

2018

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Recommended Citation

Waller, T. O., Guzman, E., Wolfe, H., & Ayorinde, S. (2021). Mentoring McNair Scholars: A Qualitative Study of Faculty Mentors' Perceptions. *Journal of Access, Retention, and Inclusion in Higher Education*, 1(1). Retrieved from <https://digitalcommons.wcupa.edu/jarihe/vol1/iss1/10>

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Mentoring McNair Scholars: A Qualitative Study of Faculty Mentors' Perceptions

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ABSTRACT

This article describes an effort to assess how faculty mentors of the Ronald E McNair Post Baccalaureate Achievement Program at Cornell University perceive academic, research, and social efficacy of their McNair mentor(s). The study is framed by the following overall questions: How do faculty's perception of their mentees self-efficacy affect their mentoring strategies? How are faculty and mentee's understandings of self-efficacy similar or different and how does this affect the strategies employed by faculty? Furthermore, what are the strategies McNair Program can employ to account for the similarities and differences between faculty and scholar understandings of self-efficacy and facilitate more effective mentoring relationships. The data is based upon McNair faculty mentors across the span of five years since McNair inception at the university. We used a Qualtrics research software to collect survey responses to closed and open-ended responses and to identify themes in relation to mentoring practices and beliefs more broadly. With our findings we attempted to illuminate the mentoring practices of faculty mentors while also recognizing the way McNair programs can better facilitate mentor relationships. The findings revealed that social self-efficacy need encouragement with academic engagements with McNair faculty mentors and scholars. The academic socializing and personal relationships are critical aspects to continue examine and build in the social self-efficacy domain.

Keywords: *mentoring, McNair, self-efficacy*

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Introduction

College educators, administrators, and policymakers continue to seek ways to increase the representation of students from historically marginalized groups in graduate programs in our nation's colleges and universities. First-generation college students, those who come from low-income families, or those who identify as part of an underrepresented group often have more difficulty exploring and pursuing an advanced degree (Carter, 2006). Moreover, recent reports from both US News and World Report (2015) and Newsweek (2010) indicate that these three groups experience greater challenges transitioning from undergraduate to graduate school in comparison to students who are not

from low-income households or another marginalized group¹. While financial concerns often hinder their access to graduate education, these students are also hampered by other issues, such as a lack of information, unrealistic expectations, and a reduced sense of self-efficacy (Kim & Sax, 2009). While some of these hurdles remain hard to overcome despite a variety of targeted interventions, a recent qualitative investigation features anecdotal evidence that one-on-one faculty mentoring represents a highly successful means of helping at-risk students overcome these barriers to graduate education (Waller and Wolfe, 2017). Indeed, this type of direct faculty guidance and encouragement plays a major role in an undergraduate student's desire to pursue an advanced degree – not to mention his or her aptitude and confidence throughout the process of earning a Master's or Ph.D. Accordingly, this paper will investigate how faculty mentors in the Ronald E. McNair Post-Baccalaureate Achievement Program (McNair Scholars Program or MSP) at Cornell University view the self-efficacy of their McNair mentees with respect to how this factor impacts their plans for attaining an advanced degree.

The McNair Scholars Program, which is a national initiative at a variety of colleges and universities, is designed to foster the academic interests and success of underrepresented and low-income students and promote advancement to graduate school. The ultimate goal of the McNair Scholars Program is to increase faculty diversity in higher education. Self-efficacy, defined as a person's belief in his or her ability to succeed in specific situations (Bandura, 1994), represents a critical component in student performance. Too often, first-generation college students, those from low-income families, or members of an underrepresented group member may already feel underqualified or challenged as an undergraduate, thus making the goal of achieving a graduate degree all the more elusive. And while a variety of strategies have been implemented to help these students advance academically (e.g., summer enrichment programs²), mentoring is widely embraced as a highly effective way to help students build knowledge and skills, as well as increase their self-confidence and socialization skills (Davis, 2009; Dixon-Reeves, 2001). Mentoring, therefore, represents a key component of engagement in the McNair Scholars Program and is believed to be deeply connected to undergraduate success while in the institution—but more importantly after graduation as students move on to research-based careers or graduate work.

¹ To read more on the challenges minority students face see <https://www.usnews.com/news/blogs/data-mine/2015/12/02/college-graduation-gaps-between-white-and-minority-students-persist> and <http://www.newsweek.com/why-minority-students-dont-graduate-college-75143>

² These summer enrichment programs include courses, workshops, and trainings, seminars, and research opportunities either with mentors or at summer research opportunities program (SROP) hosted by other universities.

Based on the critical importance of increasing the numbers of marginalized students in graduate education programs in this country, the purpose of this study is to understand how self-efficacy is connected to student success, and, in particular, how faculty mentors perceive and cultivate student academic, research, and social self-efficacy. The first section of this article defines mentorship, differentiates the three kinds of self-efficacy that contribute to student success, and explains the importance of faculty mentoring. The second section, the methods section, details the metrics used in the study. This study used survey responses from a total of 29 faculty mentors currently affiliated with the McNair Scholars program at Cornell University. We used coding to analyze the qualitative data in addition to a grounded theory approach in order to create sub-categories of analysis. We provide a qualitative protocol for this study. This investigation concludes with a discussion of results and conclusions drawn.

Literature Review

An Overview of Mentorship

A widely understood definition of mentoring is when a “senior person or mentor provides information, advice and emotional support to a junior person or student over a period of time” (Lev, Kolassa, & Bakken, 2010). Mentoring can be formal or informal; it can take many forms including giving advice, psychosocial support, role modeling, career advising or counseling, cultivating the intellect of the student. Importantly, successful mentoring takes into account the changing needs of the mentee, and thus will evolve over time to meet those needs. In an academic milieu, the mentor’s role is to challenge students with tasks that will build and refine important skills, engage them in critical discussions and set high standards in order to promote maturity and inquisitive behaviors (Davis, 2009). Effective mentors should also provide “vision” for their students – particularly in cases when the mentor embodies the notion that determination can lead to success, even in the face of adversity. At the same time, the mentor must also help their mentee to effectively interpret reality of what expectations are reasonable or unreasonable at various stages of academic growth (Daloz, 1999).

According to the American Psychological Association, engaging in a meaningful relationship with a trusted mentor can be a life-changing experience for an undergraduate student (Smith, 2014). Indeed, research shows that students who have a faculty mentor perform better – both in college as well as after they graduate and are working or pursuing a graduate degree. The potential importance of relationship is why faculty mentoring has become a cornerstone of the McNair Scholars Program. In fact, Cornell University’s McNair Scholars Program includes faculty mentor training to help insure that mentors can be effective at guiding the research experiences of the institutions underrepresented undergraduates. This training in particular, focuses on strategies to increase the self-efficacy of McNair mentees in three critical areas: research, academic, and social self-efficacy. In the STEM fields (science, technology, engineering

and math), McNair scholars are encouraged to choose one of Cornell University participating scientists as their faculty mentor; they then work intensively with that faculty member on a research project participating in all aspects of life in an academic laboratory including:

- learning the approaches and techniques of their field
- analyzing experimental results and develop new questions
- preparing the results for publications
- participating in seminars related to their laboratory research
- reading the scientific literature, attending scientific meetings and making oral and poster presentations

Cornell University faculty mentors are encouraged to get involved in every dimension of their mentee's academic career, including contributing to that individuals social and professional advancement. For instance, McNair scholars are encouraged to take part in lab meetings (e.g., with their mentor's graduate students), attend department seminars, and take part in a variety of social and scholarly gatherings where they can network with other role models. Our data suggests that such interactions will increase student self-efficacy when that undergraduate is able to self-identify as a fellow scientist and scholar and improve their professional skills. A study by Fuentes, Alvarado, Berdan, and DeAngelo (2014) suggests that faculty act as "socialization agents" in which they teach students how to successfully navigate the full and complex particulars of college and thereafter. This suggest that the more a student interacts with faculty in academia the more likely they are to be able to be successfully socialized and therefore see themselves as a fellow scholar. In fact, research suggests that as underrepresented minorities continue in academic careers, socialization within academic communities becomes essential to forging ties, promoting their research agenda, and helping them advance their careers (Zambrana et. al., 2015). Critically, a successful mentoring relationship will impart to the student a better understanding of the complex educational pathways that can lead to a graduate degree and/or a career in research.

It is not only the student who benefits from a hands-on mentoring relationship; indeed, professors who agree to foster an undergraduate may experience increased research productivity once their McNair mentees are trained and comfortable in the lab. Additionally, cultivating student talent and motivating them to publicly present their work brings the mentor visibility, as well as recognition to the institution. Finally, Koch and Johnson (2000) listed a number of intrinsic benefits of mentoring an undergraduate—mostly notably "a sense of generativity and creative synergy in working closely with talented students" (p. 173). This is reflected in many mentors comments on "giving back" and passing on knowledge and skills that they have benefitted from through mentorship.

Academic Self-Efficacy

Academic self-efficacy refers to an individual's belief or conviction that he or she can succeed at a given academic task at a high level (Schunk, 1991; Bong &

Skaalvik, 2003). A student's strong belief in his or her academic capabilities can have an indelible impact on academic motivation, how and how much that individual learns, and the level of achievement he or she is able to attain (Schunk, 1995). According to Schunk and Pajares (2002), students who "feel efficacious for learning or performing and academic task participate more readily, work harder, persist longer when they encounter difficulties and achieve at a higher level" (p. 2-3). Research has also shown that self-efficacy is linked to goal setting; specifically, students with higher self-efficacy are often more committed to academic goals—both personal and assigned—and they are more strategic in their approaches and respond better to feedback and criticism (Locke & Latham, 2002; Artino, 2012). The role of the professor or mentor in helping to build strong academic self-efficacy is to guide students to set goals that are challenging, but attainable, and to offer explicit feedback on progress (Artino, 2012). Students who receive clear, constructive, and timely feedback have more realistic ideas about their academic abilities and performance, leading to higher levels of self-efficacy. Thus, dedicated mentorship represents a critical factor in building academic self-efficacy in students—especially for students from an underrepresented group who are more likely to be unfamiliar with what it takes to succeed in an academic setting and pursue an advanced degree.

Research Self-Efficacy

Research self-efficacy is defined as one's belief in their ability to perform a specific research project or task successfully. Increasingly, today's college students are expected to participate in research activities that "make an original intellectual or creative contribution to the discipline (Webber, et al., 2013, p.227) A corollary finding is that individuals with higher self-efficacy are more likely to be successful researchers and able to meet the demands of the academy (Forester, Kahn, and Hesson-McInnis 2004; Kahn, 2001). It must be noted, however, that although the benefits of engaging in undergraduate research are compelling, the student must expend a considerable amount of time and energy in collaborating with the faculty member to design the study, conduct the research, analyze the data, write a report, and then present the data in a public forum (Waller and Wolfe, 2017). Despite the investment of time and effort, participating in undergraduate research and working closely with a faculty member strengthens a student's skill at developing questions and synthesizing information—a key element of what is known as "deep learning" (Webber, Nelson Laird, & Brcka-Lorenz, 2013), and ultimately research self-efficacy.

Social Self-Efficacy

Scholastic excellence and research proficiency remain the two most important elements for academic success and eventual matriculation. However, one should not minimize the importance of the variety of social interactions that take place on a college campus. Indeed, students who have a strong sense of their social abilities are considered to be the most well-rounded students, and thus better equipped to avoid the risks of isolation, depression, and loneliness that

can derail a successful college experience (Wei, Russell & Zakalik, 2005). In the context of this study, social self-efficacy can be thought of as an “individual’s confidence in her/his ability to engage in social interactional tasks necessary to initiate and maintain interpersonal relationships” (Smith & Betz, 2000, p. 286).

Research shows that social self-efficacy can enhance a student’s ability to build strong social and professional networks with mentors, classmates, and faculty members, which in turn increases student satisfaction and persistence (citation removed; Kuh et al., 2005). Indeed, social self-efficacy is strongly connected to student well-being and a sense of belonging—both within the institution and within the academic major of choice. Associating with others in their field (and in other disciplines) on campus, as well as in settings such as conferences, academic clubs, and in less formal settings can help build confidence and has been shown to produce positive outcomes in academic achievement (Hermann, 2005).

Methods

This study is an extension of a study that looked at self-efficacy among undergraduate scholars in the McNair Scholars Program. The authors wanted to understand self-efficacy among the faculty mentors that were molding these scholars. The overarching question that guided the design, data collection and analysis of this study is the following: How do the faculty mentors in the Ronald E. McNair Post-Baccalaureate Achievement Program (McNair Scholars Program) perceive and cultivate student academic, research, and social self-efficacy?

Data Collection

Student’s entering the McNair Scholars Program are required to locate and secure a faculty mentor that will aid in their progression throughout the program. Students self-select mentors and provide the program coordinators with their names at the time of application. The primary investigator created 26 open-ended questions in early summer 2017. We utilized the names given to us by McNair Scholars’ Program students to compile a list of 104 faculty mentors. This list comprised of five years’ worth of cohort participants. We emailed all of the faculty mentors three times requesting their responses to the survey. As an incentive for completing the survey, we offered each participant a chance to have their names entered into a drawing for a dinner for two at a local restaurant. We received three automatic replies stating that these individuals no longer worked for Cornell University. Ultimately, we received feedback from 29 faculty mentors, yielding a 28% response rate. Out of the 29 responses, 2 did not respond to any of the written questions. Therefore data for the analysis will primarily focus on the 27 respondents who did write in answers for the written questions.

Sample

Participants in this study are drawn from the faculty mentors of McNair scholars who were accepted into the McNair scholars Program at Cornell University.

TABLE 1.1 | Survey Respondents and Characteristics

Pseudonym1	Self-Identified Sex	Underrepresented Minority2	Eligible First Generation	Eligible Low Income	Teaching Expertise3
Subject 1	Female	“B”	Y	Y	STEM
Subject 2	Male	Majority	N	N	STEM
Subject 3	Female	Majority	N	N	STEM
Subject 4	Male	Majority	N	N	STEM
Subject 5	Female	Majority	N	Y	Non-STEM
Subject 6	Female	Majority	Y	Y	STEM
Subject 7	Male	Majority	N	N	STEM
Subject 8	Male	Minority	Y	Y	STEM
Subject 9	Male	Majority	N	N	STEM
Subject 10	Female	Minority	N	N	STEM
Subject 11	Female	Majority	N	Y	Non-STEM
Subject 12	Female	Minority	N	Y	Non-STEM
Subject 13	Female	Majority	N	Y	STEM
Subject 14	Male	Minority	Y	Y	STEM
Subject 15	Male	Majority	N	Y	STEM
Subject 16	Female	Minority	Y	Y	Non-STEM
Subject 17	Male	Majority	N	N	STEM
Subject 18	Male	Majority	Y	Y	STEM
Subject 19	Male	Majority	N	Y	STEM
Subject 20	Male	Majority	Y	Y	Non-STEM
Subject 21	Male	Majority	N	N	STEM
Subject 22	Gender	Majority	Y	Y	STEM
Subject 23	Male	Majority	N	N	STEM
Subject 24	Female	Minority	Y	Y	Non-STEM
Subject 25	Male	Majority	N	N	Non-STEM
Subject 26	Female	Majority	Y	Y	Non-STEM
Subject 27	Female	Majority	N	Y	STEM
Subject 28	Female	Majority	N	N	STEM
Subject 29	Female	Minority	N	Y	STEM

¹ Pseudonyms were created through a free online name generator

² **The Code of Federal Regulations** §647.7 defines underrepresented minority as Black, Hispanic, American Indian, Alaskan Native, Native Hawaiians, and Native American Pacific Islanders

³ Teaching Expertise is defined as any instruction in the science, technology, engineering, or math fields (STEM) OR instruction that occurs outside of these four fields of study (non-STEM).

identified as “B” (shorthand for Black), 3 of the individuals fall under the category of Asian. 10 of these individuals also identified as first generation while 19 were not first generation.

As shown in Table 1.1, a total of 29 McNair faculty mentors took part in this investigation. These faculty mentors represent mentors across cohorts from 2012-2017. This sample is not demographically representative of the McNair Scholars Program cohorts but does closely align with national demographics of faculty in higher education according to race, gender, and first-generation status⁴. Participants included an even number of self-identified “Male” and “Female” along with one person who indicated “gender” as a response. Of these 29 individuals the majority of them, 62% or 18 total identified as “White” or “Caucasian.” Of the total participants 27.5% or 8 total are considered to be underrepresented minorities. Only 34% or 10 of the 29 participants identified as first-generation⁵. Demographic information for these 29 individuals include their pseudonym, gender identification, underrepresented minority, first generation eligible, eligible low income, and teaching field as defined by STEM or non-STEM.

Table 1:1 will provide the demographics of our faculty mentor participants. We created pseudonyms for each participant to ensure confidentiality.

Data Analysis

Two researchers carried out the coding and analysis of qualitative data collected from 29 survey respondents by using Qualtrics research software.

This research is an extension of a previous study (Waller and Wolfe, 2017) that evaluates the connection between self-efficacy and the undergraduate experience. The researchers identified three categories (academic, research, and social) self-efficacy derived from Williams’ (2004) study of McNair Scholars. We found it both helpful and imperative to use the same definitions in all our research studies pertaining to self-efficacy in order to produce valid findings when drawing upon connections between multiple data sets. Consistency in definitions assures us in part that our associations bear validity. The same categories from this study are used within this current research in order to ascertain the connection between self-efficacy and faculty mentoring strategies. The decision to use coding measures was derived from the prior qualitative evaluations of the MSP which drew inspiration from Ford’s (2011) coded categories “by highlighting sections of interview data and writing a word that represented a particular category in the margins” (p. 90).

The decision to map the categories from the previous study occurred within three phases. During the first phase, we coded the qualitative data, identifying

⁴ Overall trends suggest that White men represent a majority of faculty in higher education constituting 43% of all full-time faculty with white women leading closely behind at 35% (NCES 2013).

⁵ In this survey, the demographics are as follows: 14 self-identified males, 14 self-identified females, 1 unidentified person who marked “gender”. 18 individuals identified as white/Caucasian, 8 individuals were identified within the category of underrepresented minority (Black, Hispanic, or Native American), including the individual who

major themes that emerged in the responses. Using a parallel coding approach, a second researcher coded the responses. After we coded individually with knowledge of the others coding categories we met to evaluate the initial round of coding, which resulted in several modifications to subsequent coding iterations.

During phase two, after seeing strikingly similar themes emerge we decided to place the themes within the three aforementioned categories of faculty self-perception: academic self-efficacy, research self-efficacy, and social self-efficacy. Mapping the themes of the current study within themes of the previous study allowed us to take a comparative approach to our data analysis while also noting the significant differences that occurred between McNair scholar and faculty understandings of self-efficacy.

The third phase required going back to the raw data obtained from McNair scholars from a previous survey done for the aforementioned study. This review of the data was used to note if the mentee and faculty responses did in fact correlate similarly in order to merit using the same categories and themes. Comparing these two data sets showed that many themes were in fact the same and that the differences that were present were a product of respondents' self-efficacy strategies and not a product of different questions.

Although the survey questions are based upon our review of the previous study (Waller and Wolfe, 2017), research and literature, including case studies and evaluations of programs pertaining to diversity and inclusion in higher education, we adopted a grounded-theory approach in our analysis of survey responses when we created sub-categories to capture supportive and important support (Glaser & Strauss, 1967). Grounded Theory is commonly defined as a "systematic qualitative research methodology in the social sciences emphasizing generation of theory from data" (Martin & Turner, 1986). Using grounded theory enabled us to achieve results deriving from the data themselves by identifying themes and drawing connections as they emerged. Although we were attempting to make connections of the data to set definitions pertaining to self-efficacy, we were unsure of the complex and multifaceted ways the perceptions of faculty mentors and students would relate to this topic. In essence, grounded theory helped us refine the interrelationships of our categories.

The review of participant responses involved several carefully designed steps. First, as recommended by the grounded theory approach, we both made individual notes for each survey response, which led to the development of emerging themes that corresponded to programmatic components supporting the success goals of the MSP. Second, we departed from the grounded-theory approach by first identifying theory-based themes pertaining to academic self-efficacy, research self-efficacy, and social self-efficacy. Finally, we returned to a grounded-theory approach by identifying sub categories from the dataset based on the types of support participants had received. Our sub-categories were completely derived from our unique data set. These niches but yet more associative categories built new constructs while simultaneously identifying

similarities and patterns within existing frameworks of academic, research, and social self-efficacy. These novel categories can be used to help theorize future research exploring self-efficacy, faculty mentoring, and beyond.

Although these theory-based and predetermined codes were used, the analytical subcategories were derived completely from data and not from predetermined hypotheses (Glaser & Strauss, 1967). The aim of this additional data categorization enabled us to use grounded-theory to (1) more narrowly identify success components of the program, (2) validate our interpretations of the data through clustering themes, and (3) expand our interpretations by providing additional categorical coding descriptions and investigating self-efficacy from varying perspectives. For example, when faculty participants discussed the social impact of the MSP, they often discussed socializing with their McNair mentees. We later nested this description of data under “Developing Interpersonal Relationships.” Stake (1995) indicated direct interpretation, establishing patterns, and developing naturalistic generalizations as perspectives on interpreting qualitative data. For increased accuracy, we identified categories using actual verbiage from participants. Initially, we identified over 53 sub-categories through the first round of coding. In order to bridge more connections among patterns identified through analysis, we organized the data into more inclusive brackets of 3 sub-categories under each definition of self-efficacy. In summary, the three areas of self-efficacy were linked to a number of recurring themes, as follows:

Academic self-efficacy:

1. Faculty advice for navigating ambiguities in academics
2. Opportunities for developing critical thinking and analysis skills

Research self-efficacy:

1. Research-orientated guidance from faculty mentors
2. Exposure to research opportunities
3. Opportunities to communicate research

Social self-efficacy:

1. Holistic care from faculty mentor
2. Developing Interpersonal Relationships

In addition, by using a thematic approach to our analysis of participant responses, we grouped categories based on causal relationships and overall connections. Boyatzis (1998) asserted that this type of thematic analysis is flexible and “may be a list of themes, a complex model with themes, indicators, and qualifications that are causally related; or something in between these two forms” (p. 4).

For example, with the question “How often and how did you intentionally focus on academic and/or social concerns with your McNair mentee?”, the notion

TABLE 1.2 | Themes and Definitions

Theme	Theme Defined
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Academic self-efficacy

<p>Advice on navigating ambiguities in academics by a faculty mentor</p>	<p>This classification refers to advice faculty give their McNair mentees on navigating uncertain circumstances with academics.</p> <p>Learning the “tricks of the trade” are vital to enhancing the self-confidence of scholars and being successful in academic pursuits.</p>
<p>Opportunities for developing critical thinking and analysis skills</p>	<p>This classification refers to faculty presenting scholars with opportunities for critical thinking and analysis skill-building to assist in achieving at a more elevated level in an academic subject, which in turn develops academic attentiveness and focus. Becoming aware of skill-building leads to greater self-confidence (Posselt & Black, 2012).</p>

Research self-efficacy

<p>Research-orientated guidance by a faculty mentor</p>	<p>This classification refers to mentors assisting scholars in gaining confidence and skills in conducting and navigating research-related tasks from specific research advice.</p>
<p>Exposure to research opportunities</p>	<p>This classification refers to faculty’s role in helping students feel motivated to conduct research from opportunities where scholars are presented, encouraged and occasionally required to conduct research.</p>
<p>Opportunities to communicate research</p>	<p>This classification refers to faculty members assistance in skill-building for scholars through opportunities to communicate research. In this process, scholars “gain skills and experiences leading to new forms of external recognition, which, combined, lead to changes in how they see themselves” (Posselt & Black, 2012, p. 36).</p>

Social self-efficacy

<p>Holistic care by a faculty mentor</p>	<p>This classification refers to the consideration of needs that faculty members provide scholars beyond research, academic and professional endeavors. Taking social and mental needs into account develops competency in these areas, which enable scholars to be healthier and successful students.</p>
<p>Developing Interpersonal Relationships</p>	<p>This classification refers the personal relationships that faculty mentors built with their McNair mentee. Mentors emphasized the importance of a personal relationship with their mentees as a significant part of their mentorship strategies. These relationships occur mostly within the context of academic settings.</p>

of building social skills in a structured way, was found repeated in questions specifically asking about social relationships thus the category of “Developing Interpersonal Relationships” was created. A more detailed account of the themes and accompanying definitions according to the three types of self-efficacies are listed in Table 1.2.

Based on survey respondents the self-efficacy categories and subcategories remain the same in all but one subcategory under social self-efficacy. In the previous study this category was named “support system within the program.” In it, McNair scholars emphasized the importance of the “cohort effect” (Posselt & Black, 2012) in which they emphasized the significance of collective interaction with scholars from similar backgrounds. Since faculty mentors are not required to attend all the events McNair scholars attend, an emphasis on collective interaction with others in the program is less significant in their responses. Instead, faculty mentors note the individual interaction and relationship they have with their McNair mentee(s). This category was changed to, “Developing Interpersonal Relationships” to reflect mentors use of personal relationships as a strategy of self-efficacy.

Academic self-efficacy:

Mentors provided significant support in affording opportunities for McNair scholars such as advice on navigating the academy, opportunities for critical thinking and analysis, and motivation to explore more courses. These findings correspond McNair scholars understanding of the role their mentors play in their academic careers (Waller and Wolfe, 2017). A faculty mentor from a majority and non-stem background, described the advice that they gave their mentee:

We talked about everything, from specific research questions to how to put together a personal statement to why I chose this career to what it’s like being a woman in academia

This faculty mentor’s advice was not only specific to academics only but also to navigating the ambiguities of academia in this particular case dealing with the ambiguities of being a woman in higher education.

Overall, mentor responses show an emphasis on assisting McNair mentees in their research. A faculty mentor from a majority ethnic background, had faculty mentors who were, “very influential, cultivating enthusiasm for research and setting standards of intellectual excellence.” This distinction is primarily due to many of mentors’ belief that the McNair mentees are academically well off on their own and only intervene when necessary such as overload of coursework and writing issues. This faculty mentor carried this experience of mentoring with his current mentee stating, “The student I worked with was so incredibly talented that I am not sure they needed any intentional development on my part.”

Mentors who did provide academic mentorship focused less on undergraduate education and more on tracking McNair mentees towards higher education. A female minority faculty mentor in the STEM fields, emphasized that her mentor her helped to “think, speak, and network in ways that are specific to STEM and academia.” This faculty mentoring style was defined by her desire to “pay it forward” and thus used similar tactics towards her mentee. While mentors rarely intervened in their mentees current academics they did provide significant support for their future academic endeavors: such as getting an advanced degree, reading, experimenting with different fields, choosing their career, and applying to grad school.

Research self-efficacy:

Many mentors identified that they provided substantial support in providing research opportunities such as conferences, or hands on research experience through their own research or other institutional research programs (REU, CURBS etc.) With this, one mentee was able to co-author a research paper while others were able to get hands on experience with working in lab setting, managing research in a team setting, and working with postdocs, graduate students, and faculty.

Faculty mentors focused mostly on developing critical thinking, management skills necessary to succeed in academia (emails, time, mental health), direct involvement in research, dealing with research failure, problem solving, developing research questions.

While faculty related their desire to “pay it forward” and helped students by providing research and academic guidance most also recognized the importance of independence and autonomy in this field. A faculty mentor, who was a first-generation student, states, “learning to troubleshoot and figure out stuff on my own, when my mentor was absent, was also critical to the development of my research potential.” Mentors lauded students who were “independent” “self-motivated” and “able to network” for research and conference opportunities. This faculty mentor intentionally developed their mentees “independence and self-reliance.” Arguing that “there’s a point at which a student learns to figure out things for themselves”

Social self-efficacy:

McNair mentees place a significant value on attaining different kinds of social relationships with their faculty mentors and note the importance of these relationships in their overall success (Waller and Wolfe, 2017). Faculty mentors also identify the importance of socializing with their mentees. Two themes emerge from the data: academic socializing and personal relationships.

According to many faculty, interpersonal relationships between their mentee(s), often occurred in structured academic settings such labs or scheduled meetings. While faculty showed a high degree of investment in their McNair mentees’ academic and research enhancement, social enhancement was less val-

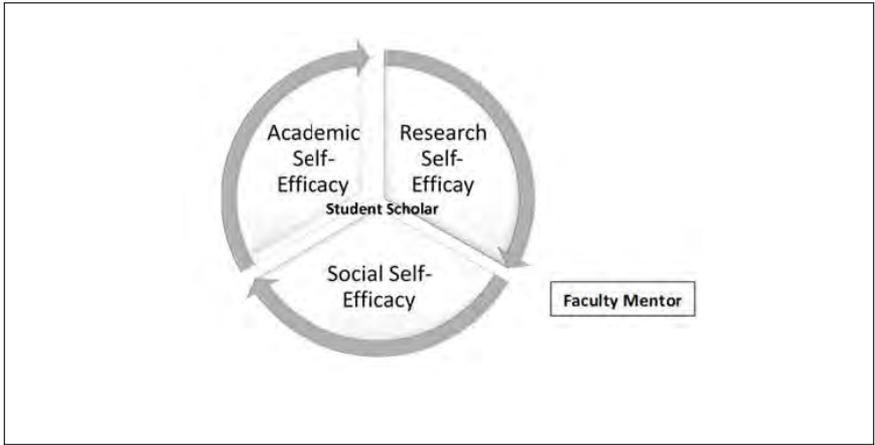
ued. When asked if they intentionally focused building academic and/or social skills a minority faculty mentor who was a first-generation student responded, “not often unless requested” and they discussed “social concerns only very rarely.” A faculty mentor from a majority background expressed, “I did not do this anymore than I typically do for students who participate in my lab...” while a faculty mentor who was a first-generation student stated, “I am careful to separate work and home, though, for my own sanity so kept this minimal.” Others identified social interaction but mostly on campus or in lab settings. With faculty juggling various positions and life realities, scholar’s social needs were less prioritized than other professional skills.

The faculty who did show an investment in their mentees personal life and building social relationships mentioned they did so only when necessary or when they had a closer social relationship. After building a relationship with his mentor, Merrick, a faculty mentor from a majority background in the STEM fields who was not a first-generation student stated, “only after we had worked together for some time did I ask about their experiences of being a first-generation student...”. This data diverges from McNair scholars’ perspectives in the sense that while they did not expect a social relationship with their faculty mentor, having a personal relationship enriched their experience particularly in regard to emotional support.

When asked about their relationship with their McNair faculty mentor, a first-generation woman of color McNair scholar, stated, “I am always uplifted by visiting with [my] professor, because it is so obvious to me that she cares not only about my academic/research progress, but about my mental, emotional, and physical well-being as well.”⁶ Both faculty mentor’s and mentee’s experience as first-generation college students allowed them to bond beyond their research and academic interest. This enriched the mentee’s experience with her faculty mentor. Another McNair scholar, explained how his faculty mentor went above and beyond the mentor position explaining, “My faculty mentor has supported me financially and emotionally. When I lost my cousin, my faculty mentor invited me over his house. He treats me fair as a student, but he also treats me as an individual that matters and have purpose.” The mentee points to his relationship with his faculty mentor within the light of both academics and personal life. While not all mentors are required or needed to fulfill such a role, both mentee’s emphasis on their faculty mentor going above and beyond academics shows how these relationships enrich the mentoring experience for faculty and students.

As shown in Figure 1, we consider the three important self-efficacy constructs for understanding the relationship between the student scholar and faculty mentor. It is vital to understand that there is a process to mentoring and it evolves during the relationship. This figure implies commitment from the mentor and commitment from the student scholar.

FIGURE 1



Conclusion:

In our study, we have examined how faculty view the self-efficacy of their McNair mentees. The McNair Scholars Program offers universities a faculty mentor model to prepare non-traditional students for graduate school. This study illuminated the value of McNair Faculty mentor’s belief about their mentee’s academic self-efficacy, research self-efficacy, and social self-efficacy.

The compelling and often touching quotes shared by faculty point to three tenets of faculty mentorship: academic, research, and social. These findings align with a previous study in which McNair scholars shared their viewpoints on self-efficacy. The data demonstrated some commonalities with faculty mentors and scholars based on being from non-traditional backgrounds (first-generation, low income, and underrepresented). These commonalities can be an intentional conversation with students to discuss personal and professional experiences, skills, and knowledge about preparing for graduate school. Taken as a whole, faculty experiences underscore how different forms of self-efficacy are perceived in the higher educational system in order to ensure success of scholar’s academic, research and social self-efficacy in the McNair Scholars Program (MSP). Below, we examine the findings of this study in relation to the self-efficacy framework.

The research demonstrated that scholars are exposed heavily to academic and research self-efficacy. While academic and social self-efficacy remain strong tenets of many mentor’s viewpoints, we believe that McNair faculty can best assist students by providing social self-efficacy strategies related to building relationships and social networks. Since, scholars are exposed to extensive amount of knowledge and research information from a variety of sources, it could be beneficial for the scholars to enhance their social networking skills. For example, MSP administrators can assist faculty mentors in identify grad-

uate McNair scholars to meet and strategize ways to socialize with current scholars.

In addition, we recommend that programs create more faculty centered events. While McNair scholars report a sense of belonging known as the “cohort effect” (Posselt & Black, 2012) faculty often are left out of this community. This need and desire for faculty centered events was demonstrated in this study’s participants in questions around social efficacy. Many McNair mentors lauded the efforts of the McNair faculty mentor training held at Cornell University in the Fall of 2016. Faculty found this event to be helpful in gaining “some needed perspective on student needs” and reported that the event created a sense of “camaraderie” and a sense of “sharing challenges.” We believe that more faculty centered events will allow faculty to feel a “Faculty cohort effect” which will facilitate their mentorship, feeling of belonging to a McNair family, and socialization with their mentees.

Faculty mentors should be encouraged to introduce their mentees to other professionals and others who can assist the students in reaching their graduate school goals. Posselt and Black (2012) indicated that relationships with faculty mentors are beneficial. Faculty mentors that invest in these relationships assist the scholars in gaining access to “resources such as expertise, contacts with academics in graduate programs, letters of recommendation, sponsorship, and role modelling.” Administrators of MSP can assist faculty mentors with identifying social self-efficacy resources and tools to connect and encourage better social connections with scholars.

Faculty mentors are great role models for scholars to learn about academic, research and social self-efficacy. Kaufman and Feldman (2004) write, “When one is surrounded by significant others who share one’s professional aspirations, it becomes much easier to hold firmly on to those aspirations to identify oneself accordingly” (p. 480). Because faculty mentors hold such a significant role, in addition to focusing on academic and self-efficacy we suggest mentors focus on these aspects of social efficacy in order to address structural barriers that may impede the progress of scholars based on their racial and gender identities.

Additional research is also needed to explore the levels of self-efficacy of all McNair faculty mentors mentoring scholars during the program. This type of research can help to determine if there is an effect on self-efficacy throughout the McNair program. Another suggestion for a future study would be to examine levels of self-efficacy between McNair program participant’s faculty mentors and non-program participant student’s faculty mentors. Such a study might more clearly delineate the faculty mentors perception of their mentees self-efficacy. The present study employed quantitative techniques. Other researchers may want to engage in qualitative methods to further explore how the McNair program enhances academic, research and social self-efficacy. Such data might provide richer information about which components of the program help to increase self-efficacy among participants.

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Appendix A

Faculty Mentor Survey

Were you a first-generation student?

Were you, or would you have been, considered to be eligible to receive Federal Pell Grant for college tuition assistance?

Are you in the STEM fields?

Gender

Ethnicity

Did you have a mentor for research during your undergraduate education?

Did your faculty mentor influence you to become a mentor? Professor? If so, how?

How did you benefit from having a mentor?

How did you benefit from not having a mentor?

How long have you been at Cornell University?

How long have you been mentoring students to take part in undergraduate research?

How effective do you feel as a McNair mentor?

Did you participate on the McNair Faculty Mentor Training? What did you gain or not gain from the session?

What type of advice did you give to your McNair mentee about their career aspirations? Please elaborate?

What aspects of your McNair mentees intellect (i.e. subject matter, problem solving, critical thinking, practical application, challenges, and support, etc.) did you intentionally focus on developing?

Did you meet with your McNair mentee on a regular basis? Do you believe it is helpful to meet with the student on a regular basis as opposed to irregularly or on-demand? Why or why not?

How often and how did you intentionally focus on academic skill building with your McNair mentee? (e.g. test taking strategies, time management, study/ learning skills, etc.)

How often and how did you intentionally focus on academic and/or social concerns with your McNair mentee?

Did you inform your McNair mentee about networking opportunities, research opportunities, and/or information regarding research symposiums and conferences they could participate in (either as an attendee, presenter, or publisher)? If so, did you prepare your McNair mentee with research-oriented and/or logistical guidance (funding, travel, etc.)? Please elaborate.

Did your McNair mentee work with you on a faculty-based research project? What was your level of involvement with the research project? What do you believe was the most important/significant aspect of the experience for your McNair mentee? Please elaborate.

How did you connect with your McNair mentee on a social level? Do you believe your McNair mentee valued the ability to socially connect with you? Please elaborate.

What are the benefits of having a faculty mentor for the McNair Scholars Program? Please elaborate.

Why does faculty mentorship matter for the McNair Scholars Program? Please elaborate.

Were there any problems or challenges during the McNair Scholars Program (e.g. management, guidelines and expectations)? Please elaborate.

How have you been supportive as a faculty mentor during the McNair Scholars Program? Please elaborate.

Is there anything else I should be asking you as a faculty mentor for the McNair Scholars Program? Please elaborate.