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ARTICLES

Examining the Mentoring Approaches of African-American Mentors

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Abstract

Understanding and identifying the mentoring approaches of African-American mentors may shed light on practices that can be implemented in higher education to help increase the number of underrepresented minority (URM) graduates. This exploratory research seeks to identify the mentoring approaches that African-American mentors use to help their African-American undergraduate protégés persist and succeed in science, technology, engineering, and math (STEM) majors. Multiple interviews were conducted with ten African-American mentors from academia, government, and industry/non-profit sectors. Using an interpretivist lens, interview transcripts were thematically coded and analyzed to produce the most emergent themes about mentoring approaches. Findings indicate mentors use familial, guidance and resource acquisition, and empathetic mentoring approaches. These approaches promote the development of protégés' sense of community and STEM identities to support student persistence. The intent of this study is to establish a foundation for future research to examine and identify the characteristics of mentoring practices and approaches that may assist URMs pursuing STEM degrees.

Keywords Mentoring · Social support · African American · STEM

Many African-American undergraduates confront challenges and obstacles transitioning into college such as dealing with unwelcoming campus climates (Strayhorn 2015), academic and social isolation (Apprey et al. 2014), stereotypes (Johnson-Ahorlu 2013; Steele 2003), and identity negotiation (McClain 2014; Ross et al. 2017; Snead-McDaniel 2010). Yet, to meet future U.S. workforce demands and promote an inclusive workforce, we need to understand what helps underrepresented minorities (URMs) to persist in college and graduate, especially in science,

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technology, engineering, and math (STEM) fields. How can we best address weaknesses found in URMs' experiences in STEM programs? Mentoring has been shown to be a mechanism that may assist URMs in persisting and help to remedy the negative experiences of URM undergraduates. However, research studies lack an in-depth examination of what occurs in the mentoring processes that enhance student success.

For URM undergraduates, academic isolation can be lessened by increasing contact and developing mentoring relationships with faculty members. Research indicates that mentoring can help to combat the negative experiences and obstacles faced by African-American undergraduates and help facilitate minority students' success (Saddler 2010). For example, mentoring can provide protégés with opportunities to seek support and advice about how to address their issues as well as receive guidance to help them overcome obstacles (Brittian et al. 2009). Mentoring can be an important tool that assists in increasing minority undergraduates' participation and persistence in STEM majors. Thus, it is logical that we should evaluate ways in which mentoring experiences and relationships can be enhanced.

The purpose of this exploratory research is to identify the mentoring approaches that African-American mentors use to help their African-American undergraduate protégés persist and succeed in STEM majors. Findings reveal that mentors' approaches focus on reaffirming protégés' identities and providing engaging learning experiences in their mentoring relationships to help cultivate student persistence. In the following paragraphs, I provide a brief review of research about the experiences of African-American undergraduates and mentors in higher education. Then, I present the methods and findings of the current study about mentors' approaches. In conclusion, a discussion of the findings and suggested future research is provided.

The African-American Experience in Higher Education

Confronting Challenges

Multiple research studies report challenges encountered by African-American college students, such as confronting "chilly" campus climates (Maton et al. 2011; Palmer and Young 2010) and fears of fulfilling stereotypes (Johnson-Ahorlu 2013; Steele 2003). These issues can produce grave consequences for students, which can adversely impact their academic performances and social interactions and result in a lack of support and increased isolation (Brittian et al. 2009; Brown 2008). Yet, mentoring interventions have been shown to positively impact URMs' completion of STEM degrees (Maton et al. 2016). Similarly, as a socialization process, mentoring can enhance the professional identities and career development of Black STEM students (Alston et al. 2017). Subsequently, examining the mentoring approaches of African-American mentors in higher education can provide insights into ways to enhance URM students' mentoring experiences.

African-American faculty members in higher education may have different experiences from their White counterparts (Clayton 2009; Singh and Stoloff 2003). Specifically, African-American faculty members may be subjected to stereotypes or perceived notions regarding their abilities in academic and/or

educational contexts (Griffin and Reddick 2011). As faculty members and professionals, African-Americans may encounter situations in which students or colleagues may question their capabilities or qualifications to teach classes, perform research, or conduct other tasks (Rockquemore and Laszloffy 2008; Solorzano et al. 2000; Thomas and Hollenshead 2001). Some research has uncovered instances where colleagues, peers, or students requested to see faculty members' credentials, and exhibited disbelief that they were qualified to teach or work with students (Gutiérrez y Muhs et al. 2012; Reddick 2012; Rockquemore and Laszloffy 2008). Confronting and dealing with these instances of racism, sexism, and stereotypes may not only be unnerving and annoying, but they can also negatively impact one's sense of belonging and/or performance (Steele 2011).

Mentoring

Mentoring involves an experienced individual (a mentor) educating, guiding, and counseling a less experienced person (a protégé) to help him or her develop skills and realize dreams (Eby et al. 2007; Kram 1983). Eby et al. (2007) identify several attributes of mentoring: (1) mentorships are distinct and formed by the interpersonal exchanges and interactions that define and shape the relationship between the parties involved; (2) mentoring relationships are learning partnerships in which the parties involved acquire knowledge; (3) as a process, mentoring is defined by the support that a mentor provides to a protégé; (4) a mentoring relationship is reciprocal, yet the protégé's growth and development is the primary relationship goal; and (5) mentoring relationships are dynamic, with an increasing impact over time.

Mentors provide advice and feedback to their protégés regarding interpersonal skills and career plans, as well as advice about academic, personal, and/or professional aspects of their protégés' lives (Ragins and Kram 2007a, b). However, mentors may be ineffective due to a lack of knowledge about or training in effective mentoring techniques (Gotian 2016). Thus, there is a need to understand mentoring techniques as well as how these techniques might be influenced by aspects such as identity (e.g., race, gender, and ethnicity).

The Influence of Identity and Learning in Mentoring

In mentoring relationships, cultural factors such as race, gender, and ethnicity may influence and impact how mentors and protégés interact with each other. In mentoring processes, understanding racial and ethnic differences can be linked to cultural contexts and differences between racial and ethnic identities as well as gender (Darling et al. 2006; Green 2015; Griffin 2013). Other researchers agree that mentoring relationships are complex given cultural differences and factors like race, ethnicity, and gender (Pfund et al. 2016).

Also, mentoring relationships between African-American undergraduate protégés and their mentors can positively affect and influence the persistence of minorities in STEM fields (Apprey et al. 2014; Bonner II 2010; Gershenfeld 2014). In mentoring relationships, African-American protégés may receive

emotional and psychological support as well as opportunities to learn valuable lessons from their mentors (Church 2010; Eby and Lockwood 2005; Stolle-McAllister et al. 2011). For example, African-American protégés may learn how to develop resiliency and overcome obstacles in addition to acquiring cultural and social capital from engaging in relationships with their mentors (Brown 2008; Museus 2010). From their mentors, protégés may increase their social capital through gaining an understanding of how to navigate their academic environments as well as acquiring access to social networks and support systems (Mondisa and McComb 2015; Museus 2010). Likewise, mentors benefit from these relationships by: being able to pass along their knowledge to their protégés; assisting in the success of people they relate to; and, building their networks and capital (Leavitt 2011; Lunsford et al. 2013). Thus, understanding these relationships and experiences can provide insights into how access to capital and shared learning experiences with mentors may help to increase the retention rates of African-Americans in STEM fields.

Mentoring and the African-American Experience in Higher Education

A Shortage of Access, Mentors' Challenges

In mentoring relationships, African-American protégés may have minimal access to African-American mentors or role models. Student-faculty interaction through mentoring is recognized as being beneficial in contributing to a student's educational experience as an extension of the classroom (Pascarella et al. 2005). However, the lack of racial minority faculty at certain academic institutions means that African-American students have limited access to African-American faculty mentors (Nelson and Brammer 2010). So students "may find establishing a positive identity in the university environment difficult without faculty to identify with" (Brittian et al. 2009, p. 88). This may result in a lack of visible and accessible same race/same gender role models in STEM fields for African-American protégés, which may adversely influence undergraduates' attitudes toward persisting in STEM fields.

Furthermore, African-American mentors in higher education may be confronted with situations in which they have to draw on their own experiences to counsel their African-American protégés on issues related to race. For example, African-American mentors may need to mentor their African-American protégés about how to deal with situations where their abilities were questioned due to racial stereotypes (D. K. Singh and Stoloff 2003). In addition, mentors may be tasked with helping their protégés with confronting fears of fulfilling stereotypes or addressing feelings about being "representatives" of their race (Shapiro and Williams 2012; Steele 2003). Likewise, African-American faculty may desire to assist URM students. Yet, in doing so, faculty may unintentionally undermine their tenure and career goals by devoting more time to mentoring and service and less time to conducting research and producing publications (Griffin and Reddick 2011; Rockquemore and Laszloffy 2008).

A Need for Specific Details about Mentoring Approaches

Existing research studies examine the outcomes of mentoring relationships and programs, but lack a detailed examination of what actions and approaches mentors use. Researchers have examined the characteristics and attributes of various mentoring programs, contexts, or relationships (Gershenfeld 2014; Pfund et al. 2016). This includes the effects of mentors and protégés' willingness to commit personally and professionally to invest time and resources in their mentoring relationships or the effects of meeting regularly on protégés' satisfaction with mentoring relationships (Darwin and Palmer 2009; Hayes 2005; Karcher et al. 2006; Lyons and Oppler 2004). Angelique et al. (2002) detail how a peer mentoring circle of scholars in higher education support each other through sharing information about grants, conferences, and career development processes in a peer mentoring program context. Yet, what is missing from mentoring literature is a detailed account of what approaches and techniques mentors, especially African-Americans, use in their mentoring processes to assist their African-American protégés. Exposing the mentoring approaches that African-American STEM mentors use to advise their protégés can significantly advance the understanding of the benefits of mentoring and how to use mentoring to address obstacles that African-American STEM undergraduates confront in college. Thus, this study's research question is what mentoring approaches do African-American STEM mentors use with their African-American undergraduate protégés?

Theoretical Framing: Situated Identity

For this study, a situated identity framework is used to understand how mentors contribute to the roles they play in their relationships with their protégés. Situated identity theory assumes that people take one of various roles in different settings and shift behavior according to their awareness of situational contexts (Alexander and Wiley 1981; Alexander Jr and Beggs 1986). This means that in certain environments, people shift their behavior based on the role that they are playing, much like a mentor may do when interacting with a protégé. These shifts in behavior can be shaped by various elements that may influence the identities and experiences of both mentors and protégés.

There are many socially-constructed concepts and aspects that may contribute to people's situated identities (Alexander and Wiley 1981). These elements are not separable, acting alone; rather, there is an intersection of socially-constructed elements that may influence a person's perceived self-identity. Subsequently, mentors not only assume roles and certain types of behavior within the contexts of their mentoring relationships, but their behavior is also affected by various aspects of their own identities and personal and professional experiences.

For this study, a situated identity lens is used to examine how mentors behave in addressing their protégés and reporting on these approaches. More specifically, mentors' roles and identities emerge from their responses to a series of questions designed to encourage them to share past experiences and situations that shaped their approach toward mentoring. From these interviews, emerged themes that can assist our understanding of the mentoring process and extend the body of knowledge about mentoring.

Methodology

In this qualitative study, an interpretivist approach (Creswell 2007) was used to provide insights into the mentoring approaches of African-American mentors using thematic emergent coding (Mondisa 2015a, b). Interview data was gathered from ten African-American STEM PhD mentors (five African-American males and five African-American females) from academia, industry, and non-profit/government sectors. Mentors with PhDs were selected for this study because they have their own experiences in higher education as undergraduate students, graduate students, and professionals which may influence their mentoring styles and relationships. The following research question guided this study: what mentoring approaches do African-American STEM mentors use with their African-American undergraduate protégés?

Selection of Participants

Participants were recruited in various stages using a purposeful sampling technique where I researched and/or met various potential participants and used the study's population criteria to determine if they were potential candidates for the study. Each participant has earned at least one degree in a STEM field and has: (1) a history of impacting African-American STEM undergraduate students as evidenced by a substantial track record for facilitating undergraduate student success in STEM fields, (2) a history of commitment to mentoring underrepresented minority undergraduates, and (3) national acclaim and/or recognition by their peers and prestigious organizations and institutions as exemplars for their work with mentoring underrepresented minorities.

For each potential participant, I assessed whether that individual met the study's criteria. In the majority of the recruitment stages, I met the participant at a STEM conference or event at which he or she was the coordinator or was being honored for some work. In some instances, snowball sampling occurred (Stake 2010). At the time of the study, all participants were actively engaged in mentoring undergraduates in various contexts, such as on campuses, at workshops, or through program affiliations. Some participants also mentor postdoctoral associates, graduate students, and peers.

The participants' actual names have been replaced with pseudonyms and identifiable information has been anonymized to ensure participants' confidentiality because the sample population is small and potentially easily identifiable. The sample population has several important characteristics, (see Table 1). Specifically, 70% of the population has attended historically Black colleges and universities (HBCUs). In regard to employment at the time of the study, 70% of the participants worked in academia, 20% worked in government, and 10% worked in the non-profit sector. The overall mentoring experience of participants ranged from 10 to 50 years. For STEM backgrounds, 70% of the population has earned at least one degree in engineering and 30% of the population has earned at least one degree in science. Also, 70% of the population has initiated or founded a formal mentoring program.

Data Collection

Several steps were taken to collect pertinent information about potential participants. Prior to performing the interviews, I collected publicly available background

Table 1 Characteristics of the sample population

Participants	Race	Sex	Employment			Mentoring experience (in years)	Attended an HBCU	Initiated/ founded a formal mentoring program
			Academia	Government	Industry/ non-profit			
Dr. Jason Gregory	AA	M	X			15	X	X
Dr. Erica Herschawitz	AA	F	X			15	X	X
Dr. Joyce Jackson	AA	F		X		16	X	X
Dr. Laura James	AA	F	X			15	X	X
Dr. Donna Pryor	AA	F		X		13		
Dr. Samuel Reid	AA	M	X			30		
Dr. Donald Schaffer	AA	M	X			28		X
Dr. John Spencer	AA	M	X			10	X	X
Dr. Sara Sumpter	AA	F	X			15	X	
Dr. Wesley Williams	AA	M			X	50	X	X

*The participants' actual names have been replaced with pseudonyms

AA, African-American; *M*, male; *F*, female

information from institutional, professional, and corporate websites about potential participants and their respective institutions and businesses. Collecting this information was critical because it helped to establish a context for the experiences that participants described in their interviews.

After receiving approval from the Institutional Review Board, I interviewed the mentors. Interviews were used to collect the details of people's experiences and to reflect on them through a process of sensemaking (Seidman 2012). Furthermore, interviews assist "in understanding the lived experience of other people and the meaning they make of that experience" (Seidman 2012, p. 9). Subsequently, interviews were useful in capturing the experiences of the participants and their approaches to mentoring. Interview protocols were structured based on a modified version of Schuman and Dolbeare's qualitative, phenomenological interviewing approach (Schuman 1982). The first interview protocol focused on asking participants about their past experiences, values, and beliefs, and the second interview protocol focused on asking participants to reflect on their mentoring experiences (Mondisa 2015a). For the first interview, I asked questions about participants' personal experiences, such as:

> Think back to the time that you were an undergraduate student. Tell me about any challenges you encountered as an undergraduate (or graduate) student due to your race, ethnicity, gender, or another marker of difference?

An example of a question from the second interview is:

> Give me an example of one of the most common ways that you provide assistance to your African-American undergraduate protégés?

Interviews were conducted in person with nine of the ten participants and over the phone with one participant. Participants were interviewed at least one time and at most two times for a total of 17 interviews that lasted approximately 60–90 minutes each. Each interview was audio recorded, and I also took written notes during the interviews of any special insights or questions as they occurred. The timeframe between each interview varied for each participant. If possible, the two interviews were conducted within no more than a week of each other. The interviews were transcribed verbatim (excluding language utterances) to maintain consistency in conservational conventions.

Data Analysis

For the analysis process, I used the background information gathered about the participants to understand their personal, professional, and mentoring contexts, and I open-coded the emerging themes from the data (Mondisa 2015a; 2016). A thematic open-coding process was used to analyze the data in three multistep iterations. Each iteration involved reading over each interviewee's information and interview transcripts, writing notes about codes and themes emerging from the data, and then reading through the transcripts again and identifying emerging themes (Mondisa 2015a). Then, I created a log of specific interview quotes related to the themes to provide an overview of the individual findings about each interviewee to assist in comparing and contrasting their different experiences. Also, I identified outstanding themes and patterns in the data. Finally, participants were sent data and results information in a member-checking process (Stake 2010).

Findings

There were three main themes that consistently emerged among this group of mentors' approaches in working with their protégés. Specifically, mentors discussed using the following: (1) a familial approach to advise their protégés, (2) a guidance and resource approach to create awareness and provide direction to resources, and (3) an empathic listening approach to relate to their protégés. Below, I discuss each of these mentoring approaches that emerged from the data.

A Familial Mentoring Approach

One prominent theme that emerged as a common approach, is that African-American mentors advise their proteges in the same manner that they would advise their own family members. In one example, Dr. Sara Sumpter says she mentors her protégés by advising them similar to how she would advise her own siblings. She makes sure that her protégés understand she is advising them in this manner because she believes in them. In explaining her approach to mentoring her protégés, she says:

> I guess in a mentoring capacity where you really want someone to excel and you see potential in them, you really just want to pour into them and help them to move to the next level. So, it's like treating them like they're a part of your own family. So, (I advise my protégés as) if I was talking to one of my brothers to really let them know that this is not just me giving you a piece of advice, but it's

> because I really believe in you and I really see something there. And I'm not going to tell you something just for the sake of putting it in the air. Whatever I say, I really mean and I want them to really know that.

In his mentoring approach, Dr. Wesley Williams conveys the importance of the advice that he gives to his protégés by letting them know that it is the same advice he would give to his family member or himself. He says:

> I direct people, sometimes they would not have gone where I think it was the best fit for them and I always leave it open. I leave it so that, "hey, this is your life so you can do what you think is best for you." (I say,) "but if I'm sitting where you're sitting, the kind of advice I'm giving you, I would give this to my daughter. I would give this to myself."

In stressing to their protégés that they are giving advice to their protégés that they would give to their family members, mentors attempt to convey the importance and sincerity of their advice.

A Guidance and Resource Acquisition Approach

In the mentoring process, mentors help their protégés to understand the importance of developing a plan, and they also direct their protégés to resources that they may need for their inherent academic success. In her mentoring approach with her protégés, Dr. Joyce Jackson informs her protégés that they need to make a plan to get to graduation. She says:

> I think the most common way (to assist protégés) is to really let them know to develop a game plan. (I try) to let them know what the "game" is and then ask them what is their plan. I mean "game" in the sense of what's the appropriately recognized path to get from point A to point "graduation". And then, what are the variations that are possible within that and then how (do) you construct your unique game plan to get to the destination. (...) But a plan may need to change over time. It's flexibility that you have within that plan to get to their ultimate goal.

In mentoring protégés, Dr. Jason Gregory gives his protégés direction to necessary resources while also providing alternative viewpoints. He says:

> I just try to give them resources. I listen to them. I think the listening ear and the (telling them where to locate) resources are the two biggest (elements of my mentoring approach). And then I do try to also, I don't like to say (play) devil's advocate, but I do try to provide some alternative viewpoints on some things.

An Empathetic Approach

Results also indicated that mentors use listening skills and empathy, and they also recognize the individuality of their protégés. In addition, mentors are flexible, open, and receptive. They use their own experiences to relate to their protégés.

In mentoring his protégés, Dr. Donald Schaffer listens and adjusts his mentoring approach based on the individual while also employing empathy. He says:

> I try to listen more than I talk. (I) really try to listen, try to understand what makes them tick, what their needs are, and (I try) being very flexible because one size doesn't fit all so what works for one individual will not necessarily work for another individual. And so, (I) try to be as flexible as possible, but also (I) try to be as empathetic as possible so I understand how to modify my behavior in a way that would be most conducive to being an effective mentor.

Dr. Donna Pryor says it is important to relate to her protégés by validating their feelings and letting them know that others have had the same experiences. In her mentoring approach, she says:

> So, I think it helps to know that someone has been through it and survived. Just to let people know that the experiences that they're going through are not uncommon and that someone's there to listen and someone's there who has experienced it. And I think, as I reflect back, just to let people know that their feelings are valid. To validate what they're feeling. Even if you can't offer a 100% "this is going to work" solution, just to let people talk, to let people know that what they're feeling is acceptable. To let people know that what they're feeling is real.

In respect to mentoring approaches, Dr. John Spencer shares that he would advise mentors to be "open" in their approach. He says:

> I think mentors should be open and receptive to listening to their students. I mean, a lot of times you think you're a professor, you can do what you want, say what you want. It's not always about you. You need to make it about the other person on the other side of the table. So, I think what I would say (to other mentors is to) be open and be receptive, (and) learn from others.

Dr. Samuel Reid takes a mentoring approach of relating to his protégés as a friend to lessen any potential intimidation his protégés may feel in talking to him. He says:

> I think I try to get to know people from a personal perspective first. You know, what their background is, where they're from, what they enjoy, what they don't enjoy. (I) try to relate to them more as a friend before I start giving advice so I can sort of understand where they're coming from. And (I) try not to be intimidating. I try not to take myself too seriously. I want people to feel comfortable talking with me, to me, and so forth (and) not being afraid or intimidated.

Discussion

Although limited by the number of participants, surprisingly, I found that there were several clusters of themes or approaches derived from the interview data. I classified

these themes into three distinct categorical mentoring approaches: familial, guidance and resource acquisition, and empathetic. Two salient questions that emerge from an analysis of the data are the following: (1) are there differences in the mentoring approaches of African-American female and male mentors, and (2) what are some things that these mentors are doing which may not be done in other mentoring relationships? In the following sections, I discuss some insights from the study's data that addresses these two questions.

Gender Differences in Mentoring Approaches?

Based on this study's findings and existing research about gender and mentoring, there may be many differences in the mentoring styles of male and female mentors. Even though having a mentor of the same race or same gender may not affect protégés' academic outcomes, protégés may feel they receive more help from mentors who share the same race or gender (Blake-Beard et al. 2011). Research studies indicate that Black males and Black females may have different experiences in negotiating access and engagement in academia (Alston et al. 2017; Winkle-Wagner 2015). Nonetheless, having a shared identity and interest with mentors is an important element of mentoring relationships, especially for Black female students (Rasheem et al. 2018). Likewise, the development of female mentor-protégé relationships may be similar to the development of female friendships (Young et al. 2006). Female mentors have been shown to use a relational approach to mentoring "that moves both parties to a new place whether it is greater academic productivity, academic and professional collaborations, or sharing of more personal and social aspects of each other's lives" (Gammel and Rutstein-Riley 2016, p. 28). Thus, it is possible that females use relational mentoring approaches that may cause them to have different mentoring styles than their male mentor counterparts.

Within mentoring literature, there is much discourse about the differences between same-race and same-gender mentoring relationships. However, there needs to be an examination of if and how mentors' gender influences their mentoring approaches and how these might affect protégés. In this study, male and female mentors indicated that they provide protégés with the same advice that they would provide to their family members. In their empathetic listening approaches, male mentors discuss the importance of listening to their protégés. Yet, a female mentor acknowledges the importance of listening to and validating protégés' feelings. Could it be possible that the female mentor's approach reflects more relational mentoring aspects?

It is possible that female mentors might be more inclined to not only listen to protégés, but also to relate to them by validating what they are feeling as well. Moore et al. (2003) proposed the *prove-them-wrong syndrome* as a theory to "explain the academic and social experiences, attitudes, and personality characteristics of persistent African-American males pursuing engineering degrees" (p. 66). In particular, the authors assert that in response to psychological and sociological challenges in their engineering experiences, African-American males adopt coping strategies associated with proving their abilities to their critics. Subsequently, in their mentoring approaches, African-American male mentors may encourage their protégés to prove their abilities, whereas female mentors may advise their protégés using a more relational, *show-them-who-you-are* approach. Further examination about how mentors' gender may affect their approaches with their protégés may produce valuable insights into mentor and protégé pairing and selection processes.

Learning and Relationship Building in Mentoring

The importance of relationship building and learning partnerships in mentoring approaches is quite evident in the study findings. In particular, these elements appear in the mentors' approaches and support protégés' development of a sense of community and STEM identity. First, from this study, we see that the mentors advise their protégés in a manner which may help their protégés to build a sense of community and feel as though someone cares about them. In African-American communities, extended family members may be more likely to play mentoring roles, especially to college students (Hirsch et al. 2002). Similarly, mentors approach their protégés with advice that they would provide to their own family members. Treating people like they are family, good friends, or strongly connected in some way helps establish a sense of community and build relationships. This has been documented as an important factor in helping students to succeed, especially in STEM fields (Maton et al. 2016; Mondisa and McComb 2018). Thus, through advising protégés as they would advise their own family, mentors help protégés to feel a greater sense of community.

Also, in using empathetic mentoring approaches, mentors reinforce a sense of community by listening to protégés. Mentors build relationships with protégés that allow the protégés to express themselves before being pointed in a direction of growth. In this study, mentors acknowledge and validate protégés' feelings that may be related to issues associated with navigating hostile environments and confronting stereotypes (Steele 2011). Mentors try to make protégés feel that they are heard. This may increase the protégés' feelings that someone in the community understands them and make them feel like they are part of something bigger than themselves.

Finally, in providing guidance and information about acquiring resources, mentors help to strengthen protégés' STEM identities and efficacy beliefs. Many students have questions about the engineering disciplines they seek to enter and how they can navigate the academic environment (Foor et al. 2007). Students need a reference to identify with where they see themselves along the STEM spectrum. Being able to identify as a scientist or engineer helps to reinforce students' STEM efficacy and is an important factor in student success (Maton et al. 2016). Similarly, in mentoring relationships, being able to connect and identify with someone who looks like you and has achieved goals that you desire to attain can positively impact your identity.

The study's findings provide evidence about characteristics of effective mentoring relationships in various educational, organizational, and research contexts (Allen and Eby 2011; Casto et al. 2005; Hayes 2005). Yet, further examination is needed to distinguish if there are distinctions that can be made between the mentoring approaches of STEM mentors and mentors in other fields. Nonetheless, while simultaneously raising many more questions for future inquiry, the findings also reveal a set of identifiable approaches to mentoring. These approaches may give clues to what may be best practices employed for best results in mentoring.

Conclusions

From this exploratory study, we learn two valuable implications about mentoring approaches used by African-American mentors. First, in mentoring relationships,

the acknowledgement and exchange that occurs in the learning partnership connects mentors with their protégés and may help to advance both parties. In particular, mentoring can be depicted as a one-way process in which the mentor pours into the protégé, with the focus being on the protégés' outcomes (Haggard et al. 2011; Jones and Brown 2011). However, mentoring does not always occur in a singular direction. Mentoring models have been developed that indicate that learning can occur in the process of mentoring (Revelo and Loui 2016; Schunk and Mullen 2013). From this study, we see the importance of protégés' learning about resources and receiving insightful guidance from their mentors. Second, mentors listen with empathy and may also validate protégés' feelings, which may be a much needed aspect for protégés. Listening is an important attribute of a mentoring relationship for both the mentor and the protégé (R. Singh et al. 2012). Yet, this study emphasizes a need for empathy in the process of listening and, more importantly, validation of what the protégé is feeling. It is possible that validating protégés' feelings may play an integral role in the relationship development between protégés and mentors.

Future Research Recommendations

Several questions arise from the study findings that yield recommendations for future research. First, what importance will race and gender bear in future inquiries about mentoring approaches and relations? It is possible that male and female mentors' differences in mentoring approach styles influence their protégés' experiences. Thus, there is a need to quantify the differences in the styles of female and male mentors and to examine how this information could be used to inform mentoring practices. Future research should examine same-race gender differences in mentoring approaches. The second question that arises is, how can we predict which mentoring approach will best suit which protégé for best results? This is a most important question for future research because we need to be able to pair mentors and protégés to obtain maximum beneficial results. Future research should further examine the characteristics of mentoring approaches and how they coincide with the needs of protégés as well as how protégés' characteristics play a role in the process. If we understand the characteristics of mentoring approaches and protégés, we can identify how to conduct and enhance mentor-protégé pairing and selection. In conclusion, there are many opportunities to extend this body of research to better inform mentoring practices that can support the development of underrepresented protégés in STEM fields.

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