

FINAL REPORT

Spring 2010 Workshop on the Recruitment and Retention of African American Male Students in Science, Technology, Engineering and Mathematics (STEM)

SEPTEMBER 2010

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

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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.

This material is based upon work supported by the National Science Foundation under Grant # 0951625. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

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Quality Education for Minorities (QEM) Network Workshop on the Recruitment and Retention of African American Male Students in STEM Atlanta, GA • March 19-20, 2010

INTRODUCTION

The Quality Education for Minorities (QEM) Network, through support from the National Science Foundation (NSF), conducted a workshop focused on increasing the enrollment of African American males in Science, Technology, Engineering, and Mathematics (STEM). The workshop, held in Atlanta, Georgia, on March 19-20, 2010, was the first in a three-part series focusing on minority males. The second workshop was held in Las Vegas, Nevada, on March 26-27, with a focus on Hispanic males; and the third one 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 Atlanta workshop were to:

- (1) identify effective strategies and best practices for increasing male student enrollment at HBCUs 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 workshop.

The workshop institutional participants were comprised of two-member teams from each of ten (10) Historically Black Colleges and Universities (HBCUs) and one Predominantly Minority Institution (PMI). 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 under-representation in higher education, including in STEM fields, discussed their findings, lessons learned, and recommendations for potential next steps.

Institutional Teams' Current Recruitment/Retention Strategies Based on Responses to Questions on the Enrollment of African American Males

QEM asked participants prior to their coming to the workshop to respond to two questions regarding their current strategies for recruiting and retaining African males in STEM.

Question 1: What initiatives/strategies have been/are being used currently at your institution to increase male enrollment?

Question 2: What does your institution hope to gain from your participation in the workshop?

The questions and the responses from institutional teams are at **Appendix A**.

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Enrollment of African American Males in Higher Education at Historically Black Colleges and Universities (HBCUs)

In Fall 2007, the enrollment of African American male students at Historically Black Colleges and Universities (HBCUs) was 119,330 as compared with an enrollment of 190,270 for African American female students. Females represented 61.5 percent of the total enrollment in HBCUs, while African American males represented only 38.5 percent.

The following table shows the attainment in 2007 of STEM bachelor's degrees from HBCUs by African Americans, by gender and discipline.

Bachelor's Degrees in STEM Conferred to African American Males and Females by Historically Black Colleges and Universities, 2007

DISCIPLINE	Females	Males	Total
Engineering	238 (36.7%)	410 (63.3%)	648
Physical Sciences	265 (68%)	125 (32%)	390
Geosciences	6 (66.7%)	3 (33.3%)	9
Mathematics and Computer Sciences	514 (41.1%)	736 (58.9%)	1,250
Life Sciences	2,784 (79.7%)	710 (20.3%)	3,494
Psychology	1,618 (82.6%)	340 (17.4%)	1,958
Social Sciences	1,530 (68%)	721 (32%)	2,251
Science and Engineering Technologies	365 (46.7%)	417 (53.3%)	782
Total	7,320 (67.9%)	3,462 (32.1%)	10,782

Source: WEBCASPAR, NCES Population of Institutions

Overall, African American females earned 67.9 percent of bachelor's degrees in STEM awarded by HBCUs, whereas African American males earned only 32.1 percent of the STEM degrees. However, in the fields of engineering and mathematics/computer science, males earned more degrees than females. It should be noted that these fields generally lead to higher-paying positions in the workforce.

Other Data Highlights

In 2006, the Schott Foundation for Public Education issued a national state-by-state report titled "Public Education and Black Male Students." According to the report, during the 2003-2004 school year, 55 percent of African American males did not receive diplomas with their classmates four years after beginning high school.

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A number of states were below the national average in the graduation rate of African American males. For example, Florida and Nevada failed to graduate a third of their African American male students. Seven states (Delaware, Georgia, Illinois, Michigan, New York, South Carolina, and Wisconsin) failed to graduate more than the national average for African American males. The report also noted that African American males who dropped out of school were heavily concentrated in large cities such as New York City, Detroit, and Chicago. These cities failed to graduate between two-thirds and three-fourths of their African American male students.

Findings from U.S. Office of Civil Rights annual surveys reveal that African American males make up a disproportionate percentage of students who are in special education, alternative schools, and remedial classrooms. They also are overrepresented among students who are diagnosed as being mentally retarded, having learning disabilities, and having serious emotional disturbances.

Additionally, research shows that an increasing correlation exists between African American males who perform poorly in school and their subsequent involvement with the penal system. According to 2005 data from the Bureau of Justice Statistics, African American males outnumber all other racial/ethnic groups in the prison population and have an incarceration rate that is five times higher than the rate for White males. Department of Justice statisticians project, based on 2008 demographics, that one in every three African American males in their 20s and 30s can expect to spend time either incarcerated, on probation, or under some type of jurisdiction of the penal system during their lifetime.

Factors that Contribute to the Underrepresentation of African American Males in STEM

Workshop participants discussed a number of factors that contribute to the disproportionate enrollment of African American males in STEM. The factors discussed included:

- Lack of STEM exposure at K-12 (e.g., classes, science fairs, and field trips)
- Lack of STEM role models/mentors K-graduate school
- Peer pressure that leads away from high academic achievement and persistence to succeed
- Lack of strong mathematics skills; mathematics phobia
- Inability of students to delay gratification (i.e., prefer to make money as soon as possible)
- Students' repeating courses that result in a longer time to graduation
- Students' belief in stereotypes of what science is, what kinds of people are scientists, and what scientists do
- Low expectations from teachers all along the education pipeline
- Failure of students to see the relevance/application of science to their lives
- Inadequate access to higher education because of financial needs

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Recommendations from Participants

To address the factors mentioned above, Workshop participants suggested a number of strategies, including:

- Summer camps in mathematics and science for middle and high school males with a special focus on enhancing student performance in mathematics — It was noted that the mathematics barrier must be removed before there can be any significant change in the number of African American males successfully pursuing STEM degrees.
- An ongoing campus support system for students that provides mentors, study halls, and motivational speakers and role models — Participants recommended a comprehensive approach that involves faculty and staff in supportive roles.
- Adoption of strategies for increasing/encouraging the involvement of students in extra-curricular activities as well as build a support system for their college and STEM pursuits — The STEM Student/Graduates panelists advised that African American males be engaged in science clubs/fairs at the pre-college level; find a mentor in college as soon as possible; participate in undergraduate research; and work in study groups to support each other's learning.
- Development of strategies and identification of promising practices at each transition point along the educational pipeline — The group discussed strategies and promising practices at various transition points—from elementary to middle school, from middle to high school, and from high school to college.
- Creation and implementation of more activities for K-12 African American males that have both strong motivational and learning components — Some members of the group emphasized the need for K-12 teachers and college faculty to make mathematics and science relevant to students' interests in order to motivate their learning and appreciation.
- Identification of mentors for African American boys at an early age — Mentors need not be of the same race/ethnicity or gender of the student being mentored; mentors should have high expectations for students, challenge their thinking, and be concerned about their academic success.
- More opportunities for older African American boys to serve as role models for younger boys — The older boys will have a deeper understanding of the issues that confront the younger boys and what might be done to address these issues, whether academic or personal.
- Development or adoption of strategies for increasing the involvement of parents/families in the ongoing academic support structure for students — This recommendation was made by several participants who had established programs that involved parents/families in supporting students' academic and career aspirations.
- Formation of new partnerships involving K-12 schools, colleges and universities, community organizations, and business and industry that focus on the academic success of African American males — Many participants expressed the critical role partnerships can play in supporting and guiding African American males to academic success, and eventually to the STEM workforce, at all points along the education pathway.

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- Development of early strategies to significantly reduce the prison population of African American males — The achievement of this goal is key to a major change in the academic achievement of African American males, since Black men are incarcerated at a rate of one in 20, as compared with one in 155 for White males. For every three Black men in college, four are in prison. (Department of Justice, Bureau of Justice Statistics, “Prison and Jail Inmates at Midyear 2002,” April 6, 2003.)
- Examination of the impact of all-male K-12 schools on academic achievement, and replication of this model for African American males if it is deemed to be effective — While all-male K-12 schools were mentioned as possible strategies for improving the academic achievement of African American males, they were not discussed in detail. Evidence exists on the success at some of these schools. For example, at Urban Prep Charter Academy for Young Men in Chicago, all of its 107 seniors have been accepted for admission to a four-year college. However, there are individuals who insist that single-sex schools are in violation of the Constitution or existing civil rights laws.
- Increase in the access of African American students to a quality education through ensuring that they have caring and knowledgeable teachers who have high expectations for their students’ academic success — Many underachieving students, especially in urban areas, attend schools in which a number of their mathematics and science teachers are not certified to teach these subjects and, thus, cannot enhance student learning and provide a solid underpinning for these subjects at the next level. Even though students may be successful academically, they may not have had strong STEM curricula that adequately prepared them to succeed at higher levels.
- Increase in the college aspirations and college access of African American males — One workshop presenter discussed his research on several factors that promote college aspirations among school-age African American males. Academic and school-related, family, interpersonal, and motivational factors were part of the discussion.
- Formation of partnerships among HBCUs that focus on strengthening the awareness and training of faculty and staff on promising practices for recruiting and retaining students as STEM majors until graduation — Participants also discussed options for the formation of partnerships among HBCUs that would address common problems and promote the sharing of information on promising practices that can be replicated across participating institutions.
- Identification of funding sources to support initiatives focused on the STEM education of African American males — A National Science Foundation (NSF) program officer described opportunities for support available through broadening participation efforts at NSF. Funding opportunities available at other federal agencies and private foundations also was discussed.
- Alignment of the STEM education of African American males with emerging and future workplace opportunities — This recommendation urges the country to help ensure that the education of African American males in STEM will be aligned with future opportunities generated by emerging technologies related to health, energy, and the environment.

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AGENDA HIGHLIGHTS

FRIDAY, MARCH 19, 2010

Overview of STEM Research Findings to Date (Data and Lessons Learned) on STEM Participation and Achievement of African American Males

Key points from remarks by panelist Dr. Terrell Strayhorn

According to Dr. Strayhorn, while most racial/ethnic subgroups have seen significant progress in their postsecondary enrollment, little or no progress has been made in increasing participation rates among Black men over the last quarter of a century. He noted further that Black male youth often do not have access to or are discouraged from participating in college preparatory curricula and activities. Teachers and counselors often do not direct Black male youth to college prep opportunities such as advanced mathematics courses. As a result, only 1 in 15 Black male youth is actually prepared for college-level work.

Dr. Strayhorn asserted that Black men are often viewed as an at-risk population in education and tend to be described with words that have negative connotations such as uneducable, endangered, dysfunctional, dangerous, and lazy. The use of such terms to describe Black males exacerbates the problem since disparaging words can perpetuate negative stereotypes among educators which, in turn, can become self-fulfilling and “self-threatening” to Black men. The consequences of such challenges tend to compromise the academic achievement of Black men and often lead to dissatisfaction with school. Dissatisfaction is a significant predictor of and precursor to leaving college.

Key points from remarks by panelist Dr. Henry Frierson

- Students learn where teachers teach - teachers are important to students’ success. We need better teachers.

STEM Statistics (data for Black students of all ethnicities; does not include social sciences)

- In 2007, one Black male received a doctorate for every two Black females, a complete reversal of the data from 1977
- Even when you combine the number of Black males and females who receive doctorates, the numbers are still low compared to the overall number of PhD recipients.
- The percentage of Black males who received doctorates decreased between 1977 and 2007 from 753 to 703 in spite of the fact that the number of Black PhD recipients that year was the highest recorded.
- In spite of general belief about the educational status of Black males, 85% have a high school diploma or the equivalent.
- Today there are far more programs for minority students than there were in the 1980s where the number of Black PhD recipients precipitously dropped from the numbers attained in the 1970s.

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- Black males should be encouraged to participate, to engage in academic enrichment and research programs. The numbers participating are far too low.
- Black males at all levels should be encouraged to form academic support groups among their peers and provide support for one another to promote academic achievement.

Research-based Strategies and Best Practices in the Recruitment and Retention of African American Males in STEM

Key points from remarks by panelist Dr. Bryant Marks

According to Dr. Marks, African American male students prefer, respond to, and learn from teachers who:

- Have an engaging teaching style
- Make learning interesting and relevant to student interests and experiences
- Inspire them to work hard
- Respect them
- Are strict and caring

He mentioned that, in a study of 537 high school seniors surveyed in 2002 by Noguera¹, 80 percent of Black males felt that their teachers did not support/care about them, while only 29 percent of White females felt that way.

Practices suggested by Dr. Marks for recruiting and retaining African Americans in STEM were as follows:

- Get to know the students (e.g., their interests, hobbies, and challenges)
- Incorporate their interests/experiences into the classroom (e.g., use teaching teams)

Other key points made by Dr. Marks included the following:

- Know your students and try to pull out their best efforts
- Lack of STEM exposure hurts students- under-preparedness is the issue, not ability, particularly in mathematics
- Engage students and introduce them to science when they are young
- Many people want or need academic success to correlate directly with financial success
- Students need advisors, not just academic advisors
- Make information relevant and engaging
- Get to know your students- be aware of how they behave, know what they like, and use it to engage them
- Use history to develop a sense of efficacy
- Demonstrate that you care about them and their futures

Key points from remarks by panelist Dr. Karl Reid

¹ The Trouble with Black Boys: The Role and Influence of Environmental and Cultural Factors on the Academic Performance of African American Males, by Pedro Antonio Noguera, Cambridge, Massachusetts. Pedro A. Noguera, Ph. D. is a Professor in the Graduate School of Education at Harvard University.

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Dr. Reid discussed a freshman efficacy seminar model. He described the seminar as being:

- Residence-based
- A resource for discussions and activities based on readings that critically identify factors that foster academic performance and psycho-social well-being
- Facilitated by an academic advisor/mentor

Seminar participants met weekly in the fall and bi-weekly in the spring. The seminar included a 40-minute review of participants' goals, academic assignments, commitments, and outcomes from the previous week. Ensuing discussions centered on participants' challenges and concluded with a collaboratively generated solution.

The persistence rate for STEM students participating in the seminar was 15 percentage points higher than the average for underrepresented minorities who did not participate in the seminar. Additional points made by Dr. Reid included the following:

- Gates Scholarship Program and the UNCF are good funding sources for students
- Technology can be used to improve students' academic performance
- Confidence matters-high level of self-efficacy increases students' academic performance
- Students must engage in undergraduate research-leads to higher GPAs, and higher graduation rates
- Positive racial identity matters-strong black identity correlates with being a good student
- Students should excel, not merely persist
- Meet with students to help them identify strategies to improve their academic performances, to identify challenges they have or may face, and to identify things that may make them more successful
- Success should be linked with effort, not just ability
- Students should form achievement groups and make commitments, achievement contracts, to/with each other
- Positive, reinforcing messages and high expectations are key to student achievement
- Students in seminar had a 100 percent six-year graduation rate
- Social integration matters- involvement on and off campus is related to academic success (success defined as GPA of 3.0 or higher)

Key points from remarks by panelist Dr. Edward Walton

Dr. Walton described programs in support of African American males at his institution. He mentioned the Science Educational Enhancement Services (SEES) program that involves an orientation course on time management and careers and includes mentors/speakers and field trips for participants. All participating students attended at least one professional meeting. The first-year persistence rate for SEES participants was 80 percent and 77 percent for all students. Dr. Walton also stated that he had traveled to New York to visit and observe the Black Male Initiative at New York City Technical College.

Other points by Dr. Walton included the following:

- Make students believe they belong at an institution
- Involve parents
- Develop exchange programs between institutions

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Key Points from Report on Concurrent Sessions: A Closer Look at Critical Junctures Along the Educational Pathway

- Ohio government spent \$20 million to improve Black male performance (as measured by graduation rates)
- Cognitive ability not an issue
- HBCUs educate students well and are good models for Black students
- Culture is important in the way students perform and determine their aspirations
- Achievement gap is present among high earners as well
- People educate people- find good people who can help students
- Stigmas affect all students- stigmas about students and stigmas about the institutions they attend
- Students should study four hours per course hour
- Effort equals success- students often don't study enough
- Faculty composition is important- for example, faculty from other countries may not understand the culture of the students they teach
- Cultural awareness/relevance orientation should be implemented for faculty to teach them about the student body
- Black students are significantly impacted by their professors' perceptions of them
- Make teaching outcomes a part of tenure requirements
- Secondary and post-secondary articulation agreements are important, as are dual-credit programs
- Target community college students and help them transition to four-year institutions
- Make vocational opportunities available to students who don't want to go to four-year institutions
- Parents need to be involved
- Use NSF initiative that focused on women to identify ways to increase male retention/recruitment
- Retention/recruitment problem should be addressed at each junction in the pipeline
- Elementary students should be exposed to STEM
- Kids need soft skills (note- and test-taking skills) to be successful students
- Students should study in groups
- Freshman orientation is important because it helps develop a sense of community and can be used to teach skills
- Establish partnerships with the K-12 schools from which the students come
- Make sure students know you want them at your institution
- Use college students to tutor and engage younger students in STEM fields
- Inundate students with information and build relationships with them
- Create programs that can survive someone leaving (sustainable initiatives)
- Share information about funding opportunities

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- Teach high school counselors how to better advise students

Key Points from Group Discussion:

Critical Factors in the Implementation to Address African American Males' Participation in Higher Education and STEM

- Environmental barriers at certain institutions limit the implementation of programs for Black males
- An effective coalition is required to create and maintain programs
- The academic and institutional infrastructure must allow for the implementation of programs
- Faculty need certain skills to help students and must be encouraged to use those skills
- Culture should be incorporated into the curriculum
- Make information accessible and tie it to real world events
- Understand the program you want to replicate should you decide to model your program after another
- Project management is important

Promoting College Aspirations

Key points from remarks by panelist Dr. Ivory Toldson

Dr. Toldson discussed his research that explores school-related, interpersonal, social, and family factors associated with college aspirations among school-age Black males. According to Dr. Toldson, much of the literature on college aspirations among Black males suggests that African Americans aspire to attend college at rates similar to their white peers.

However, research evidence suggests that many unique school and social barriers prevent Black males from accessing institutions of higher education. Moreover, Black males have demonstrated distinct patterns in achieving educational goals that have implications for the work of counselors, teachers, families, and educational activists.

Dr. Toldson found that Black males who aspire to go to college have a more positive perception of school, more congenial relationships with their teachers and perceive school as a safe drug-free environment. However, he noted that Black male students with no plans after high school were considerably more prone to sense unfairness from teachers and the overall school experience. Dr. Toldson's findings imply that reducing racial discrimination, improving school conditions in disenfranchised communities, and elevating teacher cultural competence are important to promoting college aspirations.

Other points made by Dr. Toldson included the following:

- Black males want to go to college as much as anyone else; the problem is a significant number of them do not go
- Black males are more sensitive than white males to the perception of their teachers' fairness

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- Parents' academic achievement has an impact on black males' aspirations, particularly whether they go to college

Key Points from remarks by panelist Dr. Bryant Marks

- Encouragement and caring from teachers matter
- Teachers should be strict, or, at minimum, not fear their students
- Teachers must care for and demand a lot from their students
- Time management is an important skill
- Students should be disciplined and committed to do what needs to be done

Barriers to a STEM Education: Views from a Student and STEM Graduates

During the dinner session on Friday evening, March 19, a panel consisting of two STEM graduates and a current STEM major, all from Morehouse College, discussed personal experiences regarding barriers and influences to their success in STEM. The panelists were Mr. Travis Bolden, Research Assistant at QEM Network and a Mathematics graduate; Mr. Jai Smith-Avery, Project Assistant at QEM Network and a Psychology graduate; and Morehouse junior, Mr. Benjamin Greene, a Kinesiology major. All of the panelists agreed that Morehouse had very strong mentors who engaged students in research as early as the freshman year. Also, all agreed that their families were supportive of their academic pursuits.

Key points from remarks by panelist Mr. Travis Bolden

Mr. Bolden noted that the mentoring he received in graduate school was not as encouraging as the mentoring he received from Morehouse. He stated further that his graduate mentor assumed that he did not have a strong background in mathematics before talking with him. However, Mr. Bolden proved to be a strong student who overcame the issues with his mentor.

Key points from remarks by panelist Mr. Jai Smith-Avery

Mr. Smith-Avery talked about his group study with peers and how members of the group supported each other. He not only participated in research at Morehouse, but conducted research under a mentor at other institutions through the Research in Undergraduate Institutions (RUI) program. Mr. Smith-Avery reported that he had a good relationship with his mentor at Morehouse. He also remarked that he was in a gifted and talented program from elementary through high school, and his family and teachers always expected him to do well. He emphasized that students should be engaged in conversations about college and what to expect at an early age.

Key points from remarks by panelist Mr. Benjamin Greene

Mr. Greene noted that his family was very supportive of his decision to pursue a degree in Kinesiology and of his interest in sports medicine. He said that Morehouse is providing him with a strong underpinning for future work in this area. Mr. Greene also has completed an internship and volunteer activities to gain more exposure to his field of interest.

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In summary, the panelists would give the following advice to African American males who aspire to assume a STEM career:

- Become engaged in science clubs and science fairs at the precollege level;
- Find a mentor in college as soon as possible;
- Participate in undergraduate research;
- Participate in extra-curricular activities beyond STEM to be connected to the total campus; and
- Work together in study groups and support each other's learning.

SATURDAY MARCH 20, 2010

Groups of Institutional Teams Meet to Discuss their Programs/Ideas with QEM Consultants Based on the Overnight Assignments

Key Points from Group Reports

Go to the community; form an executive committee for a program; monitor effectiveness; form pipeline from middle to high school; train mentors; use undergrads as mentors; use intrusive advising; get parents involved (or other relatives); and use social networking technology

Other key points: tweak existing programs; develop a learning community; create selection criteria; introduce research careers; include algebra in learning community; give mentoring program support; provide early support in mathematics; teach low-achievers how to achieve; team and supplemental instruction; cross cultural instruction; create an agreement (in-campus) on how to bring males into stem; mandatory tutoring; extend class time; partner with high school; publicize what the schools do

Identify students early; create a program similar to the Duke TIP program; involve faculty in recruitment efforts; incorporate faculty in retention efforts as well; improve faculty advisement skills; restructure program to profile successful seniors in STEM to create a profile of good STEM students

Establish a post-doc program- create a program, a potential pipeline for new faculty; recruit ABD students who can teach labs as well as some courses apply for NOYCE; transfer STEM faculty who may have lost interest in teaching in their departments to education (teach STEM education courses); create a summer enrichment programs, magnet programs, high school partnerships with a STEM-focused bent- vocational program for student interested in STEM

Buy-in from faculty and administrators is necessary to make programs work- if possible, find a high positioned person to push programs forward; faculty leadership- it is difficult to change culture (behavior) of faculty; find people who have a genuine passion for the potential

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programs; HBCUs at one point were nurturing environments, but now the faculty at the institutions may not care about the students as much

Key Points from Teams

Chicago State University

- Five-month old program 400 men have participated or interacted with program staff
- Study group for males
- Identified barriers to education for black males
- \Partnered with high school (talk to seniors, juniors)
- Use cultural tools to work with students
- Self-sufficiency, self-efficacy, and ethnic pride
 - Community building
 - Economic empowerment
 - Rituals leading to STEM
 - Routine
 - Communalism
 - Empathy in effect (make science seem more warm, accessible)
 - Spirituality and African-centeredness

Fayetteville State University

- Has several STEM or STEM-related programs/funding, including STEP, S-STEM, and LSAMP, but no focused program
- Established a center to integrate STEM programs/funding (programs listed above)
- Took STEM students to Africa (individual trip, not a program)- proposed to Provost to start a study abroad program to Africa- that program was not funded
- Wants to set up a portion of their program to target black males
- Faculty members do not nurture students
- Black males are leery of mathematics and therefore major in other areas
- Many Black males do not have high enough SAT scores to major in STEM

Houston Community College

- Large number of international students
- Seek support from Congress
- Summer bridge program for minority males
- Resistance from faculty to work with younger students (including secondary school students)

North Carolina A&T State University

- Program for Black males in animal science majors
- Began by meeting with students and talking to them about things that will make them successful

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- Brought in speakers resumé building, internships, career information, leadership
- Lunch meetings
- Students are slowly taking over the initiative
- Mentoring and advising

Philander Smith College

- Black male initiative started by president, not just STEM, but all majors
- Meet with males, small scale meetings over lunch to listen to the students and to answer their questions
- Two STEM initiatives HBCU-UP and LSAMP 180 stem majors
- Summer bridge component (15-20 percent male)
- General mentoring portion

Texas Southern University (TSU)

- Institution has a few STEM post-docs
- Enrollment and faculty now have a working relationship
- Center for STEM education and outreach to reach the high schools that provide the most students to TSU- many of those schools were in danger of being closed
- Decided to move down the pipeline using the center (K-12) to focus on minority males
- Last year, TSU began the process to create a science education program
- Institution has a teacher quality and retention institute
 - 60 STEM majors spend two weeks at TSU and will study inquiry-based learning and other topics
 - Pilot program currently operating
- Goal is to involve education department

University of the Virgin Islands

- Brothers with a Cause Program started recently
- Mentoring
- Goals, core values, music production, personal finance
- Work with at-risk students
- Celebrity science tour- scientists come in to visit school to speak to students and to mentor them

Factors that Influence Decisions to Major in STEM

Key points from remarks by Speaker Dr. James Moore

Dr. Moore identified several factors that influence African American males' decisions to major in STEM. According to Dr. Moore, the most salient factors pertaining to a student's decision to pursue engineering as an academic major and career choice are as follows:

- Strong interests in STEM
- Strong familial influence and encouragement

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- Strong aptitudes in science and mathematics
- Meaningful academic experiences and relationships with school personnel
- Meaningful enrichment programs, opportunities, and academic experiences

Implications of Dr. Moore's Research Results: Teachers play a critical role in the educational process of Black males and it is, therefore, important that they use and develop pedagogical strategies that increase educational and career aspirations for Black male students. It also is essential that teachers cover content in their courses that is expected of college students in general and STEM majors in particular. Teachers should understand how teacher-student interactions affect school outcomes and career aspirations for Black males. Dr. Moore noted that enrichment programs and courses are excellent ways to expose Black males to STEM.

He stated that Ohio is considering instituting a statewide program focused on Black males, much like the one in Georgia. He also reported that Ohio State University retention rate for Black males is 91.2%; for those who participate in the early arrival program, it's 97%.

Other Key Points made by Dr. Moore included the following:

Diversity is popular when money is available for it; there are social and economic impacts when Black males are not successful; the achievement gap begins in the womb (healthcare, etc.); Black males have the mental capacity (cognitive ability), there is no deficit- the issue is "soft skills"; Black males are profoundly affected by their teachers' perceptions of them; Black men are put in special education at disproportionately high rates and are not put in gifted program as often; males are behind females in science and reading; males are 60 percent of all STEM majors, females are 40 percent, but more women get degrees.

Additional observations by Dr. Moore follow:

Demographics of the workforce are changing, thus the interest in diversity in STEM; lack of access to relevant capital; lack of strong support family and academic environment; "Parents are the first university"; socio-behavioral modifications needed to improve academic identity and attitude; social integration is important; lack of integration can lead to 'academic suicide'; programs for young students are needed, including supplementary educational experiences; students must be exposed to academic role models; children need to be exposed to STEM careers/fields; and accessibility of post-secondary education depends on strong social and academic networks (social capital).

Finances are a problem for many minority students; students must have a strong interest in STEM to be successful; rich interactions with teachers/faculty help improve student performance; students need both an education and a plan; parents are key in developing a child's interest- consider developing a parents' institute for fathers; strong aptitude in mathematics and science required to be successful in STEM; some Black students have undiagnosed learning disabilities; good students are often lost because students are evaluated poorly; national/regional tests do not accurately measure academic ability; minority students, particularly Black students, do not perform as well as students from other ethnic/racial groups on standardized tests- GPA is a better predictor; and institutions of higher education should do more to improve K-12 education.

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Potential Sources of Support

Key points from remarks by Dr. Caesar Jackson

Dr. Jackson provided an overview of the National Science Foundation and described opportunities for support available through broadening participation efforts at NSF. Some of the programs he described were:

- S-STEM: Scholarships in Science, Technology, Engineering, and Mathematics
- CCLI: Transforming Undergraduate Education in Science (TUES)
- STEP: Science, Technology, Engineering, and Mathematics Talent Expansion Program
- REU: Research Experiences for Undergraduates Program

Dr. Jackson also described the Discovery Research K-12 (DR K-12) Program that encourages proposals that consider new and innovative ways to educate students and teachers. Dr. McBay discussed funding opportunities available at other federal agencies and private foundations.

See **Appendix B** for a list of references that provide a wide range of statistical information regarding the status of African American males. The Morehouse Male Initiative (MMI) compiled this information. QEM has received permission from MMI to include this information in its report.

The potential funding sources document at **Appendix C** of this report contains an overview of this discussion. The Workshop Agenda is at **Appendix D** while a list of participants, including panelists and speakers is at **Appendix E**.

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**Quality Education for Minorities (QEM) Network
Workshop on the Recruitment and Retention of
African American Male Students in STEM
Atlanta, GA • March 19-20, 2010**

APPENDICES

Appendix A: Responses to Questions Posed by QEM that were submitted by Participating Institutions Prior to the Workshop

Appendix B: Facts and Sources Regarding African American Males (Developed by the Morehouse Male Initiative)

Appendix C: Funding Resource Guide

Appendix D: African American Males Workshop Agenda

Appendix E: List of Participating Institutions and Workshop Participants

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APPENDIX A

Responses to Pre-Workshop Survey Questions Posed by QEM that were submitted by Participating Institutions Prior to the Workshop

Question 1:

What initiatives/ strategies have been/are being used currently at your institution to increase male enrollment?

Bowie State University (BSU):

The institution offers “Computer Programming for Youth,” a summer camp for African-American Males (AAMs) ages 12-17 (It is currently an unfunded project). The camp was started with the main goal of introducing STEM and college life to African American males. BSU’s President started the “President’s Male Initiative” which is a mentoring program that pairs faculty/staff/administrators with students.

An Academic Advisement Specialist advises students in the Department of Natural Sciences who have up to 59 credits. These students are interviewed to determine their career interests and are provided resources to aid them in early preparation for the Medical College Aptitude Test (MCAT). The Academic Advisement Specialist currently serves as the point of contact between the University and the MCAT Research Specialist for the Association of American Medical Colleges.

Chicago State University (CSU):

The University has assigned an outreach specialist to the minority males program whose job is to target local high schools that have not already been identified by the Admissions Department as feeder schools for the University. The outreach specialist also works in conjunction with local community service providers to conduct college preparation training and workshops to enhance the abilities of students to navigate effectively the college enrollment process and access potential funding sources.

The program has partnered with various local area high schools to conduct college tours on the CSU campus for 11th and 12th grade students who are seeking opportunities to pursue their post secondary education.

Edward Waters College (EWC):

The EWC staff members serve as mentors to male students in the public school system. They also create programs to attract more male students to the College.

Fayetteville State University (FSU):

The University established the BRONCO’S Men Initiative that involves learning communities and a male advising and mentoring initiative.

Florida Memorial University (FMU):

The FMU program assists the Office of Admissions with targeted Black male recruitment. Also, the University hosts different workshops for the community that enlighten Black males and their families about the importance of graduating from high school and matriculating in a college. It also recognizes collegiate exposure and experience as major factors as well.

Houston Community College (HCC):

HCC has been proactive in developing strategies to assist minority males in overcoming barriers that tend to impede their success in completing secondary and postsecondary education.

Lincoln University of Missouri (LU):

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The University has several programs conducted through the Center of First Year Experience designed to promote retention of all students. All freshmen have specially trained advisors. Underachieving students participate in the LEAP tutoring program where they receive extra counseling in various areas such as study skills and time management. There are, however, no programs that are devoted exclusively to the retention of African American males.

North Carolina A&T State University (NCA&T):

Project M.A.R.C.H (Male Aggie Resolved to Change History) is a mentoring, advising, and cultural development program designed 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. Monthly workshops, intensive advising, mentoring, and academic support are used by Project M.A.R.C.H to affect the retention of the participating students.

Currently, the Fall 2009 cohort is showing signs of promise as evidenced by 77% of the participants achieving good academic standing and 30% earning deans' list honors. It is the University's hope that this program continues to provide a strong framework that will strengthen first-year students resolve towards staying in school and eventually earning a STEM degree.

Philander Smith College (PSC):

Philander Smith College has developed the Black Male Initiative (BMI) Program. BMI was developed to provide relevant experiences for males that will ensure success academically, professionally, and socially through development in the following areas: education/retention; leadership; social justice issues; community involvement; and cultural and spiritual enlightenment.

Texas Southern University (TSU):

TSU has established a Center for STEM Education and Outreach (C-SEO) with a Black male focus. Also, TSU has a mentoring component with a Black male focus.

University of the Virgin Islands (UVI):

The UVI initiatives focus primarily on individual mentoring and counseling of African American males, and work to ensure that their coursework and research focus on their personal interests and professional goals to ensure high retention rates. Additionally, as part of its annual small grants ("Incubator") program, UVI is soliciting proposals that specifically call for research approaches to improving outreach and education outcomes in the U.S. Virgin Islands. Findings from these and other ongoing studies will be used to assist UVI in addressing the African American male recruitment and retention challenges.

Question 2: What does your institution hope to gain from your participation in the workshop?

Bowie State University (BSU):

BSU intends to learn about other initiatives and best practices pertaining to the recruitment and retention of African-American Males into STEM. Additionally, the University is interested in meeting and forming networks with others having the same goals.

Chicago State University:

The Director of the African American Male Resource Center at Chicago State University is charged with increasing the enrollment and retention of African American male students. From this workshop, the CSU team expects to increase its level of understanding and enhance its skills in regard to the implementation of effective strategies for identification, preparation, and enrollment of African American male students.

Edward Waters College (EWC):

The EWC team is looking forward to learning about new strategies to recruit and retain male students.

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Fayetteville State University (FSU):

The team plans to learn about “best” practices for male enrollment and retention at FSU, particularly male students in STEM disciplines. FSU is seeking strategies that will assist faculty and staff to relate more effectively to male students and that will result in academic success of males in STEM fields.

Florida Memorial University (FMU):

The Florida Memorial University team intends to learn about the importance of Black males majoring in mathematics and science. Moreover, the team plans to learn how these majors will benefit Black males and address the nation’s shortage of S&E workers. Additionally, other pertinent information will be sought to enhance the University’s initiative in dealing with Black males in college and in pre-college.

Houston Community College (HCC):

The participation of HCC in the workshop will aid the team in ascertaining successful strategies employed by other institutions in assisting minority males achieve success in pursuing their educational goals. Also, the workshop will provide a venue for sharing activities and programs that the College has employed to assist minority males.

Lincoln University of Missouri (LU):

Lincoln University expects to learn about effective strategies that can be implemented to increase the number of African American males who successfully complete majors in a STEM area.

North Carolina A&T State University (NCA&T):

NCA&T intends to gain insight into “best” practices for increasing the enrollment of African American males in STEM disciplines as well as learning about stop-gap strategies to decrease attrition for this population.

Philander Smith College (PSC):

PSC plans to increase its efforts in recruiting and retaining African-American males into STEM disciplines by exposing them to “best practices” of institutions successful in recruiting and retaining these students. After the workshop, the team intends to bring these “best” practices back to its institution and further develop and implement strategies for improving male recruitment and retention. The proposed strategies will work in conjunction with PSC’s NSF HBCU-UP grant and further assist PSC in achieving its objectives for the recruitment and retention of African American males.

Texas Southern University (TSU):

TSU intends to learn from others, seek collaborations, and expand its Black male initiative network.

University of the Virgin Islands (UVI):

UVI’s Master’s in Marine and Environmental Science program is entering its fourth year and still struggles in its stability and identity. The program’s goal is to train and equip more underrepresented minorities to assume professional positions in science and management of natural resources. To date the program’s student composition and success rate have been attributed largely to Caucasian, “stateside” students, and there now appears to be a downward trend in recruitment of African American males in general. UVI believes that the workshop will be invaluable in helping it establish the appropriate foundations necessary for successful outreach to recruitment and retention. The information shared by successful programs at this workshop will assist UVI in being more effective in its efforts to address recruitment and retention challenges.

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APPENDIX B

Facts and Sources Regarding African American Males (Developed by the Morehouse Male Initiative)

Current Plight of Black Men & Boys in America

Only 41% of Black men graduate from high school in the United States.

Schott Foundation for Public Education

Just 22 % of Black males who began at a four-year college graduated within six years. *National Student Clearinghouse/Study by Consortium on Chicago School Research at U of Chicago*

In Chicago, only 30% of Black males graduate from high school; of these only 3% obtain a bachelor's degree by the time they're 25. *Schott Foundation for Public Education/National Student Clearinghouse/Study by Consortium on Chicago School Research at U of Chicago*

Sixty-nine (69)% of Black children in America cannot read at grade level in the 4th grade, compared with 29% among White children. *National Association of Educational Progress*

A total of 1.46 million Black men out of a voting population of 10.4 million have lost their right to vote due to felony convictions. *Source: Thomas, P., "Study Suggests Black Male Prison Rate Impinges on Political Process," The Washington Post (January 30, 1997), p. A3.*

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).*

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.*

In 1986, before mandatory minimums for crack offenses became effective, the average federal drug offense sentence for Black was 11% higher than for Whites. Four years later, following the implementation of harsher drug sentencing laws, the average federal drug offense sentence was 49% higher for Blacks. *Source: Meierhoefer, B. S., The General Effect of Mandatory Minimum Prison Terms: A Longitudinal Study of Federal Sentences Imposed (Washington DC: Federal Judicial Center, 1992), p. 20.*

Regardless of similar or equal levels of illicit drug use during pregnancy, Black women are 10 times more likely than White women to be reported to child welfare agencies for prenatal drug use. *Source: Neuspiel, D.R., "Racism and Perinatal Addiction," Ethnicity and Disease, 6: 47-55 (1996); Chasnoff, I.J., Landress, H.J., & Barrett, M.E., "The Prevalence of Illicit-Drug or Alcohol Use during Pregnancy and Discrepancies in Mandatory Reporting in Pinellas County, Florida," New England Journal of Medicine, 322: 1202-1206 (1990).*

Due to harsh new sentencing guidelines, such as "two-strikes, you're out", (Georgia) a

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disproportionate number of young Black and Hispanic men are likely to be imprisoned for life under scenarios in which they are guilty of little more than a history of untreated addiction and several prior drug-related offenses... States will absorb the staggering cost of not only constructing additional prisons to accommodate increasing numbers of prisoners who will never be released but will also be warehoused into old age.” *Source: Craig Haney, Ph.D., and Philip Zimbardo, Ph.D., “The Past and Future of U.S. Prison Policy: Twenty-five Years After the Stanford Prison Experiment,” American Psychologist, Vol. 53, No. 7 (July 1998), p. 718.*

Black college men end up just a few dollars ahead of Whites who went no further than high school. *Two Nations by Andrew Hacker*

45% of Black children live below the poverty line, compared with 16% of White youngsters *Two Nations by Andrew Hacker*

Blacks account for only 12% of the U.S. population but 44% of all prisoners in the United States are Black. *Human Rights Watch*

In 2000, 65% of Black male high-school dropouts in their 20’s were jobless — that is, unable to find work, not seeking it or incarcerated. By 2004, the share had grown to 72%, compared with 34% of White and 19% of Hispanic dropouts. Even when high-school graduates were included, half of Black men in their 20’s were jobless in 2004, up from 46% in 2000. *2000 Census data by Steven Raphael*

Mark Levitan, the report’s author, found that just 51.8 percent of Black men and boys ages 16 to 64 held jobs in New York City in 2003. The rate for White men and boys was 75.7%; for Hispanic men and boys, 65.7%; and for Black women and girls, 57.1%. The employment-population ratio of Black men and boys was the lowest for the period. *Federal Bureau of Labor Statistics*

Net worth of Black families \$6,100 – Net worth of White families \$67,000. *Report from National Urban League, 2006*

The rate of drug admissions to state prison for Black men is thirteen times greater than the rate for White men. A recent report by Human Rights Watch found that while drug use is consistent across all racial groups, Blacks and Latinos are far more likely to be arrested and prosecuted and given long sentences for drug offenses. Blacks constitute 13% of all drug users, but 35% of those arrested for drug possession, 55% of persons convicted, and 74% of people sent to prison.

1) Nationally, Latinos comprise almost half of those arrested for marijuana offenses, and 2) Native Americans comprise almost two-thirds of those prosecuted for criminal offenses in federal courts. *Human Rights Watch*

Of Black males born this year, 29% can expect to spend some time behind bars. One in 14 Black children has a parent in jail or prison. One in 20 Black men is incarcerated, compared with one in 155 White men. For every three Black men in college, four are in prison. *Department of Justice, Bureau of Justice Statistics, “Prison and Jail Inmates at Midyear 2002,” April 6, 2003.*

In at least 15 states, Black men were sent to prison on drug charges at rates ranging from twenty to fifty-seven times those of White men. Blacks, who comprise only 13% of the population and account for about 13% of drug users, constitute 35% of all arrests for drug possession, 55% of all convictions on those charges, and 74% of all those sentenced to prison for possession. Blacks are incarcerated at a rate that is more than six times that of Whites. The Black male homicide rate is seven times the White

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male rate. Black women are 18 times more likely to be raped than White women. *The Justice Department* estimates that one out of every 21 Black men can expect to be murdered, a death rate double that of U. S. soldiers in World War II. A young Black male in America is more likely to die from gun fire than was any soldier in Vietnam. While constituting roughly 13% of the total population, Black America represents nearly 30% of America's poor.

Two-thirds of "minorities" in public school fail to reach basic levels of national tests.

There continues to be marked disparities between Black and White students in the national SAT scores. 32% of all suspended students are Black. Black students are twice as likely as Whites to be suspended or expelled. 67% of Black children (up from 17% in 1967) are born out of wedlock. Black men earn 67% of what white men earn. 53% of Black men aged 25-34 are either unemployed or earn too little to lift a family of four from poverty. Blacks comprise only 3.2% of lawyers, 3% of doctors, and less than 1% of architects.

White males with a high-school diploma are just as likely to have a job, and tend to earn just as much as Black males with college degrees. Light-skinned Blacks have a 50% better chance of getting a job than dark-skinned Blacks. Blacks are rejected twice as often for small business loans than Whites of comparable credit. 69% of Black children cannot read in the 4th grade, compared with 29% among of White children. 32% of all suspended students are Black. Black students are twice as likely as Whites to be suspended or expelled.

The American Directory of Certified Uncle Toms (Chicago: Lushena, 2002).

The share of young Black men without jobs has climbed relentlessly, with only a slight pause during the economic peak of the late 1990's. In 2000, 65% of Black male high-school dropouts in their 20's were jobless — that is, unable to find work, not seeking it or incarcerated. By 2004, the share had grown to 72%, compared with 34% of White and 19 % of Hispanic dropouts. Even when high-school graduates were included, half of Black men in their 20's were jobless in 2004, up from 46% in 2000. Incarceration rates climbed in the 1990's and reached historic highs in the past few years. In 1995, 16% of Black men in their 20's who did not attend college were in jail or prison; by 2004, 21% were incarcerated. By their mid-30's, 6 in 10 Black men who had dropped out of school had spent time in prison. In the inner cities, more than half of all Black men do not finish high school.

More young Black men in the United States have done time than have served in the military or earned a college degree, according to a new study. The paper, appearing in the *American Sociological Review*, estimates that 20% of all Black men born from 1965 through 1969 had served time in prison by the time they reached their early 30s. By comparison, less than 3% of White males born in the same time period had been in prison. *The New York Times*,

<http://www.nytimes.com/2006/03/20/national/20blackmen.html?r=1&oref=slogin%20>

"*Plight Deepens for Black Men, Studies Warn*," March 20, 2006

Three states with the highest percentage of Black inmates greater than 63% are Maryland (77%), Louisiana (74%), and Mississippi (70%) followed by Alabama, Georgia and South Carolina.

Report from National Urban League, 2006

Black Male Community Empowerment Forum

An Atlanta-based clearinghouse for the empowerment of African American men and boys
659 Auburn Avenue • Suite 138 • Atlanta, GA 30312 • 404/688-0733 • kinggreen11@aol.com

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APPENDIX C FUNDING RESOURCE GUIDE

National Science Foundation
Division of Human Resource Development
Directorate for Education and Human Resources

Program Name/Focus: *The Alliances for Broadening Participation in STEM (ABP)*

ABP includes the Louis Stokes Alliances for Minority Participation (LSAMP) program, Bridge to the Doctorate (LSAMP-BD) Activity, LSAMP educational research projects, and the Alliances for Graduate Education and the Professoriate (AGEP) program.

Program Goals: This portfolio of programs seeks to increase the number of students successfully completing quality degree programs in science, technology, engineering and mathematics (STEM). Particular emphasis is placed on transforming STEM education through innovative academic strategies and experiences in support of groups that historically have been underrepresented in STEM disciplines: African-Americans, Alaskan Natives, Native Americans, Hispanic Americans, and Native Pacific Islanders. The educational research portfolio contributes to the body of literature of successful practices in student recruitment, retention, persistence, and attainment of STEM undergraduate and graduate degrees, especially for populations underrepresented in STEM disciplines. Managed synergistically, the ABP cluster enables seamless transitions from the STEM baccalaureate to attainment of the doctorate and entry to the STEM professoriate.

Contact:

Program Officer, Alliances for Broadening Participation in STEM
Education & Human Resources Directorate
The National Science Foundation
4201 Wilson Boulevard, Arlington, VA 22230

Foundation/Agency URL:

http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13646&org=HRD&sel_org=HRD&from=fund
<http://www.nsf.gov/pubs/2010/nsf10522/nsf10522.htm>

Program Name: *Integrative Graduate Education and Research Traineeship Program (IGERT)*

IGERT is an NSF-wide endeavor involving the Directorates for Biological Sciences (BIO), Computer and Information Science and Engineering (CISE), Education and Human Resources (EHR), Engineering (ENG), Geosciences (GEO), Mathematical and Physical Sciences (MPS), Social, Behavioral, and Economic Sciences (SBE), the Office of Polar Programs (OPP), and the Office of International Science and Engineering (INT).

Program Goals: The IGERT program has been developed to meet the challenges of educating U.S. Ph.D. scientists and engineers who will pursue careers in research and education, with the interdisciplinary backgrounds, deep knowledge in chosen disciplines, and technical, professional, and personal skills to become, in their own careers, leaders and creative agents for change. The program is intended to catalyze a cultural change in graduate education, for students, faculty, and institutions, by establishing innovative new models for graduate education and training in a fertile environment for collaborative research that transcends traditional disciplinary boundaries. It is also intended to facilitate diversity in student participation and preparation, and to contribute to a world-class, broadly inclusive, and globally engaged science and engineering workforce.

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Contact:

Program Director, Integrative Graduate Education and Research Traineeship Program
The National Science Foundation
4201 Wilson Boulevard, Arlington, VA 22230

Foundation/Agency URL:

http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=12759&org=HRD&sel_org=HRD&from=fund
<http://www.nsf.gov/pubs/2010/nsf10523/nsf10523.htm>

The **Division of Human Resource Development (HRD)** serves as a focal point for NSF's agency-wide commitment to enhancing the quality and excellence of science, technology, engineering, and mathematics (STEM) education and research through broadening participation by underrepresented groups and institutions. The Division's programs aim to increase the participation and advancement of underrepresented minorities and minority-serving institutions, women and girls, and persons with disabilities at every level of the science and engineering enterprise. HRD programs contribute to attainment of the PEOPLE outcome goal of the NSF Strategic Plan FY 2003-2008: *A diverse, competitive, and globally engaged U.S. workforce of scientists, engineers, and well-prepared citizens.* HRD programs have a strong focus on partnerships and collaborations in order to maximize the preparation of a well-trained scientific and instructional workforce for the new millennium.

National Science Foundation

Division of Research on Learning in Formal and Informal Settings
Directorate for Education and Human Resources

Program Name/Focus: Informal Science Education (ISE)

Program Goals: The ISE program invests in projects that promote lifelong learning of STEM in a wide variety of informal settings. Funding is provided for projects that advance understanding of informal STEM learning, that develop and implement innovative strategies and resources for informal STEM education, and that build the national professional capacity for research, development, and practice in the field. There are five categories of ISE program grants: Research; Pathways; Full-Scale Development; Broad Implementation; and Communicating Research to Public Audiences (CRPA).

Contacts:

Program Officer, Informal Science Education, Education & Human Resources Directorate
The National Science Foundation
4201 Wilson Boulevard, Arlington, VA 22230
Address Questions to the Program: Email: DRLISE@nsf.gov

Foundation/Agency URL:

http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5361&org=DRL&from=home
http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf09553

Program Name/Focus: Innovative Technology Experiences for Students and Teachers (ITEST)

Program Goals: ITEST is designed to increase the opportunities for students and teachers to learn about, experience, and use information technologies within the context of science, technology, engineering, and mathematics (STEM), including Information Technology courses. ITEST responds to current concerns and projections about shortages of STEM professionals and information technology workers in the United States and seeks solutions to help ensure the breadth and depth of the STEM workforce. ITEST supports the development, implementation, testing and scale-up of models as well as related research studies.

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Contact:

ITEST Program Officer
Education & Human Resources Directorate
The National Science Foundation
4201 Wilson Boulevard, Arlington, VA 22230

Foundation/Agency URL:

http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5467&org=DRL&from=home
<http://www.nsf.gov/pubs/2009/nsf09506/nsf09506.htm>

The **Division of Research on Learning in Formal and Informal Settings (DRL)** invests in projects to improve the effectiveness of STEM learning for people of all ages. Its mission includes promoting innovative research, development, and evaluation of learning and teaching across all STEM disciplines by advancing cutting-edge knowledge and practices in both formal and informal learning settings. DRL seeks to advance both early, promising innovations as well as larger-scale adoptions of proven educational innovations. In doing so, it challenges the field to create the ideas, resources, and human capacity to bring about the needed transformation of STEM education for the 21st century.

**U.S. Department of Health and Human Services
National Institutes of Health (NIH)
The National Center for Research Resources (NCRR)**

Program Name/Focus: NCRR Science Education Partnership Award (SEPA)

Program Goals: The SEPA program supports the creation of innovative partnerships between biomedical and clinical researchers and K-12 teachers and schools, museum and science center educators, media experts, and other interested educational organizations. Particular importance will be given to SEPA applications that target K-12 science educational topics that may not be addressed by existing science curricula, community-based or media activities.

Contact:

Dr. L. Tony Beck
Division for Clinical Research Resources, NCRR
6701 Democracy Blvd, Room 916-MSC 4874, Bethesda, MD 20892
(301) 435-0805 beckl@mail.nih.gov

Foundation/Agency URL:

<http://grants2.nih.gov/grants/guide/pa-files/PAR-06-549.html>
http://www.ncrr.nih.gov/about_us/programs.asp

The **National Center for Research Resources (NCRR)** provides researchers with the training and tools they need to understand, detect, treat, and prevent a wide range of diseases. NCRR connects researchers with one another as well as with patients and communities across the Nation to harness the power of shared resources and research. The SEPA program's goals are to foster the development of novel programs to improve K-12 and the general public's understanding of the clinical trial process as well as the health science advances stemming from National Institutes of Health-funded clinical and basic research.

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The Annenberg Foundation

Program Name/Focus: Education and Youth Development

Program Goals: The Annenberg Foundation provides support for projects within its grant-making interest areas of: education and youth development; arts, culture and humanities; civic and community; health and human services; animal services; and the environment. The Foundation's focus is not on chips and wires but rather on education, particularly public school restructuring and reform in the United States.

Contact:

Program Office
The Annenberg Foundation
Radnor Financial Center, Suite A-200
150 N. Radnor-Chester Road, Radnor, PA 19087
(610) 341-9066 info@annenbergfoundation.org

Foundation/Agency URL:

<http://www.annenbergfoundation.org/>
http://www.annenbergfoundation.org/grants_database/grants_database_list.htm

Established in 1989 by Walter H. Annenberg, the **Annenberg Foundation** provides funding and support to nonprofit organizations in the United States and globally through its headquarters in Radnor, PA, and offices in Los Angeles, CA. Its major program areas are education and youth development; arts, culture and humanities; civic and community; health and human services; and animal services and the environment. In addition, the Foundation operates a number of initiatives that expand and complement these program areas. The Annenberg Foundation exists to advance the public well-being through improved communication. As the principal means of achieving this goal, the Foundation encourages the development of more effective ways to share ideas and knowledge.

The Ford Foundation

Program Name/Focus: Education and Scholarship

Program Goals: The Ford Foundation supports efforts to improve access to high-quality education. Support is provided for educational institutions at all levels to expand access, innovate in the classroom, evaluate their efforts, and share best practices. The Foundation also supports interdisciplinary scholarship in the social sciences and humanities ...from multiple perspectives, including a focus on gender, race, ethnicity, identity, religion, and culture.

Contact:

Grants
The Ford Foundation
320 East 43 Street, New York, N.Y. 10017
(212) 573-5000 office-secretary@fordfound.org

Foundation/Agency URL:

<http://www.fordfound.org/>; <http://www.fordfound.org/grants/inquiry/usa/2/en>

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The **Ford Foundation** states that meaningful citizenship and democratic practice cannot thrive without strong public schools and higher educational institutions that are accessible and equitable in providing challenging educational opportunities. The Foundation's work supports educational institutions at all levels to expand access, innovate in the classroom, evaluate their efforts and share best practices. ... "We look for ways to build knowledge that deepens understanding of diversity and helps inform civic discourse in a continually diversifying nation and world."

The General Electric (GE) Foundation

Program Name/Focus: Developing Futures in Education

Program Goals: The Developing Futures™ in Education program (which encompasses the GE College Bound Program) was created to raise student achievement through improved math and science curricula and management capacity at the schools. The program has been expanded with a grant investment of nearly \$150 million in six targeted U.S. school districts: Atlanta, GA; Cincinnati, OH; Stamford, CT; New York City, NY; Jefferson County, KY; and Erie, PA. School districts use their grants to develop a rigorous, system-wide math and science curriculum and provide comprehensive professional development for their teachers.

Contact:

GE Foundation
3135 Easton Turnpike, Fairfield, CT 06828
(203) 373-3216 gefoundation@ge.com

Foundation/Agency URL:

http://www.ge.com/foundation/grant_initiatives/education.html
<http://www.ge.com/foundation/>

The **GE Foundation**, the philanthropic organization of the General Electric Company, works to strengthen educational access, equity, and quality for disadvantaged youth globally. For more than 50 years, the GE Foundation has invested in programs based on a fundamental premise: a quality education ushers in a lifetime of opportunity, which helps build a strong and diverse workforce and citizenry. "Today, the need for a quality education has never been more urgent, especially for individuals from under-represented and disadvantaged backgrounds. We continue to address this societal and economic imperative by supporting high-impact initiatives that improve the access, equity and quality of public education in GE communities around the world."

The Kresge Foundation

Program Name/Focus: Education Program

Program Goals: The Kresge Foundation's Education Team is focusing its efforts on two vital elements necessary to a well-educated citizenry – high-quality early-childhood education, and accessible, success-oriented two- and four-year higher education programs. Both efforts are focused on the needs of underserved and under-represented students. Four of Kresge's nine values criteria are central to the grant-making of the Education Team:

- * Creating opportunity for underserved and neglected students through increased access and avenues for academic success

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- * Making diversity – racial, ethnic and gender – a demographic priority among staff and board members so as to reflect the student populations served
- * Establishing environmental conservation as a strategic institutional objective to both contribute to the mitigation of climate change and serve as a community model for sustainable design and construction
- * Achieving positive community impact beyond the confines of the educational institution.

Contact:

The Kresge Foundation
3215 West Big Beaver Road, Troy, Michigan 48084
248/643-9630

Foundation/Agency URL: <http://www.kresge.org/index.php/what/education/>

The Kresge Foundation is a \$2.8 billion private, national foundation that seeks to influence the quality of life for future generations through its support of nonprofit organizations in six fields of interest: health, the environment, community development, arts and culture, education and human services. It is headquartered in metropolitan Detroit, in the suburb community of Troy, Michigan. In 2008, Kresge awarded 342 grants totaling \$181 million.

The Lumina Foundation for Education

Program Name/Focus: The Case for Improved Higher Education Access & Attainment

Program Goals: Lumina Foundation supports efforts to increase awareness of the benefits of higher education, improve student access to and preparedness for college, improve student success in college and increase productivity across the higher education system. With its partners, Lumina strives to meet workforce demands and close attainment gaps for groups not historically well-served by higher education. Through grants for research, innovation, communication, and evaluation, as well as policy education and leadership development, Lumina Foundation addresses issues that affect access and educational attainment among all students, particularly underserved student groups, including adult learners.

Contact:

Lumina Foundation for Education
P.O. Box 1806, Indianapolis, IN 46206-1806

Foundation/Agency URL:

http://www.luminafoundation.org/about_us/
http://www.luminafoundation.org/our_work/

The mission of the **Lumina Foundation for Education** is to expand access to postsecondary education in the United States. The Foundation seeks to identify and promote practices leading to improvement in the rates of entry and success in education beyond high school, particularly for students of low income or other underrepresented backgrounds. It likewise seeks improvement in opportunities for adult learners. The Foundation carries out the mission through funding and conducting research; communicating ideas through reports, conferences and other means; and making grants to educational institutions and other nonprofits for innovative programs. It also contributes limited resources to support selected community and other charitable organizations.

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The National Education Association (NEA) Foundation

Program Name/Focus: Closing the Achievement Gaps Initiative

Program Goals: The NEA Foundation created the Closing the Achievement Gaps Initiative to accelerate the achievement rate for under-achieving low income and minority student groups, thereby closing the gap between these students and their higher achieving, more affluent peers. The Foundation's researched-based strategy shows that developing and strengthening partnerships among local education associations, school districts, and community organizations, is a powerful force for improving student performance and a vehicle for systemic reform.

Contact:

The NEA Foundation, Attn: Student Achievement Grants
1201 – 16th Street, NW, Suite 416, Washington, DC 20036-3207
(202) 822-7840 foundation_info@nea.org

Foundation/Agency URL:

<http://www.neafoundation.org/pages/educators/achievement-gaps-initiative/>
<http://www.neafoundation.org/>

The **National Education Association (NEA) Foundation**, through the unique strength of its partnership with educators, advances student achievement by investing in public education that will prepare each of America's children to learn and thrive in a rapidly changing world. The NEA Foundation supports a variety of efforts by teachers, education support professionals, and higher education faculty and staff to improve student learning in the nation's public schools, colleges, and universities.

The Spencer Foundation

Program Name/Focus: The Relation between Education and Social Opportunity

Program Goals: The Spencer Foundation seeks to shed light on the role education plays in reducing economic and social inequalities -- as well as, sometimes, re-enforcing them -- and to find ways to more fully realize education's potential to promote more equal opportunity. Expanded opportunity is important not only to a society's economic well being but to the character of its civic, cultural and social life as well.

Contact:

Annie Brinkman, Program Administrator
625 N. Michigan Avenue, Suite 1600, Chicago, IL 60611
(312) 274-6511 abrinkman@spencer.org

Foundation/Agency URL: <http://www.spencer.org/>

The **Spencer Foundation** was established in 1962 by Lyle M. Spencer. The Foundation is intended, by Spencer's direction, to investigate ways in which education, broadly conceived, can be improved around the world. From the first, the Foundation has been dedicated to the belief that research is necessary to the improvement in education. The Foundation is thus committed to supporting high-quality investigation of education through its research programs and to strengthening and renewing the educational research community through its fellowship and training programs and related activities.

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The Walmart Foundation

Program Name/Focus: A Focus on Education

Program Goals: The Walmart Foundation awards grants that seek to address the educational needs of underserved young people ages 12 to 25. Examples include programs focused on high school success, improving college access and adolescent literacy. Within post-secondary education, the Foundation's interests are in promoting first-generation college student success, minority-serving institution support, college access issues and drop out re-engagement. The Walmart Foundation's interests within education include:

- Teacher Rewards
- First-generation college student success
- Minority-serving institution support
- Job skills training and workforce development
- Dropout prevention and re-engagement
- Veterans' education

Contact:

Walmart Home Office 702 SW 8th Street, Bentonville, Arkansas 72716-8611

Foundation/Agency URL: [http:// www.walmartfoundation.org](http://www.walmartfoundation.org)
<http://www.waltonfamilyfoundation.org/forgrantseekers/types.asp>

Through its philanthropic programs and partnerships, the **Walmart Foundation** funds initiatives focused on creating opportunities in education, workforce development, economic opportunity, environmental sustainability, and health and wellness. Walmart and its U.S. Foundation have been recognized by the Chronicle of Philanthropy as the largest corporate cash contributor in the United States. From February 1, 2008 through January 31, 2009, Walmart – and its domestic and international foundations – gave more than \$423 million in cash and in-kind gifts globally.

The Walton Family Foundation

Program Name/Focus: Systemic Reform in Education (K-12) - Traditional District School Improvement

Program Goals: To improve educational opportunities for traditional district school students in grades K-12 through supporting educational reform initiatives that adhere to the principles of Accountability, Transparency, Choice and Incentives.

Contact:

The Walton Family Foundation
P.O. Box 2030, Bentonville, AR 72712
(479) 464-1570 info@wffmail.com

Foundation/Agency URL: <http://www.waltonfamilyfoundation.org/educationreform/index.asp>
<http://www.waltonfamilyfoundation.org/forgrantseekers/types.asp>

The **Walton Family Foundation** invests in programs that empower parents to choose the best education for their children. In some neighborhoods across America, parents have access to excellent educational options. But in too many other communities, educational options are limited and often dismal. The communities with the fewest educational options also tend to be places where students encounter the lowest performing schools. A majority of children in these neighborhoods drop out of school and suffer the lifelong consequences of missed educational opportunities. It is in these communities where the Foundation concentrates its work. ... The Foundation is interested in helping children to receive high-quality educations in public, charter and private schools. The most important thing is that children are educated to the high standards necessary to succeed and thrive in today's world.

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APPENDIX D

Quality Education for Minorities (QEM) Network
Workshop on the Recruitment and Retention of African American Male Students in
Science, Technology, Engineering, and Mathematics (STEM)
Hilton Atlanta Airport • Atlanta, GA

Friday-Saturday, March 19-20, 2010

AGENDA

FRIDAY, MARCH 19

AM

8:30 *Registration and Continental Breakfast* *Grand Promenade*

9:00 *Opening Session* *Grand D*
Welcome, Introductions, Review of Purpose, Meeting Packet, and Agenda
Shirley McBay, President, QEM Network

9:30 *Overview of Research Findings to Date (Data and Lessons Learned)*
on STEM Participation and Achievement of African American Males

Panelists:

Terrell Strayhorn, Associate Professor of Higher Education
The University of Tennessee, and QEM Consultant
Henry Frierson, Associate Vice President, Dean of the Graduate School,
and Professor of Educational Psychology, University of Florida, and QEM
Consultant

Moderator: J. Arthur Jones, Senior Associate, QEM Network

Group Discussion of Findings, Status, and Broadening Participation Challenges

10:45 *Coffee Break*

11:00 *Effective Strategies and Best Practices in the Recruitment and Retention*
of African American Males in STEM

Panelists:

Karl Reid, Senior Vice President for Academic Programs and Strategic Initiatives
United Negro College Fund
Bryant Marks, Assistant Professor of Psychology
Morehouse College, and QEM Consultant
Edward Walton, Professor of Chemistry
California State Polytechnic University-Pomona

Moderator: Henry Frierson, University of Florida

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Noon/PM

- 12:00 *Teams Discuss their Institutions' Current Recruitment/Retention Strategies*
- 12:30 *Working Lunch (Buffet)* *Grand D*
Continued Discussion of Institutions' Current Recruitment/Retention Strategies
Moderator: Costello Brown, Senior Associate, QEM Network
- 1:30 Concurrent Sessions: *Potential STEM Pathway Components*
(See assignment sheets for working groups)
- Each working group is to discuss the following topics:
- Current status and contributing factors in African American male educational attainment/achievement in STEM
 - Best practices, strategies, and models for increasing STEM enrollment/participation of African American males
 - Recommendations for essential components of a pathway-focused replication model
- Group I Facilitators: Terrell Strayhorn and Karl Reid *Grand D*
Group II Facilitators: Bryant Marks and Ivory Toldson *Alatoona*
Group III Facilitators: Henry Frierson and Costello Brown *Chattooga*
Group IV Facilitators: James Moore and Edward Walton *Oconee*
- 3:00 *Break*
- 3:15 Plenary Session: *Grand D*
A Closer Look at Critical Junctures Along the Educational Pathway
- Working groups report on recommendations regarding key strategies for potential replication at critical junctures along the educational pathway
- 4:00 Group Discussion: *Critical Factors in the Implementation of Initiatives to Address African American Males' Participation in Higher Education and STEM*
Moderator: Terrell Strayhorn, University of Tennessee
- 4:45 *Promoting College Aspirations Among School-Age Black American Males*
Panelists:
Ivory Toldson, Associate Professor of Counseling Psychology,
Howard University
Bryant Marks, Morehouse College
- 6:00 *Dinner and STEM Panel* *Harding*
Barriers to the STEM Education of African American Males and What Can be Done to Improve the Outcomes: Views from Students and Graduates
Panelists:
Travis Bolden, Research Assistant, QEM Network
Benjamin Greene, Junior, Morehouse College
Jai Smith-Avery, Project Assistant, QEM Network
- Group Discussion: Views of STEM Students and Graduates
Moderator: James Moore III, The Ohio State University

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Review of Assignment and Next Day's Agenda

7:30 *Adjournment, Day One*

Overnight Assignment: Institutional teams discuss potential changes/modifications to their approaches to the recruitment and retention of African American males in STEM.

SATURDAY, MARCH 20

AM

- 8:30 *Continental Breakfast* *Grand Promenade*
- 9:00 Concurrent Sessions: *Groups of Institutional Teams Meet to Discuss their Programs/Ideas with QEM Consultants Based on the Overnight Assignment*
- Group I Facilitator: Terrell Strayhorn *Grand D*
Group II Facilitator: Bryant Marks *Alatoona*
Group III Facilitator: Henry Frierson *Chattooga*
Group IV Facilitator: James Moore *Oconee*
(Each session will have a note taker from QEM's staff)
- 10:00 Plenary Session:
Factors that Influence African American Males' Decision to Major in STEM
Speaker: James L. Moore III, Associate Professor of Counselor Education,
Coordinator of School Counseling Program, and Director of the
Todd Anthony Bell National Resource Center on the African American
Male, The Ohio State University
- Group Discussion: Key Influential Factors
- 11:00 *Coffee Break*
- 11:15 Plenary Session:
Potential Sources of Support: Federal and Private Foundations/Corporations
Caesar Jackson, Acting Division Director, Human Resource Development
Directorate for Education and Human Resources
National Science Foundation
Shirley McBay, QEM Network
- 12:00 *Working Lunch (Buffet)* *Grand D*
Working Groups: Summary of key discussion points and recommendations
- Closing Comments and Next Steps*
- 1:30 *Adjournment*

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APPENDIX E:

List of Participating Institutions and Participants

Bowie State University

Chicago State University

Edward Waters College

Fayetteville State University

Florida Memorial University

Houston Community College

Lincoln University of Missouri

North Carolina A&T State University

Philander Smith College

Texas Southern University

University of the Virgin Islands

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Mr. Edward Alexander
Director of Admissions
Division of Academic Affairs
Edward Waters College

Mrs. Paula Clay
Director
Center for First Year Experience
Lincoln University of Missouri

Mr. Kareem Coney
Director, Black Male College Explorers Program
Pre-College Outreach
Florida Memorial University

Ms. Angela Daniels
Chair
Department of Natural and Physical Sciences
Philander Smith College

Mr. Nick Drayton
Program Coordinator
VI-EPSCoR
University of the Virgin Islands

Dr. Robert Ford
Professor
Department of Chemistry
Texas Southern University

Dr. Tracey Ford
Director
Department of Academic Excellence
North Carolina A&T State University

Mr. John Gilmore III
Program Manager, Minority Male Initiative
Student Success Division
Houston Community College

Mr. George Gray
Director
Department of Admissions and Recruitment
Philander Smith College

Ms. Allyson Guidry
Coordinator of HS Recruitment
Department of Admissions
Texas Southern University

Dr. Landon Hadley
Dean of Students
Division of Student Affairs
Fayetteville State University

Mr. Ronald "Kwesi" Harris
Director, African American Male
Resource Center
Office of Student Enrollment
Chicago State University

Dr. Charles Hebert, Jr.
Special Assistant to the Deputy Chancellor
Houston Community College District

Mr. Brandon Johnson
Academic Counselor/Lecturer
Center for Academic Excellence
North Carolina A&T State University

Dr. John King
Assistant Professor
Department of Mathematics Education
Clark Atlanta University

Dr. Prabir Mandal
Associate Professor and Interim Chair
Department of Biology
Edward Waters College

Dr. Ralph Noble
Chair
Department of Animal Sciences
North Carolina A&T State University

Dr. Daniel Okunbor
Director of Research
College of Arts and Sciences
Fayetteville State University

Dr. Rose Mary Stiffin
Chair
Department of Health and Natural Sciences
Florida Memorial University

Dr. Daryl Stone
Assistant Professor
Department of Computer Science
Bowie State University

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Dr. Ruthi Sturdevant
Dean, College of Behavioral and Technological
Sciences
Lincoln University of Missouri

Dr. Kim Waddell
Director
VI-EPSCoR
University of the Virgin Islands

Mr. Patrick Toney
Academic Advisement Specialist
Academic Advisement Center
Bowie State University

Dr. Lance Williams
Visiting Scholar
African American Male Resource Center
Chicago State University

CONSULTANTS/PRESENTERS/MODERATORS

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University of Florida

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Senior Vice President
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Morehouse College

Dr. Terrell Strayhorn
Associate Professor of Higher Education
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Dr. James Moore III
Associate Professor
College of Education and Human Ecology
The Ohio State University

Dr. Ivory Toldson
Associate Professor
School of Education
Howard University

Dr. Edward Walton
Professor, Department of Chemistry
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Dr. Caesar Jackson
Program Director, Division of Human Resource Development
Directorate for Education and Human Resources
National Science Foundation

QEM STAFF

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Mr. Jai Smith-Avery
Project Assistant

Dr. Costello Brown
Senior Associate

Dr. Shirley McBay
President

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**

**The Quality Education for Minorities (QEM) Network
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