agrawal & Joshi, 2011; Bolisani & Scarso, 2014). For example, Anand et al. (2007) describe how informal CoPs can arise in response to specific knowledge gaps, championed by socially embedded actors, and, if effective, become integrated into formal organizational systems. Yet much of the CoP literature is grounded in business management case studies of formally organized CoPs that were largely successful because of top-down organization (e.g., Lesser & Storck, 2001).

This process-oriented perspective suggests that a single organization can foster multiple knowledge-based structures as sites of innovation that evolve over time (Lesser & Storck, 2001). As Wenger (2004) observed, "the most successful communities have always combined bottom-up enthusiasm and initiative from members with top-down encouragement from the organisation" (p. 6), suggesting that CoPs are often most effective when they integrate both structural flexibility and institutional support.

CoPs for Equity-Focused Change in Higher Education

In higher education settings, CoPs are increasingly viewed as valuable tools for promoting institutional transformation, particularly efforts related to equity. Researchers have documented how CoPs support equity-minded pedagogical development (Annala & Mäkinen, 2017; Hakkola et al., 2021; Sidman-Taveau & Hoffman, 2019), foster connection and inclusion for faculty from marginalized backgrounds (Drane et al., 2019; Smithers & Eaton, 2021), and help change agents build the social capital and strategic knowledge necessary to implement institutional reforms (Margherio et al., 2024; Sidman-Taveau & Hoffman, 2019). Drane et al. (2019) found that CoPs reduced feelings of professional isolation among less privileged and underrepresented graduate instructors, as well as contributed positively to members' capacity and confidence in creating equitable learning spaces (p. 110). Such

CoPs often function as counterspaces where faculty can build collective momentum, engage with new ideas, and navigate resistance to change (Hakkola et al., 2021).

Much of the existing research on equity-focused CoPs in HEIs focuses on single-institution CoPs (e.g., Annala & Mäkinen, 2017; Hakkola et al., 2021; Kezar et al., 2025; Sidman-Taveau & Hoffman, 2019), with relatively few studies analyzing how large, multi-institutional, or transnational equity-focused CoPs function (cf. Gehrke & Kezar, 2017; Thomson et al., 2022). Even within these studies, CoPs are examined through a snapshot and the temporal dynamics that characterize equity-focused work, which often takes years of careful, incremental development, are not captured. A more processual, longitudinal approach, such as those reviewed above, might better capture how CoPs support gender-equity work in HEIs.

Moreover, most research on equity-focused CoPs in HEIs emphasizes knowledge sharing and professional development, overlooking the emotional and social support CoPs may provide—supports that are often vital in equity work that, studies have shown (Jones & Kee, 2021; Porter et al., 2018), is often isolating, emotionally demanding, and structurally marginalized, especially when it is done within faculty's own institutions. When CoPs are framed primarily as short-term or instrumental mechanisms for knowledge exchange, their capacity to serve as durable infrastructures for institutional change, particularly under conditions of institutional adversity, remains underexplored.

CoPs in Disasters

Recent scholarship suggests that CoPs can additionally play a vital role in sustaining professional engagement and innovation in HEIs during crises. Their focus on co-learning, generally decentralized structure, and peer-driven communication networks enable them to respond quickly when formal institutions are overwhelmed or slow to adapt (Corcoran & Duane, 2019; Dickson et al., 2024; Mead et al., 2021). For example, during the COVID-19 pandemic, CoPs helped faculty transition to remote teaching (Grunspan et al., 2021; McLaughlan, 2021; Mead et al., 2021), reduced professional isolation (Bolisani & Scarso, 2014; Dickson et al., 2024), and provided a forum for sharing innovative strategies in the face of uncertainty for faculty (Bolisani & Scarso, 2014; Mead et al., 2021). CoPs can foster a sense of belonging and collaboration among members in geographically dispersed and resource-constrained settings, especially under conditions of social stress (e.g., COVID) (Dickson et al., 2024). These dynamics, we suggest, are especially relevant to equity-focused CoPs in HEIs, where members are often

isolated in their departmental unit or disciplines and engaged in work that can be marginalized or met with institutional resistance (Jones & Kee, 2021; Porter et al., 2018). In such contexts, sustained peer connection becomes critical to both professional confidence and persistence, such as the ability to adapt projects, maintain momentum, and continue building on prior work, as well as to emotional well-being.

While this emerging literature highlights the value of CoPs in crisis response, no studies that we are aware of have explored how CoPs might specifically support equity-focused work during disasters, despite widespread concern that DEI efforts are especially susceptible to deprioritization, burnout, or defunding during institutional emergencies. However, a growing body of work on CoPs in other emotionally demanding professions during crises offers important insights. Studies on CoPs during COVID have noted that, when members' professional work includes moral or emotional dimensions in normal times (for example, healthcare workers [Delgado, Siow, & de Groot, 2021; Delgado, Siow, de Groot, et al., 2021] and K-12 educators [Schrire et al., 2024]), during crises, the pre-existing spaces of the CoP become important spaces for mutual moral and emotional support.

For example, Delgado, Siow, de Groot, et al. (2021) describe how, for healthcare workers during COVID-19, CoPs provided emotional support from "peers who understand specific work-related factors," fostering both practical wisdom and resilience over time (p. 7). While their work emphasizes moral resilience, it also reframes CoPs not only as mechanisms for knowledge exchange, but as critical infrastructure for emotionally attuned peer networks in high-stress contexts (Delgado, Siow, de Groot, et al., 2021). Similarly, while most CoP literature focuses on the cognitive dimension during non-crisis times, Schrire et al. (2024) described how K-12 educators used CoPs for emotional, social, and cognitive support during the COVID-19 pandemic. Their findings suggest emotional support reduced stress and fostered creativity, social support reinforced self-confidence and "enhance[d] professional identity and resilience," and together they were crucial in "navigating pressures and uncertainties" during the pandemic (Schrire et al., 2024, p. 19). Other studies confirm the importance of peer support under institutional strain. In interviews with child well-being service providers, Karadzhov et al. (2022) reported that 81% of respondents identified peer support as a key resource for staying grounded, reducing isolation, and maintaining morale during COVID-19.

Taken together, these studies suggest that when the work itself carries moral or emotional weight, as equity-focused work often does (Joseph & Hirshfield, 2023), CoPs may play an especially important role in buffering against burnout and sustaining engagement. In the context of higher education, where gender equity work

is politicized and often devalued, gender equity advocates are frequently isolated and face institutional resistance (Jones & Kee, 2021; Porter et al., 2018), CoPs may offer not only practical strategies but also emotional and moral scaffolding that enables long-term persistence.

Our study extends this scholarship on CoPs by analyzing the case of the NSF ADVANCE program—a multi-institutional, longstanding, equity-focused CoP composed of change agents dispersed across geographically distributed HEIs—during a period of acute institutional (and general) disruption: the COVID-19 pandemic. Drawing on Dubé et al.'s (2006) typology (see Table 1), we investigate how relational structures within the ADVANCE CoP, including varying degrees of organizational formality, developed incrementally and shaped members' capacity to respond, adapt, and persist in their gender equity work. In doing so, we examine whether and how CoPs can serve as infrastructure for sustaining equity-focused efforts during times of crisis, when such work is deprioritized.

Data and Methods

The case study approach allows for an in-depth exploration of "contemporary phenomenon… within its real life context, especially when the boundaries between a phenomenon and context are not clearly evident" (Yin, 2009, p. 18). Capturing a CoP actively engaging in equity work during times of crisis, our case examines the NSF ADVANCE program during the COVID-19 pandemic. In this section, we describe the ADVANCE program and its functions as they relate to the CoP literature and structural typologies, describe our sample selection and data collection process, and outline our data analysis approach. As a case study, and particularly one that spanned multiple global and national social disruptions, the research design was informed by the preceding literature review and questions, but allowed for themes to emerge from the data throughout the research process (Merriam, 1998).

The NSF ADVANCE Program

Established in 2001, the ADVANCE program aimed to develop, adapt, and implement strategies to promote gender equity among STEM faculty in U.S. higher education. The program's long-term goal focused on institutional transformation—not only increasing representation, but also reshaping the structures, cultures, and practices that influence academic careers (Bilimoria & Liang, 2012; DeAro et al., 2019; Fox, 2008). ADVANCE's flagship mechanism, the Institutional Transformation (IT) award, typically spanned five years of funding, as well as shorter-term, lower-cost mechanisms to support adaptation, inter-institutional collaboration, and capacity-building

for institutions preparing to pursue IT awards (DeAro et al., 2019; Laursen & De Welde, 2019; Mcquillan & Hernandez, 2021).

Our interviewees referred to the ADVANCE community as a CoP, and we further define ADVANCE as a multi-institutional CoP grounded in a shared commitment to gender equity in academic STEM and sustained through collaborative learning, mutual support, and the co-creation of equity-focused strategies. While the shape and structure of the ADVANC CoP evolved over its two-decade tenure, community members regularly engaged in interactions that facilitated knowledge exchange, for example, through NSF-funded convenings, workshops, professional conferences, email listservs, and peer mentoring relationships. During the period of our data collection (2022), many participants described ADVANCE as a CoP where they could learn from others to avoid "reinventing the wheel" and identify both tested interventions and opportunities for innovation. This practice-based, social learning dynamic exemplifies the defining features of CoPs (Wenger, 1998).

ADVANCE funded more than 300 awards across 200 institutions between 2001 and 2025, making ADVANCE a large-scale CoP. The formal structure of ADVANCE was funded and anchored by the NSF, was managed by a program director and several rotating program officers, and comprised a broad, evolving membership that extended well beyond current awardees (DeAro et al., 2019; Laursen & De Welde, 2019). The ADVANCE CoP included Principal Investigators (PIs)—primarily STEM and social science faculty and top-level administrators—alongside project staff, researchers, postdoctoral scholars, internal/external advisory board members, and consultants with gender equity expertise. These individuals often continued their involvement by mentoring new or prospective grantees, contributing to ongoing equity efforts on their campuses, applying for further ADVANCE funding or related awards, attending ADVANCE-related convenings, serving on review or advisory boards, and providing feedback to NSF program officers that shaped future initiatives (Laursen & De Welde, 2019; Zippel & Ferree, 2019). Over two decades, members of the ADVANCE community produced more than 800 publications on gender equity, organizational change, and the program itself, co-constructing an evolving evidence base that continues to inform and sustain ongoing equity work (Authors 2019; Authors 2022). In this way, formal participation in an ADVANCE award was a gateway into the CoP, but did not determine the term of membership. Based on Dubé et al.'s (2006) typology, we classify the NSF-designed ADVANCE CoP as intentional, highly formalized, institutionally embedded, and one characterized by high organizational slack, assigned leadership structure, and dedicated funding.

Sample Selection

To examine how the structure of the CoP may have helped ADVANCE members maintain their work during a crisis, we conducted semi-structured interviews with 46 community members. We selected the interviewees using a purposive sampling strategy (Merriam, 1998) based on several criteria, both structural and institutional, to capture the range of experiences individuals might have had within the ADVANCE CoP. We drew from a unique database we compiled of individuals who had formally participated in ADVANCE-funded awards from the program's inception in 2001 through 2018, including over 1,500 individuals affiliated with 273 awards, including 70 IT awards and 203 non-IT awards and excluding conference awards (for more information on the individual data collection and measurement, see Authors 2022).

Given the ADVANCE CoP's scale, complexity, and longitudinal nature, we recognized that members' levels of engagement varied widely. Not all individuals remained active in equity work during the crisis, nor were they equally connected to one another or to centralized ADVANCE resources. Our sampling strategy sought to capture this variation by selecting individuals with diverse experiences and trajectories within the CoP. We purposively sampled to reflect variation across several dimensions:

1. Award status: individuals involved in active awards during the pandemic versus those not active but still engaged in gender equity work.

2. Duration and depth of involvement: Participants who had been on a single ADVANCE award versus those with experience across multiple awards and roles.

3. Demographic and professional diversity: Variation in race/ethnicity, gender, discipline, institutional type (e.g., R1 universities, Minority-serving Institutions), academic career stage or role in university (e.g., staff, faculty, administrator).

4. Network centrality: Participants' structural positions within the ADVANCE network, based on relational data described below.

To capture variation on point (4), we leveraged the underlying individual-level dataset to calculate proxies for network centrality, using three types of relational ties: institutional affiliations over time (based on employment histories), co-participation in ADVANCE awards (as PIs, staff, researchers, advisory board members, etc.), and

coauthorship on ADVANCE-related publications. We classified individuals with larger numbers of ties as more "central" and those with only one or two as "peripheral."

From these data, we selected 80 individuals that captured diversity across the four criteria above. This strategy enabled us to select individuals based on a range of aspects, including their involvement in ADVANCE and factors that might influence their experience in the community: individually, institutionally, and structurally (Jakopovic & Johnson, 2023). Among the 78 individuals we successfully contacted, 46 agreed to participate. The final sample consisted of 26 central and 20 peripheral members, with 38 individuals engaged in active awards during the COVID-19 pandemic. Six interviewees were first-time awardees during the pandemic (see Table 2).

Table 2

Characteristics of Interviewees (n=46)

Gender		First Year in ADVANCE		Disciplinary Background	
Women	*38*	*2001-07*	*12*	*STEM PhD*	*21*
Men	*8*	*2008-14*	*16*	*Social Science PhD*	*20*
		2015-20	*18*	*Other PhD*	*3*
				non-PhD	*2*

Institution Type		Race/Ethnicity		Job	
R1	*33*	*White*	*36*	*Faculty*	*22*
non-R1	*6*	*Black*	*1*	*Leadership Admin.*	*11*
MSI	*11*	*Latinx*	*3*	*Postdoc*	*1*
non-University	*7*	*AAPI*	*5*	*Staff*	*5*
		Native American	*1*	*non-University*	*7*

Note: Institution types are not mutually exclusive categories and do not sum to 46 interviewees like the other characteristics. For Race/Ethnicity, AAPI refers to Asian, Asian American, and Pacific Islander. For Job categories, Leadership Admin. refers to top university administrator positions (such as presidential-, provost-, or dean-levels).

Data Collection

We conducted 46 semi-structured interviews in Spring 2022, primarily over Zoom. Interviews averaged 40 minutes, were recorded, auto-transcribed using Otter.ai, and verified by a professional transcriptionist for accuracy. The questions explored how participants engaged with the ADVANCE CoP and how that engagement shifted during the pandemic. We asked participants to reflect on:

1. How they defined and understood the ADVANCE community;

2. How their ADVANCE-related work was impacted by COVID-19; and

3. How they drew on relationships within the ADVANCE community to continue their work during that time.

A potential limitation of this study is the likelihood of selection bias. Individuals who felt unsupported by ADVANCE, disengaged from the community, or who dropped out entirely may have been less likely to respond to interview requests or to be reachable through existing contact networks. This is especially relevant given the emotional and professional toll that equity work can take (Joseph & Hirshfield, 2023), particularly during overlapping crises, which may have led some to avoid participation to protect their time, energy, or well-being. While several participants shared critical reflections or experiences of disconnection, our focus in this study is on understanding how CoP structures can support equity work, particularly during times of crisis. We acknowledge that this emphasis may not fully capture the experiences of those for whom ADVANCE failed to provide meaningful support. Nonetheless, we believe the patterns identified here offer important insights into the structural features of CoPs and the relational dynamics that enabled some members to persist in their equity work during a period of widespread disruption.

Data Analysis

Two researchers collaborated to analyze the interview data using thematic analysis (Braun & Clarke, 2012; Cross et al., 2023). During data collection, we noted emerging themes, similarities, and differences across interviews and discussed these weekly with the research team. We used Atlas.ti to organize the data and identify named entities (people, places, institutions) mentioned by interviewees, revealing potential information hubs and patterns. We followed Braun and Clarke's (2012) six steps of thematic analysis: familiarizing ourselves with the data, generating initial codes, searching for themes, reviewing potential themes, refining and naming themes, and producing a report. Initial themes were generated using five transcripts from interviewees in different structural roles in the ADVANCE community (current/former awardees, advisory board members, core/periphery, etc.), in different positions at their institutions (faculty, administrators, outside consultants), and from different demographic backgrounds (by gender and race). Each researcher independently identified themes related to our three key interview questions. The two researchers then discussed the emergent themes, identified similarities and differences in their findings, and integrated common findings into new categories. The remaining transcripts were collaboratively coded, with regular meetings to resolve discrepancies and refine categories as new themes emerged.

Findings

In analyzing how members of the ADVANCE community sustained gender equity work during the COVID-19 pandemic, two central themes emerged: the structure of sub-CoPs and the changing nature of members' needs across different stages of the crisis. We found that community members relied not only on the overarching, formal ADVANCE CoP, but also, crucially, on an overlapping ecosystem of sub-CoPs within it. These sub-CoPs, or smaller collectives under the large ADVANCE umbrella that varied in origin, structure, and degree of organizational formality (see Figure 1), emerged in response to gaps in the larger CoP and reflected a desire for more tailored, flexible, and responsive forms of support. Some operated entirely within the official ADVANCE framework, while others extended beyond it in overlapping and intersecting ways not captured by existing typologies of CoP structures. Though varied, these sub-CoPs enabled emotionally sustaining, socially connective, and cognitively rich engagement throughout the pandemic. This finding builds on previous research on large, multi-institutional CoPs (e.g., Gehrke & Kezar, 2017; Thomson et al., 2022) by demonstrating that formally structured CoPs can give rise to and coexist with smaller, nested subcommunities. The sub-CoPs within ADVANCE were often organized around disciplines, specific implementation challenges, or unmet informational needs. Whereas prior literature has typologized CoP structures, our findings show that multiple forms can co-exist in nested and overlapping ways within a single CoP, a configuration that proved especially vital during times of crisis.

GENDER EQUITY DURING DISRUPTIVE EVENTS

Figure 1

The ADVANCE CoP
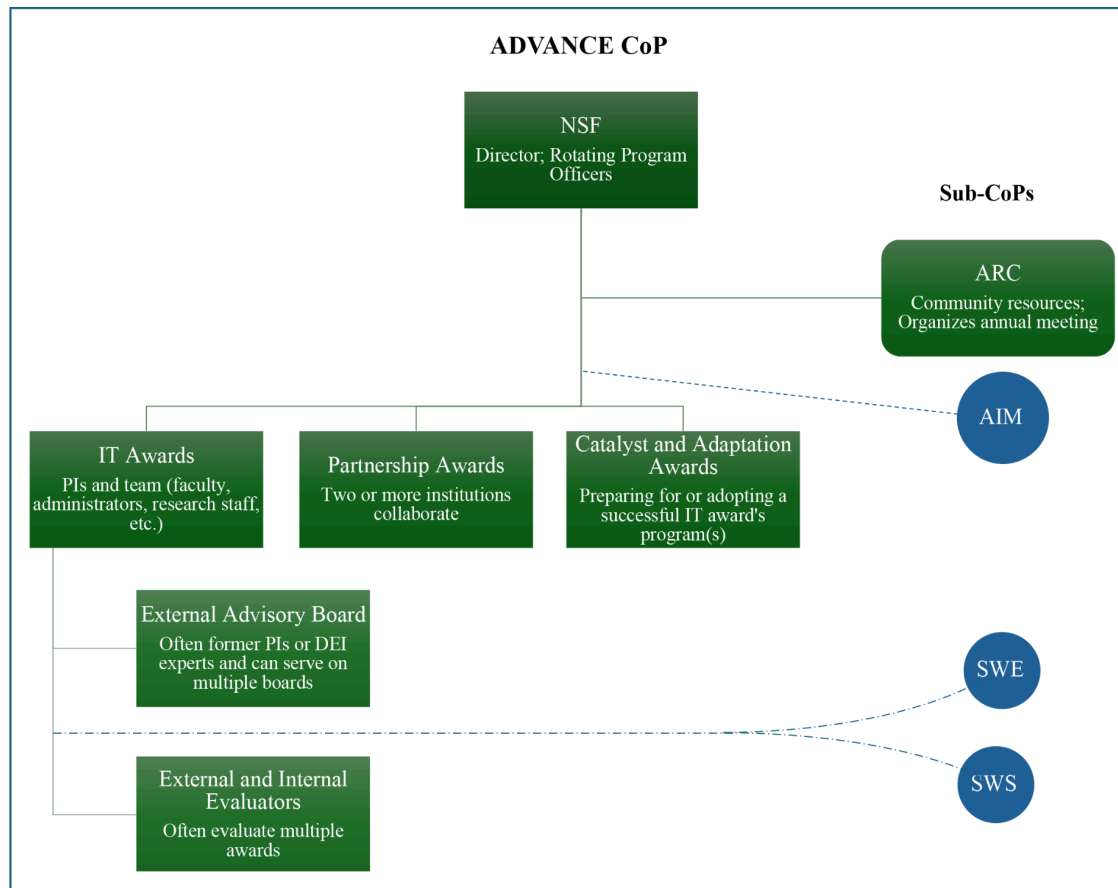
Note: Green boxes represent components of the CoP that were directly funded and organized by the NSF, though ARC operated semi-independently. Blue circles represent sub-CoPs that were less formally integrated into the organizational structure. Many elements of the ADVANCE CoP overlap and reinforce one another—for example, NSF program officers may interact directly with PIs, External Advisory Board members may also lead other awards, and any community member may participate in ARC or AIM, etc. SWS and SWE are disciplinary organizations that ADVANCE members participated in or led, but these are not officially part of the formal ADVANCE program.

In March 2020, when we all got sent home, and the university closed, and everything had to pivot to online, I sat right here on this porch, and said, 'What on earth am I going to do to direct ADVANCE activities in the middle of a pandemic?' Actually, what I said was, 'I didn't sign up for this, nobody told me I was going to have to be a director during a pandemic.' (Interviewee 26)

During this period, many interviewees described turning most immediately to some of the most informally structured sub-CoPs—those that were peer-led and had emerged spontaneously from community members' needs

long before the pandemic. These groups, unencumbered by institutional bureaucracy and defined by trust, became key sites for emotional resonance, rapid resource exchange, and a sense of solidarity. The ADVANCE Implementation Mentors (AIM) Network stood out as a particularly responsive and vital sub-CoP. Active for over a decade but coordinated by a single individual with no formal budget or organizational ties, AIM was able to quickly adapt to the crisis, shifting easily from monthly to weekly virtual meetings and fostering open-ended check-ins:

> I was sent an email… about the AIM Network. I joined that very soon after the pandemic started… It was so helpful to know that other ADVANCE directors were thinking the same things, we could brainstorm together… It is just such a supportive network. So I think our ADVANCE program really survived and thrived because of the support that I sought and was given from mentors from other ADVANCE institutions. (Interviewee 26)

Other interviewees echoed this idea of AIM as a site of technical support and social solidarity via engaging with professionals working through the same challenges. One interviewee described her experience at the AIM check-ins, which started at the onset of the pandemic, as a place where she initially went for information, but also appreciated not feeling so alone in this work:

> People were pretty regularly exchanging advice, but also tools or different ideas. 'How is your university handling this?' And people would respond. That network also was holding bi-weekly check-ins, like online virtual spaces… It just helped to feel like we're not alone in this. It was also really inspiring to see that people are still really committed to equity work, despite us all dealing with our own pandemic impacts at the same time. (Interviewee 34)

The multidimensional aspects of support embedded in AIM allowed community members to not only find knowledge sharing opportunities, but to mitigate one of the defining features of this particular crisis: feelings of isolation. As one participant noted, this type of social support could be as simple as "creating space and opportunity for people to find other people who understand their experience" (Interviewee 10), though even these types of "simple" spaces require intentionality and infrastructure. Others emphasized how these spaces enabled members to bring their full selves to the community, sharing aspects of life typically not shared in professional contexts:

> I have seen people show up to offer mutual support for one another. Not just about the function that their job title is about. But also as whole human beings… And for sharing things that we often silo from a professional space. We've also had conversations about many of us who are working virtually who haven't

had to do that before, may have unexpected co-workers. So it may be a child, a housemate, a spouse, a

parent, pets, people knocking on the door to deliver a package—who knows what it might be. But making it

okay for us not to have to hide the reality of what we're living in right now. (Interviewee 38)

In addition to AIM, several interviewees also pointed to adjacent professional organizations, such as the

Society for Women Engineers (SWE) and the Sociologists for Women in Society (SWS), as overlapping sub-CoPs

that played similar roles. For example, SWS's pre-conference writing workshops, initially founded by ADVANCE

PIs but later led by gender equity advocates more broadly, provided key spaces for scholarly exchange,

relationship-building, and professional development. These groups were more institutionally formalized within other

disciplinary organizations, but had less centralized leadership than AIM and differing degrees of organizational

slack. In some cases, members of these sub-CoPs broke off into even smaller, less formalized groups during the

pandemic to meet more frequently, or to meet highly specific work-related goals. One group of junior scholars

within the SWS sub-CoP formed a smaller sub-CoP that met twice weekly to focus on writing, but also emphasized

how these spaces became emotionally sustaining in the early days of the crisis:

Sometimes, weeks would come and we'd be like, 'Okay, I need 30 minutes, I need to vent,' or 'I'm saying

hi, but I'm definitely not writing today.' But just to have face-to-face interaction because that's what we

were all missing. (Interviewee 34)

Beyond the emotional and social solidarity offered in less formally organized sub-CoPs like AIM and SWS,

these same spaces also became sites of trusted rapid-response crowdsourcing for gender equity resources to shape

local institutional policies:

I sent my dean… all of the information that I got from the ADVANCE community about the gendered

impacts of COVID and how this is the worst time to put female faculty, specifically female faculty of color,

on a 3/3 teaching load and not be flexible and adaptable. And he read the email, and there was a list of

resources and articles that I got from the AIM Network, and he said, 'You make very good points, I'll talk

to all the chairs and encourage them to be flexible with the faculty.' And I know two faculty in my

department were able to keep their research leave as an example of that. (Interviewee 20)

Other interviewees described finding emotional support in AIM initially, while later using it to build collaborative

programming:

I think they really helped me build the momentum for the [collaborative initiative] effort, and they gave me

a lot of good ideas for developing the [equity] workshops. A number of the ADVANCE program directors

and [other PI's], we got together on Zoom several times and worked together because they were trying to

develop something similar to the [equity] workshops that we were doing. So that community was

just—well it kept [our] ADVANCE program going. (Interviewee 26)

Another senior administrator cited the efficacy of using the AIM Network first as a site for support and

"engaging deeply," but later for finding specific administrative policy resources, such as tenure clock extensions,

COVID impact statements, and revisions to student evaluations to accommodate hybrid/online teaching.

In sum, the less formal sub-CoPs such as AIM and the writing workshop of SWS, which were established

before the pandemic and thus were known and trusted by ADVANCE members, functioned as rapid-response spaces

that met members' immediate needs, offering not only emotional and social support, but also facilitating quick

knowledge sharing and the development of emergent best practices in response to a rapidly unfolding and uncertain

global scenario.

Later Pandemic Stages: More Formal Sub-CoPs and Cognitive Support

As the pandemic wore on, interviewees described engaging with sub-CoPs with greater degrees of

organizational formalism, like the ADVANCE Resource Coordination (ARC) Network. Established in 2017 with

NSF funding, ARC was created to be a virtual hub for evidence-based practices, tools, and community engagement.

ARC had dedicated staff, infrastructure, programming, and resource repository, but lacked the immediate

adaptability and intimacy of the more informal groups. Several interviewees only became aware of ARC after

engaging with more informal sub-CoPs like AIM:

When I joined AIM… then I also started getting a lot of… the announcements from the ARC network… I

also really benefited from the webinars that the ARC network had during the first year, year and a half of

the pandemic. Again, it was an opportunity to learn about… a community of equity opportunities where

together we build a set of resources, and then help each other figure out how to adapt particular resources to

the particular problems that are happening at your school. (Interviewee 26)

Interviewees more often described ARC as a space for curated resources and more structured engagements,

rather than the fast, relational exchange found in AIM or SWS. One interviewee involved in the leadership of ARC

recounted that they convened a town hall in early June 2020 in response to the pandemic, to foreground equity in institutional decision-making. This led to a webinar series and the creation of a dedicated section in their resource library to share materials with the broader community. A follow-up town hall was held a year later to reflect on lessons learned, ongoing challenges, and equity-centered practices developed during that period. She explains they aimed to create space where they could share resources with the community, but also ask participants things like:

> What is it that you've learned? What is it that you're still struggling with? What are some successes that you've had during this time? Just creating a space for people to engage one another and share from an equity- oriented perspective. (Interviewee 38)

And for many community members, these centralized resources were useful. One interviewee described using ARC's webinars as public programing on their own campus:

> They're supposed to make a resource, a hub, and have webinars… My team, for example, we would watch the recording of one of those, and host it as a campus event, and then do our own Q&A. So, absolutely taking advantage of what the ARC network was doing. (Interviewee 18)

> Many community members who had been involved in the program for much of its 20-year history also relied on relationships in the larger ADVANCE CoP to gather information during the pandemic and organize workshops or information sharing. A positive outcome of the pandemic, mentioned by a number of interviewees, was being able to share information and facilitate more connections virtually. As one interviewee said, "[we were] doing so much networking across institutions. And it may not have been that extensive had COVID not [happened]. COVID just really released those geographic barriers" (Interviewee 03).

> By activating these connections, through old co-award groups, external advisory boards, or past NSF program officer connections, some interviewees described a broader ADVANCE "consciousness" that community members could access to find information on how to address issues at their institutions in response to the pandemic.

> [There was] lots of consciousness of who's got a good policy idea about what to do about tenure review, or annual reviews, and how to handle it. Definitely and increasingly, ADVANCE institutions are conscious that they should look around at other institutions, and there is a lot of cross pollination that goes on pretty seamlessly, without central direction. (Interviewee 40)

> In short, while less nimble in its immediate response to the crisis, more formal ADVANCE sub-CoPs, like ARC, and the main ADVANCE CoP itself, remained an essential foundation for the broader equity ecosystem.

Through sustained funding, institutional legitimacy, continued coordination via the NSF, and longevity of ties, these more formal structures provided long-term continuity. In this way, the overarching and each level of sub-CoPs complemented one another—stability enabling responsiveness, and grassroots innovation feeding back into institutionalized practice.

Discussion: CoPs as Structural Ecosystems in Times of Crisis

We analyzed the sub-CoPs along a continuum of organizational context (following Dubé et al. 2006), and showed how their varying degrees of organizational formalism shaped their ability to respond to members' needs for different forms of emotional, social, and cognitive support at different points in time. While most studies of CoPs in equity work and structural change within HEIs focus on their cognitive functions, such as co-learning and knowledge exchange during stable periods (Gehrke & Kezar, 2017; Hakkola et al., 2021), our study highlights a new and critical dimension. In line with recent research on CoPs in other sectors during times of crisis, particularly the COVID-19 pandemic (Delgado, Siow, & de Groot, 2021; Delgado, Siow, de Groot, et al., 2021; Schrire et al., 2024), we find that emotional and social forms of support are equally vital to sustaining members' shared goals and ongoing work, at least in the early moments of an acute crisis. The COVID-19 pandemic, intersecting with parallel social and political crises for many (including the murder of George Floyd and the ensuing racial justice uprising, the highly polarized 2020 U.S. presidential election, and the subsequent January 6 attack on the U.S. Capitol), created a prolonged environment of uncertainty. Sustaining gender equity work within the ADVANCE CoP during this time required more than just cognitive support (i.e., knowledge); it also required connection, care, and the capacity for rapid, flexible responses.

In addition, our findings suggest that structural diversity within CoPs matters, particularly for large, complex communities navigating multiple crises. The varying degrees of organizational formalism across the ADVANCE sub-CoPs shaped how and when they could respond. Empirically, we found that less formalized, peer-led sub-CoPs such as AIM and SWS offered rapid, multidimensional support in the early stages of the pandemic, meeting urgent emotional, social, and informational needs at a time when institutions and formal networks were largely immobilized. These groups functioned as agile, relational infrastructures grounded in trust and mutuality that enabled quick adaptation and sustained engagement, even as the more bureaucratically structured large (NSF-led) CoP was slower to mobilize.

These findings reflect the tension in the CoP literature between the benefits and tradeoffs of more top-down, formalized structures versus bottom-up, loosely organized ones—where the most effective communities often blend elements of both (Wenger, 2004). While this balance is difficult to achieve within a single CoP, our study illustrates how large, multi-institutional CoPs like ADVANCE can accomplish this through a system of overlapping sub-CoPs, allowing members to benefit from multiple organizational forms working in concert toward shared equity goals. Additionally, while prior research has shown that emergent, less formal communities within a single organization can foster innovation (Anand et al., 2007), our findings extend this insight to multi-institutional contexts and beyond solely knowledge-based structures.

As the pandemic wore on, more formalized sub-CoPs such as ARC assumed a different but complementary role. With staff, resources, and institutional backing, they provided more stable and structured forms of support: curating knowledge, documenting emergent practices, and building platforms for ongoing co-learning. These more formal sub-CoPs helped transform short-term, improvised solutions into durable, shareable practices, translating immediate crisis response into institutional memory and long-term capacity.

Crucially, these sub-CoPs did not emerge spontaneously in response to the crisis. Their effectiveness depended on years of accumulated relational trust, organizational groundwork, and a diversity of forms and functions. This diversity included organizational contexts like access to available resources and leadership structures. For example, the AIM Network was initiated and sustained by a single individual who identified an unmet need in the community. Despite fluctuations in her capacity and limited institutional support, she continued to lead AIM as a "labor of love." This centralized, low-resource structure allowed AIM to remain nimble and responsive during the pandemic, but also limited its ability to offer the broader, more institutionalized forms of support that ARC, staffed by a paid team and overseen by a board, was able to provide as the crisis unfolded.

The capacity of the ADVANCE CoP to sustain gender equity work during the pandemic was not the product of a single structure or intervention, but of a layered and overlapping network of relationships that had been cultivated long before the crisis began. This underscores an often-overlooked point in the literature on CoPs and crisis response: the infrastructure for support must be in place before the crisis occurs.

More theoretically, our study suggests that CoPs should be understood not just as sites of knowledge exchange, but as relational and temporal infrastructures that support the emotional, social, and cognitive dimensions

of goal-oriented work, including equity work within higher education. The capacity to adapt, sustain momentum, and carry work forward through crises depends on this multidimensional support.

Together, these findings complicate typologies that treat CoPs as either formal or informal, or that privilege cognitive over emotional and social dimensions of practice. Instead, we show that it is the interaction of structurally diverse sub-CoPs, and the ability of members to move across them that creates adaptive ecosystems of support. Especially in equity work, which is often emotionally taxing and structurally marginalized, this kind of distributed, flexible infrastructure reaching beyond one's own institution may be essential not only for surviving crises but for sustaining long-term change.

Conclusions: Building Equity Infrastructure

These findings offer important lessons for HEIs, particularly as they continue to navigate ongoing politicized and structural challenges and prepare for future disruptions. Gender equity work in academic settings is often under-resourced, devalued, emotionally demanding, and reliant on relationships and informal networks to sustain momentum both within and beyond their institution. Our study of the ADVANCE CoP during the COVID-19 pandemic demonstrates that even in structured, well-funded programs, loosely structured, peer-led communities were often best positioned to respond quickly and meaningfully during the crisis.

For HEIs, this suggests that sustaining equity work cannot be achieved through formal structures alone, nor even, potentially, through singular CoPs. While centralized, well-resourced programs play a necessary role in institutionalizing and sustaining change, they are most effective when operating alongside and in coordination with more informal, relational sub-networks. Communities committed to equity should therefore attend not only to building formal programs and policies, but also to cultivating the informal infrastructures that enable rapid responsive action. This includes supporting space and time for trust-building, valuing emergent, peer-led initiatives, and ensuring that relational and emotional dimensions of equity work are recognized and resourced.

Building the relational infrastructure that is necessary for these sub-CoPs takes time and sustained investment. That work can take many forms, some visible, formalized, and institutionally recognized; others informal, strained, and sustained by individual commitment to a broader cause (Gates et al., 2025). And while the cost of developing and maintaining such structures varies by context, distributing the work across nested sub-CoPs can potentially reduce the load on any single individual or group. Our findings show that these prior investments are

critical during crises, enabling communities to respond quickly, share adaptive strategies, and sustain momentum despite institutional and personal disruptions. In this way, CoPs—particularly, our findings suggest, those with diverse structural forms—serve not only as sites of knowledge exchange but as essential infrastructure that supports persistence in equity work during times of uncertainty. Sustaining equity in higher education requires not just resources, programs, and policies amidst otherwise highly competitive structures, but the networks of trust, care, and shared knowledge that make persistence possible.

References

Agrawal, A., & Joshi, K. D. (2011). A Review of Community of Practice in Organizations: Key Findings and Emerging Themes. *2011 44th Hawaii International Conference on System Sciences*, 1–10.

Anand, N., Gardner, H. K., & Morris, T. (2007). Knowledge-Based Innovation: Emergence and Embedding of New Practice Areas in Management Consulting Firms. Academy of Management Journal, 50(2), 406–428.

Annala, J., & Mäkinen, M. (2017). Communities of practice in higher education: Contradictory narratives of a university-wide curriculum reform. Studies in Higher Education, 42(11), 1941–1957.

Authors, 2019.

Authors, 2022.

Bilimoria, D., & Liang, X. (2012). *Gender Equity in Science and Engineering: Advancing Change in Higher Education* (1st ed.). Routledge.

Bolisani, E., & Scarso, E. (2014). The place of communities of practice in knowledge management studies: A critical review. *Journal of Knowledge Management*, *18*(2), 366–381.

Bourhis, A., & Dubé, L. (2010). "Structuring spontaneity": Investigating the impact of management practices on the success of virtual communities of practice. *Journal of Information Science*, *36*(2), 175–193.

Braun, V., & Clarke, V. (2012). Thematic analysis. In *APA handbook of research methods in psychology, Vol 2: Research designs: Quantitative, qualitative, neuropsychological, and biological* (pp. 57–71). American Psychological Association.

Buchanan, R., Herakova, L., Hakkola, L., & Ruben, M. (2024). Breathing in, breathing out: The structure of conversational sense-making around equity in higher education teaching. *Teaching in Higher Education*, *29*(4), 876–895.

Corcoran, N., & Duane, A. (2019). Using Social Networks and Communities of Practice to Promote Staff

  Collaboration in Higher Education. In *Connecting Adult Learning and Knowledge Management* (pp.

  157–174). Springer, Cham.

Cross, K. J., Farrell, S., Chavela, R., & Tsugawa, M. (2023). Queerness in science, technology, engineering, and

  mathematics (STEM): Insights and foresights from experienced lesbian, gay, bisexual, transgender, queer,

  and plus (LGBTQ+) advocates. *Journal of Diversity in Higher Education*.

DeAro, J., Bird, S., & Ryan, S. M. (2019). NSF ADVANCE and gender equity: Past, present and future of systemic

  institutional transformation strategies. *Equality, Diversity and Inclusion: An International Journal*, *38*(2),

  131–139.

Delgado, J., Siow, S., & de Groot, J. M. (2021). The Value of Communities of Practice as a Learning Process to

  Increase Resilience in Healthcare Teams. *European Journal of Medicine and Natural Sciences*, *4*(1),

  98–117.

Delgado, J., Siow, S., de Groot, J., McLane, B., & Hedlin, M. (2021). Towards collective moral resilience: The

  potential of communities of practice during the COVID-19 pandemic and beyond. *Journal of Medical

  Ethics*, medethics-2020-106764.

Dickson, E., Lardier, D. T., Verdezoto, C. S., & Hackett, J. M. (2024). Reducing isolation for educators through

  ECHO virtual communities of practice. *Frontiers in Education*, *9*.

Drane, L. E., Lynton, J. Y., Cruz-Rios, Y. E., Malouchos, E. W., & Kearns, K. D. (2019). Transgressive learning

  communities: Transformative spaces for underprivileged, underserved, and historically underrepresented

  graduate students at their institutions. *Teaching and Learning Inquiry*, *7*(2), Article 2.

Dubé, L., Bourhis, A., & Jacob, R. (2006). Towards a Typology of Virtual Communities of Practice.

  Interdisciplinary Journal of Information, Knowledge, and Management, *1*, 069–093.

Fox, M. F. (2008). Institutional transformation and the advancement of women faculty: The case of academic

  science and engineering. In J. C. Smart (Ed.), *Higher Education: Handbook of Theory and Research* (pp.

  73–103). Springer Science + Business Media B.V.

Frize, M., Lhotska, L., Marcu, L. G., Stoeva, M., Barabino, G., Ibrahim, F., Lim, S., Kaldoudi, E., Marques da Silva,

  A. M., Tan, P. H., Tsapaki, V., & Bezak, E. (2021). The impact of COVID-19 pandemic on gender-related

work from home in STEM fields—Report of the WiMPBME Task Group. *Gender, Work & Organization*, *28*(S2), 378–396.

Gates, A. J., Nelson, L. K., Grudt, R., & Zippel, K. (2025). From Funding Equity Initiatives to Research Productivity: Quantifying the Impact of NSF ADVANCE Awards on Recipients' Publication Trajectories. *Socius*, *11*, 23780231251328714.

Gehrke, S., & Kezar, A. (2017). The Roles of STEM Faculty Communities of Practice in Institutional and Departmental Reform in Higher Education. *American Educational Research Journal*, *54*(5), 803–833.

Grunspan, D. Z., Holt, E. A., & Keenan, S. M. (2021). Instructional Communities of Practice during COVID-19: Social Networks and Their Implications for Resilience. *Journal of Microbiology & Biology Education*, *22*(1), 10.1128/jmbe.v22i1.2505.

Hakkola, L., Ruben, M. A., McDonnell, C., Herakova, L. L., Buchanan, R., & Robbie, K. (2021). An Equity-Minded Approach to Faculty Development in a Community of Practice. *Innovative Higher Education*, *46*(4), 393–410.

Hasnain, M., & Darcy-Mahoney, A. (2023). Let's Not Reinvent the Wheel: Using Communities of Learning and Practice to Address SDOH and Advance Health Equity. *The Annals of Family Medicine*, *21*(Suppl 2), S95–S99.

Jakopovic, P., & Johnson, K. G. (2023). A Network Model for Connecting Mathematics Faculty in Communities of Practice: Where is the Value? *Innovative Higher Education*, *48*(4), 699–718.

Jones, S. M., & Kee, C. (2021). The invisible labor of diversity educators in higher education. *The SoJo Journal*, *7*, 35–50.

Joseph, T. D., & Hirshfield, L. E. (2023). Reexamining racism, sexism, and identity taxation in the academy. *Ethnic and Racial Studies*, *46*(6), 1101–1108.

Josserand, E. (2004). Cooperation within Bureaucracies: Are Communities of Practice an Answer ? *M@n@gement*, *7*(3), 307–339.

Karadzhov, D., Davidson, J. C., & Wilson, G. (2022). "You cannot pour from an empty cup!": Child well-being service providers' and policymakers' professional supervision, coping and well-being during COVID-19. *Journal of Public Mental Health*, *21*(2), 95–107.

Kezar, A., Hallett, R. E., Corwin, Z. B., & Hypolite, L. (2025). Moving Toward Institutional Culture Change in Higher Education: An Exploration into Cross-functional Professional Learning Communities. *Innovative Higher Education*, *50*(2), 687–714.

King, M. M., & Frederickson, M. E. (2021). The Pandemic Penalty: The Gendered Effects of COVID-19 on Scientific Productivity. *Socius: Sociological Research for a Dynamic World*, *7*, 1–24.

Kossek, E. E., Dumas, T. L., Piszczek, M. M., & Allen, T. D. (2021). Pushing the boundaries: A qualitative study of how stem women adapted to disrupted work–nonwork boundaries during the COVID-19 pandemic. *Journal of Applied Psychology*, *106*(11), 1615–1629.

Laursen, S. L., & De Welde, K. (2019). The changer and the changed: Evolving theories and practices of change in ADVANCE calls for institutional transformation. *Equality, Diversity and Inclusion: An International Journal*, *38*(2), 140–159.

Lave, J., & Wenger, E. (1991). *Situated Learning: Legitimate Peripheral Participation*. Cambridge University Press.

Lesser, E. L., & Storck, J. (2001). Communities of practice and organizational performance. *IBM Systems Journal*, *40*(4), 831–841.

Ma, S., Herman, G. L., West, M., Tomkin, J., & Mestre, J. (2019). Studying STEM Faculty Communities of Practice through Social Network Analysis. *The Journal of Higher Education*, *90*(5), 773–799.

Margherio, C., Swan, A. L., & Güler, S. (2024). From Individual Change Agents to 'Revolutionary' Teams: The Search and Selection Process of Team Formation within a Community of Practice | Innovative Higher Education. *Innovative Higher Education*, *50*, 197–216.

McLaughlan, T. (2021). Facilitating factors in cultivating diverse online communities of practice: A case of international teaching assistants during the COVID-19 crisis. *The International Journal of Information and Learning Technology*, *38*(2), 177–195.

Mcquillan, J., & Hernandez, N. (2021). Real-Life Conundrums in the Struggle for Institutional Transformation. *Gender & Society*, *35*(3), 300–329.

Mead, T., Pietsch, C., Matthew, V., Lipkin-Moore, S., Metzger, E., Avdeev, I. V., & Ruzycki, N. J. (2021). Leveraging a Community of Practice to Build Faculty Resilience and Support Innovations in Teaching during a Time of Crisis. *Sustainability*, *13*(18), Article 18.

Merriam, S. B. (1998). *Qualitative Research and Case Study Applications in Education*. Jossey-Bass.

Porter, K. B., Posselt, J. R., Reyes, K., Slay, K. E., & Kamimura, A. (2018). Burdens and benefits of diversity work: Emotion management in STEM doctoral students. *Studies in Graduate and Postdoctoral Education*, *9*(2), 127–143.

Schrire, O. O., Kirchner, K., Ipsen, C., & Tsybulsky, D. (2024). Virtual communities of practice: Nurturing teacher-coordinators' well-being amidst stress and crisis. *Journal of Professional Capital and Community*, *9*(4), 431–449.

Sidman-Taveau, R., & Hoffman, M. (2019). Making Change for Equity: An Inquiry-Based Professional Learning Initiative. *Community College Journal of Research and Practice*, *43*(2), 122–145.

Silverstein, A., Benson, A., Gates, C., & Nguyen, D. (2022). Global community of practice: A means for capacity and community strengthening for health professionals in low- and middle-income countries. *Journal of Global Health*, *12*(04034).

Smithers, L. E., & Eaton, P. W. (2021). Reordering student affairs: From minority absorption to a radical new. *Critical Studies in Education*, *62*(5), 575–591.

Thomson, A., Palmén, R., Reidl, S., Barnard, S., Beranek, S., Dainty, A. R. J., & Hassan, T. M. (2022). Fostering collaborative approaches to gender equality interventions in higher education and research: The case of transnational and multi-institutional communities of practice. *Journal of Gender Studies*, *31*(1), 36–54.

Wenger, E. (1998). *Communities of Practice: Learning, Meaning, and Identity* (1st ed.). Cambridge University Press.

Wenger, E. (2004). *Knowledge management as a doughnut: Shaping your knowledge strategy through communities of practice*. 9.

Wenger, E., & Snyder, W. M. (2000). Communities of Practice: The Organizational Frontier. *Harvard Business Review*, *78*(1), 139–145.

Wenger-Trayner, E., & Wenger-Trayner, B. (2015). A brief overview of the concept and its uses. *Communities of Practice*.

Yildirim, T. M., & Eslen-Ziya, H. (2021). The differential impact of COVID-19 on the work conditions of women and men academics during the lockdown. *Gender, Work & Organization*, *28*(S1), 243–249.

Yin, R. K. (2009). *Case Study Research: Design and Methods* (Fourth). Sage.

Zippel, K., & Ferree, M. M. (2019). Organizational interventions and the creation of gendered knowledge: US

universities and NSF ADVANCE. *Gender, Work & Organization*, *26*(6), 805–821.