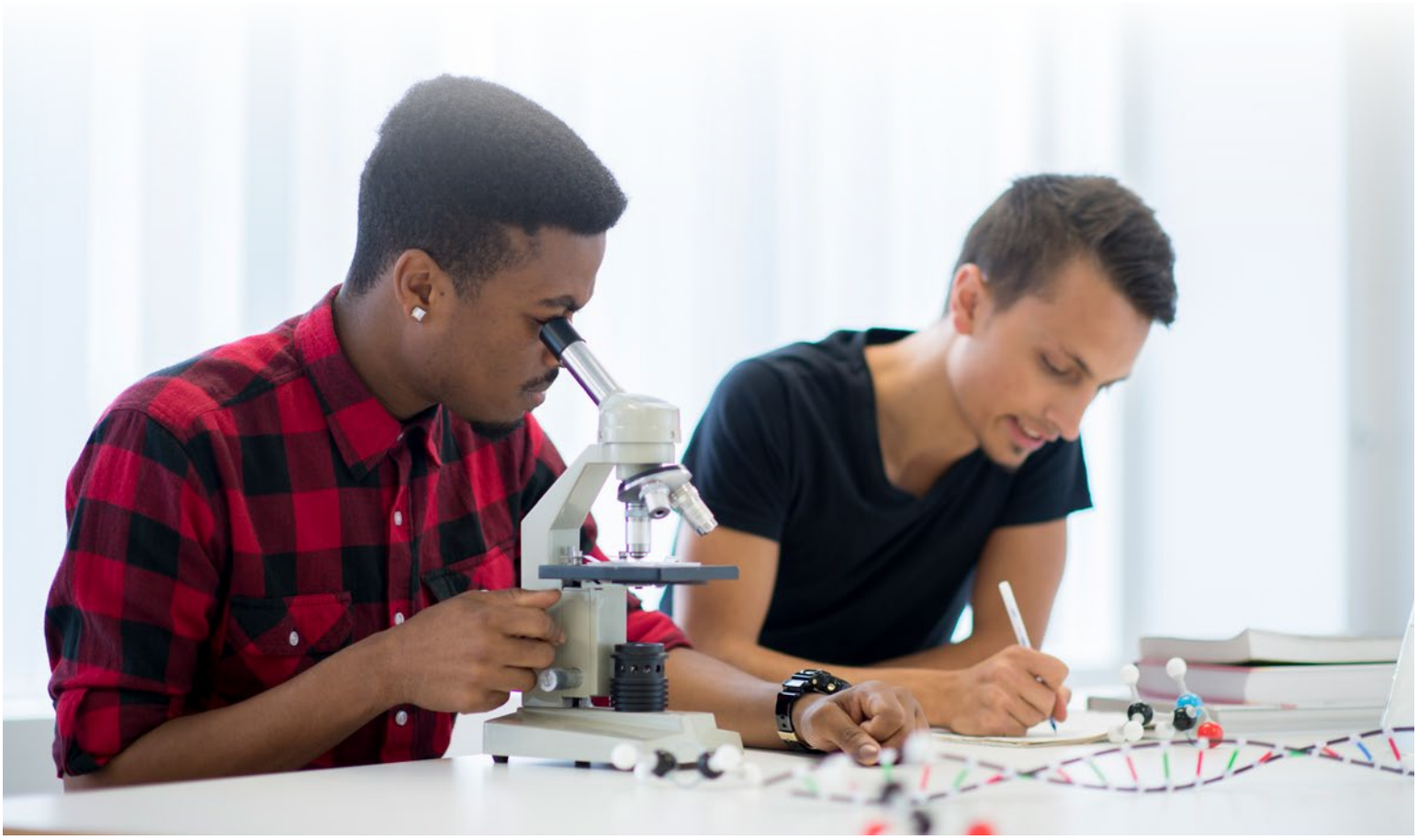
Association of Public & Land-grant Universities

Office of Access and Success



# Diverse Pathways to STEM Degree Completion

## *Connecting Minority Males to Student Success*

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## ABOUT THE ASSOCIATION OF PUBLIC AND LAND-GRANT UNIVERSITIES

The Association of Public and Land-grant Universities (APLU) is a research, policy, and advocacy organization dedicated to strengthening and advancing the work of public universities in the U.S., Canada, and Mexico. With a membership of 236 public research universities, land-grant institutions, state university systems, and affiliated organizations, APLU's agenda is built on the three pillars of increasing degree completion and academic success, advancing scientific research, and expanding engagement. The association's work is furthered by an active and effective advocacy arm that works with Congress and the administration as well as the media to advance federal policies that strengthen public universities and benefit the students they serve.

Annually, APLU member campuses enroll 4.7 million undergraduates and 1.2 million graduate students, award 1.2 million degrees, employ 1.4 million faculty and staff, and conduct $42.7 billion in university-based research. APLU's membership includes 208 campuses and 24 university systems, including 75 U.S. land-grant institutions. The association's membership includes 23 historically black colleges and universities (HBCUs), of which 21 are land-grant institutions (19 under the 1890 Morrill Act, two under the 1862 Morrill Act).

## ABOUT APLU'S Office of Access and Success

The Office of Access and Success (OAS) at the Association of Public and Land-grant Universities is dedicated to equity, access, and educational excellence for all Americans with a special focus on underserved students and minority-serving institutions. OAS provides comprehensive support for the Council of 1890 Universities and the Commission on Access, Diversity and Excellence (CADE). Many of the programmatic initiatives are purposed to advance degree completion and institutional capacity building efforts for the respective members. OAS engages in research and advocacy/policy, membership and coalition building, and meetings and convenings.

# Contents

# Executive Summary

The executive summary of the report, *Diverse Pathways to STEM Degree Completion: Connecting Minority Males to Student Success*, provides an overview of the Association of Public and Land-grant Universities (APLU) Office of Access and Success' initiative to increase the recruitment and matriculation of underrepresented minority (URM) males in the STEM disciplines at public universities. Funded by the Kresge Foundation through a competitive grant selection process, APLU selected four institutional partnerships to participate in its Minority Male STEM Initiative (MMSI). The partnerships consisted of the following four-year and two-year institutions: Alabama A & M University and Lawson State Community College; California State University, Fresno and State Center Community College District; University of Illinois at Chicago and City Colleges of Chicago; and University of Minnesota, Twin Cities and Minneapolis Community and Technical College.

Each of the partnerships developed individual project strategies and interventions to complement the two major goals of the MMSI. All of the partner pairs achieved success during the operational period of the grant (2012 through 2015); however, the extent of their success was dependent upon the strength and number of support programs that were in place before the grant period. Final reports by the partners helped APLU's Office of Access and Success personnel identify eight strategies for success and sustainability highlighted below.

1. Commitment of Academic and Student Services
2. Strong Support from Institutional Leadership
3. Adoption of Culturally Relevant Programming
4. Providing Opportunities for Community Engagement
5. Creating Strong Networks with Local Partners
6. Focusing on Matriculation into STEM Programs
7. Creating and Tracking Extracurricular Opportunities to Engage Students
8. Strengthening Opportunities for Collaboration between Partner Institutions

The strategies, as implemented at the four different sites, suggest student success is highly contingent on supportive institutional contexts and response to students' individual backgrounds. The level of institutional buy-in to the URM male student as an individual and not just as a member of the collective group influences both campus resource distribution and the sense of belonging experienced by the URM males. Additionally, MMSI institutional participants found that "com-

munity building" was essential for creating support networks that foster peer-to-peer relationships and faculty-to-student mentorship opportunities. The need for appropriate program funding was a crucial factor limiting institutional capacity to distribute scholarships, stipends, and related expenses for support programs. What became evident, as well, in each corresponding case study was the need to have effective ways to evaluate and assess the quality of the support programs for URM males.

# Introduction

In 2015, a participant in the Minority Male Science, Technology, Engineering, and Mathematics (STEM) Initiative, as administered by the Office of Access and Success at the Association of Public and Land-grant Universities, stated "The [MMSI] program fostered personal relationships—faculty and staff across institutions, student-to-student across institutions, student-to-student within [the university] and cohorts and community…personal connections provided the support and continuity that formed a foundation for success transitions." The growing diversity of the nation's higher education system necessitates holistic change to improve the campus environment for an ever-changing student demographic. To improve success outcomes in higher education, colleges and universities need to focus on personal relationships as a means to increase retention, recruitment, and transition outcomes and support outcomes among all students, particularly for minority males in STEM.

National Center for Education Statistics (2013) reports the following data regarding the number of STEM degrees/certificates conferred to US citizens:

| | MALES | FEMALES |
|---|---|---|
| WHITE | 68.1 | 62.4 |
| BLACK | 8.7 | 10.9 |
| HISPANIC | 10.5 | 10.2 |
| ASIAN | 9.9 | 13.3 |
| PACIFIC ISLANDER | 0.3 | 0.3 |
| AMERICAN INDIAN | 0.7 | 0.8 |

White males and females have greater percentages of STEM degrees conferred than any of the other identified groups. Collectively, minority males are receiving STEM degrees at lower rates than their female counterparts other than Hispanic females. The wide-spread impact of the productivity of STEM degrees generated curiosity within the Office of Access and Success at the Association of Public and Land-grant Universities (APLU) to identify ways to address the underrepresentation of minority males in academia and the STEM disciplines.

The comprehensive effort was approached in two different phases. Funded by the Sloan Foundation, Phase I produced a national report, *The Quest for Excellence: Supporting the Academic Success of Minority Males in STEM Disciplines* (APLU 2012), calling for increased efforts to attract minority males to fields in STEM through recruiting and successfully graduating them as college students. Building upon the outcomes of Phase II, data collection began to examine both the individualized and the collective experiences of minority males in STEM. The analyses concluded that not only was there a need for improved student support systems for minority males in STEM fields, but there was also a need to improve student recruiting practices to attract minority males into STEM post-secondary programs.

Thus, for Phase II, to increase the participation and success of minority males in STEM, APLU established the Minority Male STEM Initiative comprised of four institutional partnerships, based upon feeder patterns and two-year/four-year articulation agreements. While each institutional partnership was different, they were uniquely and strategically positioned to address the diverse needs of their students. The results of Phase II are presented in this report, *Diverse Pathways to STEM Degree Completion: Connecting Minority Males to Student Success*, based upon the data from the following four MMSI partnerships:

- ***Alabama A&M and Lawson State Community College***
  The Alabama A&M (AAMU) and Lawson State Community College (LSCC) partnership broadened minority male participation in the national STEM workforce by recruiting, retaining, mentoring, and successfully graduating underrepresented minority (URM) male undergraduates from LSCC to AAMU. The partnership enhanced academic support and improved retention of URM males participating in the LSCC 2-Pi STEM program by employing intrusive advising, providing peer-to-peer and peer-to-faculty engagement, and requiring students to participate in a STEM-related summer research experience, bi-weekly seminars, and supplemental instruction for STEM courses.
- ***California State University, Fresno and State Center Community College District***
  The California State University, Fresno (CSUF), *GetAhead: A Framework for Underrepresented Minority Student Success in Engineering and Construction Management*, was a joint effort between CSU, Fresno and the State Center Community College District (SCCD) and its four community college campuses. The project supported students by building partnerships between the students and peer mentors, providing students opportunities to work individually with faculty on research and projects in a structured mentor-mentee environment, and developing a professional speaker series that helped connect students from the five campuses with successful engineering and construction management professionals who are also traditionally underrepresented in their professions. The project also served to increase opportunities for students to visit industry sites and meet with practicing engineers and construction managers, and create multi-lingual programs

and services aimed at educating and informing parents and families whose students are traditionally underrepresented in engineering and construction management professions.

- ***University of Illinois at Chicago and City Colleges of Chicago***
  The University of Illinois at Chicago (UIC) and City Colleges of Chicago (CCC) partnership utilized the Guaranteed Admission Transfer (GAT) program—a partnership, which offers CCC students the opportunity for guaranteed undergraduate admission to UIC after they complete their first two years at one of the CCC institutions—to employ support activities that enhance the successful transfer of underrepresented minority male students in selected STEM disciplines. The partnership provides an orientation to the "culture of science," along with financial assistance, academic support, research experiences and the creation of cohorts that move together through their undergraduate programs.
- ***University of Minnesota-Twin Cities and Minneapolis Community and Technical College***
  The University of Minnesota Twin Cities (UMTC), in collaboration with Minneapolis Community and Technical College (MCTC), aimed to increase the number of minority males matriculating in science, technology, engineering, and mathematics (STEM) at UMTC. While the Minority Males program focused largely on MCTC students becoming mentees to UMTC students, the MCTC students who became tutors to others at MCTC gained a great deal. Targeted campus visits helped MCTC students understand more about co-curricular activities, student organizations, living-learning communities. Mentoring took place through a year-long mentor pair program and small group gatherings with UMTC students and faculty. UMTC and MCTC is also part of the North Star STEM Alliance which is a partnership of 16 Minnesota colleges and universities and two community organizations working to increase the number of URM male graduates with bachelor's degrees in STEM. Their involvement with both the MMSI and the North Star STEM Alliance reinforces the importance of this endeavor.

# Phase II of the MMSI Goals and Objectives

Phase II of the MMSI proposed to identify strategies to address the shortage of minority males who were college-educated in the STEM fields. The MMSI focused on strengthening the minority male student pipeline between community colleges, STEM programs, and universities to identify methods to increase student success. Specifically, Phase II of the MMSI pledged to do the following:

1. Increase the recruitment and matriculation of URM males in STEM disciplines at public universities by strengthening the community college pipeline with an ultimate goal of increasing the numbers of minority men who successfully earn a STEM baccalaureate degree; and
2. Foster collaborations between community colleges and four-year institutions to build and maintain the pipeline for URM males in STEM disciplines.

Each of the four partner pairs adopted strategies that aimed to achieve these outcomes within the timeframe of the grant. All of the partner pairs achieved success with one or more of these objectives; the extent of their success on all two objectives was somewhat dependent upon the strength and number of support programs that were in place before the grant period. Also, all four universities modified these projected outcomes to suit the particular environments of their institutions and those of their partners.

The partner pairs completed final reports of their project accomplishments. Thoughtful assessments of their chosen project activities were provided and showed how they achieved both success and experienced shortcomings in their pursuit of their hope for improved outcomes. This cumulative report of Phase II of the MMSI includes summarized partnership reports highlighting the resources and activities of each. Each section presents illustrative examples of the strategies for success and sustainability learned throughout the grant period.

PARTNERSHIP 1

# Alabama A & M University and Lawson State Community College

## *Institutional Partners and Environmental Context*

Alabama Agricultural and Mechanical University (AAMU) is a Historically Black College and University (HBCU) and 1890 land-grant institution. Lawson State Community College (LSCC) is an institution with a history of academic achievement and a significant record of community leadership and service; it is located in the center of Birmingham, Alabama.

AAMU and LSCC recruit a majority of their students from the "Black Belt" area of Alabama. Within this area are some of the poorest counties in the United States. At the initiation of the MMSI, Phase II grant, AAMU's enrollment hovered at about 4,200 undergraduates; the student population by race and gender was: 91% black and 9% other; 45% male and 55% female. Enrollment at LSCC was about 4,500 credit and 4,000 non-credit students; the student population by race and gender was: 79% black, 14% white, and 7% other; 62% female and 38% male.

Analysis of AAMU's student data for the past five years (2011–2015) revealed that the yield of AAMU bachelor degree completions in several STEM disciplines was significantly less than anticipated, considering the number of majors in these programs. A report, "The Black Population in

Alabama: A Socio-Demographic Portrait," concludes that while the percentage of black students (i.e., black males) with some level of postsecondary education engagement (e.g., enrollment or credential) has increased, those gains are minimal at best. A major challenge facing many black males who want to declare a major in the STEM disciplines is their lack of preparation for college-level mathematics and science.

### *Goals and Strategies of the AAMU-LSCC Partnership*

The Phase II of the MMSI for the AAMU-LSCC partnership sought to address the overall goal of broadening URM male (i.e., black male) participation in STEM by addressing two specific objectives:

1. To increase the recruitment, retention, and transition of URM male STEM undergraduates from LSCC to AAMU; and
2. To enhance the quality of education and research experience at both LSCC and AAMU in order to improve peer-to-peer and peer-to-faculty engagement of URM male STEM undergraduates.

The major recruitment strategy was to fund scholarships for URM males transferring from LSCC to AAMU. Four activities were adopted as strategies to meet the aforementioned objectives:

- Recruit qualified URM male students interested in STEM disciplines from LSCC to AAMU (recruitment event held in Fall 2012)
- Address academic and other barriers that often hinder retention and overall success of URM male students in STEM disciplines at both institutions
- Create a STEM learning community for URM males at both institutions
- Increase URM male participation in undergraduate research experience through a bridge program as URM males' transition from LSCC to AAMU

### *Program Outcomes*

AAMU held a number of recruitment events to identify URM male scholars which included a very successful event on the campus of LSCC in fall 2012. These efforts eventually resulted in recruiting 11 URM males (all African American) who transferred from LSCC to AAMU and majored in a STEM discipline. Retention and graduation rates of these males, recruited as MMSI STEM Scholars, have been outstanding: AAMU-LSCC reported a 100% retention rate overall. Of these males, 9% have graduated and pursued a career in a STEM field. Currently, there are 91% who are seniors and have an anticipated graduation date of December 2015 or May 2016. Over half of the MMSI STEM Scholars (55%) engaged in undergraduate research opportunities.

All of the recruited students remained in good standing at their institutions throughout the program. For those MMSI Scholars who were identified to have a GPA less than 3.25, the staff of the AAMU-LSCC partnership encouraged them to attend tutoring and supplemental instruction sessions.

Table 1 summarizes the goals and the strategies used by the AAMU-LSCC partnership in implementing the targeted aims of their respective collaboration. The specific outcomes associated with recruitment, retention, transition goals, and retention support outcomes are summarized in Table 1 below.

**TABLE 1**
**GOALS AND OUTCOMES OF AAMU-LSCC PARTNERSHIP**

| | | |
|---|---|---|
| GOAL 1 | Increase the recruitment, retention, and transition of URM male STEM undergraduates from LSCC to AAMU | |
| | RECRUITMENT SUPPORT OUTCOMES | Coordinated recruitment events |
| | RETENTION SUPPORT OUTCOMES | Retained 100% of URM male STEM undergraduate students from LSCC to AAMU |
| | TRANSITION OUTCOMES | Supported eleven (11) African-American males who have transferred into AAMU and majoring in a STEM discipline |
| GOAL 2 | Enhance the quality of education and research experience at both LSCC and AAMU in order to improve peer-to-peer and peer-to-faculty engagement of URM male STEM | |
| | RETENTION SUPPORT OUTCOMES | Connected 55% of MMSI STEM Scholars to undergraduate research opportunities (n=6) |

## *Discussion of Program Strengths and Areas for Improvement*

The AAMU-LSCC partnership concentrated many of their activities in support of Objective 1. Subsequently, many of the outcomes in the areas of recruitment, recruitment support outcomes, retention, and student transition were achieved by the partnership's work in helping underrepresented minority males in the Birmingham metropolitan area become more aware of the program's opportunities.

In their recruitment efforts, a representative from LSCC actively recruited male scholars interested in STEM and attending AAMU. In addition, a representative recruited heavily on the campus of AAMU with assistance from the Office of Admissions in order to identify other URM male scholars from community colleges throughout the state of Alabama. A recruitment event was held in the fall 2012 semester at LSCC. Scholarships to students interested in taking part in the LSCC-AAMU transfer program were also made available during those events.

The 11 URM male scholars who joined the initiative were awarded scholarships for their academic good-standing while in the program. Many of the MMSI scholars engaged in research experiences during the summer and also conducted research activity during the academic year. School and program administrators further encouraged program participants to present their work at AAMU's

STEM Day in 2013 and 2014. Although the number of students recruited for scholarships to the AAMU-LSCC partnership was small, the partnership was successful in increasing the number of URM males in the STEM pipeline between their respective institutions.

The successful recruitment of URM male scholars from LSCC served as a notable strength of the MMSI effort given the level of organization and coordination. An area for improvement was to increase the number of student participants in the AAMU and LSCC MMSI efforts. The partnership leaders were unable to identify the precise reason for the low number of student participants, however, they presume the problem to be difficulty in identifying minority males interested in STEM who have transferred from LSCC and are willing to attend AAMU. The MMSI principal investigators also noted that more AAMU and LSCC students should have participated in the HERI DLE survey which was used to assess student engagement in the educational environment.

## Strategies for Success and Sustainability: AAMU-LCSS

The institutional partnership of AAMU and LCSS concentrated efforts on retaining the 11 MMSI STEM scholars they had recruited. Staff from AAMU's Office of Admissions, Office of Retention and Academic Services, and faculty and staff from the College of Engineering, Technology and Physical Sciences and the College of Agricultural, Life and Natural Sciences fully supported the project. Their partnership illustrates below the following strategies for success and sustainability.

- **Commitment of Academic and Student Services**

The involvement of various academic and student services resonated throughout the AAMU-LSCC MMSI grant activities. LSCC's academic services and student services personnel developed a strong infrastructure to support student success. Institutional data supports the claim that the college's transitional programs (developmental) aided in students' ability to obtain degrees in STEM related fields. In addition, the support provided by AAMU 2-Pi STEM faculty mentors and tutoring/computer lab resources made significant contributions to student success outcomes for the LSCC transfer students.

- **Strong Support from Institutional Leadership**

Strong support offered by AAMU-LSCC top leaders was a major contributing factor to the success toward achieving program goals. The presidents of both AAMU (Dr. Andrew Hugine) and LSCC (Dr. Perry Ward) committed to the initiative in meaningful ways. In particular, each institution dedicated in-kind matching funds to the initiative as a means to achieve the goals of the project. This funding was used to cover lodging, travel and meal expenses of the MMSI principal investigators. Institutional support was further demonstrated by the commitment of LSCC's president to provide the MMSI Co-PI sufficient time to develop the MMSI project, recruit students and mentors, assist with bridging STEM students, interpret research findings, and brief faculty on new and innovative techniques in STEM environments.

PARTNERSHIP 2

# California State University, Fresno and State Center Community College District

*Institutional Partners and Environmental Context*

California State University, Fresno (CSUF) was founded as Fresno State Normal School in 1911; it is designated as both a Hispanic-serving institution (HSI) and an Asian American and Native American Pacific Islander-serving institution. The State Center Community College District (SCCCD) includes four community colleges and serves approximately one million people and 18 unified and high school districts in more than 5,743 square miles of urban and rural territory. This includes most of Fresno and Madera counties and portions of Kings and Tulare counties.

CSUF's Lyles College of Engineering and the State Center Community College District were the collaborators on this project. Hispanic/Latino students, African American students and students of Hmong descent, who have been traditionally underrepresented in engineering and construction management professions, were the target student groups for the purposes of this collaboration. More than 50% of students in the Lyles College are first in their families to attend university. Of a total enrollment in 2015 of 1,706 students, 1,470 Lyles' students are identified as male. Among this group: 564 are identified as Hispanic, 190 Asian, 30 African American, 4 American Indian, and 4 Pacific Islander.

## *Goals and Strategies of the CSUF-SCCCD Partnership*

CSU-Fresno and the State Center Community College District developed *GetAhead: A Framework for Underrepresented Minority Student Success in Engineering and Construction Management*, a project designed to improve the persistence and graduation rates among URM males by providing services and programs aimed at increasing student success. The project supported students by adopting objectives that aligned with the mission and vision of the university focused on learning, scholarship, and engagement. Those objectives are:

1. To provide support to students by building partnerships between the students and mentors;
2. To provide students opportunities to work individually with faculty on research and projects in a structured mentor-mentee environment;
3. To develop a professional speaker series that will help connect students from the five campuses with successful engineering and construction management professionals who are also from traditionally underrepresented backgrounds;
4. To provide opportunities for students to visit industry sites and meet with practicing engineers and construction managers; and
5. To develop multi-lingual programs and services aimed at educating and informing parents and families whose students are traditionally underrepresented.

## *Program Outcomes*

During the period of the MMSI, Phase II grant, the Lyles College of Engineering received a matching grant from Dr. William M. Lyles (family and companies). The grant supported the Lyles College of Engineering's Pathways Student Services program. During 2014, the program sponsored nearly 50 events offered by the Lyles College, ranging from small seminars or tours of a dozen students, to tutoring services serving over 400 students, to project presentations and open houses serving 300-600 students.

During the same period, SCCCD used grant funds to support events at Reedley College. Such events included a major STEM conference for middle school, high school and college students featuring over 30 STEM workshops, which were offered to more than 800 attendees. Reedley College also sponsored the Spring 2014 Green Summit, which was promoted to the community of Reedley and surrounding cities, and featured green topics such as energy efficiency, recycling, solar energy, hybrid cars, organic dairy farming, and others.

Table 2 summarizes the goals and the strategies used by the CSUF-SCCCD partnership in implementing the targeted aims of their respective collaboration. The specific outcomes associated with recruitment and retention support outcomes and transition goals are summarized in Table 2 below.

**TABLE 2**
**GOALS AND OUTCOMES OF CSUF-SCCCD**

| | | |
|---|---|---|
| GOAL 1 | Provide support to students by building partnerships between the students and peer mentors | |
| | RECRUITMENT SUPPORT OUTCOMES | Coordinated recruitment events |
| | RETENTION SUPPORT OUTCOMES | Piloted formal peer-mentor, advising, and tutoring program in 2013–2014 |
| | TRANSITION OUTCOMES | Supported eleven (11) African-American males who have transferred into AAMU and majoring in a STEM discipline |
| GOAL 2 | Provide the students opportunities to work individually with faculty on research and projects in a structured mentor-mentee environment | |
| | TRANSITION OUTCOMES | Facilitated thirteen (13) Lyles College of Engineering students to work on research projects with eight (8) engineering and construction management faculty members |
| GOAL 3 | Develop a professional speaker series that will help connect students from the five campuses with successful engineering and construction management professionals who are also traditionally underrepresented in their professions | |
| | RETENTION SUPPORT OUTCOMES | Invited Astronaut Jose Hernandez to serve as a keynote speaker and workshop instructor during a 2014 STEM program |
| GOAL 4 | Provide opportunities for students to visit industry sites and meet with practicing engineers and meet with practicing engineers and construction manager | |
| | RECRUITMENT SUPPORT OUTCOMES | Organized over eight (8) industry presentations to the Lyles College of Engineering for engineering students |
| | RETENTION SUPPORT OUTCOMES | Coordinated industry site visits to prominent technology companies (i.e., Google) |
| GOAL 5 | Develop multi-lingual programs and services aimed at educating and informing parents and families whose students are traditionally underrepresented in engineering and construction management professions | |
| | RECRUITMENT SUPPORT OUTCOMES | Increased Underrepresented Minority (URM) enrollment in engineering and construction management programs by 70% from 2011 through 2016. Hispanic students comprised much of the increased enrollment |

## *Discussion of Program Strengths and Areas for Improvement*

The CSUF and SCCCD partnership primarily focused their initiative efforts in student recruitment and enrollment, undergraduate research opportunities, and student support learning activities. These strategic approaches aided CSUF and SCCCD in increasing the overall the level of engage-

ment and success experiences of the students in the San Joaquin Valley region. Key outcomes highlight the impact of the CSUF and SCCCD program offerings and offer areas of improvement for future endeavors.

Increases in the enrollment of the URM student population in the Lyles College of Engineering were demonstrated throughout the course of MMSI activities. For instance, underrepresented minority (URM) enrollment in engineering and construction management programs rose by 70% since the inception of Phase II of the MMSI (2011 through 2016). Additional increases in enrollment are anticipated among first-time freshmen at the CSU-Fresno site by the beginning of the fall 2016 semester. Partnerships with area community colleges toward improving articulation and transfer agreements, course redesign, and integrated roadmaps contributed to this significant growth. The Pathways Student Services program administrators expect to fine-tune their URM enrollment efforts, which have predominantly focused on Hispanic students. Program leaders intend to increase enrollment among African American, American Indian, and Asian Pacific Islander enrollments as well during the next enrollment period.

Undergraduate research opportunities were components established by the Pathways Student Services program. By investing in students who have been traditionally underrepresented in engineering and construction management careers, program staff members were able to cultivate meaningful mentoring relationships between faculty and students. These relationships resulted in research opportunities for 13 of the Lyles College of Engineering students during the academic year and summer. The research experiences further motivated the students to excel academically and to pursue graduate-level study. Fostering diverse learning opportunities and student sup-

port activities (e.g., student-driven groups such as NSBE) were necessary for students in the Lyles College of Engineering. Given that 80% of all students who attend the university receive financial aid, Pathways Student Services program staff recognized how the socioeconomic status of the student could influence pertinent success outcomes, especially if the student is financially self-supporting. As such, research stipends, tutoring, peer-support, and advising support were utilized as a means to ameliorate factors that could lessen the ability of the student to successfully persist. CSUF further secured permanent annual funding to support relevant support efforts including a college wide advising center. Pursuing external funding outside of the Phase II of the MMSI via grants and philanthropy provided an area for improvement for Pathways Student Services program administrators.

## Strategies for Success and Sustainability: CSUF-SCCCD

The California State University, Fresno and the State Center Community College District developed programs and activities that aligned directly to the needs and interests of their students. By using community engagement and culturally relevant approaches, the CSUF and SCCCD partnership increased the success of URM males in STEM. Below are strategies for success and sustainability efforts gleaned from the work of CSUF and SCCCD.

- **Adoption of Culturally Relevant Programming**

Providing culturally relevant programming was a significant focus of CSUF and SCCCD MMSI programming efforts during the grant period. The services provided by CSU, Fresno included: tutoring, industry tours, professional development workshops, career preparedness workshops, presentations by professional speakers, networking events, service learning opportunities, and other enhancement experiences, as detailed in their progress report. As noted earlier, SCCCD's Reedley College held a major STEM conference for middle school, high school and college students. This event featured, among numerous other activities, a keynote speech to the student participants by Astronaut Jose Hernandez, who also offered a workshop for faculty and staff. Mr. Hernandez, the child of migrant farm workers, received undergraduate and graduate degrees in Electrical Engineering and flew on a space shuttle as the flight engineer to the international space station. Providing a highly regarded, successful Hispanic as the keynote was designed to inspire minority students. Mr. Hernandez' workshop for faculty and staff also served culturally relevant aims.

- **Providing Opportunities for Community Engagement**

Grant funds were used to provide production services for the Spring 2014 Green Summit at Reedley College. The Green Summit is an annual event on the Reedley College campus to promote the community of Reedley and its surrounding cities to go "green" by learning to promote and practice green topics such as energy efficiency, recycling, solar energy, hybrid cars, organic dairy farming, and others. The conference helped connect Reedley students to their community through emphasizing common goals related to their STEM education and career aspirations.

PARTNERSHIP 3

# University of Illinois at Chicago and The City Colleges of Chicago

## *Institutional Partners and Environmental Context*

The University of Illinois at Chicago (UIC) is a state-funded, public research university with a diverse undergraduate student body. The City Colleges of Chicago (CCC) is a seven-institution community college system serving the city of Chicago. UIC proposed to address Phase II of the MMSI to "students who transfer from a CCC institution to UIC as juniors majoring in Biological Sciences, Chemistry or Physics" (UIC grant proposal).

In 2012, underrepresented males comprised over 25% of the student population and 10% of STEM students enrolled at UIC, respectively. In the years prior to this project (AY2005-06 to AY2009-10), 1590 students entered as transfer students in those disciplines: "Of that group, 13% (195) transferred from CCC; 37% were URM, and 38% of those students (28) were males" (UIC-CCC final report). In short, the average transfer rate was 6 URM male transfers per year. The targeted CCC students for this project were: "African American, Latino, Native American and Southeast Asian males enrolled at one of the CCC colleges and pursuing Associate in Science (A.S.) or Associate in Engineering Science (A.E.S) degree programs" (UIC grant proposal).

The Guaranteed Admission Transfer (GAT) program is a partnership which offered CCC students the opportunity for guaranteed undergraduate admission to UIC after completing their first two years at one of the CCC institutions. The program targeted African American, Latino, Native American and Southeast Asian males enrolled at one of the CCC colleges; these student groups

were considered to face the greatest obstacles in completing a STEM degree. City College transfers to UIC had risen by 4% each year since 2007 to 2013. This increased influx of students provided a reason to pursue greater collaboration.

### *Goals and Strategies of the UIC-CCC Partnership*

For Phase II of the MMSI, existing partnerships between the UIC and CCC were leveraged to improve transfer and degree completion rates for minority males in STEM disciplines. The specific goals of the pilot program were:

1. Improve the transfer rate and degree completion of underrepresented minority males in STEM from CCC to UIC;
2. Help URM male students graduate on time in the STEM disciplines;
3. Assist students in graduating with a GPA (at least a 3.2) and with experience which would make them competitive candidates for graduate programs; and
4. Improve the pathway for URM males in STEM disciplines.

The MMSI proposal was designed to encourage greater numbers of URM male students to transfer to UIC from CCC to pursue higher education and success in STEM fields. Building on the existing Guaranteed Admissions Transfer (GAT) partnership with CCC, the project aimed to identify and support talented students and contribute models of cross-institutional partnerships that hold potential to enhance the pipeline more broadly for underrepresented students in STEM fields.

### *Program Outcomes*

The UIC-CCC partnership delivered outcomes in a number of designated goal areas. The partnership program put heavy emphasis on financial support and experiential research learning opportunities. Such an approach served as a means to retain students. The site administrators promoted increased collaborations between UIC and CCC, which reflected in their development and implementation of new pilot programs.

Changes in institutional and project leadership led to a delayed start of Phase II of the MMSI for UIC-CCC and a corresponding decrease in the hoped for student participation. Although the number of students exposed to the program over the grant period is small, the program is committed to continuing beyond the tenure of this grant. Five students entered the transfer program in 2014. Four of these students completed the first year. Of these four students, one student changed majors and is making progress in the new major, one student did not progress to senior standing at the end of the year, and two students progressed to senior year. In fall 2015, another three students entered the program (outcomes not yet recorded).

Table 3 summarizes the goals of the UIC-CCC partnership and the outcomes associated with recruitment and retention support outcomes and transition outcomes:

**TABLE 3**
**GOALS AND OUTCOMES OF UIC-CCC PARTNERSHIP**

| | | |
|---|---|---|
| GOAL 1 | Improve the transfer rate and degree completion of URM males in STEM from CCC to UIC | |
| | TRANSITION OUTCOMES | Initiated a pilot campus program between the CCC and UIC to enhance the success of URM male transfer students in STEM (8 transfer students entered the MMSI program from 2014 to 2015) |
| GOAL 2 | Help these students graduate on time in the STEM disciplines | |
| | RETENTION SUPPORT OUTCOMES | Provided financial support to MMSI students as part of the President's Award Program ($2,500 each semester) |
| GOAL 3 | Assist students in graduating with a GPA (at least a 3.2) and with experience that would make them competitive candidates for graduate programs | |
| | RETENTION SUPPORT OUTCOMES | Coordinated summer research opportunities experiences for MMSI students |
| GOAL 4 | Improve the pathway for URM males in STEM disciplines | |
| | RECRUITMENT SUPPORT OUTCOMES | Extended the commitment of UIC to work closely with CCC to foster the success of underrepresented |

## *Discussion of Program Strengths and Areas for Improvement*

The UIC-CCC partnership's main success has been strengthening the commitment of the two institutions to support URM males in STEM, and confirmation of their continued commitment to do so. A pilot campus program between the CCC and UIC to enhance the success of URM male transfer students in STEM has deepened the commitment of UIC to work closely with CCC to foster the success of underrepresented minority male transfer students in the sciences through the Guaranteed Academic Transfer (GAT) program and to expand beyond the pilot phase of MMSI to support all underrepresented students in STEM.

Programming for the students took place as outlined in the grant application, beginning with summer orientation for MMSI students between their first and second year at the CCC institution. Summer research experiences were added during the summers following the second (CCC) and third (UIC) years. UIC hoped to incorporate an existing Summer Research Opportunities Program (SROP) for the MMSI students, only one MMSI students made use of SROP in 2014. In 2015, the MMSI summer research component was rolled into a new UIC program, which became the model for the President's Award Program (PAP) STEM Initiative Summer Research Experience. Reflecting on this summer research experience, one MMSI student wrote: "Conducting an experiment was so valuable to me. It made me to think critically and reason…." Another student said the research experience enhanced his scientific skill set through "practicing lab techniques and good lab notebook etiquette."

While enrolled at UIC, all MMSI students received scholarships as part of the President's Award Program ($2,500 each semester). Financial support was fundamental to student success. The UIC-CCC partnership observed that many students worked more hours than advisable while enrolled in demanding courses and that financial challenges remain a barrier to transferring to a four-year institution.

Within the scope of the grant, the UIC-CCC partnership targeted students committed to basic sciences and will expand programmatic efforts to include other STEM disciplines (i.e., engineering). The PAP STEM Initiative and GAT STEM program, two programs being developed outside the MMSI grant, will draw direct programmatic influences (i.e., external STEM research opportunities and guaranteed admission for community college students) from MMSI-related efforts. Peer support and peer mentoring will also be part of the program.

The UIC-CCC partnership identified three factors that enhance the effectiveness of institutional partnerships. First, institutional partnerships must develop more effective ways to identify community college students who want to seek degrees in science at the four-year institution. Second, partnerships must improve communication with these community college students, help them feel more a part of the four-year programs, and make them feel a part of a scientific community. Finally, good relationships between faculty at the two-year and four-year institutions help build stronger ties among all involved, including department-level administrators.

### Strategies for Success and Sustainability: UIC-CCC

The Minority Male STEM Initiative at UIC-CCC created a framework for supporting underrepresented transfer students' success in STEM, and it has deepened the commitment of UIC to work closely with CCC to foster the success of URM transfer students in STEM fields through the GAT program. Their collaboration was enhanced significantly by cross-institutional networking.

- **Creating Strong Networks with Local Partners**

Throughout the MMSI grant, the staff at CCC and within UIC's GAT program worked closely to improve how students with aspirations in physics, biological sciences, and chemistry were supported along their matriculation. The MMSI program strengthened UIC ties with CCC to the benefit of students seeking to transfer and attain a baccalaureate from a four-year college, and a sincere effort on the part of UIC was made to create additional pathways for students to continue their education at a four-year institution through a structured program. The grant partnerships also increased UIC's reputation as a member of the Chicago community; their efforts to engage students from the Chicago school system solidified their commitment to a future generation of Chicagoans.

PARTNERSHIP 4

# The University of Minnesota, Twin Cities and Minneapolis Community and Technical College

## *Institutional Partners and Environmental Context*

The University of Minnesota, Twin Cities (UMTC) collaborated with the Minneapolis Community and Technical College (MCTC) for Phase II of the MMSI, Minority Males in STEM (MM-STEM). In 2012, MCTC enrolled just over 14,000 students. Out of that number, 55% percent were students of color and 60% were low-income students. Of the student total, 27% were classified as first-generation students. Of all the Minneapolis Public Schools graduates who enroll in a Minnesota higher education institution, one-third enroll at MCTC, more than double the rate of six years ago. Investment and support for students in the STEM programs include MCTC's successful science and computer science scholarship initiatives, new program development in biotechnology, a state-of-the-art science building in fall 2008, and increased identification and co-curricular activities to support STEM success for students. More specifically, mentoring took place through a year-long mentor pair program and small group gatherings with UMTC students and faculty. A new mentor pairs program supported by MMSI has made possible tangible connections across campuses. Through informal gatherings, mentors had the opportunity to learn the students' perspectives on joining departments and learning success strategies for navigating a much more complex institution.

### *Goals and Strategies of the UMTC-MCTC Partnership*

The UMTC-MCTC partnership aimed to increase the number of URM males matriculating in science, technology, engineering, and mathematics (STEM) at UMTC by 25% over the two years of Phase II of the MMSI (i.e., MM-STEM). In the academic year (AY) of 2012, when the grant was submitted, twelve (12) minority males had previously transferred from MCTC which serves as the baseline data. The MM-STEM program targeted transfer minority males from African American, Hispanic/Latino, Native American, and Southeast Asian communities and established the following goals:

1. Increase collaboration between the four-year institution and the community college partner to improve the recruitment and matriculation of URM males in STEM disciplines; and
2. Develop new support systems and/or the enhancement of existing support systems on both the two- and four-year college campuses to improve retention and matriculation of URM males in STEM.

### *Program Outcomes*

The UMTC-MCTC partnership concentrated most of their activities in support of goal one. Through a collection of new programs and committed personnel, the site administrators promoted increased collaborations between UMTC and MCTC to improve recruitment and matriculation. Phase II of the MMSI grant allowed them to invest more in faculty mentoring and oversight, which contributed to their success.

The UMTC-MCTC partnership was successful in increasing the matriculation of MCTC URM males by 25% over the two-year implementation of the initiative. In the AY 2014, 21 URM males transferred from MCTC to UMTC. Thirteen were still enrolled and six of them graduated, resulting in a 90% retention rate. In AY 2012 when the grant was submitted, 12 URM males transferred from MCTC; the previous four-year average was between 11-12 URM males matriculating. The matriculation of 21 URM males in AY 2014 represented a 75% gain over the average.

In AY 2013, the first year of the project, 18 students enrolled in UMTC; nine have graduated and three are still in progress, resulting in a 63% retention rate. The UMTC-MCTC partnership also demonstrated strong student engagement in MM-STEM activities. In year one, 53 URM males from MCTC signed up for the program, 35 participated in at least one event/activity, 21 participated in more than 5 events/activities, and 15 participated in more than 10 events/activities. In year two, 38 URM males from MCTC signed up for the program, 26 attended at least one event, and 12 participated in more than 10 events. Several students have demonstrated success beyond their academic programs. For example, over the two years of the program, 18 students attended a total of 24 national conferences, one served as a student leader and peer mentor, and another is applying to medical school. One of the students has been offered an industry co-op position, and several others have completed undergraduate research projects.

Table 4 summarizes the goals and the strategies used by the UMTC-MCTC partnership to implement the targeted aims of their collaboration, and shows outcomes associated with recruitment, retention, and transition.

**TABLE 4**
**GOALS AND OUTCOMES OF THE UMTC-MCTC PARTNERSHIP**

| | | |
|---|---|---|
| GOAL 1 | Increase collaboration between the four-year institution and the community college to improve the recruitment and matriculation of URM males in STEM | |
| | RECRUITMENT SUPPORT OUTCOMES | Developed a new, year-long mentorship pairs and small group gathering program with UMTC students and faculty (18 students at UMTC during year one |
| | RETENTION SUPPORT OUTCOMES | Coordinated or supported over 25 professional development activities (i.e., symposia of undergraduate research, industry tours, etiquette dinners, etc.) |
| | TRANSITION OUTCOMES | Increased by 75% matriculation of MCTC transfer students which is well over 25% over a two year period |
| GOAL 2 | Develop new support systems and/or the enhancement of existing support systems on both the two- and four-year college campuses to improve retention and matriculation of URM males in STEM. | |
| | RETENTION SUPPORT OUTCOMES | Supported student tutors who modeled and encouraged others to utilize MMSI available resources both on campus and off (10% of funding allocated to student tutors) |
| | TRANSITION OUTCOMES | Engaged over 53 minority males in the MMSI Program |

## *Discussion of Program Strengths and Areas for Improvement*

Phase II of the MMSI at UMTC-MCTC was successful. Its strength was in part due to its having been built upon a strong program already in place, the North Star Alliance, dedicated to increasing minority enrollment and retention in STEM. Grant funding was used to strengthen mentoring relationships between faculty and students and between student peers. Strong personal relationships between faculty and staff across institutions, between students across institutions, and between students within MCTC, as well as cohort relationships developed among these students created a solid, supportive environment at all levels.

The UMTC-MCTC partnership reports that a focus on students in a peer mentorship relationship between the schools was very important to building student identity with those institutions, and visits of MCTC students to the UMTC campuses "built confidence toward earning bachelor's degrees." Model success stories of minorities in local industries also helped build student confidence. Program leaders also felt the "informality" of the program, emphasizing relationships, contributed

to its success. As one prospective transfer student noted at the end of a dinner with STEM faculty, "This was not as intimidating as I thought it was going to be."

UMTC-MCTC identified a few areas for improvement. They would like to see better follow-up on communications with transfer admissions counselors during the admissions process. The partnership lost a student to a non-Alliance institution when their prospective transfer student was wait-listed by UMTC. They also suggest more "intrusive advising" by MM-STEM program staff. Using technology to help students follow through with transfer applications is also an area for improvement. Another area to examine is following up on students who do not re-enroll, a common phenomenon for high-risk students

### Strategies for Success and Sustainability: UMTC-MCTC

The UMTC-MCTC partnership exhibited several notable strategies for success and sustainability as described below.

- **Focusing on Matriculation between Academic Programs/Schools**

Increased matriculation was a prominent outcome of the UMTC-MCTC partnership's work. Personal relationships established among the faculty and staff of the participating schools, supported by a long-standing commitment to increase matriculation of minority students in STEM through the North Star Alliance as well as increased student-to-student support relationships between the student populations themselves, appear to be contributing factors to their success. Some students supported by the grant have transferred to other four-year institutions, and this is also a measure of matriculation success, in our view. In fall 2013, two more URM males transferred to other four-year institutions in the state. In fall 2014, one transferred to Metropolitan State University, a partner in the North Star STEM Alliance, but not within the scope of this grant. Another transferred to UM Duluth in fall 2014.

- **Creating and Tracking Extracurricular Opportunities to Engage Students**

Attendance at extracurricular events related to their academic program is a feature of all of the MMSI, Phase II programs. The four institutional partnerships recorded student participation in various ways, often noting the number of student participants. The UMTC-MCTC partnership also tracked student engagement which focuses on the number of events attended by the same student. This is a useful index of student engagement which likely also helped them assess the impact of their engagement programs.

- **Strengthening Opportunities for Collaboration between Partner Institutions**

Institutional collaboration was an area of growth for the UMTC-MCTC partnership. The report findings show that while the North Star STEM Alliance fostered the initial working relationship between UMTC-MCTC for which the Alliance also served as a resource, the MMSI project (MM-STEM) facilitated a closer collaboration between the two partnered institutions. The partnered institutions of UMTC-MCTC shared personnel and mutually supported specific aspects of the program unique to their campus.

# Lessons Learned: Phase II of the Minority Male Stem Initiative

The journey taken by APLU-OAS and its four partnership pairs of universities and community colleges to complete Phase II of the MMSI has shown us that efforts to recruit URM males in STEM fields *and* retain and graduate them through a four-year program of community college and university courses requires intense teamwork, constant institutional commitment, and well-articulated infrastructures that track and sustain student progress every step of the way. We offer the following lessons learned that emerge from a review of their work over the full grant period:

### *Effective methods to identify URM male transfer students and guide them to success in four-year STEM degrees are critical.*

Identifying eligible and interested URM males to participate in the transfer programs proved quite the challenge for some of the MMSI partnerships. In order to have the greatest return on investment of available resources, a larger number of possible participants need to be targeted earlier in the program planning process. Institutions working to replicate efforts and seeking to develop partnerships with community colleges should focus attention on identifying students at the partner community college early on who excel in their science courses and who have an interest in pursuing higher level scientific research up to and including the pursuit of a PhD or MD/PhD. Identification of student interest and achievement early on could secure greater persistence of program participants. Developing a well-defined recruitment plan before the selection process is also important. Student support staff are valuable partners to help students navigate both the classroom and personal life challenges throughout the transfer processes.

### *Institutional buy-in and engagement must be visible at the highest levels and constant.*

Institutional buy-in from senior-level leaders, administrators, and faculty was a priority for each of the community college and the university partnerships. In many cases, buy-in was validated by how the institutions defined their transfer student articulation agreements. With strong leadership from presidents and chancellors, our four institutional partnerships adopted a spirit of "holistic engagement, that is, they shared responsibility across several programs and offices, ensuring potential for long-term sustainability of their programs. Examples of this engagement included faculty mentoring and research opportunities, intrusive advising, and sponsored activities for MMSI students that involved prominent STEM alumni and other STEM professionals.

### *Student success comes from being part of a supportive community, within and outside of the academy.*

Report findings revealed that community building was practiced in all of the institutional partnerships. Within each project, at-risk students were the greatest beneficiaries of such community formation practices as they were in consistent contact with peers and mentors from stronger academic backgrounds. Ultimately, this network of supporters helped connect students to the academic and social spaces of the larger campus community and influenced their decisions to persist. Opportunities to meet with other culturally-focused STEM student organizations (i.e., National Society of Black Engineers, Society for Hispanic Professional Engineers, and others) helped increase these students' contacts with positive social role models. Professionals and community leaders outside of the university offered students positive social contact beyond their university experience in anticipation of their future careers.

### *Dedicated funding assures program sustainability.*

Phase II of the MMSI funds' were used most often to sustain student support activities and to provide scholarships. Continued identification of financial resources as a means to support academic scholarships, summer research stipends, and research conference travel expenses may be the most critical factor ensuring continued efforts. Support for faculty and staff dedicated to coordinating the project or providing other services is also necessary. While some form of in-kind support was granted to each of the two-year and four-year collaborators by the universities, financial resources for the community college partners were also viewed as essential to the functionality of the programs.

### *A workable and appropriate system to evaluate program success is a must.*

Phase II of the MMSI was conceived as one that would demonstrate quantitative success in the form of increased enrollment and retention of URM males in STEM. Most of the programs studied here, the number of URM males involved in STEM and ready to transfer at the beginning of the programs was quite small, achieving statistical success within a two-year time-frame was perhaps both unrealistic and inappropriate given the small numbers involved. Creating reliable and consistent ways to evaluate the direct effectiveness of program activities also proved a challenge. Having both qualitative and quantitative data to form evaluations might serve programs like ours better and point to more specific areas for intervention leading to improvement. Furthermore, providing qualitative data as a means to uncover the lived experiences of the participants could shed more light on the effects of the program on changing student perceptions and attitudes and on external events affecting success. Many of the MMSI students faced unique challenges outside of the classroom, situations, which were not assessed as they might affect program success. Such information could provide valuable insights about how to best support student persistence.

# Report Conclusions: It's All About Relationships

Each of our four institutional partnerships found that achieving an effective transition between a community college and a four-year program for URM male students *and* bringing them to graduation required committed relationships among all parties involved. Perhaps the most important were the relationships between program faculty and staff in the universities and their partner professionals in the community colleges. Securing the transition from community college to university proved a greater challenge than many of these professionals imagined. Likewise, the relationships of students to one another, their faculty, and the culture of those in STEM disciplines proved equally challenging. In fact, during a teleconference with program leaders during the final year of the grant, they strongly emphasized that both nurturing the working relationship between institutions and providing the unique relationships required to move a student into a STEM culture were critical to achieving success.

The strategies, as implemented at the four different sites, suggest student success is highly contingent on supportive institutional contexts and response to students' individual backgrounds. The level of institutional buy-in to the URM male student as an individual and not just as a member of the collective group influences both campus resource distribution and the sense of belonging experienced by the URM males. Additionally, our grant recipients found that "community building" was essential for creating support networks that foster peer-to-peer relationships and faculty-to-student mentorship opportunities. The need for appropriate program funding was a crucial factor limiting institutional capacity to distribute scholarships, stipends, and related expenses for support programs. What became evident, as well, in conducting these four very different experiments is the need to have effective ways to evaluate and assess the quality of the support programs for URM males. In short, we believe the findings of Phase II of the MMSI, with its bold aims to increase URM male recruitment and retention in STEM programs, can help higher education stakeholders better understand the needs of URM males on university campuses and the challenges of implementing and evaluating the appropriate strategies for success and sustainability.

One of the major conclusions from this report is that higher education programs must create programs that address the needs and experiences of individual students. Program administrators must accurately assess their capacity to support students moving into STEM fields and adjust accordingly. Given the variety of approaches taken by the four institutional partnerships, it is not


possible to attribute increases in recruitment, retention, matriculation, and respective support mechanisms to fixed set of strategies. The commonalities presented throughout each case show valuable outcomes associated with the aim to increase minority male participation in STEM degree programs and how campuses can replicate these efforts to generate similar outcomes.

# References

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APPENDIX A

# Context and Background

Phase II of the MMSI was a collaboration of the Association of Public and Land-grant Universities (APLU) and four APLU institutions working in tandem with community colleges or community college systems. Phase II of the MMSI was built upon the outcomes of Phase I of the MMSI. Phase I was funded by the Sloan Foundation, which produced a national report calling for increased efforts to attract minority males to fields in Science, Technology, Engineering and Math through recruiting and successfully graduating them as college students.

The Phase I report, *The Quest for Excellence: Supporting the Academic Success of Minority Males in STEM Disciplines* (APLU 2012), included results from a survey of attitudes and academic progress of minority male students at 14 APLU institutions with significant minority enrollment and from interviews with several campus administrators and faculty members. The Phase I report revealed several critical findings about the experiences of minority male students in STEM fields that suggested the need to experiment and test a number of interventions on university campuses aimed to increase the successful recruitment and retention of minority males in STEM fields.

In response to the emerging needs identified by the Phase I report, APLU proposed to address the minority male STEM recruitment and retention problem by designing a Phase II of the MMSI to test the effects of targeted collaboration between community colleges and universities on increased recruitment and retention of minority males in STEM. Community colleges are a common pathway to university education for students who do not have the resources and/or lack sufficient academic preparation to enter universities.

APPENDIX B

# Methods

## Phase II of the MMSI: Application Process

Phase II of the MMSI proposed to accomplish the aims of the grant by administering a competitive RFP ($100,000 each) to a representative selection of 10 APLU institutions, five from Phase I and five selected from the larger APLU community. As reflected in interim reports to the Kresge Foundation, this original goal was modified to limit the $100,000 grants to four institutions, selected through a competitive application process offered to APLU institutions and to member institutions of the American Association of Colleges and Universities (AASCU).

Successful applicants had to:

a) Identify a targeted group of under-represented minority (URM) males;

b) Demonstrate an institutional and partner buy-in strategy;

c) Articulate program objectives and outcomes;

d) Identify a community college or military installation partner;

e) Explain how the project would result in better outreach, recruitment and matriculation of URM males;

f) Articulate commitment of institutional personnel and resources; and

g) Commit to communicate and demonstrate results.

## Phase II of the MMSI: Selection Criteria

Four institutional partnerships were selected from an applicant pool of 15 to receive the $100,000 grants. The successful university applicants and their identified partners are listed below:

- Alabama A & M University and Lawson State Community College;
- California State University, Fresno and State Center Community College District;
- University of Illinois at Chicago and City Colleges of Chicago; and
- University of Minnesota, Twin Cities and Minneapolis Community and Technical College.

Each of these institutional partnerships, in turn, developed individual project strategies and interventions to complement the two major goals of Phase II of the MMSI noted above.

# About the Authors

## Jared C. Avery, Ph.D.

Jared C. Avery, Ph.D. is the Associate Director for the Office of Access and Success with the Association of Public and Land-grant Universities (APLU). In this capacity, he provides comprehensive support around equity, access, and educational excellence for college student populations and minority-serving institutions. Dr. Avery manages collaborative partnerships and initiatives including the HBCU Innovation, Commercialization, and Entrepreneurship (ICE) Collaborative, the Minority Male STEM Initiative, and the 1890 University Teaching, Research and Innovation Awards.

Prior to joining APLU, Dr. Avery served as the coordinator of the Core to College Program with the Louisiana Board of Regents. Dr. Avery supported the ongoing alignment of efforts concerning college and career readiness standards and the implementation of the college and career readiness assessments in the state. He also oversaw special projects promoting college access and completion within the state agency.

Dr. Avery's research interests include accessibility and degree-completion; academic and leadership development initiatives; and minority serving institutions. Specifically, he has explored how academic and leadership development programs impact the performance and persistence of Black male students and studied the achievement of Black male collegians in the science, technology, engineering, and mathematics (STEM) disciplines. Most recently, Dr. Avery published articles and reports focused on the persistence of African-American male college students and the implementation of senior-year college readiness courses.

A Louisiana native, Dr. Avery is a three-time graduate of Louisiana State University, earning a bachelor's and master's degrees in psychology and education with an emphasis in higher education and student affairs as well as a Ph.D. in Educational Leadership and Research.

## RoSusan D. Bartee, Ph.D.

RoSusan D. Bartee, Ph.D. served as Interim Vice President in the Office of Access and Success (OAS) at the Association of Public and Land-grant Universities (APLU) in Washington, DC. For the two academic semesters of 2014–2015 and 2015–2016, Dr. Bartee served in this administrative capacity while on academic leave from the University of Mississippi (UM) where she is a tenured Professor and Program Coordinator of Educational Leadership (EDLD) in the Department of

Leadership and Counselor Education. During this interim period of time, Dr. Bartee increased APLU member engagement with the Project Degree Completion Award, expanded visibility of the 1890 Universities and alumni through the creation of the 1890 Universities Career Exemplar Award, enhanced collaborative partnerships, and increased the procurement of external-generated funds from philanthropic and related higher education organizations. Dr. Bartee also secured funding from the National Science Foundation where she serves as Principal Investigator for an initiative focused on improving the number of HBCU Professors of Engineering and students in the engineering pipeline. Dr. Bartee advocates and engages strategically to broadly support the work of APLU's Council of 1890 Universities and APLU's Commission on Access, Diversity, and Excellence and the broader APLU membership.

A nationally recognized scholar, Dr. Bartee is the author or editor of three books, the editor of a book series, and is also the author or coauthor of nearly 40 academic publications. In July 2012, Dr. Bartee became the first African American to receive Tenure and Promotion to Full Professor in the Department of Leadership and Counselor Education at the University of Mississippi. Under Dr. Bartee's leadership as UM-EDLD Program Coordinator, the program received nationally recognitions with conditions' status with the Educational Leadership Constituent Council (ELCC). A recipient of the Researcher of the Year Award at the School of Education at the University of Mississippi, Dr. Bartee also teaches graduate-level courses in educational leadership, research methods, and cultural context of education. Prior to becoming a faculty member at the University of Mississippi, Dr. Bartee served as the Associate Director at the National Council for Accreditation of Teacher Education (NCATE) in Washington, DC for the Reading First Teacher Education Network (RFTEN). Dr. Bartee also previously served as Interim Executive Director at the Frederick D. Patterson Research Institute of the United Negro College Fund (UNCF) as well as the Project Coordinator for the Summer Research Opportunities Program at the University of Illinois at Urbana-Champaign.

Dr. Bartee is listed as one of Mississippi's Top 40 Under 40, Distinguished Alumni from the College of Education at the University of Illinois at Urbana-Champaign, Who's Who in Black Mississippi, Who's Who of American Women, Who's Who Among Executives and Professionals, and Who's Who in America. She is also a former Institute of Governmental Affairs Program Fellow (IGAP) at the University of Illinois at Urbana-Champaign and has previously interned with the Office of Civil Rights at the U.S. Department of Education and the White House. Other recognitions include a Mayoral Commendation and College Presidential Citation. Dr. Bartee further served as the Director of the National Educational Policy Forum, one of the activities adjoining the 2008 Presidential Debate at the University of Mississippi, which convened nationally-recognized educational researchers and public policy advocates from across the country.

Dr. Bartee is a member of the American Educational Research Association (AERA), charter task force member with the Boys and Girls Club of America, a Board of Examiners Member for the

National Council for Accreditation of Teacher Education (NCATE; now the *Council for the Accreditation of Educator Preparation*), and former Chair of the Commission on the Status of Women at the University of Mississippi. Dr. Bartee serves as a grant reviewer for the United States Department of Education, program evaluator with national policy and advocacy organizations, institutions of higher education, and school districts, educational consultant for K–12 school contexts and leadership initiatives, and motivational speaker in various public arenas. A recipient of additional awards and honors, Dr. Bartee is a member of The Links, Incorporated, Alpha Kappa Alpha Sorority, Incorporated, and Leadership Lafayette and serves further in civic, religious, educational, and other related affairs at the local, state, national, and international levels.

Dr. Bartee received a Doctor of Philosophy from the University of Illinois at Urbana-Champaign, a Master of Arts in from Northwestern University in Evanston, Illinois and a Bachelor of Arts (*magna cum laude*) from Tougaloo College in Jackson, Mississippi.

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