

Positioning the ARC Network as the Driver of STEM Equity



ARC NETWORK
A STEM EQUITY BRAIN TRUST

Executive Summary

This report gathers the ideas and results generated from the inaugural ADVANCE Resource and Coordination (ARC) Network stakeholder convening. In September 2018, 32 researchers and practitioners from higher education institutions and professional organizations convened to help position the ARC Network as the driver of STEM equity. The convening explained the programmatic initiatives and roles of each stakeholder group to members of the ARC Network Research Board, External Advisory Committee and Communities of Practice.

First, this report describes how the agenda was developed and the themes that emerged from one-on-one interviews with stakeholders. The ARC Network Evaluation Team interviewed nine ARC Network stakeholders representing the ARC Network Research Board, External Advisory Committee and Communities of Practice. Interviewees provided insight on key components of the ARC Network which, in turn, informed the content and structure for the convening.

Second, the report explains the presentations and activities associated with themes identified from stakeholder interviews. The community can position the ARC Network as the driver of STEM equity by pursuing three themes:

Theme 1: Crafting a Common Understanding of Intersectionality and STEM Equity

While the National Science Foundation's ADVANCE program emphasized systemic change toward gender equity among STEM faculty, over time researchers and practitioners in the space began to understand that barriers to gender equity are influenced by and intertwined with demographic factors. To position the ARC Network for success, coming to a common understanding of intersectionality and STEM equity are priority. Presented throughout the convening, key elements on intersectionality and STEM equity can be grouped into the following categories:

Intersectionality: A social science concept and framework originating in feminist and legal theory that considers the interconnected nature of social categorizations, such as gender, race, disability, class and more, and their relationship to overlapping and inseparable systems of privilege and marginalization.

STEM equity: STEM spaces in which each participant gets what they need to succeed (e.g. access to opportunity, networks, resources, support and more) based on the individual context of where they are and where they want to go.

Theme 2: Creating Community and Envisioning Success

The ARC Network must be broad and diverse to creatively resolve difficult problems and ensure different perspectives are considered. Participants were asked to scan the room to observe who was in attendance and, more importantly, who was not.

In a structured activity called "Stakeholder Mapping," participants were charged with a) developing a list of key collaborators the ARC Network should engage; b) identifying the collaborator's expertise on issues specific to the ARC Network; c) the collaborator's willingness to engage with the ARC Network;

and d) the level of influence the collaborator possesses. Collaborators were then organized by function and positioned on the (b) and (c) axes to help prioritize outreach (Fig. 4).

Throughout the convening, the Executive Team used examples and circumstances that apply to both research and practice in order to bridge the gap between the two. The “Experience Mapping” structured activity engaged participants to reflect on value creation as a function of different phases of the ARC Network and distinguished between practitioners and researchers.

Over the next four years, the charts will help identify the ARC Network’s most important collaborators, like organizations and individuals, as well as groups requiring additional incentives and engagement.

Theme 3: Curating Access to Research and Resources

During the final half-day of the convening, participants focused on curating access to research and resources. In the “Creating an Engaged Online Community” session, attendees received a live demonstration of the Mendeley platform, which will host the ARC Network online community and resource library. Throughout the session, stakeholders were invited to compile a list of desired tools for cultivating useful social networks and resources. Questions and wish list items focused on four primary areas:

1. ensuring full accessibility and incorporating universal design principles;
2. distinguishing between user experiences and resource needs of researchers compared to those of practitioners
3. managing the wide scope of resources possible for inclusion; and
4. incorporating the work of the ADVANCE portal, ADVANCE Implementation (AIM) Network, Women in Engineering Pro Active Network (WEPAN), Society for Women Engineers (SWE) and others who have large resource databases.

The report concludes with how the ARC Network will move forward in the next year based on feedback from the inaugural stakeholder convening. Feedback from the convening will be incorporated as the online platform prepares for its 2019 launch. Also being developed are training materials for the ARC Network online community platform that account for different user experiences, customizing trainings to meet the needs of researchers and practitioners. Stakeholders produced a detailed list of additional individuals and organizations to invite into the ARC Network, not only as members but also as decision-makers and community leaders. Finally, based on stakeholder feedback, the ARC Network Ambassadors training module has been developed in order to broaden outreach efforts, targeting diverse audiences who have traditionally not been a part of the ADVANCE community.

**“Diversity is inviting everyone to the dance.
Inclusion is asking everyone to dance.”**

– Author Unknown

Positioning the ARC Network as the Driver of STEM Equity

The ARC Network

Since its inception in 2001, the National Science Foundation (NSF)'s ADVANCE program has awarded over 300 grants to 200 institutions aiming to create systemic change and increase the representation and advancement of a diversity of women among STEM faculty. Throughout its duration, grantees have undertaken many efforts to influence change, including conducting research, assessment, and evaluation activities; catalyzing policy changes; providing professional development opportunities to underrepresented groups in STEM; engaging departments and universities in equity and diversity trainings and initiatives; instituting mentoring programs; crafting toolkits, protocols, interview and survey instruments, guidebooks; and more.

While these grants contain sustainability plans, sustainability challenges remain, resulting in lost intellectual and practical knowledge and, in some cases, progress.

In 2017, the Association for Women in Science (AWIS) was awarded a \$3.2 million NSF grant to build on the efforts of previous ADVANCE awardees through an initiative called the ADVANCE Resource and Coordination (ARC) Network. The Executive Team leading the program consists of Principal Investigator (PI) Heather Metcalf, PhD, and Co-PIs Gail Gasparich, PhD, Joan Herbers, PhD, and Rochelle L. Williams, PhD. The ARC Network aims to connect widely-dispersed scholars and practitioners committed to STEM equity in an engaged stakeholder community that shares and translates tools needed for change; removing barriers to resources; reducing duplication of efforts; and curating, recovering, and synthesizing the body of knowledge on systemic change.

Introduction

Building on the efforts of the NSF's ADVANCE program, the ARC Network promotes systemic change to address gender equity in the STEM professoriate. The ARC Network recognizes the achievements made so far while producing new perspectives, methods and interventions with an intersectional, intentional and inclusive lens. As such, the primary goal of the ARC Network is to create and cultivate a broad community that bridges the gap between researchers and practitioners and calls on them to collaborate, share and adopt equity resources shown to effect change.

In September 2018, 32 researchers and practitioners from higher education institutions and professional organizations attended the ARC Network inaugural stakeholder convening. With a central theme of "Positioning the ARC Network as the Driver of STEM Equity," the Executive Team designed the convening to provide members of the ARC Network's Research Board, External Advisory Committee and Communities of Practice with a better understanding of the ARC Network's components and the role of each stake-



Figure 1. Overview of the ARC Network

The ARC Network is owned by community members dedicated to achieving equity in STEM; these include **research scholars, practitioners, community leaders, policy makers, and affiliated organizations**. The ARC Network encompasses many pre-existing relationships and empowers community members to utilize and adopt existing resources to meet the needs of their organizational and departmental contexts across academic institution types, STEM disciplines and demographic groups. Within the community, the ARC Network stakeholders provide leadership and guidance for programmatic initiatives that lead to advancing ideas and igniting change.

Agenda Development

The ARC Network Evaluation Team, Dr. Mariko Chang and Dr. Stacy Doore interviewed nine ARC Network stakeholders representing the Communities of Practice, ARC Research Board and External Advisory Committee. Interviewees provided insight on key components of the ARC Network which, in turn, informed the content and structure for the convening. Three themes emerged: crafting a common understanding of intersectionality and STEM equity, creating community and envisioning success, and curating access to research and resources.

Crafting a Common Understanding of Intersectionality and STEM Equity

Stakeholder interviews uncovered substantial variation in familiarity, use, and application of the core concept of intersectionality. For those familiar with the term *intersectionality*, common conceptual threads included interactions of multiple identities; a focus on lived experiences; a whole that is more than an additive sum of its parts; addressing underrepresentation; and systems of power, privilege, oppression and structure.

Interviewees were more confident in their understanding of STEM equity, but many struggled to define the term itself. Common responses involved concepts such as creating a level playing field, removing barriers, access and opportunity, and providing everyone with what they need individually (which may not be identical for everyone) in order to achieve success.

holder group. Additionally, community members with expertise in tokenism, Native American women faculty, and persons with disabilities were invited to ensure multiple perspectives were accounted for in discussions centered on building inclusive communities.

This report gives an overview of the agenda development and how it led to the following session themes:

- crafting a common understanding of intersectionality and STEM equity;
- creating community and envisioning success; and
- curating access to STEM equity research and resources.

The ARC Network is owned by community mem-

Creating Community and Envisioning Success

Interviewees stressed the necessity of inclusion in research, practice and community building efforts of the ARC Network. In particular, they urged engagement and support for groups that are often missing from studies, programs and conversations about STEM equity, signaling a power differential of those engaged in the dominant dialogue. Examples include junior faculty who are at risk for speaking out about inequity or told to focus on research over service; faculty, administrators, staff, and students from community colleges, Historically Black Colleges and Universities (HBCUs), Tribal Colleges and Universities (TCUs), Hispanic-Serving Institutions (HSIs) and other minority serving institutions (MSIs); organizations that support individuals who identify with a myriad of marginalized groups, like members of the LGBTQIA+ community; indigenous, Latina/Hispanic, African American, and Asian women; women with disabilities; and social scientists who engage in research on systems and structures of gender, power, and privilege but who are not regularly included in discussions of STEM issues.

Furthermore, the interviews revealed considerable frustration with the lack of communication between researchers and practitioners. For example, many scholars are social scientists while many practitioners have training in science and engineering; thus, not only do their respective goals and audiences differ, but they also may use different disciplinary language and methodologies which can impede connection and collaboration.

Curating Access to Research and Resources

A main programmatic goal for the ARC Network is to provide a digital platform that meets the community's needs for learning about interventions, programs and literature and also provides toolkits and other materials. Interviewees offered initial input on how that might develop by sharing what they like and dislike about existing platforms they use. In particular, they pointed out a strong need for a meta-analysis of research and best practices; a forum for people to share and talk about common data collection instruments, interventions and practices; and a searchable database that is kept up-to-date, accessible and applicable.

Positioning the ARC Network for Success

The ARC Network Executive Team envisions the project as an important catalyst for STEM equity through organizational change. Success will require developing manageable short-range goals (3-5 years) that will in turn seed future efforts. Therefore, the stakeholder convening was organized to focus on the above three themes for success through a series of panels, presentations, breakout sessions, and report-outs (see Appendix B – Workshop Agenda). Dr. Rochelle L. Williams provided an overview of the core components of the ARC Network and objectives of the meeting. Guided by Facilitator Noelia Sanchez, participants contributed ideas about how to operationalize intersectionality and STEM equity, how to thoughtfully engage traditionally excluded groups in STEM, how to envision success, and how to curate resources in an inclusive manner.

Theme 1: Crafting a Common Understanding

Intersectionality and STEM Equity

To position the ARC Network for success, coming to a common understanding of intersectionality and STEM equity were priority. While the NSF ADVANCE program initially emphasized systemic change toward gender equity among STEM faculty, over time researchers and practitioners in the space began to understand that barriers to gender equity are influenced by and intertwined with demographic factors. The terms *intersectionality* and *STEM equity* not only undergird this initiative but also serve as the connection that community members value. Intersectionality, a social science concept and framework originating in feminist and legal theory, recognizes that gender not only intersects with other social constructs but is also inseparable from them (1,2,3). Thus, the barriers to equity in STEM and their corresponding solutions may manifest in different ways or with different impacts for different women.

A panel discussion on intersectionality was led by Kimberly Griffin, PhD, (University of Maryland College Park), Roberta Rincon, PhD, (Society of Women Engineers), Shari Miles-Cohen, PhD, (American Psychological Society), and Cara Margherio, PhD, (University of Washington). This panel, along with a presentation on STEM equity led by Dr. Joan Herbers, seeded further conversations among stakeholders that probed their understanding of the terms as well as the manifestation of concepts in research and practice. Attendees were asked to silently brainstorm to elicit thoughts on both intersectionality and STEM equity from different perspectives, as listed below.

- Logic – The facts
- Optimism – The values and benefits
- Devil’s Advocate – The difficulties and dangers
- Emotion – Feelings and intuition
- Creativity – Possibilities and new ideas
- Management – Making sure the rules are observed

Then, an affinity diagram was used to organize the large number of ideas generated from the silent brainstorming activity into natural relationships. In the affinity exercises, participants gathered in small groups to share key elements about intersectionality and STEM equity and how to use each in practice. They then grouped those elements into larger categories.

COMMON UNDERSTANDING

Intersectionality: A social science concept and framework originating in feminist and legal theory that considers the interconnected nature of social categorizations, such as gender, race, disability, class, and more, and their relationship to overlapping and inseparable systems of privilege and marginalization.

STEM equity: STEM spaces in which each participant gets what they need to succeed (e.g. access to opportunity, networks, resources, support, and more) based on the individual context of where they are and where they want to go.

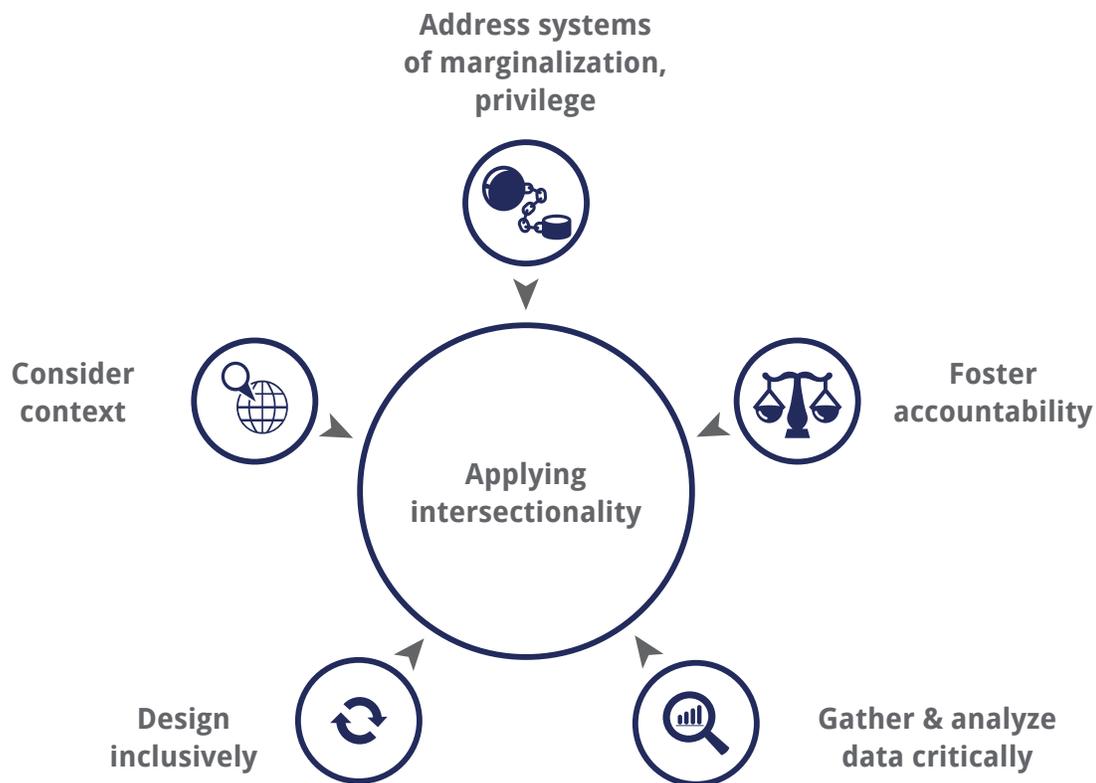


Figure 2. Applying Intersectionality

Applying Intersectionality

In reviewing the common elements and categories across the breakout groups, the following components surfaced. Applying intersectionality to STEM equity work means:

1. Addressing multiple systems of marginalization and privilege;
2. Considering the individual, departmental, disciplinary, institutional, regional, national, political, social, economic, and historical contexts;
3. Designing policies, practices, tools, environments, programs, surveys, and curricula inclusively;
4. Analyzing and gathering data that informs the understanding of STEM participation and equity in a critical way, using both quantitative and qualitative techniques; and
5. Fostering accountability among change agents and leaders to engage in change from an intersectionality perspective.

Creating STEM Equity

Similarly, the following components surfaced about creating STEM equity in practice, which should use intersectionality to:

1. Create policies, programs, and practices that provide individuals with what they need to succeed;
2. Measure and manage progress;
3. Remove barriers to the full inclusion of marginalized individuals;
4. Address structural and cultural issues; and
5. Include marginalized voices in decision-making.

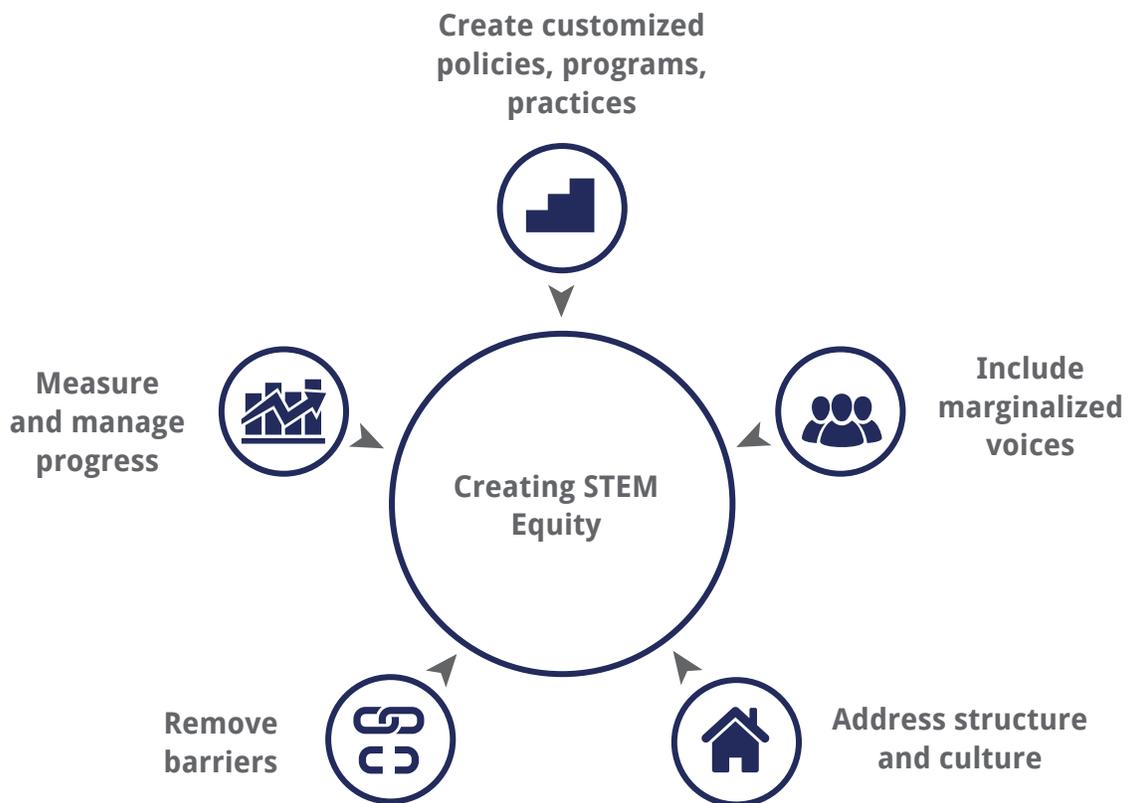
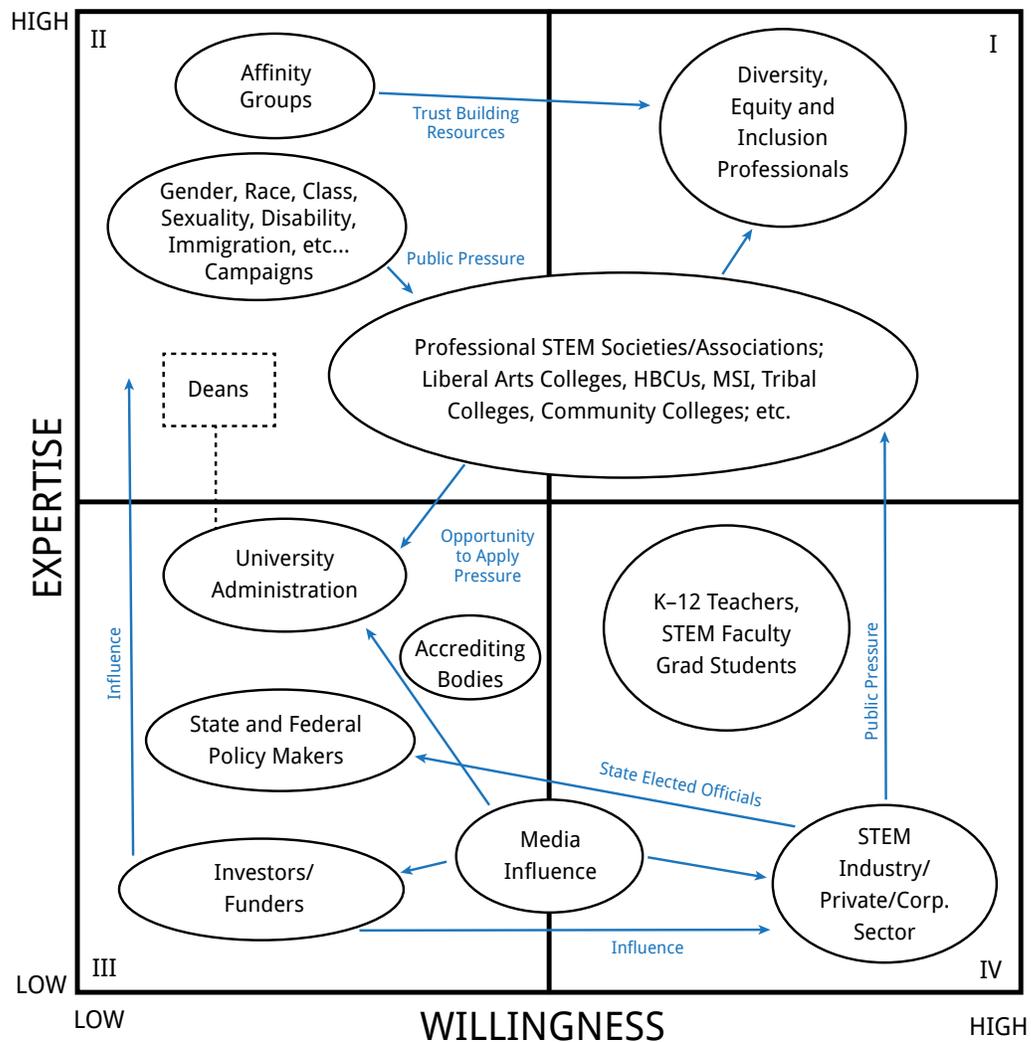


Figure 3. Creating STEM Equity

Theme 2: Creating an Inclusive Community
Inviting Everyone to Dance

Dr. Gail E. Gasparich led the session titled “Creating Community.” The ARC Network must be broad and diverse to get creative solutions to difficult problems and ensure different perspectives are taken into account. Researchers must identify successful actions, practitioners must be willing to put those successful actions into play, and leaders must serve as change agents who support the sustainability of procedures and policies that lead to institutional transformation. Stakeholders were asked to look around the room to observe who was in attendance and, more importantly, who was not. For those that must be at the table, participants were asked to consider strategies that can be used to bring them into the ARC Network Community. Stakeholders were tasked with thinking about how community members can be encouraged to adapt

Figure 4. Groups aligned to the ARC Network mission



best practices when they are provided and how professional and/or personal silos must be broken down to make this possible.

In the “Stakeholder Mapping” activity, participants a) developed a list of key collaborators the ARC Network should engage; b) identified the organization’s expertise on issues specific to the network; c) determined the organization’s willingness to engage with the ARC Network; and d) determined the level of influence the organization possesses. Collaborators were then organized by function and positioned on the (b) and (c) axes to help us prioritize outreach (Fig. 4).

The list of potential collaborators identified is given in Appendix C, and there surely are others who were overlooked. Among those listed are groups known for their involvement and leadership in these efforts, while others may need additional coaxing. By charting these groups in the space of Fig. 4, important patterns can be identified. Professional STEM societies/associations/affinity groups, non-Research I higher education institutions, and women’s organizations were more likely to fall into quadrants I or II. Leaders in higher education, funding agencies, STEM industry, state and federal policy makers, civil rights groups, and National Labs were more likely to be placed into quadrants III or IV. Most notable, leaders from higher education institutions (presidents, senior leadership) were more frequently placed in quadrant III and college deans vacillated between quadrant II and III.

Over the first five years of the ARC Network, this chart begins to identify the most important collaborators. It also helps understand which groups may require additional incentives and engagement efforts.

Envisioning Success

Throughout the ARC Network stakeholder convening, effort was placed on using examples that apply to research and practice in an effort to bridge the gap between the two. Dr. Joan Herbers facilitated a discussion and activity on envisioning success for the ARC Network in both domains. Furthermore, the ARC Network is grounded in a logic model that stresses cycles of generating value. In the discussion, ARC Network goals and the broader and long-term goal of gender equity in STEM were differentiated.

In a structured activity called “Experience Mapping,” participants thought about value creation as a function of different phases of the project and distinguished between practitioners and researchers. Participants engaged in this activity in two phases. In the first phase, groups worked through what they would be doing, thinking, and feeling through design, implementation, adoption, assessment, and sustainability phases of a project. In the second part, groups added touch points (people, places, relationships, devices, etc.) and opportunities for the ARC Network to offer resources during each phase.

Stakeholders who focused on the experiences of practitioners used this prompt: “As an administrator you are considering a mentoring program as intervention at your institution. What is the experience?” Stakeholders who focused on the experiences of researchers were guided by this prompt: “You are a researcher collaborating with a researcher from another institution. How will you manage sharing information and data across systems and institutional environments?” The resulting ideas are listed on the following page.

Table 1. *Envisioning Success—Practitioner*

Prompt: *As an administrator you are considering a mentoring program as intervention at your institution.*

What is the experience?

| Stages | Design | Implementation | Adoption | Assessment | Sustainability |
|---------------------------|---|---|--|--|--|
| DOING | <ul style="list-style-type: none"> • Collect data • Literature review • Review other programs • Hire evaluator • Communication • Set expectations | <ul style="list-style-type: none"> • Pilot • Collect data • Mentorship • Communication • Mid-course corrections | <ul style="list-style-type: none"> • Scale-up • Celebrate early wins • Communication • Collect data • Make improvements | <ul style="list-style-type: none"> • Analyze data • Long-term follow-up • Track outcomes • Feedback from participants | <ul style="list-style-type: none"> • Hand-off documentation • Reward good mentors • Celebrate • Upward Mentoring • Incorporate Mutual mentoring • Create institution structure process |
| THINKING | <ul style="list-style-type: none"> • Cost • What to do first? • Sponsors? • Define success • Long-term design (design for sustainability) • Target? (Mentors? Mentees?) | <ul style="list-style-type: none"> • How to get early wins? • How to communicate? • What have I forgotten? • Communication • Who will support this? | <ul style="list-style-type: none"> • Are we on track? | <ul style="list-style-type: none"> • Evaluate success • Who is missing? Who is left? • Are participants succeeding? • Did we meet goals? • Do I have enough data? | <ul style="list-style-type: none"> • Is it worth it (ROI)? |
| FEELING | <ul style="list-style-type: none"> • Anxious • Excited • Capable • Underappreciated • Confident | <ul style="list-style-type: none"> • Anxious • Determined but uncertain | <ul style="list-style-type: none"> • Anxious • Exhausted but determined | <ul style="list-style-type: none"> • Anxious • Curious | <ul style="list-style-type: none"> • No longer anxious • Renewed • Thankful • Accomplished |
| TOUCH POINTS | <ul style="list-style-type: none"> • List servs • Website • On campus • Focus groups | | | | |
| ARC NETWORK OPPORTUNITIES | <ul style="list-style-type: none"> • Resource library • Logic model • Connections to people • Identify need for best practice document • How to incorporate inclusivity and intersectionality • Managing literature effectively | <ul style="list-style-type: none"> • Help with troubleshooting • Identify speakers • Expunge “fix the women” mentality • Provide: <ul style="list-style-type: none"> • Factors of successful programs • Potential metrics of impact of programs • “Business case” for doing the program | <ul style="list-style-type: none"> • Fix the systemic issues resulting in need for mentors | <ul style="list-style-type: none"> • Identify elements of successful programs • Common metrics • Remind actors to think systemically | <ul style="list-style-type: none"> • Common stakeholders • Funding options for campuses • Connect gender equity to institutional effectiveness • Make business case |

Table 2. Envisioning Success—Researcher

Prompt: You are a researcher collaborating with a researcher from another institution. How will you manage sharing information and data across systems and institutional environments?

| Stages | Design | Implementation | Adoption | Assessment | Sustainability |
|---------------------------|--|---|---|--|--|
| DOING | <ul style="list-style-type: none"> • Preparing both Institutional Home Communities • Agree on how money will be divided • Find data source at each institution • Map out what data is needed • Define roles within each institution • Agree on dissemination of what to whom • Agree on separate plan • How will credit be shared? | <ul style="list-style-type: none"> • Assessing the data • Statistics • Reconcile the data with different approaches, clean data • Organize and interpret data • Create visual representation | | <ul style="list-style-type: none"> • Compare goals to outcomes | <ul style="list-style-type: none"> • Who owns/manages? • Communicate results • Connecting to change makers/practitioners • Money • Grant writing/additional funding • Long-term accessibility • New relationships |
| THINKING | <ul style="list-style-type: none"> • Planning: who does what? • Expectations • Agency: who does what? • Agreeing: timeframe • Power dynamics: awareness (intersectionality) | <ul style="list-style-type: none"> • Distribute who does what • Redesign • What can't be done | | <ul style="list-style-type: none"> • Compare goals to outcomes • Noticing new/unexpected findings | <ul style="list-style-type: none"> • Expansion • Replication of opportunities • Next steps with other researchers |
| FEELING | <ul style="list-style-type: none"> • Hopeful • Worried • Concerned: differential input • Overwhelmed • pressure | <ul style="list-style-type: none"> • Worried • Competent • Imposter | | <ul style="list-style-type: none"> • Pride • Validation • Relief • Disappointed • Satisfied | <ul style="list-style-type: none"> • Invisible • Inadequate • Over-evaluated • Sad • Elated • Undervalued |
| TOUCH POINTS | <ul style="list-style-type: none"> • Collaboration community • Bridge senior-junior gap for mentorship advice • Best practices for methods • Computers • Phones • Mendeley platform • LinkedIn • Tutorials/Help docs/ How-to sheets/FAQs • Access to/for secondary faculty/researchers | Mendeley open to all (accessibility) | | <ul style="list-style-type: none"> • External evaluation board | <ul style="list-style-type: none"> • ARC Network as a vetted STEM equity reviewer • Dissemination through community platform • Peer community • Bridge western gap to international community (collaboration) • Vetted expert communication |
| ARC NETWORK OPPORTUNITIES | <ul style="list-style-type: none"> • Innovate software for broader audience • Institutional approval • Virtual Visiting Scholars • Broaden the "all" | <ul style="list-style-type: none"> • Lead parties require all involved to upload relevant personal research/articles | <ul style="list-style-type: none"> • Scalability • Discover similar platforms | <ul style="list-style-type: none"> • Are people using it? • Are people using it without prodding? | <ul style="list-style-type: none"> • Ongoing institutional/corporate support |

Theme 3: Sustaining an Inclusive Community

Curating Access to Research and Resources

The ability to galvanize resources and to build effective and efficient modes of communication is a critical component of success. By creating a social platform with an intentional lens, people draw on the wisdom of each other to solve common problems, especially as they relate to diversity, inclusion and equity in STEM.

The final half-day of the convening focused on curating access to research and resources, starting with the “Creating an Engaged Online Community” session. In this session, Dr. Heather Metcalf led a live demonstration of the Mendeley platform, which will host ARC Network’s online community and resource library. During the session, attendees asked questions about the platform and then engaged in an activity to build a community wish list for cultivating useful social networks and resources. Questions and wish list items focused on four primary areas:

1. ensuring full accessibility and incorporating universal design principles;
2. distinguishing between the user experiences and resource needs of researchers compared to those of practitioners;
3. managing the scope of the wealth of resources possible for inclusion; and
4. incorporating the work of the ADVANCE portal, AIM Network, WEPAN, SWE, and others who have large databases of resources.

In the “Communicating the ARC Network to the Public” session, ARC Network Communications Manager Jossie Flor Sapunar provided talking points for stakeholders to use as they speak about and invite colleagues to join the ARC Network. Stakeholders enthusiastically requested an ARC Network Ambassadors training module, which would offer ambassadors with training, slides, handouts and other resources for their speaking engagements throughout the year.

The stakeholder convening wrapped up with an overview of the next steps, including completing the evaluation survey; guide on sharing resources being developed on the online library; timeline for the platform launch (scheduled to go live in January 2019); upcoming phone meetings of the ARC Research Board, External Advisory Committee, and Communities of Practice; upcoming webinar and video materials; and more.

Looking Forward

Overall, the inaugural ARC Network stakeholder convening was a successful gathering of engaged stakeholders who not only connected in community and defined shared values but who also offered valuable resources, insights, feedback and expertise to guide individual efforts and the direction of the ARC Network. Looking forward, feedback gained will be incorporated as the online platform is finalized and ready for its 2019 launch. For example, the investment in incorporating universal design and accessibility principles to guide website, resource curation, dissemination, training, and platform design is strong. Platform training materials that account for different user experiences, customizing different trainings to meet the needs of researchers and practitioners are being developed. The ARC Network Executive Team is excited to work with stakeholders with expertise in each of these areas to test the community platform prior to its launch.

Definitions of intersectionality and STEM equity as well as the core components for their application have been shared in this report. These serve as guideposts for the ARC Network Community. The Executive Team has a detailed list of individuals and organizations to include in the ARC Network as decision-makers, community leaders and members. In addition, the Executive Team has developed the ARC Network Ambassadors training module and has already offered three trainings and resources.

The Executive Team is grateful for the ADVANCE community and stakeholders' knowledge, experience and individual commitment to STEM equity. Together, these groups will surely achieve more than ever before through the next years.

About the Authors

Rochelle L. Williams, PhD, is Co-PI and Project Director of the ARC Network. Dr. Williams has a professional passion for equitable work environments for women and women of color in STEM and applying her technical background to the successful management of large-scale projects.

Heather Metcalf, PhD, is Principal Investigator (PI) for the ARC Network. She is also Director of Research and Analysis for the Association for Women in Science (AWIS) where she leads empirical work on gender and the STEM workforce from an intersectional feminist perspective.

Joan Herbers, PhD, is Co-PI and Chair of the ARC Network Research Board. Dr. Herbers is Professor Emeritus of Evolution, Ecology and Organismal Biology and of Women's, Gender, and Sexuality Studies at the Ohio State University. She also served as the 2010-2012 AWIS President and is Co-PI for the AWIS STEM to Market (S2M) program.

Gail Gasparich, PhD, is Co-PI and Chair of the External Advisory Council for the ARC Network. Dr. Gasparich is Dean of Salem State University's College of Arts and Sciences. She is an AWIS Fellow and has served as Secretary of the AWIS National Governing Board and Chair of the AWIS Grants Committee.

Thank You

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About the ARC Network

Funded by the National Science Foundation ADVANCE Program, Award HRD-1740860, the ADVANCE Resource and Coordination (ARC) Network seeks to achieve gender equity for faculty in higher education science, technology, engineering, and mathematics (STEM) disciplines. As the STEM equity brain trust, the ARC Network recognizes the achievements made so far while producing new perspectives, methods and interventions with an intersectional, intentional and inclusive lens. The leading advocate for women in STEM the Association for Women in Science (AWIS) serves as the backbone organization of the ARC Network.

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AWIS
ASSOCIATION FOR WOMEN IN SCIENCE

Appendix A

Stakeholders in Attendance

Inaugural Stakeholder Convening Participant List Positioning the ARC Network as the Driver of STEM Equity

| First | Last | Institution/Organization |
|-------------|-----------------|--|
| Felica | Ahasteen-Bryant | Purdue University |
| Alan | Chewing | AWIS |
| Eliza Lo | Chin | American Medical Women's Association |
| Shari Miles | Cohen | American Psychological Association |
| Jim | Collins* | Arizona State University |
| Jessie | Dearo | National Science Foundation |
| Gail | Gasparich | Salem State University |
| Kimberly | Griffin | University of Maryland College Park |
| Joan | Herbers | The Ohio State University |
| Catherine | Hill | Women's Caucus, Maryland General Assembly |
| Mary Anne | Holmes | University of Nebraska-Lincoln |
| Maria | Ibañez | AWIS |
| Peggy | Layne | Virginia Tech |
| Gretalyn | Leibnitz | ADVANCE Implementation Mentors (AIM) Network |
| Cara | Margherio | University of Washington |
| Ethel | Mickey | Wellesley College |
| Heather | Metcalf | AWIS |
| Connie | Newman | American Medical Women's Association |
| Bob | Powell | UC Davis |
| Brianna | Queen | AWIS |
| Karene | Richards | AWIS |
| Roberta | Rincon | Society of Women Engineers |
| Sue | Sorsser* | California State University |
| Aspen | Russell | AWIS |
| Delia | Saenz | Bennington College |
| Noelia | Sanchez | Facilitator |
| Jossie Flor | Sapunar | AWIS |
| Abigail | Stewart | University of Michigan |
| Bruce | Weinberg* | The Ohio State University |
| Jevin | West | University of Washington |
| Rochelle | Williams | AWIS |
| Suzanne | Zurn-Birkhimer | Purdue University |

* Virtual Attendee

Appendix B

Agenda

Inaugural Stakeholder Convening Agenda

Positioning the ARC Network as the Driver of STEM Equity

Hotel Indigo, Baltimore, Maryland

September 9-11, 2018

Sunday, September 9

6:00pm – 8:00pm

Welcome Reception and Registration

Location: Zelda's Parlor

Monday, September 10

Introductions and Welcome

Location: Francis Scott Key

8:00am

Working Breakfast

8:20am - 8:40am

Introductions

Rochelle L. Williams, PhD, ARC Network Project Director and Co-PI

8:40am – 9:00am

Opening Remarks

Karene Richards, Interim Executive Director, AWIS National

Jessie DeAro, PhD, Program Director, National Science Foundation

Framing the Workshop

Noelia Sanchez, Facilitator

9:00am - 9:30am

Positioning the ARC Network as the Driver of STEM Equity

Dr. Rochelle L. Williams

9:30am – 10:00am

ARC Network Stakeholder Interview Report

Heather Metcalf, PhD, ARC Network PI

10:00am – 10:45am

Q&A with the ARC Executive Team

Heather Metcalf, PhD, PI

Gail Gasparich, PhD, Co-PI and

Chair of External Advisory Council

Joan Herbers, PhD, Co-PI and

Chair of Research Advisory Board

Rochelle Williams, Co-PI and Project Director

10:45am – 11:00am

Networking Break

Crafting a Common Understanding

Location: Francis Scott Key

11:00am – 11:45am

Intersectionality

Dr. Heather Metcalf

Panel Discussion

Kimberly Griffin, PhD

Cara Margherio, PhD

Shari E. Miles-Cohen, PhD

Roberta Rincon, PhD

Activity: Silent Brainstorming

11:45am – 12:15pm

STEM Equity

Dr. Joan Herbers

Facilitated Discussion: Scenarios

Activity: Silent Brainstorming

12:15pm – 1:30pm

Working Lunch

Edgar Allan Poe

Monday, September 10 (continued)

1:30pm – 2:30pm

Interactive Session: Crafting a Common Understanding

2:30pm – 3:00pm

Report out and large group discussion

3:00pm – 3:15pm

Networking Break

Creating Community, Envisioning Success

Location: Francis Scott Key

3:15pm – 4:30pm

Creating an Inclusive Community
Gail Gasparich, PhD

Facilitated Discussion: Asking Everyone to Dance

4:30pm – 4:45pm

Networking Break

4:45pm – 5:30pm

Envisioning Success
Dr. Joan Herbers

Facilitated Discussion

5:30pm – 6:00pm

Report out and large group discussion

6:30pm – 8:30pm

Working Dinner

Location: Edgar Allan Poe

Tuesday, September 11

Module 3: Curating Access

Location: Francis Scott Key

8:00am

Working Breakfast

8:30am – 9:00am

Working Dinner Report-Outs

9:00am – 9:45am

Creating an Engaged Online Community, Live Demo
Dr. Heather Metcalf
Jossie Flor Sapunar, Communications Manager,
ARC Network

9:45am – 10:00am

Networking Break

10:00am – 10:45am

Cultivating Useful Social Networks and Resources
Activity: Community Wish List

10:45am – 11:15am

Report out and large group discussion

11:15am – 11:30am

Communicating the ARC Network to the Public
Jossie Flor Sapunar

11:30am – 12:00pm

Next Steps and Adjournment
Dr. Rochelle L. Williams

12:00pm

Box Lunch

Appendix C

Asking Everyone to Dance: Stakeholders by Quadrants

Quadrant I

High Willingness, High Expertise

- ADVANCE Implementation Mentors (AIM) Network
- Advancing Chicanos/Hispanics and Native Americans in Science (SACNAS)
- Affinity STEM Organizations
- American Association of University Women (AAUW)
- American Indian Higher Education Consortium (AIHEC)
- American Indian Science and Engineering Society (AISES)
- American Society for Engineering Education (ASEE) Minorities in Engineering Division (MIND)
- AnitaB.org/Grace Hopper Celebration
- ASEE Women in Engineering Division (WIED)
- Association of American Colleges and Universities (AACU)
- Association for Women in Science (AWIS)
- Athena Swann
- Civil Rights Organizations [American Civil Liberties Union (ACLU), Southern Poverty Law Center (SPLC), League of Women Voters (LWV)]
- Collaborative Network for Engineering and Computing Diversity (CoNECD)
- Diversity and Inclusion Officers
- Early Development of General Education (EDGE) of American Society for Engineering Education (ASEE)
- Endocrine Society
- Faculty Development Chairs
- Hispanic Serving Institutions (HSIs)
- Historically Black Colleges and Universities (HBCUs)
- LGBTQIA+ Community
- Medical Schools
- Minority Serving Institutions (MSIs)
- National Association of Multicultural Engineering Program Advocates (NAMEPA)
- National Center for Women and Information Technology (NCWIT)
- National Conference on Race and Ethnicity in American Higher Education (NCORE)
- National Institutes of Health (NIH) Office for Research on Women
- National Post-Doctoral Association
- National Science Foundation (NSF) Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (INCLUDES) Community

Quadrant I (continued)

High Willingness, High Expertise

- National Society of Black Engineers (NSBE)
- National Women's Studies Association (NWSA)
- Non-Research 1 Institutions
- NSF ADVANCE Grantees
- NSF National Science Foundation Committee on Equal Opportunities in Science and Engineering (CEOSE)
- Organizational Science Experts
- Science/Technology Driven Companies
- Small Liberal Arts Colleges
- Social Science Researchers
- Society of Hispanic Professional Engineers (SHPE)
- Society for Women Engineers (SWE)
- Thought Leaders
- Tribal Colleges and Universities (TCUs)
- Understanding Interventions
- White Men as Allies
- Women in Biology
- Women in Engineering Pro Active Network (WEPAN)
- Women's Colleges

Quadrant II

Low Willingness, High Expertise

*items bolded new to list

- Affinity Groups
- **American Physical Society**
- **American Psychological Association**
- **American Society for Civil Engineers**
- **American Statistical Association**
- **Black Lives Matter**
- Chief Diversity Officers
- **Community Colleges**
- **Congressional Hispanic Caucus Institute (CHCI)**
- **Deans**
- **Human Resources/Equal Employment Opportunity Experts**
- **Human Rights Campaigns**
- **Leadership Training Institute for Women in Higher Education (HERS Program)**
- **League of United Latin American Citizens (LULAC)**
- LGBTQIA+ (Lesbian, Gay, Bisexual, Transgender, Queer, Intersex and Asexual) Community
- MSIs, HSIs, HBCUs, TCUs
- **Museum Digital Experts**
- **National Association for the Advancement of Colored People (NAACP)**
- **National Alliance on Mental Illness**
- **National Urban League (NUL)**
- **Persons with Disability Groups**
- **Program Evaluators**
- **Race-Related Groups**
- Social Scientists
- **Societies for Women of Color**
- **STEM Faculty**
- **University Administration**
- **Women in Military**
- **Women Librarians**

Quadrant III

Low Willingness, Low Expertise

*items bolded new to list

- American Association of University Women (AAUW)
- **Academic Journals (“Hard STEM”)**
- **Academic Research Scientist**
- **American Association for Community Colleges**
- **American Chemical Society**
- **Association of Public and Land-grant Universities (APLU)**
- **Basic Science Funders**
- **Board of Regents**
- Deans
- **Federal Committee Staff Members**
- **Graduate Students**
- **Institutional Review Boards**
- **Investors/Funders**
- **Law and Policy Experts**
- **Media**
- **Museum Association Groups**
- **National Level Survey Category Practitioners**
- **Senior Faculty**
- **State Policy Makers**
- **Undergraduates**
- University Presidents
- University Senior Leadership

Quadrant IV

High Willingness, Low Expertise

*items bolded new to list

- AAUW
- Funders
- Graduate Students
- **Industry**
- **K-12 Teachers**
- Legislators and Staff
- **National Laboratories**
- STEM Faculty
- **STEM Women Societies**
- **Women’s Organizations**



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ASSOCIATION FOR WOMEN IN SCIENCE