Undergraduate Summer Research Program in the Midst of a Pandemic

Insights From the Morehouse College Ronald E. McNair Post-Baccalaureate Achievement Program Virtual Summer Research Program

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Although many summer undergraduate research programs made the decision to delay, cancel, or suspend their summer experiences in response to the coronavirus (COVID-19) pandemic, the Morehouse College McNair Scholars Program instead offered a completely virtual summer research experience to 14 Scholars with faculty-led remote research. The program included online curriculum; GRE preparation; and the development of social capital and community between peer and stakeholders in a series of activities with professionals, McNair alumni, and graduate school virtual workshops. It concluded with a virtual research symposium. Evaluations from surveys showed positive results from Scholars and mentors. Student participants indicated gains in confidence on core research skills, knowledge of and interest in graduate school, and research careers. As we navigate through and beyond this pandemic, it is important to recognize and address opportunities and strategies for, and challenges of, conducting research programs remotely, especially for programs geared toward students from groups that are underrepresented in STEM.

In March 2020, as it became clear that COVID-19 was spreading in the United States, the suspension of academic activities and the subsequent phased reopening of campuses with classes online represented an unprecedented disruption to higher education. Although colleges and universities gave professors guidance on what to do with their classes during COVID-19, the directives for research, and especially summer research programs, were much less clear, leaving faculty members, students, and some staff members scrambling to adapt.

As the summer typically affords an uninterrupted block of time, many institutions and organizations have developed summer research programs that give students the opportunity to have an immersive research experience that might not be possible during the school year. For many college students, internships and summer research experiences can be a stepping stone to full-time work, a vital source of income, and even a graduation requirement. Studies have shown that summer research programs can dramatically affect students' commitment to research careers, self-reported knowledge of research skills, time engaged in research activity, and understanding of and attitudes toward pursuing graduate study (Aikens et al., 2016, 2017; Chiappinelli et al., 2016; Chou et al., 2019; Slattery et al., 2016). Additionally, summer research programs can enhance their own interactions with specific underserved populations by addressing the ethnic, racial, and gender gaps in science career opportunities using specific programmatic components to better accommodate students of varying academic and cultural backgrounds (Chou et al., 2019; Contreras, 2011; Estrada et al., 2016; Ghee et al., 2016).

In the midst of the COVID-19 pandemic, it was safe to say that at least some institutions and organizations might not have prioritized undergraduate research given the "more pressing" challenges they needed to address. This article presents findings from an evaluation of the Morehouse College Ronald E. McNair Post-Baccalaureate Achievement Scholars (McNair Scholars) Program's Summer Research Program (SRP) that was facilitated virtually in summer 2020. The McNair Scholars Program is a federal TRiO program funded at 152 institutions across the United States and Puerto Rico by the U.S. Department of Education. It is designed to prepare low-income and first-generation college students and students from historically underrepresented minority (URM) groups, referred to as McNair Scholars in the program, for doctoral studies through involvement in research and other scholarly activities.

First-generation college students (FGCSs) tend to have unique characteristics and challenges that set them apart from their non–first-generation peers. FGCSs may lack college readi-

ness, familial support, and financial stability, among other obstacles (Engle & Tinto, 2008; Stephens et al., 2014). Racial underrepresentation, low academic self-esteem, and difficulty adjusting to college can all be barriers contributing to a lower rate of college completion for FGCSs than for students who have at least one parent with a 4-year degree (Stephens et al., 2014). Strategies to improve retention of FGCSs are likely to be successful for the general student population; however, strategies that are designed for the general campus population without taking into account the special circumstances and characteristics of FGCSs will not often be successful for the latter (Engle & Tinto, 2008; Stephens et al., 2014; Thayer, 2000). A few studies have noted the positive impact of the McNair Scholars Program in addressing and offsetting these barriers. McNair Scholars are far more likely to be retained and successful in terms of timely graduation, placement in graduate school, and completion of graduate study (Gittens, 2014; Lam et al., 2003; Renbarger, 2020; Renbarger & Beaujean, 2020). However, given the fact that FGCSs are among the least likely to be retained through degree completion, when coupled with COVID-19, there may be particular issues and challenges, even for the McNair Scholars Program, that could ultimately impede the retention of Scholars as well as their success. The objective of this study of the Morehouse College McNair Scholars Program was to assess the effectiveness of facilitating the McNair SRP completely online in response to the COVID-19 pandemic.

Background and residential summer McNair Program structure

Morehouse College is a private, historically Black men's liberal arts college in Atlanta, Georgia. The Morehouse College McNair Scholars Program, established in 1992, accommodates at least 30 students each year. Students typically enter the program during their junior year in college. Participants in the SRP must have completed their sophomore year in college. McNair Scholars in the SRP spend June and July residing on campus at Morehouse and conducting in-depth research projects under the guidance of a faculty mentor in their major field or the field in which they express an interest. The Scholars participate in scientific writing and communications skills courses where they learn how to prepare a research proposal, scholarly abstract, and research report. In addition, the Scholars learn how to design and present their research projects.

Scholars also prepare for the general Graduate Record Examination (GRE) and for all stages of a graduate school application. The Scholars visit graduate programs and have an opportunity to present their research at local and national McNair and other professional research conferences. In the final week of the SRP, Scholars present the results of their research projects at a McNair conference. Each participant in the SRP receives a stipend, room and board on campus, and travel expenses.

Virtual summer McNair Scholars Program

Converting the residential summer experience to a virtual format presented unique challenges and opportunities. On Monday, March 23, 2020, Morehouse College implemented its decision to put in place remote working arrangements for all staff, students, and faculty in response to the COVID-19 pandemic. Morehouse, like most colleges and universities, transitioned rapidly to remote versions of teaching and learning, student support, and other institutional services. Out of an abundance of caution and concern for the community, Morehouse administrators decided to continue online learning through the summer and fall 2020 semesters.

Through exposure to research as undergraduates, many students discover their passion for research and continue on to graduate studies and eventual research careers. Several studies have also suggested that undergraduate research helps promote career pathways for URM students by increasing the retention rate of minority undergraduates and the rate of graduate education in URM students (Hathaway et al., 2002; Lopatto, 2008; Nagda et al., 1998). In response to the COVID-19 pandemic, however, many research programs and faculty made the decision to delay, cancel, or suspend their research programs. This widespread disruption of organizations and companies upended many standing internship and practicum agreements. The results of these decisions were that many students found themselves without any potential research opportunities. In deciding to transition the residential McNair SRP to a completely virtual SRP, we hoped to demonstrate an ability to conduct remote research programming and provide students, especially URM students, with the continuity and grounding needed as they develop their science identity.

Participant selection and COVID-19 safety concerns

Fourteen McNair Scholars and 14 mentors participated in the 8-week virtual SRP (Table 1). To maintain confidentiality of Scholars and mentors, Table 1 presents demographics of mentors and Scholars in aggregate. As the majority of our Scholars and mentors self-identify as Black/African American, we intentionally provided information and links to COVID-19 safety measures and precautions obtained from the Centers for Disease Control and Prevention (https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html). Although families of all racial and

TABLE 1

Summer 2020 Morehouse College McNair Scholars and mentors demographics.

McNair Scholar demographics				McNair Mentor demographics			
Race/ Ethnicity	**Sex**	**Major**	**Classification**	**Race/ Ethnicity**	**Sex**	**Major**	**Classification**
Black/ African American (14)	Male (14) Female (0)	Applied physics (2) Biology (4) Chemistry (1) Computer science (1) Computer science and other (2)* Psychology (4)	Sophomore (2) Junior (9) Senior (3)	Black/ African American (10) White (3) Other (1)	Male (5) Female (9)	Clark Atlanta university (2) Emory University (4) Morehouse College (8)	Biology (5) Biomedical engineering (1) Chemistry (3) Immunology/ Medicine (2) Psychology (3)

Note. "Computer science and other" includes Mathematics and/or Dual Degree Engineering

ethnic groups are adversely affected by COVID-19, data on COVID-19 transmission rates show an irrefutable and disturbing pattern: Black Americans were contracting and dying from COVID-19 at rates that far exceeded those of other racial and ethnic groups. In the United States, people in communities of color were at disproportionate risk for infection, hospitalization, and death from COVID-19 (Ledur, 2020; Price-Haywood et al., 2020; Yancy, 2020).

As part of our communication strategy, we also implemented virtual office hours, and we were responsive to most emails within 48 hours; we also periodically checked in with Scholars through wellness checks. Scholars and researchers all worked from home, and to minimize some of the uncertainties associated with COVID-19, we (McNair staff) developed a routine and a schedule (Figure 1) to provide stability and structure, making sure to include activities that were a staple in the residential SRP; we also included reflective writing and relaxation in the virtual SRP to allow Scholars time to decompress from the week's activities.

We were committed to providing Scholars with an online experience that was fully accessible. To ensure broad accessibility and equity in the learning process, the college provided Wi-Fi hotspots to students who requested them, and the McNair Scholars Program gave all Scholars fully equipped Apple iPad tablets, which were mailed to Scholars in accordance with COVID-19 safety precautions. The iPad Pro model was chosen because its overall functionality comes closest to a laptop experience while including built-in cellular internet. The McNair Program did not provide any technology resources to mentors; however, the college did provide resources to faculty and staff who requested them.

Zoom, the videoconferencing app, has become one of the leading platforms for connecting with others face-to-face virtually in education and in personal settings and was the platform we primarily used in our virtual SRP. Blackboard is the official learning management system for Morehouse College, and Blackboard Collaborate Ultra was selected as the videoconferencing tool for the SRP courses because the product was already inte-

FIGURE 1

Morehouse McNair Scholars Virtual Summer Research Program daily schedule.

All Times EST	Monday	Tuesday	Wednesday	Thursday	Friday
9AM – 10AM	• All participants (including McNair personnel) perform technology check to ensure connectivity of internet and devices; • Weekly Program Announcements posted on Monday to McNair Program Blackboard; • McNair Personnel Virtual Office Hours (appointments may be scheduled to meet with McNair Personnel outside of virtual office hours)				
10AM – 11AM 11AM – 12PM	HBIO 381 – Research Methods Course	Scientific Communication Course	HBIO 381 – Research Methods Course	Scientific Communication Course	Virtual Office Hours – by appointment
12PM – 1PM	Lunch (on your own)				T.G.I. F. - Enrichment Activities
1PM – 2PM 2PM – 3PM 3PM – 4PM 4PM – 5PM	Remote Research with Mentor	Remote Research with Mentor	Remote Research with Mentor	Remote Research with Mentor	Remote Research with Mentor
5PM – 6PM 6PM – 7PM	Brother to Brother Peer Led Remote Tutoring Session	McNair Virtual Meeting with Personnel - by appointment only	Brother to Brother Peer Led Remote Tutoring Session	GRE Prep – Online Course 3 hour once a week	Reflective Writing McNair Mindfulness (relaxation to weekend)
7PM – 8PM		Dinner (on your own)			

grated at the school. Faculty members were trained in how to use this tool in the transition to remote instruction.

In addition to the structured class time and research, we provided space for student dialogue and building of social capital at the end of the week as part of our TGIF (Thank God It's Friday) seminar series. TGIF is traditionally a monthly seminar series featuring workshops and seminars hosted by the McNair Program. As part of our virtual SRP, we hosted TGIF Virtual weekly. On Fridays of the SRP, participants participated in (i) virtual graduate school workshops and tours, (ii) brother-to-brother alumni roundtable discussions, or (iii) academic and career webinars and workshops. Although each of these activities is described in the following sections, here is a brief explanation for why we use the word "brother" instead of "peer" or something similar: Peers are, by definition, approximately at the same developmental level, whereas brothers can be of different ages and going through different professional and developmental stages. Morehouse students join a supportive brotherhood. Morehouse brothers become and remain the Morehouse Man's most influential guides and closest friends. From Day 1, their brothers inspire them, challenge them, hold them accountable, and stand by them. The Morehouse brotherhood extends across generations, throughout the nation, and into every industry and area of life.

Virtual graduate school workshops

We collaborated with several graduate schools to host virtual graduate school workshops. The workshops included a basic overview of the schools' campuses and science, technology, engineering, and mathematics (STEM) graduate programs, faculty discussions, and student panels.

Brother-to-brother alumni roundtable discussions

Scholars had the opportunity to informally meet McNair Scholar alumni who are currently pursuing their PhDs or who have completed their doctoral studies. The alumni provided advice on graduate school and life. Interacting with alumni builds a sense of community and fosters a long-lasting relationship as part of the McNair legacy.

Academic career webinars and workshops

Academic advisers and career professionals were invited to provide information for Scholars on resources available to them from the college about remote learning, financial aid, and the development of realistic education and career plans.

Research symposium

The annual McNair Scholars Summer Undergraduate Research Symposium is a chance for Scholars to present knowledge they gained through their summer research experiences to a larger audience. The symposium also provides a forum for students, faculty, and the community to discuss cutting-edge research topics and examine the connection between research and graduate education. Traditionally, the symposium includes printed poster and oral presentations by Scholars from all STEM disciplines. The virtual SRP symposium was modified with select oral and digital interactive poster presentations (DIPP). Using Microsoft PowerPoint, Scholars created presentations and posters from scratch or using a template. Library staff facilitated virtual workshops on tips and techniques for creating DIPP, and Scholars also received presentation guidance as part of the scientific communication course. Digital posters allow for the addition of video, voice, and slideshows to provide a more interactive and enhanced experience that a paper poster may not include. Digital posters were archived so they could be available online to facilitate discussions or "communities of interest" around the Scholars' work. Exposing students to these innovative presentation methods allows for professional development and highlights examples of how the scientific community can reach a much larger audience, even during a pandemic.

Virtual program assessment

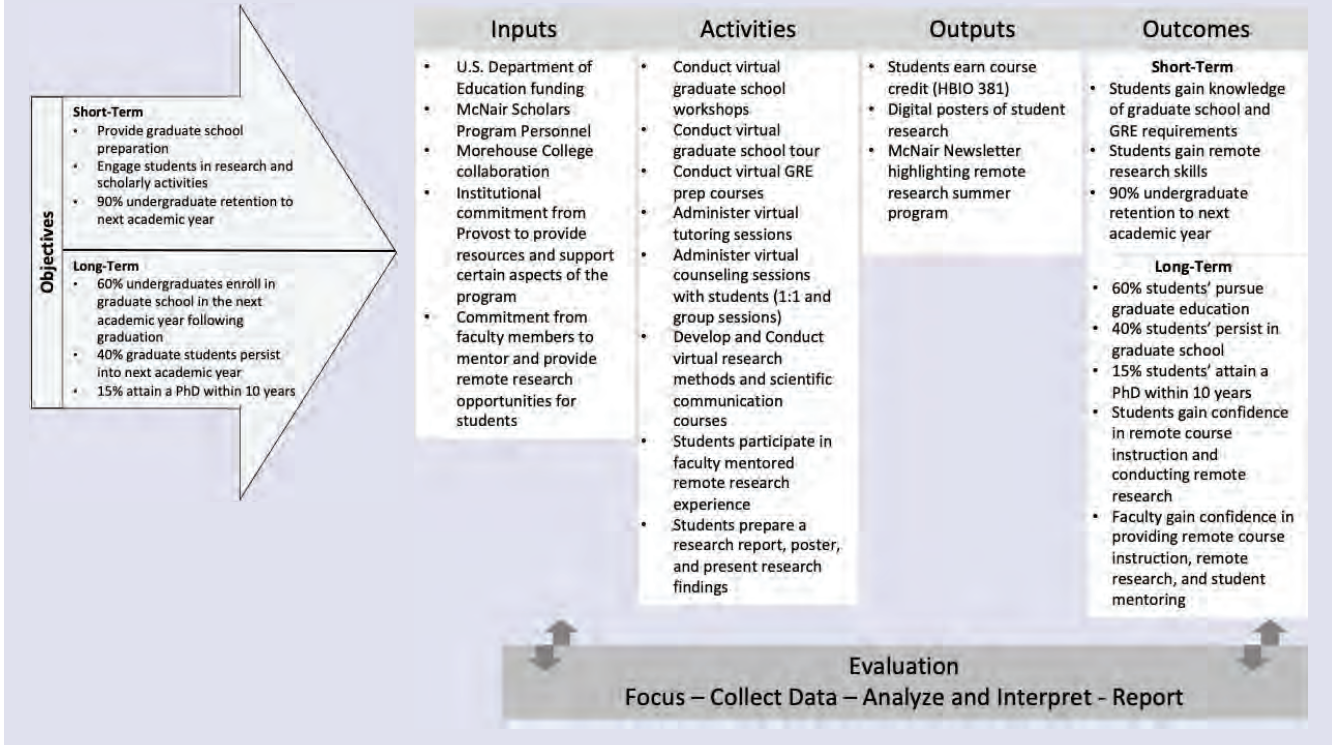
Building and using a logic model to examine the virtual SRP provided a structure for the program to examine the degree to which desired participant outcomes, program delivery methods, and measurement approaches were aligned. The logic model (Figure 2) ensured that evaluation was appropriate for the project objectives. Using the logic model as a guide, the McNair Program employed both formative and summative evaluations, with questions such as "To what degree were the outcomes realized?" and "How did the activities and outputs affect the achievement of outcomes, if at all?" Assessment measures included faculty mentor surveys, retrospective pre-post survey of Scholars, and exit interview data of graduates (not included as part of this article). Assessment indicators included Scholars' interest in STEM and graduate school, self-efficacy beliefs related to STEM and graduate school, knowledge of graduate school and GRE requirements, relevant remote research skills, and faculty self-efficacy beliefs related to remote instruction and mentoring.

Methodology

This assessment is a descriptive analysis of participant outcomes and not an impact study of the 8-week virtual SRP. No attempt is made to compare outcomes of McNair participation in the virtual SRP to any other program or condition.

FIGURE 2

Morehouse College McNair Scholars Virtual Summer Research Program logic model.



Instrument

At the midpoint and end of summer, Scholars and mentors who had been involved in the program completed a modified version of the Survey of Undergraduate Research Experiences (SURE; Lopatto, 2008). The SURE was developed by Professor David Lopatto of Grinnell College for undergraduates who have recently completed a summer undergraduate research experience. The researcher-created modified SURE was subjected to a two-step formative evaluation. First, to establish evidence of content validity, a content expert (the manager of the McNair Scholars Program) reviewed the initial survey. Next, an external evaluator from the Institute for Biomedical Philosophy evaluated the survey for clarity of wording, item formatting, and overall layout. Two final versions of the survey (one for Scholars and one for mentors) were developed and transferred into Qualtrics, an online survey tool for deployment.

Data collection and analysis

Following Institutional Review Board approval, an information letter and a link to the online survey were disseminated by McNair staff to all program participants using the Qualtrics mailer. Participation was anonymous and voluntary. Participants who clicked on the web link were directed to the Qualtrics survey, where they were required to consent online before completing the survey. To help increase response rates, reminder emails were sent 1 week after the initial mailing, and a final reminder message was sent to all participants after 1 additional week to those who had not finished the survey.

The midpoint evaluation for SRP was disseminated during Weeks 5 and 6. Given the late deployment of the midpoint survey, results from the midpoint and end-of-program surveys are not presented in separate sections. Response rates for the end-of-program evaluation (McNair Scholars 93% [13 out of 14]; mentors 86% [12 out of 14]) were also higher than the response rates for the midpoint survey (McNair Scholars 50% [7 out of 14]; mentors 79% [11 out of 14]). The descriptive statistical reports summarizing responses of participants were exported into Microsoft Excel.

Results

Scholars' interest in STEM and graduate school

A goal of the McNair Program is to provide participants with enriching scholastic experiences that will prepare them for graduate studies. Although this survey did not directly ask, "Are you committed to pursuing graduate studies?" this question is posed to undergraduates as part of the application process, and all participants answered in the affirmative.

For each of the topics listed in the following sections, Scholars were asked to indicate their commitment to science as an indicator of their interest

in STEM (Figure 3). The majority of Scholars (54.55% [6 out of 11]) reported that they intended to work in a job related to science (Figure 3). One Scholar indicated strong disagreement with the statement "I feel that I am on a definite career path in science." The majority of Scholars did not indicate strong responses to "I expect a career in science will be very satisfying," with the majority of respondents reporting that they somewhat agreed with this statement (63.64% [7 out of 11]; Figure 3).

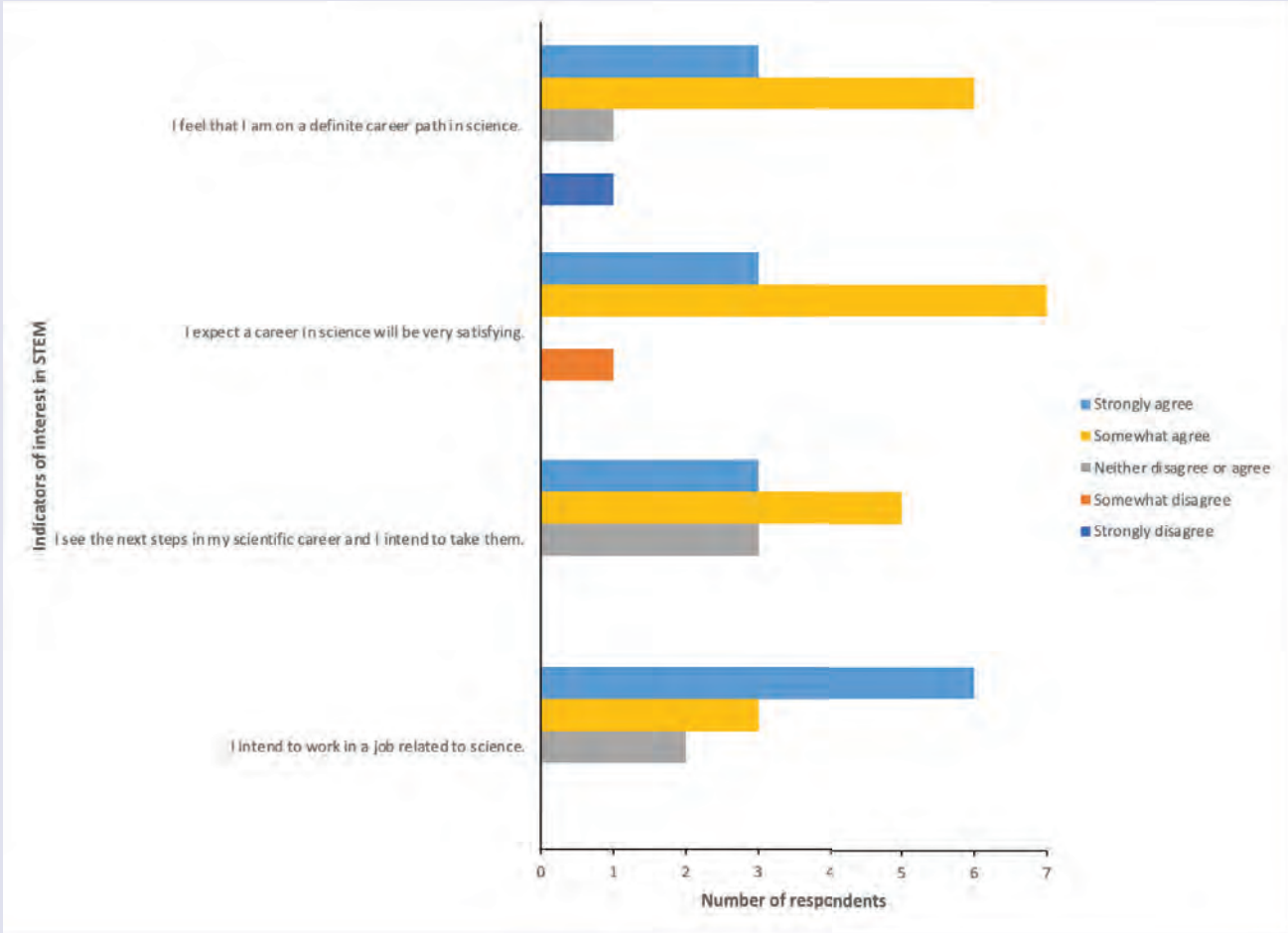
Scholars' self-efficacy beliefs related to STEM and graduate school

STEM self-efficacy predicts academic performance beyond one's ability or previous achievement because confident individuals are motivated to succeed (Rittmayer & Beier, 2008). Students with high science self-efficacy set more challenging goals and work harder to accomplish those goals than students with low science self-efficacy and, on average, individuals with high STEM self-efficacy perform better and persist longer in STEM disciplines relative to those lower in STEM self-efficacy (Rittmayer & Beier, 2008).

For each of the topics in this area, Scholars were asked to indicate their confidence level from very unsure (1) to very confident (5) as an indicator of their self-efficacy beliefs related to STEM and graduate school. The majority of Scholars indicated that they were somewhat confident or very confident in response to all statements, indicating high STEM self-efficacy. The strongest response of very confident was to the statement about the use of technical skills and creating explanations for the results of the study. Scholars were asked more directly to provide their level of agreement with statements regarding their identity as a scientist. The majority of Scholars agreed with the statement "In general, being a scientist is an important part of my self-image" (7 out of 11 selecting somewhat agree or strongly agree), with only four respondents indicating disagreement with this statement (three neither disagreed nor agreed, and one strongly disagreed). Additionally, seven out of 11 respondents also agreed with the statement "I have come to think of myself as a scientist," with again

FIGURE 3

Commitment to science.



only four respondents indicating disagreement with this statement (all choosing neither disagree nor agree). Interestingly, in the midpoint survey, one respondent indicated strong disagreement with this last statement. As responses were not codified, we do not know if this respondent did not complete the end-of-program evaluation or if the respondent came to think of himself as a scientist, like the majority of the respondents who agreed with this statement.

Scholars' knowledge of graduate school and GRE requirements

Successful completion of the online GRE prep course was one indicator used to determine Scholars' knowledge of graduate school and GRE requirements. Additionally, Scholars were asked to put together a list of five graduate schools they might be interested in attending and/or visiting, with departments and contact information for each. All Scholars completed this last activity, and McNair staff reviewed the listings with each individual Scholar. Scholars who completed the end-of-program evaluation were also directly asked to indicate their level of knowledge about graduate school and GRE requirements on a scale where 1 = none—have no knowledge of the content and 5 = high—consider myself very knowledgeable. All respondents indicated some level of knowledge about graduate school and GRE requirements, with "What does the GRE score mean?" having the lowest uncertainty (18% [2 out of 11 respondents]). The most certainty or knowledge was indicated by total selection (100% [11 out of 11]) of moderate (eight respondents) and high (three respondents) for both "Graduate school admissions process" and "Examples of graduate degrees." Coincidentally, more than half of the respondents indicated moderate knowledge of what the GRE score means (55% [6 out of 11 respondents]).

Remote research skills

Successful completion of the virtual SRP was one indicator of remote research skills that Scholars gained. Of the 14 Scholars in the program, only two Scholars were unable to complete the virtual program due to extenuating circumstances directly related to COVID-19. Scholars who completed the end-of-program evaluation were also directly asked to indicate their level of confidence in conducting research remotely (Table 2). The majority of respondents (64% [7 out of 11 respondents]) indicated that they were somewhat confident or very confident in conducting research remotely. Likewise, 64% (7 out of 11 respondents) indicated that they were somewhat confident or very confident in communicating remotely. Interestingly, only 40% (4 out of 10 respondents) indicated that they were somewhat confident or very confident in learning remotely.

Faculty self-efficacy beliefs related to remote instruction and mentoring

The majority of faculty (91% [10 out of 11 respondents]) indicated that they were somewhat confident or very confident in their ability to facilitate their research project remotely (Table 3). Likewise, 91% (10 out of 11 respondents) indicated that they were somewhat confident or very confident in their ability to facilitate mentor-

TABLE 2

Scholars' confidence in conducting research, communicating, and learning remotely.

Task	Very unsure	Somewhat unsure	Neither unsure nor confident	Somewhat confident	Very confident
Conduct research remotely (*n* = 11)	1 (9%)	1 (9%)	2 (18%)	4 (36%)	3 (27%)
Communicate remotely (*n* = 11)	1 (9%)	0 (0%)	3 (27%)	4 (36%)	3 (27%)
Learn remotely (*n* = 10)	1 (10%)	1 (10%)	4 (10%)	1 (10%)	3 (30%)

TABLE 3

Faculty mentors' confidence in facilitating their research project and mentoring remotely.

Task	Very unsure	Somewhat unsure	Neither unsure nor confident	Somewhat confident	Very confident
Ability to facilitate the research project remotely (*n* = 11)	0 (0%)	0 (0%)	1 (9%)	2 (18%)	8 (73%)
Ability to facilitate mentoring remotely (*n* = 11)	0 (0%)	0 (0%)	1 (9%)	4 (36%)	6 (55%)

ing remotely. Mentors also expressed strong confidence in their perceived ability of their Scholar to complete the faculty-directed research project remotely, as indicated by total selection (82% [9 out of 11]) of somewhat confident (3 respondents) and very confident (6 respondents).

Outcomes for Morehouse McNair Program 8-week virtual summer experience

Using the logic model (Figure 2) as a guide, preliminary evaluations of outputs and outcomes are positive. For project outputs, all 14 Scholars successfully completed the remote scientific communication and research methods courses to earn elective credit. The majority of Scholars (12 out of 14) were able to create digital posters and presentations that they presented as part of the culminating virtual research symposium.

To what degree were the outcomes realized? How did the activities and outputs affect the achievement of outcomes, if at all? Answers to these questions are a bit more nuanced. Preliminary findings indicate that short-term outcomes have been met. Long-term outcomes such as meeting broader McNair goals (e.g., 60% of students pursue graduate education, 15% of students attain a PhD within 10 years) are beyond the scope of this more immediate evaluation. Responses from Scholars who completed the surveys indicate that students gained confidence in remote course instruction and conducting remote research and that faculty mentors gained confidence in providing remote course instruction, remote research, and student mentoring. The majority of Scholars (82% [9 out of 11]) were satisfied with the remote mentoring they received, as indicated by total selection of somewhat satisfied (5 respondents) and very satisfied (4 respondents), with only two respondents indicating neither satisfied nor dissatisfied. Likewise, the majority of scholars (82% [9 out of 11]) were satisfied with the remote facilitation of the McNair SRP as indicated by total selection of somewhat satisfied (5 respondents) and very satisfied (4 respondents), with only two respondents indicating neither satisfied nor dissatisfied.

The research mentors expressed similar sentiments (Table 4). The majority of mentors (82% [9 out of 11]) were satisfied with facilitating their research project remotely, as indicated by total selection of somewhat satisfied (3 respondents) and very satisfied (6 respondents), with only two respondents indicating neither satisfied nor dissatisfied. The majority of mentors also expressed satisfaction with mentoring their scholar remotely and their level of communication with their scholar remotely (Table 4). The majority of mentors (91% [10 out of 11]) were satisfied with the remote facilitation of the McNair SRP, as indicated by total selection of somewhat satisfied (3 respondents) and very satisfied (7 respondents), with only one respondent indicating neither satisfied nor dissatisfied.

Conclusion

Although many summer research programs made the decision to delay, cancel, or suspend their summer experiences for students in response to the ongoing COVID-19 pandemic, the Morehouse College McNair Scholars program instead offered a completely virtual summer research experience to 14 Scholars with faculty-led remote research projects and mentorship. The virtual summer program included online GRE preparation; online curriculum (e.g., a scientific writing and research methods course for academic credit); and the development of social capital and community between peers and stakeholders in a weekly series of activities that included online roundtable discussions with professionals and McNair alumni and graduate school virtual workshops. The culmination of the summer research program was a virtual research symposium where Scholars presented posters or oral presentations.

Facilitating the SRP

Although Scholars' and mentors' responses to the summer program was predominately very positive, there were several instances when respondents indicated neither agree nor disagree in program survey evalua-

TABLE 4

Faculty mentors' satisfaction in facilitating their research project and mentoring remotely.

Task	Very dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Very satisfied
Ability to facilitate the research project remotely (n = 11)	0 (0%)	0 (0%)	2 (18%)	3 (27%)	6 (55%)
Ability to facilitate mentoring remotely (n = 11)	0 (0%)	0 (0%)	1 (9%)	3 (27%)	7 (64%)
Level of communication with your Scholar remotely (n = 11)	0 (0%)	1 (9%)	1 (9%)	4 (36%)	5 (45%)

tions. An interesting caveat to this is highlighted by Sturgis et al. (2014): "Neither agree nor disagree" can either be a "hidden don't know" (i.e., the respondent has no opinion), or it can mean a neutral opinion (i.e., the respondent is somewhere between agreeing and disagreeing). Therefore, we suggest being cautious when making conjectures or overtures concerning the neutral responses.

Conducting the SRP remotely will never replace being there in person, but we did note several benefits and opportunities realized from facilitating the SRP remotely. Similar to in-person, field, or lab research, a remote research experience provided Scholars with an opportunity to conduct research, foster positive STEM identity, and develop an intention to pursue a science career. As many other programs and institutions were not providing remote research experiences, there was the potential that Scholars would disengage. This point was captured in one of the more eloquent Scholar comments on the end-of-program evaluation:

> *The pedagogy implemented within the program proper was not only intellectually stimulating but presented additional challenges from a personal frame of reference; in effect, the initial discomfort that I underwent provided a fertile crucible in which the further development of my character could be fomented. I have grown markedly, as a nascent researcher and person of color, due to the remote summer experience and would relish the opportunity to participate once more. Furthermore, I would like to express my utmost gratitude and appreciation for the McNair Program administrators, as their support for me was unwavering during a period when I was riddled with self-doubt.*

Student researchers also benefited from faculty mentorship, networking opportunities, and graduate school preparation. Remote graduate school tours were an opportunity realized because for various reasons (e.g., time, travel, cost), campus visits are not always possible. Virtual tours make it possible for Scholars to engage with institutions in the southeastern United States and then on the West Coast or around the world in a matter of minutes or computer clicks, as opposed to the hours or days it would take to travel. Likewise, facilitating brother-to-brother alumni roundtable discussions and virtual seminars allowed students to interact with McNair alumni who are pursuing doctoral studies or who live out of state. Initially, students were nervous about presenting remotely, as captured in one Scholar's comments in the midpoint survey: "I am concerned about presenting in a virtual environment and how that will flow versus presenting in person." However, as previously mentioned, having Scholars present digital posters and presentations allowed for the addition of video and other interactive elements that enhanced their presentations well beyond what they could do in a paper poster. One student commented in the end-of-program evaluation, "It was a very strenuous but amazing process"; another student wrote, "The McNair Program is amazing and they did an amazing job adapting to the pandemic."

Mentors also expressed confidence in their ability to conduct research and mentor remotely. Several mentors commented that the online format encouraged easy communication and organization of research materials for teaching, training, and organization of research data. One mentor suggested that to improve the future of this program, "A hybrid of online and face to face would give more flexibility to the mentors, especially if they are traveling or a part of other programs."

As research skills and research self-efficacy may predict students' aspirations for research careers, and the effects of research skills may partially be mediated through self-efficacy beliefs (Adedokun et al., 2013), even tacitly demonstrating these skills and self-efficacy through a remote research program, as the Morehouse McNair virtual Summer Research Program demonstrated, is promising and an area of suggested further evaluation as the COVID-19 pandemic continues to reshape how we learn and conduct research.

Financial support

US Department of Education Ronald E. McNair Post-Baccalaureate Achievement Program Grant #P217A170101, as part of the Federal TRiO Program.

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