Centering Women Faculty of Color in a Metasynthesis of Research on Mentoring
By Cara Margherio, PhD

About the ARC Network
Funded by the National Science Foundation ADVANCE Program, Awards HRD-1740860 and HRD-2121468, 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 Women in Engineering ProActive Network (WEPAN) serves as the backbone organization of the ARC Network.

About the Virtual Visiting Scholars
The Virtual Visiting Scholars (VVS) program provides a unique opportunity for select scholars across disciplines to pursue research meta-analysis, synthesis, and big data curation on topics crucial to STEM faculty equity. VVS analyze existing research and data, synthesizing different, sometimes competing, perspectives, frameworks, metrics, and outcomes to offer new insights and applications to the broader community.

About the Author
Cara Margherio, PhD, is the 2018 Virtual Visiting Scholar for the ARC Network. As assistant director of the University of Washington Center for Evaluation and Research for STEM Equity, Dr. Margherio manages the evaluation of NSF- and NIH-funded projects, primarily working with national professional development programs for early-career academics belonging to groups underrepresented in STEM. Grounded in critical race and feminist theories, her research interests include community cultural wealth, counter spaces, intersectionality, and institutional change. Dr. Margherio holds a PhD and MA in Sociology from the University of Washington and a BPhil in Sociology and BS in Psychology from the University of Pittsburgh.

Executive Summary
Frames are used in the front-end of a paper to situate the study within a larger body of literature. All of the studies use frames regarding the barriers and challenges facing women of color faculty. The most common challenges discussed in framing were isolation, underrepresentation, and discrimination and bias. While these references to underrepresentation framed it as a challenge, some studies also employed underrepresentation in more nuanced and conflicting ways throughout the front-end of their papers. Others argued that mentoring was needed to overcome underrepresentation; and another also argued that systemic change is needed to improve representation. All the studies presented findings affirming the value of mentoring for women of color faculty. The most common benefits of mentoring were navigational capital and problem-solving or advice. One of the studies also presented
evidence that mentoring can lead to systemic change; in the data supporting this claim, one of the study participants described how she raised awareness of issues to folks in senior positions by mentoring up.

The articles presented a range of findings regarding who is the ideal mentor and the characteristics of successful mentoring relationships: receiving mentoring from White faculty members and from others who shared their race, gender or both.

**Methods**

This study utilizes meta-synthesis to investigate what we currently know from the research literature about the mentoring experiences of women of color faculty in STEM higher education. Meta-synthesis integrates and interprets patterns across qualitative studies that explore the same or closely related topic, with the goal of theory-building. This methodology is an essential tool in researching higher analytic goals, enhancing the generalizability of qualitative research, and creating a more comprehensive understanding of the topic at hand (Finlayson and Dixon 2008; Sandelowski, Docherty, and Emden 1997; Walsh and Downe 2005; Zimmer 2004). If used as a tool of reduction and aggregation, meta-synthesis risks violating the tenets of the interpretative paradigm (Sandelowski, Docherty, and Emden 1997; Zimmer 2004). Careful attention must be given to the assumptions underlying any differences in methodologies of the individual studies, and contradictory findings across the studies must be explored for theory development (Zimmer 2004).

**Selection Process**

The first step of a meta-synthesis is the selection of studies and determination of inclusion criteria. At this stage, the comparability of articles must be considered on several factors, such as methodology, sampling, data collection and analysis, and disciplinary background of the researchers (Sandelowski, Docherty, and Emden 1997). The goal is to find all the relevant articles on a specified topic, not merely a sample (Walsh and Downe 2005). While prior meta-synthesis analyses range in size from four to over 100 studies (Finlayson and Dixon 2008), Sandelowski, Docherty, and Emden (1997) suggest to limit meta-synthesis to no more than 10 studies, as larger sample sizes “impede deep analysis and, therefore, threaten the interpretative validity of findings” (p.368). In order to create a dataset of studies that is both small enough for the analysis to preserve the integrity of the individual studies and comprehensive enough to include all of the relevant studies, the scope and inclusion criteria must develop in an iterative manner (Walsh and Downe 2005).

Utilizing Google Scholar, the initial searches included the broadest relevant search criteria: “mentoring ‘women of color’ faculty” and “mentoring minority women faculty”. Then, a series of searches with criteria that included specific racial/ethnic categories (in addition to “mentoring faculty” were run): African American, Alaskan Native, American Indian, Asian, Black, Chicana, Hispanic, indigenous, Latina, Native American, Native Hawaiian, and Pacific Islander. A series of searches with criteria with specific disciplinary categories (as defined by the NSF definition of STEM along with medicine) were then run: STEM, science, technology, engineering, math, astronomy, chemistry, computer science, geoscience, life science, physics, psychology, social science, STEM education, and medicine. Further
variations with specificity on both racial/ethnic categories and discipline (e.g., “mentoring Black women Chemistry faculty”) were tested, however this approach did not yield any unique results.

A total of 28 unique searches were run and assessed. With the first two sets of broad searches, the first 200 items of each set of results were reviewed; for the more specific searches (which yielded substantially smaller numbers of studies), the first 100 items of results for each search term combination were reviewed. At this stage, only the title and abstract were reviewed to determine potential inclusion in the study (i.e., if the article was relevant to the meta-synthesis project). In addition to running searches through Google Scholar, a citation snowball method was used to identify additional studies. That is, the references cited within the studies that were found by the search procedure were reviewed, as well as articles that references any of the studies found by the search procedure. To assist in comparability, only articles from peer-reviewed journals were included.

The search procedures described above created a list of 33 studies for potential inclusion in the meta-synthesis. The initial inclusion criteria required that an article be: (1) a qualitative study focusing on (2) the faculty mentoring experiences of (3) women of color faculty within (4) STEMM fields broadly or a specific fields(s) within STEMM. Only three studies met all of these criteria. In the second iteration of the inclusion criteria, the third item of the criteria was expanded to include studies focusing on faculty of color and/or women faculty, if they separated out women of color faculty in their analyses. However, this did not add any new articles to the dataset, as none of the articles disaggregated their results by gender (if the focus was on faculty of color) or race (if the focus was on women faculty). In the third iteration of inclusion criteria, the fourth item of criteria was expanded from STEMM to academia, so that the inclusion criteria required an article be: (1) a qualitative study focusing on (1) the faculty mentoring experiences of (2) women of color faculty within (3) academia broadly. Using these criteria, a total of eight studies were selected for inclusion in the meta-synthesis, as shown in Table 1.
Table 1. Characteristics of the Articles within the Meta-Synthesis Dataset

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Year</th>
<th>Population</th>
<th>Disciplinary Scope</th>
<th>Article Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crawford and Smith</td>
<td>2005</td>
<td>African American Women</td>
<td>Academic Administration</td>
<td>The We and the Us: Mentoring African American Women</td>
</tr>
<tr>
<td>Daniel</td>
<td>2009</td>
<td>Black Women</td>
<td>Psychology</td>
<td>Next Generation: A Mentoring Program for Black Female Psychologists</td>
</tr>
<tr>
<td>Elliot, Dorscher, Wirta, and Hill</td>
<td>2010</td>
<td>Native American Women</td>
<td>Medicine</td>
<td>Staying Connected: Native American Women Faculty Members on Experiencing Success</td>
</tr>
<tr>
<td>Smith and Crawford</td>
<td>2007</td>
<td>African American Women</td>
<td>Academic Administration</td>
<td>Climbing the Ivory Tower: Recommendations for Mentoring African American Women in Higher Education</td>
</tr>
<tr>
<td>Thomas and Hollenshead</td>
<td>2001</td>
<td>Women of Color</td>
<td>Academia</td>
<td>Resisting from the Margins: The Coping Strategies of Black Women and Other Women of Color Faculty Members at a Research University</td>
</tr>
<tr>
<td>Tran</td>
<td>2014</td>
<td>Women of Color</td>
<td>Academic Administration</td>
<td>The Role of Mentoring in the Success of Women Leaders of Color in Higher</td>
</tr>
</tbody>
</table>

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Data Analysis

The eight studies in the dataset were analyzed through emergent coding and an abductive analysis approach. Through iterative moves between the data and theory building, abductive analysis seeks to develop new insights, building upon existing theory while not being restrained to predefined theoretical concepts (Timmermans and Tavory 2012). Using NVivo qualitative data software, each transcript was read three times and coded on the second and third reads. The coding scheme was updated and revised with emergent codes throughout the coding process and memo writing was used to analyze the coding categories (Charmaz 2001).

Description of the Dataset

The studies range in scope from one institution (n=2), Hispanic-Serving Institutions (n=1), four-year Predominately White Institutions (n=1), colleges and universities based in New York State (n=2), and nationwide (n=1). The two studies that based in New York State are by the same authors and appear to be using the same dataset. Of the eight studies included in the dataset, seven studies utilize interviews (including secondary analysis of interview data collected for another purpose), and one study presents program evaluation data. One study explicitly states that they are utilizing a phenomenological approach, and two studies note that they used emergent coding as their analysis method.

Looking at the discipline, in three of the articles the first author is in Education, in two articles the first author is in Sociology, and in one article each the first author is in Communication, Medicine, or Psychology. In five of the six articles with co-authors, the co-authors belong to the following disciplines: Communication and Mechanical Engineering; Computer Information Systems and Education; Medicine; and Sociology (two articles). In the remaining article with co-authors, the discipline of the co-author is unknown.

Preliminary Findings

Frames

Frames are used in the front-end of a paper to situate the study within a larger body of literature. All of the studies make use of frames regarding the barriers and challenges facing women of color faculty. The most common challenges discussed in framing were: isolation (n=7), underrepresentation (n=7), and discrimination and bias (n=6). While these references to underrepresentation framed it as a challenge, seven of the studies also employed underrepresentation in more nuanced and conflicting ways throughout the front-end of their papers. Two of the studies argued that mentoring was needed to overcome underrepresentation (Buzzanell, Long, Anderson, Kokini, and Batra 2015; Crawford and Smith 2005); one of these studies also argued that systemic change is needed to improve representation (Crawford and Smith 2005). Two of the studies noted that underrepresentation and the associated marginalization can be sources of power (Daniel 2009) and spaces of resistance (Thomas and Hollenshead 2001), while Train (2014) argued that women of color are causing systemic change by resisting assimilation.

Six of the eight studies also employed frames relating to the importance of mentoring; three of these studies also included qualifications on the value of mentoring. Both articles by Crawford and Smith noted that individuals may succeed without mentors and that mentors do not guarantee success. Buzzanell et al. (2015) went further in qualifying the importance of mentoring, by presenting a critique of the “grand mentoring narrative,” writing:

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“The anticipated benefits along with the assumed productive relationships create a grand mentoring narrative suggesting not only that mentoring is required for academic career and life success but also that mentoring processes and practices can be standardized, regardless of individuals’ differential experiences, backgrounds, and needs that might necessitate different mentoring forms and content.” (p.441)

Value of Mentoring

All of the studies presented findings affirming the value of mentoring for women of color faculty. The most common benefits of mentoring were navigational capital (n=6) and problem-solving or advice (n=6). One of the studies also presented evidence that mentoring can lead to systemic change (Tran 2014); in the data supporting this claim, one of the study participants described how she raised awareness of issues to folks in senior positions by mentoring up.

The articles presented a range of findings regarding who is the ideal mentor and the characteristics of successful mentoring relationships. In two of the studies, participants found successful mentoring relationships through working with White faculty members (Holmes, Land, Hinton-Hudson 2007; Tran 2014). One of these studies also presented data that participants were most successful with mentors who shared their race, gender, or both (Holmes, Land, Hinton-Hudson 2007). While five of the studies found that their participants experienced successful peer mentoring relationships, three of these same studies also presented data on the importance of hierarchal one-on-one mentoring relationships.

Four of the studies presented data on the challenges that their participants experienced within mentoring relationships, including contentious relationships with their mentor and a general sense that mentoring is mysterious and not understood. Six of the studies also included participants who did not receive mentoring. In the two studies by Crawford and Smith, none of their participants had a mentoring relationship—however, the authors restricted the definition of mentor to be “one who is further along in an educational career than you are, perhaps in administration, and who counsels you and looks out for your career” (p.60). This definition excludes peer mentors and mentors that may exist outside of academia; indeed, in the data they present, the women spoke to having peer and non-academic mentors, yet the authors conclude that these women received no mentoring.
References


Appendix

Codebook: Meta-synthesis of the Mentoring Experiences of Women of Color Faculty

High-level characteristics

Abstracts

Keywords

- Academic administration
- African American
- African American women
- Black women
- Career
- Dignity
- Engineering
- Gender
- Higher Education
- Meaningful work
- Mentoring
- Minority career development
- Narrative
- No key words given
- Post-structural
- Professional development
- Race
- Research careers
- STEM
- Women leaders of color

Citations of other papers included in this study

Discipline of authors

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Phenomenology

Program evaluation

Secondary analysis of survey and interview data

Setting

4-year predominantly White institutions
Large state university in Great Lakes area
National
New York State colleges and universities

Theoretical Frameworks

Black feminist thought
Post-structural feminism

Defining Mentoring

Given definition
Mention of peer mentoring, multiple mentors

Purpose of mentoring

Build mentees network
Increase women in STEM
Instrumental support
Psychosocial, emotional support

Frames

Barriers

Academic values do not align with cultural values
Barriers to professional socialization
Discrimination and bias
Enviro of cultural homogeneity
Expected to represent all women of their race
Focus on finding right job rather than succeeding at job they have
High service commitments
Hostile environment, climate
Intersectional
Isolation
Lack access to resources
Lack mentors
Lack networks
Lack of role models
Lack of sensitivity
Lack of trust
Lack of visibility
Limited opportunities for advancement
Low status
Marginal position
Pressure
Stereotype threat
Unclear P and T requirements
Underrepresentation
Undeserved scrutiny
Women of color choices and career paths
Women of color viewed as threat
Career development research, career paths
Different cultural definitions of success
Discipline of authors specific framing
   Mentoring as constituted communicatively
   Racial history of Psychology
Importance, value of mentoring, research on mentoring
Benefits to mentee of mentoring

Lit on benefits of mentors to all women

Lit on benefits of mentors to people of color, including men

Challenges to success of mentor relationships

Characteristics, timing influence mentoring impact

Cross race mentoring

Mentoring and women of color

Mentoring can shift overall paradigm

Mentoring improves institutional diversity

Mentoring is reciprocal

Peer and multiple mentors

Qualifies or limits the view of mentoring as always positive

Race matters

Racial differences w Whites

Systemic change needed

Underrepresentation

Causes

Lack of research on women of color

Margins as source of power, resistance

Mentoring as one intervention designed to address this

Need mentoring to improve representation

Need systemic change to improve representation

Need to increase rep to change research

Need to increase rep to recruit, retain Black students

Women of color on the margins

Women of Color

Intersectional
Racialized experiences of Women of color, code switching

Women of color as caretakers, self-care

Women of color changing higher education

   Developing support networks

   How Women of color cope, succeed, resist given marginality

   Resisting assimilation

Findings re: Mentoring

   At graduate student level

   Bad mentoring experiences

   Centrality of race

   Challenges

      Assigned mentors not clicking

      Did not recognize mentoring opportunities

      Difficult finding now that she is in Sr position

      Lack of role models with same identities

      Mentor mentee competitiveness

      Mentoring is mysterious, not understood

      No compliments or encouragement

   Changes over time

      Early on, institution invests in mentoring

      Early on, prevent from dropping out

      Later, shows adaptability to changes

      Mentors leave your institution over time

      Still need mentoring in Sr positions

   Characteristics of successful mentoring relationships

      Advocates

      Allow for diversity of obligations and values

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Attentive to intersectional identities

Emotional support

Instrumental support

Role modeling

Description of mentoring program or intervention activities

Experience of mentoring impacted by identity

Lack of mentoring

Because they focused on job access and not mobility

Blames self for lack of mentoring

Did not know what did not know

Did not realize need

Does not pursue

Led to uncertainty about career path

No traditional mentors

Nontraditional path in way of finding mentor

Others assumed she didn’t need it

Subbed observation of what not to do

Trained but not nurtured

Wishes had mentor

Types of mentoring

Author is dismissive of peer mentoring

Hierarchical one on one

Mentoring up, supervisors

Peer mentoring

They serve as the mentor

Value of mentoring at individual level

Accountability
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Career development and advancement
Connect with other Women of color in academia
Emotional support
Encourage self-care
Feedback on manuscripts and grant apps
How to lead, take care of staff
Increase persistence
Increased network
Learn to ask for what need
Mentoring leads to individual success
Navigational know-how
Personal info, Referrals for personal matters
Problem solving, advice
Provide meaning and purpose
Raise awareness
Research, data analysis
Role model
Socialization
Someone to battle with you in the work
Understanding politics
Validate experiences

Value of mentoring at systemic level
Can create change by mentoring up
Catalyst for institutional change

Who initiates mentor relationship
Both institution and mentee responsible

Institution
Mentee
Mentor

Who is ideal mentor

Can be cross cultural, White
Need multiple, diverse perspectives
Peer with same identity
Senior to their current position
Shared gender
Shared race
Someone dedicated to mentoring
Someone whom other professors respect
White man

Findings not about mentoring

Challenges

Cautious, expecting racial or gender problems
Excess demands by students for support
Excess service demands
Having to choose between academic and cultural values
Isolation
Lack of respect from colleagues
Must work harder as a woman of color
Others assume women of color have advantages
Unwritten rules

At the individual level

Definitions of success change over time
Fluid subject positions
Important to establish relationships with those in power

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Importance of networking and professional development

Need to build support system

Re race

  Cultural obligation to give back
  Cultural values and definitions of success
  Difficulties engaging with White colleagues
  Differences across URM women by race, ethnicity
  Importance of community
  Location on the margins
  Overcoming racist culture
  Separation of work and personal life
  Similarities across URM women regardless of race, ethnicity

See self as DEI change agent

Socialization through observation of others’ mistakes

At institutional or cultural level

  Adding a few Women of color to power does NOT equal real change
  Call for culture change
  Climate as a challenge, unwelcoming
  Inadequate support for Women of color
  Leadership must set tone for DEI
  Local climate can be more challenging than national
  Low retention rates at PWIs
  Mentors as part of culture change
  Race as primary and central

Differences with White experiences

Suggestions for further research

  Black feminist thought, critical race theory on Black Women’s experience

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Black women and mentoring in STEM

Compare African American women in administration with and without mentors

How to address cultural issues and cultural identity in mentoring

On different employments, authorial voices, subject positions

Research on the mentoring experiences of Women of color beyond Black women

What mentoring models work for who and in what context

Who has access to mentoring

Implications

Advice for mentors

Commitment, not race, is most important characteristic of mentor

Mentoring needs to address professional AND personal

Mentors need to recognize, honor cultural identity

Mentors need to support changing needs over time

Suggestions specific for majority mentors

White mentors must attend to cultural differences

Argue for their theoretical approach

Authors give advice to junior faculty

Ask for assistance

Develop networks

Develop research agenda

Find community of color

Find mentors to help turn dissertation into publications

Have a personal life

Institutional fit matters

Nurture mentoring relationships over time

Call for critical approach to mentoring research

Call for mentoring
Lack of mentors means institutions not fully capitalized on women of color potential

Lack of mentors leads to decreased career satisfaction

Mentoring can lead to institutional change

Mentoring is crucial in early years in tenure track position

Mentoring is key to Women of color success

Mentoring needed to empower Women of color leaders

Multiple mentors needed

Nontraditional folx need peer mentoring

Call to institutionalize inclusionary practices

Centrality of racism and race

Conclusions