

# **EXECUTIVE SUMMARY OF REPORTS FROM**

**THE QEM NETWORK WORKSHOP SERIES ON  
INCREASING THE ENROLLMENT AND RETENTION  
OF MINORITY MALE UNDERGRADUATES IN SCIENCE,  
TECHNOLOGY, ENGINEERING, AND MATHEMATICS (STEM)  
AT MINORITY-SERVING INSTITUTIONS (MSIs)**

**SEPTEMBER 2010**

**Prepared by  
The Quality Education for Minorities (QEM) Network  
Washington, DC**

## ABOUT THE WORKSHOP SERIES

The Quality Education for Minorities (QEM) Network conducted three workshops focused on increasing the enrollment and retention of minority males in Science, Technology, Engineering, and Mathematics (STEM). The first workshop was held in Atlanta, Georgia, on March 19-20, 2010, with a focus on African American males; the second workshop was held in Las Vegas, Nevada, on March 26-27, with a focus on Hispanic males; and the third workshop was held on April 9-10, in Albuquerque, New Mexico, with a focus on Native American (American Indian/Alaska Native/ Native Hawaiian) males.

The goals of the workshops were to: (1) identify effective strategies and best practices for increasing male student enrollment and retention at minority-serving institutions (MSIs) in STEM; (2) identify potential reinforcing pipeline options; and (3) prepare and disseminate a summary report on the best practices and key findings discussed during the workshops.

### Workshops' Participants

Generally, each workshop's institutional participants were comprised of two-member teams. Each team included a STEM faculty member actively involved in advising and mentoring STEM students and a student services staff member with recruitment and retention responsibilities. Consultants with relevant research experience and practitioners who have led successful strategies for addressing male underrepresentation in higher education, including in STEM fields, discussed their findings, lessons learned, and recommendations for potential next steps.

A total of 70 persons, representing 34 institutions and one professional organization, attended the workshops. This includes 24 persons, representing 11 institutions, who attended the workshop on African American males; 32 persons, representing 16 institutions, who attended the workshop on Hispanic males; and 14 persons, representing eight (8) institutions and one professional organization, who attended the workshop on American Indian/Alaska Native/Native Hawaiian males.

Presenters and participants in each of the three workshops identified common as well as distinct challenges related to the enrollment and retention of males in STEM disciplines for the respective targeted groups (African Americans, Hispanics, and Native Americans). They also recommended strategies for addressing these challenges. QEM prepared separate reports for each of the three workshops. Drafts of the reports were sent to workshop participants for their feedback. The summary reports in this document reflect this feedback.

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**EXECUTIVE SUMMARY OF REPORTS ON THE QEM NETWORK WORKSHOP SERIES  
ON INCREASING THE ENROLLMENT AND RETENTION OF MINORITY MALE  
UNDERGRADUATES IN SCIENCE, TECHNOLOGY, ENGINEERING, AND  
MATHEMATICS (STEM) AT MINORITY-SERVING INSTITUTIONS (MSIs)  
September 2010**

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**EXECUTIVE SUMMARY**

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**INTRODUCTION**

**THE ISSUE**

African American, Native American,\* and Hispanic male undergraduates are underrepresented among students pursuing degrees in STEM or STEM-related disciplines. This reality is fueled by the fact that each year almost one third of all public high school students – and nearly one-half of all Blacks, Hispanics and Native Americans – fail to graduate from high school with their class. Many of these students, especially the males, abandon school with less than two years left to complete their high school education (*The Silent Epidemic: Perspectives of High School Dropouts*, Bridgeland, Dilulio, and Morrison, a report to the Bill and Melinda Gates Foundation, March 2006).

**HIGH SCHOOL  
GRADUATION RATE**

According to *The 2010 Schott Foundation's 50 State Report on Black Males in Public Education*, the overall 2007-2008 graduation rate for Black males in the U.S. was only 47 percent. Half of the states have graduation rates for Black male students that are below the national average. The Schott report also noted that New York City, the district with the nation's highest enrollment of Black students, only graduates, on time, 28 percent of its Black male students with a Regents diploma. Overall, each year over 100,000 Black male students in New York City alone do not graduate from high school with their entering cohort.

Students who drop out of high school significantly reduce their future chances of attending college, particularly as STEM majors. Dropouts are more likely than their peers who graduate to be unemployed, living in poverty, in prison, and single parenting with children who themselves drop out of high school. This tragic cycle has not substantially improved during the past few decades even though education reform has been high on the public agenda.

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\* For the purposes of this report, the term "Native American" includes American Indian, Alaska Native, and Native Hawaiian.

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Only one-in-ten Hispanic high school dropouts have a General Educational Development (GED) certificate that is widely regarded as the best “second chance” pathway to college, vocational training, and military service for adults who have not graduated from high school. By contrast, three-in-ten white high school dropouts have a GED, according to a Pew Hispanic Center analysis of newly available educational attainment data from the U.S. Census Bureau’s 2008 American Community Survey.

American Indian and Alaska Native students have a dropout rate twice the national average, the highest dropout rate of any ethnic or racial group in the United States. About three out of every ten Native American students drop out of school before graduating from high school, both on reservations and in cities.

### ADDRESSING THE ISSUE

#### ADDRESSING THE ISSUE: WORKSHOPS

To address the issue, the Quality Education for Minorities (QEM) Network, through NSF support, conducted three workshops focused on increasing the enrollment and retention of minority males in Science, Technology, Engineering, and Mathematics (STEM) at Minority-serving Institutions (MSIs). The first workshop was held in Atlanta, Georgia, on March 19-20, 2010, with a focus on African American males; the second workshop was held in Las Vegas, Nevada, on March 26-27, with a focus on Hispanic males; and the third workshop was held on April 9-10, in Albuquerque, New Mexico, with a focus on Native American (American Indian/Alaska Native/Native Hawaiian) males.

#### Goals

The workshops’ goals were to:

- (1) identify effective strategies and best practices for increasing male student enrollment and retention at minority-serving institutions (MSIs) in STEM;
- (2) identify potential reinforcing pipeline options; and
- (3) prepare and disseminate a Summary Report on the best practices, strategies, and key findings discussed during the workshops.

#### WORKSHOP PARTICIPANTS

#### Institutions Eligible for the Workshops

Eligible institutions consisted of MSIs with multi-year awards from the Human Resource Development Division (HRD), the Division of Undergraduate Education (DUE), or the Research on Learning in Formal and Informal Settings Division (DRL) within NSF’s Education and Human Resources (EHR) Directorate as well as from other programs within NSF’s Broadening

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Participation Portfolio. Collectively, the three workshops provided a broad spectrum of representation, experiences, and perspectives of teams from two- and four-year Hispanic-serving Institutions (HSIs); Tribal Colleges and Universities/Alaska Native-serving, and Native Hawaiian Institutions (TCUs); and Historically Black Colleges and Universities (HBCUs).

Generally, each workshop's institutional participants were comprised of two-member teams. Each team included a STEM faculty member actively involved in advising and mentoring STEM students and a student services staff member with recruitment and retention responsibilities. A total of 24 persons, representing 11 institutions, attended the first workshop, in Atlanta; 32 persons, representing 16 institutions, attended the second, in Las Vegas; and 14 persons, representing eight (8) institutions and one professional organization, attended the third, in Albuquerque.

### THE PRE-WORKSHOP SURVEY

#### The Pre-workshop Survey

Prior to the workshops, participating institutions were asked by QEM to respond to the following two questions:

- (1) What initiatives/strategies have been/are being used currently at your institution to increase male enrollment?**
- (2) What does your institution hope to gain from your participation in the workshop?**

Responses to Question 1 included:

#### **(1) WHAT INITIATIVES/ STRATEGIES HAVE BEEN/ARE BEING USED CURRENTLY AT YOUR INSTITUTION TO INCREASE MALE ENROLLMENT?**

- A summer camp focused on academics for minority males ages 12-17;
- Assignment of an outreach specialist focused on recruitment of minority males;
- Establishment of partnerships with local high schools that serve as feeder schools for an institution of higher education;
- Development of a mentoring program for minority males at a local high school;
- Assistance to the Office of Admissions with targeted minority male recruitment activities;
- Operation of a Center of First Year Experience to promote student retention;
- Support for a mentoring, advising, and cultural development program to enhance the academic progress of first-year male students in an effort to increase their chances of progressing to their sophomore year and eventually obtaining a college degree;

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- Utilizing the Web as a recruitment tool;
- Development of a Black male initiative to provide relevant experiences for males that will ensure success academically, professionally, and socially;
- Establishment of a center for STEM education and outreach with a Black male focus; and
- Development of flyers, brochures, and other education materials to promote the enrollment and retention of males in STEM-related disciplines.

(2)  
**WHAT DOES YOUR  
INSTITUTION HOPE TO  
GAIN FROM YOUR  
PARTICIPATION IN THE  
WORKSHOP?**

Responses to Question 2 included:

- Learn about other initiatives and “best practices” pertaining to the recruitment and retention of minority males;
- Network with other institutions facing similar issues regarding recruitment/retention of minority males in STEM;
- Have an opportunity to share our successes and challenges with others and get creative ideas on how to expand our recruitment of minority males in STEM;
- Increase the level of understanding and enhance our skills in regard to the implementation of effective strategies for identification, preparation, and enrollment of minority male students;
- Learn about strategies that will assist our faculty and staff in relating more effectively with male students and helping to ensure their academic success in STEM;
- Gain assistance in establishing the appropriate foundations necessary for successful outreach to increase STEM recruitment and retention;
- Acquaint ourselves with new strategies that we either do not know or have not adopted because of a lack of funding; and
- Gain insights on how to identify success factors in deploying initiatives to recruit and retain minority males in STEM disciplines.

The survey responses were used to inform the typical workshop agenda. The detailed institutional responses to the two survey questions are appended to each of the three separate reports focused on African American, Hispanic, and Native American males, respectively. QEM plans to conduct a follow-up survey during Fall 2010 to ascertain the impact of the workshops on the participants and their institutions.

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### AGENDA HIGHLIGHTS

Highlights of the typical workshop agenda included:

- A Plenary Panel Session entitled Researchers' Perspectives: Broadening the Participation of Males in STEM at HBCUs / HSIIs / TCUs
- A Plenary Panel Session focused on Best Practices with Respect to Increasing Enrollment of Males in STEM at HBCUs / HSIIs / TCUs
- Concurrent Breakout Sessions focused on the Development of Innovative and Creative Strategies at Critical Junctures along the Educational Pathway
- A Plenary Group Discussion of Facilitating/Inhibiting Factors in the Implementation of Initiatives/Programs to Address Male Participation in Higher Education, Particularly in STEM, and Lessons Learned

### WORKSHOP PRESENTERS

Researchers who have conducted seminal research on the undergraduate enrollment and retention of minority male students and practitioners gave presentations to inform the discussion in each workshop and provided a theoretical framework for potential strategies that can be adapted/utilized on the participating campuses. Consultants with relevant research experience and practitioners who have led successful strategies for addressing male underrepresentation in higher education, particularly in STEM fields, discussed their findings, lessons learned, and recommendations for potential next steps. Consultants and QEM staff facilitated the discussions. QEM prepared a report after each of the three workshops that was sent to workshop participants for their feedback. The reports were revised based on the feedback.

### CHALLENGES THAT CONTRIBUTE TO THE LOW PARTICIPATION OF MINORITY MALES IN STEM

### IDENTIFICATION OF CHALLENGES

Presenters and participants in each of the three workshops identified common as well as distinct challenges related to the enrollment and retention of males in STEM disciplines for the respective targeted groups (African Americans, Hispanics, and Native Americans). They also recommended strategies for addressing these challenges. The matrix on the next page provides a summary of the challenges identified in each of the three workshops. The matrix reflects the relative emphases given to a variety of challenges discussed by the participants. As can be seen from the matrix, some of the challenges cited were common to all three of the workshops, while others were emphasized in only one or two of the workshops.

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### CHALLENGES TO INCREASING THE ENROLLMENT AND RETENTION OF AFRICAN AMERICAN, HISPANIC, AND NATIVE AMERICAN MALE UNDERGRADUATES IN SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS (STEM)

<b>CHALLENGE</b>	<b>AFRICAN AMERICAN MALES</b>	<b>HISPANIC MALES</b>	<b>NATIVE AMERICAN MALES</b>
Lack of STEM Exposure at K-12	√		
Lack of STEM Role Models	√	√	√
Failure to Integrate Students' Culture into the STEM Curricula			√
Student Financial Need		√	
Inadequate Mathematics Skills	√		
Negative Self-Perception		√	
Low Expectations from Teachers	√	√	√
Counseling that Directs Students Away from Challenging STEM Courses		√	
Family Influences	√	√	√
Lack of Appropriate Interventions	√	√	√
Negative Peer Pressure	√		
Disproportionate Involvement with the Criminal Justice System	√		
Mistrust of the School System			√
Lack of Faculty Buy-in for Greater Involvement of Minority Males in STEM		√	√
Deficit Model that Blames Students Rather than Institutions		√	
Students' Belief in Stereotypes of Scientists	√		
Failure of Students to See Relevance of STEM to Their Lives	√		

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### CHALLENGES EMPHASIZED IN ALL OF THE WORKSHOPS

A number of challenges were identified through the workshops that contribute to the low participation of African American, Hispanic, and Native American male undergraduate students in STEM. Challenges common across the workshops were:

- A lack of STEM role models for African American, Hispanic, and Native American males;
- Low expectations from teachers;
- Family influences; and
- A lack of appropriate interventions to address the academic underachievement of minority males.

#### STEM Role Models

The participants noted that the identification of STEM role models for students, especially in their early school years, is important to the students' persistence in pursuing STEM-related careers. They also noted that a student's STEM role model need not be of the same race, ethnicity, or gender as the student.

#### Low Expectations from Teachers

Participants mentioned that teachers are the most critical factors in a student's educational achievement at all stages of the academic pathway. Teachers who do not encourage and support their students to achieve at high levels are providing a disservice to the students and undermining their future opportunities. Moreover, a number of teachers not only have low expectations for minority male students but use ineffective pedagogical practices as well in teaching the students.

#### Family Influences

The group indicated that strong family influences exist that encourage males to choose work rather than higher education upon graduation from high school. The group also discussed a need to develop or adopt strategies for increasing the involvement of parents/families in the ongoing academic support structure for students.

#### Lack of Appropriate Interventions

Participants noted a lack of interventions/prevention techniques used by schools that are specifically geared to African American, Hispanic, or Native American males. These interventions should occur all along the educational pipeline and focus on providing hands-on science learning experiences for K-12 students and motivating them to continue their study of STEM-related courses.

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### CHALLENGES EMPHASIZED AT THE WORKSHOP FOCUSED ON AFRICAN AMERICAN MALES

The challenges emphasized exclusively at the workshop focused on African American males were as follows:

- A lack of STEM exposure in grades K-12;
- Inadequate skills in mathematics;
- Negative peer pressure;
- Disproportionate involvement with the Criminal Justice System;
- Students' belief in stereotypes of scientists; and
- Failure of students to see relevance of STEM studies to their lives

#### Lack of STEM Exposure

Participants indicated that African American males were inadequately exposed to STEM learning activities in their early schooling and all along the K-12 educational pipeline. Early exposure to STEM concepts is critical to a student's interest and motivation to persist in the study of STEM.

#### Inadequate Mathematics Skills

While the lack of mathematics skills is a major challenge for all the groups, it was especially emphasized in the workshop focused on African American males. Since mathematics provides a solid underpinning for science and technology, those students whose mathematics skills are lacking will be unable to pursue a STEM-related career or succeed in upper level mathematics and science courses. Overcoming this challenge is critical to the students' future success in a growing technology-dependent global economy.

#### Negative Peer Pressure

The group noted that young African American males are especially influenced by some of their peers to see high academic achievement and focused learning as acting "nerdy" or "uppity." It appears that significant numbers of African American males, particularly adolescents, fall prey to this pressure and never achieve academically at levels for which they are capable.

#### Disproportionate Involvement with the Criminal Justice System

One in three Black men between the ages of 20 and 29 years old is under correctional supervision or control. *Source: Mauer, M. & Huling, T., Young Black Americans and the Criminal Justice System: Five Years Later (Washington DC: The Sentencing Project, 1995).*

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In 2001, the chances of going to prison were highest among Black males (32.2%) and Hispanic males (17.2%) and lowest among White males (5.9%). The lifetime chances of going to prison among Black females (5.6%) were nearly as high as for White males. Hispanic females (2.2%) and White females (0.9%) had much lower chances of going to prison.

*Source: Bonczar, Thomas P., US Department of Justice, Bureau of Justice Statistics, "Prevalence of Imprisonment in the US Population, 1974-2001," NCJ197976 (Washington DC: US Department of Justice, August 2003), p. 8.*

### Students' Stereotypes of Scientists

Scientists are often portrayed in the media as being white males wearing white coats. Minority males do not view these images of scientists as representing role models to whom they can relate. Some of these males also see scientists as nerds who spend all of their time in a laboratory.

### Students' Failure to See Relevance of STEM to Their Lives

Participants mentioned that many students are not aware of the role that STEM plays in their lives and are, therefore, not interested in pursuing a STEM career.

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### **CHALLENGES EMPHASIZED AT THE WORKSHOP FOCUSED ON HISPANIC MALES**

The challenges emphasized exclusively at the workshop on Hispanic males were as follows:

- Student financial need;
- Negative self-perception;
- Counseling that directs K-12 students away from challenging STEM curricula; and
- Use of a deficit model that blames students rather than institutions for academic underachievement.

### Student Financial Need

Student financial need is a challenge for all of the groups but was emphasized in the workshop focused on Hispanic males. Significant numbers of Hispanic males must work while attending college; therefore, they take longer to graduate. This leads to an increase in the time taken to graduate from a two-year or a four-year college. Many of these students drop out or have a difficult time obtaining a STEM degree.

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### Negative Self-Perception

Participants noted that significant numbers of Hispanic males have a negative self-perception and do not believe they can be successful in their educational pursuits. This negative self-perception is reinforced, in some cases, by a school system that also believes that these students cannot be successful in educational achievement, generally, and in STEM, particularly.

### Non-supportive Counseling

The group emphasized that some school counselors advise students not to take challenging academic courses, especially in STEM. This leads Hispanic males, as well as others, down a pathway of low achievement in STEM and limits their access to future opportunities that require STEM-related knowledge and understanding.

### Use of a Deficit Model

Participants observed that in a number of cases the approach to solving the student underachievement problem was to blame the students rather than their institutions. However, the group cautioned that blaming students does not solve the problem. A better approach is to identify and implement institutional strategies that work to improve student academic achievement for all students.

**CHALLENGES  
EMPHASIZED AT THE  
WORKSHOP FOCUSED  
ON NATIVE AMERICAN  
MALES**

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The challenges emphasized exclusively at the workshop on Native Americans were as follows:

- Failure to integrate students' culture into STEM curricula; and
- Mistrust of the school system.

### Integration of Students' Culture into STEM Curricula

Workshop participants noted that the integration of Native American culture into STEM curricula was very important to students' understanding and appreciation of STEM. Another challenge is to identify or modify existing curricula so it can be relevant to the culture of Native Americans.

### Mistrust of the School System

Many Native Americans distrust the school system. Many believe that some schools do not value Native American culture and attempt to assimilate Native students into the majority culture.

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### ADDRESSING THE CHALLENGES

The workshops' participants recommended a number of strategies to address the challenges cited above, including:

- Summer camps in mathematics and science for middle and high school males with a special focus on enhancing student performance in mathematics
- An ongoing campus student support system that provides mentors, study halls, motivational speakers, and role models
- Development of strategies and identification of promising practices at transition points along the educational pipeline
- Identification of mentors for boys at an early age
- Development or adoption of strategies for increasing the involvement of parents/families in the ongoing academic support structure for students
- Formation of new partnerships involving K-12 schools, colleges and universities, community organizations, and business and industry that focus on the academic success of minority males
- Development of strategies to reduce significantly the prison population of African American males
- Identification of funding sources to support initiatives focused on the STEM education of minority males
- Elimination of poor counseling (students advised not to take college preparatory courses, especially in mathematics); do not use counselors who lack familiarity with the range of opportunities available to STEM graduates
- Inclusion of students in hands-on experiences with STEM learning activities
- Involvement of students early in summer informal science experiences and science-based competitions
- Inclusion of activities that involve a student's family
- Having pre-college students interact with STEM college faculty
- Inclusion of incentives such as scholarships for students to pursue a STEM education
- Providing STEM-focused work opportunities for STEM students on- or off-campus
- Improvement in the system for advising potential and current STEM students
- Providing opportunities for pre-college students to experience academic culture at the college level, e.g., dual enrollment programs
- Consideration of STEM curricula that emphasize depth vs. breadth in STEM courses

**KEY  
RECOMMENDATIONS  
FROM WORKSHOP  
PARTICIPANTS**

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Participants also recommended that each institutional initiative, at a minimum, have the following components: peer tutoring; cooperative learning groups; an award for outstanding faculty mentoring; and a strong plan to recruit and retain students. The key recommendations to meet the challenges are shown in the matrix below, by pipeline segments: K-12, Two-Year College, Four-Year College, and Graduate School.

**A VIEW OF THE CHALLENGES AND RECOMMENDATIONS, BY ACADEMIC PIPELINE SEGMENTS**

**WORKSHOP PARTICIPANTS' RECOMMENDATIONS, BY PIPELINE FOCUS**

<b>Recommendation</b>	<b>K-12</b>	<b>Two-Year College</b>	<b>Four-Year College</b>	<b>Graduate School</b>
Summer Camps	X			
Campus Support System		X	X	X
Strategies at Transition Points	X	X	X	X
Early Mentors	X (Middle School)			
Parent/Family Involvement	X	X	X	
New Partnerships	X	X	X	
Reduction of Prison Population	X (High School)	X (Stay in School)		
Funding Sources	X	X	X	X
Counseling of Students	X			
Hands-on Experiences	X	X	X	
Informal Science	X			
Interaction with STEM Faculty	X			
STEM Scholarships	X	X	X	
STEM-focused Work Activities		X	X	X
Pre-college Experiences	X			
Advising System	X	X	X	
STEM Curricula Breadth vs. Depth	X	X	X	

The matrix shows that challenges regarding the recruitment and retention of undergraduate minority males occur at all levels of the education pipeline. This implies that addressing these challenges effectively will require the collaboration and support of individuals and organizations at all segments of the pipeline.

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### RECOMMENDATIONS FOR NEXT STEPS

#### For Institutions of Higher Education

- Develop new collaborations among institutions of higher education and with K-12 school systems designed to address issues of minority males' academic achievement at early stages of a student's academic pathway; where feasible, involve parents and community groups in planning the collaborations
- Form institutional collaborations to seek funding for support of summer activities, as recommended by the workshop participants, that are designed to introduce students to the scientific method as well as acquaint them with scientists and engineers who can serve as role models and/or mentors
- Reach out to local community leaders and families to assess the cultural environment from which males come to respective colleges and universities, to gain ideas for how to more effectively target young men with science and mathematics applications that will have maximal relevance to them
- Implement better training for on-campus faculty, staff, and advisors to increase awareness of the issues facing their respective groups of underrepresented males, and to standardize techniques for attracting and retaining males in STEM fields
- Provide curriculum development, implementation, and assessment of culturally-infused STEM materials for Native American students
- Review goals and objectives of student-focused NSF programs to identify potential funding opportunities (See suggestions on Page 15)

#### RECOMMENDATIONS FOR NEXT STEPS

#### For School-College Partnerships

- Identify successful underrepresented males at respective colleges and local high schools and middle schools, and form partnerships in which these top performers mentor students at the previous level to help them navigate the transition points along the STEM pipeline
- Provide opportunities for young male students to participate in hands-on science, taking advantage of summer programs that can combine active and creative components (athletics, music, art, etc.) with the science and mathematics applications that pertain to them
- Create a listserv focused on strategies for increasing the enrollment and retention of African American, Hispanic, and Native American males in STEM to promote greater information sharing
- Seek support to develop and sustain a database on statistical information and research results that provide measures for "what works" or "what does not work"(and for whom) in attracting and retaining more minority males to college and eventually into the pursuit of a STEM degree

#### NEXT STEPS BY QEM

## EXECUTIVE SUMMARY

### SUMMARY OBSERVATIONS

Based on the results from the workshops, a number of strategies are already in place at minority-serving institutions (MSIs) to enhance the undergraduate enrollment and retention of African American, Hispanic, and Native American males in STEM. However, as noted in this report, a number of challenges exist to mounting a sustained broad-based effort to correct the current situation regarding the underrepresentation of undergraduate males in STEM. We learned, through comments from researchers, practitioners, and others attending the workshops, that a number of factors are critical to addressing the male under-representation issue.

These factors are broad and play a key role in determining what types of solutions to the challenges are feasible. They include, high on the list, early mentoring and strong family support and encouragement for minority male students' to pursue higher education and STEM or STEM-related majors. Mentoring of students at key transitions along the education pipeline (middle school to high school, high school to college, and college to graduate school) is critical to students' decisions to take and be successful in challenging STEM courses. The participants emphasized that mentors need not be of the same race, ethnicity, or gender as the student being mentored.

Workshop presenters and participants also emphasized the importance of collaborations that reach beyond campuses into homes and communities. We learned about the existence of a number of campus programs that involve collaborations as key tools for developing and managing successful activities aimed at getting more minority males to pursue STEM careers. Collaborations provide an underpinning for broadening the participation of individuals and organizations involved in improving the enrollment and retention of minority males in STEM.

To be competitive in a future global economy, the Nation must make a larger investment in the STEM education of its minority males. Failure to make such an investment can weaken our science and engineering infrastructure and inhibit the continuity of the Nation as a world leader in science and technology.

**ACRONYMS AND LINKS TO  
SELECTED NSF PROGRAMS THAT ARE POTENTIAL SOURCES OF SUPPORT FOR  
MINORITY MALE-FOCUSED PROJECTS**

<b>Acronym/ Abbreviation</b>	<b>Title Webpage</b>
<b>I<sup>3</sup> (I-cubed)</b>	Innovation Through Institutional Integration Initiative FAQs: <a href="http://www.nsf.gov/pubs/2009/nsf0918/nsf0918.jsp">http://www.nsf.gov/pubs/2009/nsf0918/nsf0918.jsp</a> Informal Science Education
<b>ISE</b>	<a href="http://www.nsf.gov/pubs/2010/nsf10565/nsf10565.htm">http://www.nsf.gov/pubs/2010/nsf10565/nsf10565.htm</a> Innovative Technology Experiences for Students
<b>ITEST</b>	<a href="http://www.nsf.gov/pubs/2009/nsf09506/nsf09506.htm?org=NSF">http://www.nsf.gov/pubs/2009/nsf09506/nsf09506.htm?org=NSF</a> Math and Science Partnership
<b>MSP</b>	<a href="http://www.nsf.gov/pubs/2010/nsf10556/nsf10556.htm">http://www.nsf.gov/pubs/2010/nsf10556/nsf10556.htm</a> Robert Noyce Teacher Scholarship Program
<b>Noyce</b>	<a href="http://www.nsf.gov/pubs/2010/nsf10514/nsf10514.htm">http://www.nsf.gov/pubs/2010/nsf10514/nsf10514.htm</a> Proactive Recruitment in Introductory Science and Mathematics
<b>PRISM</b>	<a href="http://www.nsf.gov/pubs/2010/nsf10511/nsf10511.htm">http://www.nsf.gov/pubs/2010/nsf10511/nsf10511.htm</a> Research Assistantships for High School Students
<b>RAHSS</b>	<a href="http://www.nsf.gov/pubs/2006/nsf06027/nsf06027.jsp">http://www.nsf.gov/pubs/2006/nsf06027/nsf06027.jsp</a> Research Experiences for Undergraduates Program: <a href="http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5517&amp;from=fund">http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5517&amp;from=fund</a>
<b>REU</b>	Solicitation: <a href="http://www.nsf.gov/pubs/2009/nsf09598/nsf09598.htm">http://www.nsf.gov/pubs/2009/nsf09598/nsf09598.htm</a> Scholarships in Science, Technology, Engineering, and Mathematics
<b>S-STEM</b>	<a href="http://www.nsf.gov/pubs/2009/nsf09567/nsf09567.htm">http://www.nsf.gov/pubs/2009/nsf09567/nsf09567.htm</a> Science, Technology, Engineering, and Mathematics Talent Expansion Program
<b>STEP</b>	<a href="http://www.nsf.gov/pubs/2008/nsf08569/nsf08569.htm">http://www.nsf.gov/pubs/2008/nsf08569/nsf08569.htm</a> Undergraduate Research and Mentoring in the Biological Sciences
<b>URM</b>	<a href="http://www.nsf.gov/pubs/2010/nsf10531/nsf10531.htm">http://www.nsf.gov/pubs/2010/nsf10531/nsf10531.htm</a>

## PARTICIPANTS

The institutions participating in the QEM Network three-part workshop series on minority males in STEM at minority-serving institutions (MSIs) are listed below. The first workshop was held in Atlanta, Georgia, on March 19-20, 2010, with a focus on African American males; the second workshop was held in Las Vegas, Nevada, on March 26-27, with a focus on Hispanic males; and the third workshop was held on April 9-10, in Albuquerque, New Mexico, with a focus on Native American (American Indian/Alaska Native/Native Hawaiian) males.

### Atlanta Workshop Focused on African American Males

Bowie State University	Lincoln University of Missouri
Chicago State University (PMI)	North Carolina A&T State University
Edward Waters College	Philander Smith College
Fayetteville State University	Texas Southern University
Florida Memorial University	University of the Virgin Islands
Houston Community College (PMI)	

### Las Vegas Workshop Focused on Hispanic Males

California State University, Long Beach	South Texas College
California State University, Los Angeles	Texas A&M International University
Chaffey College	Texas A&M University-Kingsville
Colorado State University-Pueblo	The National Hispanic University
Los Angeles Harbor College	Universidad Del Este
Northern New Mexico College	University of Houston-Downtown
Pasadena City College	University of New Mexico Valencia Campus
San Diego City College	University of Texas at Brownsville

### Albuquerque Workshop Focused on Native American Males

AMERICAN INDIAN SCIENCE AND ENGINEERING SOCIETY
Dine College-Shiprock Campus
Haskell Indian Nations University
Lac Courte Oreilles Ojibwa Community College
Sitting Bull College
University of Alaska Fairbanks, Bristol Bay Campus
University of Alaska Fairbanks, Interior Aleutians Campus
University of Hawaii at Hilo

## About the QEM Network

The Quality Education for Minorities (QEM) Network was established in July 1990, as a non-profit organization in Washington, DC, dedicated to improving education for minorities throughout the nation. It is the successor organization to the MIT-based QEM Project that was funded by the Carnegie Corporation of New York. With initial support from Carnegie and MIT, QEM began its operation as a focal point for the implementation of strategies to help realize the vision and goals set forth in the QEM Project's January 1990 report: *Education That Works: An Action Plan for the Education of Minorities*.

QEM seeks to put into practice the recommendations in the QEM Action Plan by working with minority and non-minority individuals, organizations, and institutions around the country to help coordinate and energize efforts to improve the education of minorities, particularly in STEM. The QEM Network engages in activities designed to:

- ◆ Promote, and disseminate information on, promising research results on the education of minorities, and serve as a resource in evaluating educational programs and projects;
- ◆ Stimulate and assist in the development of programs to increase the number of minorities in science and engineering fields;
- ◆ Implement a series of workshops in areas of special interest such as the under-participation of minority males in STEM and concerns of women STEM faculty at Hispanic-serving institutions;
- ◆ Provide technical assistance to faculty and administrators at minority-serving institutions (particularly Historically Black Colleges and Universities, Tribal Colleges and Universities, and Hispanic-serving Institutions) in the development of their proposal ideas into competitive proposals for submission to: cross-directorate programs at NSF such as CAREER and Major Research Instrumentation; programs in the Foundation's Education and Human Resources Directorate such as Math and Science Partnerships, Innovation through Institutional Integration, Historically Black Colleges and Universities Undergraduate Program (HBCU-UP), and Tribal Colleges and Universities Program (TCUP); and programs in NSF Research Directorates;
- ◆ Assist new STEM project directors through workshops and campus visits in the successful implementation of their funded multi-year projects, particularly during the initial years; and
- ◆ Strengthen the leadership capabilities of STEM faculty, staff, and students at minority-serving institutions, particularly at HBCUs and Tribal Colleges and Universities, to help ensure greater diversity in the leadership of campus-based STEM projects. Pathways to leadership development have included Leadership Development Institutes for STEM faculty at TCUs and HBCUs; Health-focused Student Summer and Academic Year Internships; Summer student Science Internships and short-term Academic Year Faculty Appointments at NSF; and Research Appointments at major NSF-funded Research Centers.

This unique array of opportunities and approaches has enabled QEM to establish an extensive network of STEM faculty, administrators, and students and to successfully engage in a range of institutional and individual capacity-building activities. Strategies employed and lessons learned the implementation of one project inform approaches in other projects. With the assistance of experienced STEM consultants and evaluators, QEM offers high quality technical assistance, encouragement, and follow-up support to chief academic officers, STEM faculty, and STEM students at a range of minority-serving institutions as well as underrepresented minority faculty at non-minority institutions.

**QEM Network Minority Males in STEM Workshop Series Report:  
Executive Summary, August 2010**

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