

**FINAL REPORT**

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

**SEPTEMBER 2010**

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

# NATIVE AMERICAN MALES IN STEM

## ABOUT THE WORKSHOP SERIES

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

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

### Workshops' Participants

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

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

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

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# NATIVE AMERICAN MALES IN STEM

## Quality Education for Minorities (QEM) Network Workshop on the Recruitment of Native American Males in Science, Technology, Engineering, and Mathematics (STEM) Albuquerque, New Mexico • April 9-10, 2010

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### Introduction

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

The goals of the Albuquerque workshop were to: (1) identify effective strategies and best practices for increasing male student enrollment and retention at Tribal Colleges and Universities, Alaska Native-serving Institutions, and Native Hawaiian-serving Institutions 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.

Participants in the workshop included two-person teams from six (6) institutions and a representative from the American Indian Science and Engineering Society (AISES). Also attending were NSF staff member, Dr. Jody Chase, Program Director for the Tribal Colleges and Universities Program (TCUP); Mr. Steve Dupuis, QEM/TCUP Fellow at NSF and Director, Indigenous Mathematics and Science Institute, Salish Kootenai College; three (3) QEM consultants and presenters; and three (3) QEM staff members.

The participating organization/institutions are listed below.

#### Participating Organization/Institutions

American Indian Science and Engineering Society
Dine College-Shiprock Campus
Haskell Indian Nations University
Lac Courte Oreilles Ojibwa Community College
Sitting Bull College
University of Alaska Fairbanks, Bristol Bay Campus
University of Alaska Fairbanks, Interior Aleutians Campus
University of Hawaii at Hilo

The participants' list for the Workshop is given at **Appendix A** and the Workshop Agenda is given at **Appendix B**.

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**Friday, April 9, 2010**

### **Opening Plenary Session:**

An overview of data and research findings regarding Tribal Colleges and Universities (TCUs) was presented by J. Arthur Jones, Senior Associate at QEM Network. The primary source of the data discussed below was Systemic Research, Inc.

### Key Data Points

Key data points regarding Native education provide a framework for workshop discussions on what works (or does not work) to improve the recruitment and retention of American Indian, Alaska Natives, and Native Hawaiian males in STEM. Some of these points are given below.

- Enrollment at Tribal Colleges and Universities (TCUs) declined between Fall 2003 and Fall 2006 by nearly 10 %
- The decline between Fall 2003 and Fall 2006 in enrollment for American Indian males (-2.0%) was less than that for American Indian females (-9.2%). However, American Indian females represented 55.4% of TCU enrollment in Fall 2006 while American Indian males represented only 30.8 %

In Fall 2006, according to data collected by Systemic Research, Inc.:

- Only 0.4 % or 63 of 15,795 TCU students selected mathematics as a potential major
- Interest in a science major was expressed by 6.5% or 1,027 students at TCUs
- Computer Science and Technology was selected as a major by 4.5 % or 711 of the 15,795 TCU students
- The largest group of students (23%) selected a major in Liberal Arts, followed by Business (12.1%) and Education (10%)
- A total of 11.6% of students were undeclared, 10.1% were in Vocational/Career programs, and 9.6 % were in the Social Sciences

### Observations Regarding First-time Entering Students:

- In Academic Year (AY) 03-04, at TCUs, American Indian males were 34.4% of first-time entering students and were 37.9% in AY 06-07
- In AY 03-04, American Indian females were 48.1% of first-time entering students, and the number remained essentially unchanged at 48.0% in AY 06-07
- The enrollment gap between first-time entering males and females at TCUs remained virtually unchanged between AY 03-04 and AY 06-07

### **Strategies to Decrease Dropout Rates Among American Indian Students**

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QEM staff reviewed research papers that suggested several strategies to decrease dropout rates among American Indian students. These strategies included the following:

(From a compilation of studies by Sherira Fernandez, Assessment Unit, Office of Minority Affairs & Diversity, University of Washington)

- Revise school policies and avoid implementation of policies that exclude, repress, demean, embarrass, harass, or alienate American Indian students
- Demonstrate an ethic of care and concern for students
- Hold high expectations for students and challenge them to succeed
- Avoid the use of negative stereotypes
- Avoid blaming students or their parents and families for their academic failure or the low academic performance of the school
- Actively involve parents and families in schools
- Individualize instruction and work to actively engage students in the learning process
- Prepare educators to work with American Indian students (include pre-service and in-service professional development opportunities)

### **Observations Regarding Students' Qualitative Experiences**

A number of experiences that impact students' decisions on college attendance are not readily measurable through quantitative processes. A few of these experiences as mentioned by researchers are given below.

- Studies suggest that American Indian students attend college to assist their communities, and their attendance is strongly tied to community empowerment rather than individual achievement
- Mentoring plays a significant role in student achievement, and the gender or race/ethnicity of the mentor does not matter
- Some students felt that their high school guidance counselors were not helpful to them in their pursuit of higher education

### **Why American Indian Males Drop Out**

QEM staff reviewed research papers that suggested a number of reasons for the high drop-out rate of American Indian males from school, including the following:

- The absence of strong parent/family support
- A mistrust of the school system

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- Explicit policies and decisions that force students to drop out (such as suspension and attendance policies)
- Lack of interventions/prevention techniques used by schools that are specifically geared to American Indians
- Schools' failure to integrate the student's culture into the curricula
- Lack of American Indian teachers
- Lack of comfort with the school environment

Despite these observations, there are promising models for providing quality culturally relevant education for American Indians. One such example is given below.

### **Example of a Promising Practice Model**

An example of a promising practice (The Early College High School) was described in a study by the National Indian Education Association (NIEA). The Early College High School initiative is supported by the Center for Native Education at Antioch University in Seattle, Washington. The initiative provides students with culturally relevant, academically rigorous high schools while blending college requirements into their curricula. American Indian students can earn up to two years of college credit free of charge while completing high school. The initiative operates through a deep collaboration among high school, college, and tribal partners. Key findings from the NIEA study are given below.

- All students receive college preparatory curriculum compared with only 26% of students not attending early college high schools
- Average daily attendance for early college students was 90%, as compared to 75% of non-early college students
- Graduation rate is 85% for those who entered early college settings, compared to a rate of 59 % for those not attending an early college

### **Panel on Lessons Learned**

The members of the panel were: Dr. Patrick Weasel Head, Former Director of American Indian Student Services at the University of Montana-Missoula, and QEM Consultant; Dr. Lloyd Lee, Assistant Professor, Native American Studies Department, University College, at the University of New Mexico; and Dr. Anselm Davis, Former Executive Director, White House Initiative on Tribal Colleges and Universities (WHITCU).

Comments from Dr. Patrick Weasel Head: Dr. Weasel Head questioned whether it's good or bad for guidance counselors to advise students not to apply to college because they will not be successful. He cautioned that some students might be motivated to pursue a college degree because of an "I'll show you I can succeed" attitude, so that it is possible that negative advice can result in a positive outcome for the student. He mentioned that there is no cultural system or ceremony in place presently that focuses on what it means to be an American Indian male.

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Dr. Weasel Head noted that opportunities through the NIH Minority Biomedical Research Support (MBRS), TCUP, and the Sloan Foundation have contributed to increasing the academic success of American Indians in STEM. He stated further that a number of successful efforts died because of a lack of institutional support. “We need to worry about the lack of college preparation of our students and focus on family support,” according to Dr. Weasel Head.

Comments from Dr. Lloyd Lee: Dr. Lee told the group he had heard about the statistics regarding the underachievement of American Indian students since he was a youngster and nothing had changed very much. He mentioned that he recently conducted a study of Navajo masculinity. He found that family support was a critical influence on the development of Navajo males. Dr. Lee also noted that the case studies he conducted on masculinity were time-limited to 3-5 years.

Comments from Dr. Anselm Davis: Dr. Davis remarked that the problems have remained the same, and we need to know the roots of the problems in order to solve them. He mentioned his early experiences in public schools, including having the belief that he was “defective.” As a youngster, Dr. Davis stated that he was behind academically and had to ride a bus 30 miles each way to attend school. He did not know the other students because he lived a good distance from the town in which his school was located. Dr. Davis noted that his father supported education for his children but felt that as the children gained an education they would lose their culture. He questioned whether one could make a difference in Indian children by promoting their education without eroding their self worth. Dr. Davis pointed out that education is the ladder to success but the ladder is circular, not linear. He emphasized further that some school systems used a “take away and supplant approach” in educating American Indian children, that is, the system takes away Indian culture and supplants it with the majority culture.

### **The Native Language Issue**

During the question and answer period, the participants discussed issues relating to the loss of Native languages and what can be done to preserve the languages through an educational setting. It was mentioned that in one of the Alaska villages, the Native language, Yupik, is taught to children in early elementary school and English is taught in later years. Someone suggested that culturally relevant mathematics and science should be taught along with the Native language. Dr. Weasel Head stated that there is significant anecdotal evidence regarding strategies for the preservation of Native languages, but we need a plan, based on evidence from research, to assess the outcomes of these strategies. In the group discussion, it was noted that Hawaii has a number of Native language immersion programs for Native Hawaiian students.

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### **Panel on Effective Strategies, Best Practices, and Institutional Challenges in Recruitment and Retention of Native American Males in STEM**

The members of the panel were: Mr. Perry Charley, Coordinator, Dine Environmental Institute; Mr. Paul Grahovac, Director, Student Support Services, Lac Courtes Oreille Ojibwa Community College; and Dr. Victor Zinger, Associate Professor of Mathematics and General Studies, University of Alaska Fairbanks, Bristol Bay Campus.

Dr. Zinger told the group that “we must track down the problem; data show that only five per cent of our students are prepared to take beginning algebra.” He mentioned that a high turnover rate for teachers was a contributing factor in the under-preparation of students in mathematics. Dr. Zinger also suggested that we look at how schools work, and he promised to share information with the group regarding successful mathematics programs in Alaska.

Mr. Grahovac explained his work with men’s “talking circles” at Lac Courtes Oreilles Ojibwa Community College. He noted that men are not good at developing relationships. The topics covered in the “talking circles” include cultural enrichment, tutoring, and student encouragement, among others. Participating students are encouraged through the “talking circles” to recruit other men to attend the college.

Mr. Charley expressed a need to include cultural sensitivity in strategies to recruit and retain Native males in STEM. He mentioned that his institution has someone to follow students’ academic pathways beyond the campus and identify a number of the outcomes.

Ms. Tina Pino, Program Officer for the American Indian Science and Engineering Society (AISES), provided a list of best practices for recruiting and retaining American Indian males in STEM. The list is given below.

- Provide males with chances for early leadership
- Provide peer networks and support
- Have mentors who can guide students’ decisions
- Have mentors who can give students exposure to the work environment
- Provide support to enhance students’ speaking skills, including their participation in Toastmasters Clubs
- Have a campus advocate for students in STEM
- Help students see themselves through the eyes of others

Ms. Pino emphasized the opportunity for students to get AISES scholarships and internships to pursue STEM careers. It also was suggested by some members of the group that students should do a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis at an early age to help guide them along their education pathway.



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### STEM Education of American Indian Males: Institutional Activities

Statements from the participating institutions regarding programs or activities they have or plan to have regarding the recruitment and retention of American Indian males in STEM are given below. Responses to a QEM questionnaire to participants prior to the workshop regarding their efforts related to the recruitment and retention of Native males in STEM are given at **Appendix C**.

#### **Sitting Bull College**

The College has added an energy technology degree program that is attractive to males. The program is supported strongly by the Chief Academic Officer for the College. Sitting Bull is starting to keep better statistics on its students and will have data to guide its future efforts. The College plans to conduct a survey of its graduates in STEM-related fields.

#### **Haskell Indian Nations University**

Most Haskell students come from Oklahoma. Students are placed in mathematics courses by the Mathematics Department Chair, based on placement test scores. A strong emphasis is given to the retention of freshman students and identifying potential STEM majors. The University currently is recruiting a mathematics faculty member to teach upper level mathematics courses.

#### **University of Alaska, Interior Aleutians**

The student body is approximately 45 percent male. The focus is on improving student mathematics achievement. Presently, a number of mathematics teachers are teaching outside their field. Students are tutored in mathematics, and summer science camps are offered for Native males and females. Native elders talk to the students regarding history and culture. The University recently received a grant to upgrade its distance learning capabilities.

#### **University of Alaska Fairbanks, Bristol Bay**

The University plans to employ student recruiters/ambassadors to: serve as male role models, increase ties with school districts, and hold village science fairs and other events related to recruitment and retention. The University will continue to serve as an advocate for the development of culturally relevant curricula in mathematics and science. Also, it plans to formalize peer-mentoring efforts through the training and matching of students with similar interests and to establish men's "talking circles," using an on-line audio-conference format.

#### **University of Hawaii Hilo**

Students self-identify their ethnicity, and 20.8 percent of the University of Hawaii Hilo students have identified themselves as Hawaiian Natives. The University collaborates with a number of programs that assist Native students, including service learning programs, and attempts to meld traditional science with Native Hawaiian ways of knowing. Courses in Indigenous Engineering will be offered following the establishment of a new Engineering program and facility at the University. The University also will maintain an inventory of STEM opportunities for Native Hawaiians.

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### Observations from a Dine Male Student

Mr. Stephan Chase, an Environmental Science major at Dine College spoke to the group about his experiences. He stated that he began college as a Fine Arts major in 1996 but dropped out after he started a family. Mr. Chase now has three children and is in his first year as an Environmental Science major. According to Mr. Chase, he found an escape from trouble by releasing stress through skate-boarding. His school was 30 miles from his home, and sometimes he stayed up to the early morning hours doing homework. Mr. Chase attended a very large high school (1,500-2,000 students). He noted that his mother was strongly involved in his life but that he barely knew his father. He stated that earlier in his life he was sent to a boarding school where he was punished for speaking his Native language. His children are enrolled currently in a school that teaches the Navajo language.

Mr. Chase stressed the importance of parental involvement in his persistence to continue his education. He told the group that his mother, a strong supporter of his continuing education, had an Associate's degree in Business and currently lives on a reservation. For four years, he has been a father to six (6) children (three of his own and three from relatives). Mr. Chase stated that there are over 600 gangs on Navajo reservations, and the gangs serve as families for their members. Next semester he plans to enroll in Southwestern Indian Polytechnic Institute (SIPI) in Albuquerque to pursue a STEM degree.

### Institutions' Discussion of their Recruitment/Retention Strategies

Given below are comments from participating institutions regarding their recruitment and retention strategies.

**Sitting Bull:** The institution has college awareness activities for potential students twice a year, in Spring and in Fall. Seniors are invited to attend a session in October. There are some difficulties in getting more students involved in the process.

**University of Alaska Fairbanks, Aleutians Campus:** The institution is planning an Innovative Pathways program to assist potential students that will operate through a high-speed Internet system. Some Alaska educators have expressed concern that a heavy reliance on distance learning will dilute the quality of some of the course offerings.

**University of Hawaii at Hilo:** There is a 32 percent drop-out rate for Native students during their first year of college. The University plans to open a new Science and Technology Building and will provide space in the building for activities focused on Native Hawaiian students. The Hilo team suggested holding summer institutes in mathematics for teachers. They also suggested that a mechanism for attracting males to science might be to give students an opportunity to do hands-on science by using a "bag of junk" to design and construct prescribed vehicles or contraptions (for example, cars, boats, planes, wheels, and catapults) to carry out specific tasks. Another strategy mentioned to increase male attendance in college would be the establishment of a canoe club. QEM agreed to provide the workshop participants with additional information regarding the "bag of junk," used recently in a QEM Engineering Mentoring Workshop.

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**Dine College-Shiprock Campus:** The College intends to work more closely with regional schools and offer additional STEM courses in collaboration with high schools for which college credit can be obtained. A potential threat to the college's recruitment effort is the building of another state college in the nearby area by Spring 2011.

**Haskell Indian Nations University:** The University plans to get additional information on its students and have former students serve as mentors. It also intends to use existing or former programs such as Upward Bound and bridge programs to establish a student/former student database. The University advocates bringing students together and has set up a Tribal Students Technology Program. Currently, Haskell's only mathematics and science degree program is in Environmental Science. The institution has a longstanding relation with the University of Kansas at which Haskell students can take certain courses.

**Lac Courtes Oreilles Ojibwa Community College:** The College has a resource person who assists in obtaining and maintaining accurate data on students and student outcomes. The team expressed a need to identify key stakeholders and involve them in the recruitment and retention of Native American males.

### Concurrent Sessions on "A Closer Look at Pathway Transition Points"

The participants broke into two groups to discuss the following topics:

- Best practices, strategies, and models for increasing STEM enrollment/participation of Native American males
- Current status and contributing factors in Native American male educational attainment and achievement in STEM
- Recommendations for key/essential components of a pathway-focused replication model

Promising practices mentioned by the groups included:

- A Student Ambassadors program in which students participate directly in the recruitment and retention of Native American males
- An Early College program in which local high school students can obtain college credit for certain STEM courses while still in high school
- A STEM orientation process for male students that will give them an opportunity to use a "hands-on" rather than a "philosophical" approach to the learning of mathematics and science
- Paid on-campus mentored internships for Indian males that will focus on data analysis of past and current recruitment and retention efforts and provide a basis for developing strategies for new efforts

The groups recommended that these practices be considered for implementation and that they have strong support from university presidents and other senior officials at Tribal Colleges and Universities. It also was suggested that the recommended practices be subjected to a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis.

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### Promising Practices, Strategies, and Models for Increasing STEM Enrollment/Participation of Native American Males

The group made a number of recommendations regarding promising practices, strategies, and models for increasing STEM enrollment/participation of Native American males, including the following:

- Using native languages in curriculum, including scientific terms
- Collaborating with secondary schools/offering dual credit courses
- Providing specific training re: male recruitment/retention in professional development for K-12 teachers
- Sparking male interest in STEM at middle school with hands-on, culturally-based projects, e.g., Alaska Natives - making snowshoes, kayaks, estimating volume in cylinders by relating to fuel tanks
- Using “makeries” (Native Hawaiians’ kits for hands-on activities such as building ukuleles or engaging in projects related to the “food web”) to promote interest in STEM
- Reflecting the integration of culture and Native language in the educational structure of the institution
- Using computer and other technology to attract males
- Using scholar-athlete programs to attract males, e.g., summer camps, with academic work in the morning and athletics in the afternoon
- Using STEM projects and role models that reinforce Native culture
- Developing leaders who demonstrate traditional attributes: wisdom, influence, and service to the community

#### **Current Status and Contributing Factors in Native Male Educational Attainment and Achievement in STEM (Alaska Natives and Native Hawaiian Institutions)**

At University of Alaska Fairbanks (UAF), the College of Rural and Community Development (CRCD) serves the Native villages using distance education and culturally-related/place-based instruction. However CRCD is only one part of the UAF system. Buy-in for course and curriculum changes is difficult to secure from the UAF system. Changes in biology instruction to incorporate Native Science concepts are particularly difficult.

At the University of Hawaii at Hilo, a Native council has been established that has direct access to the system’s administration to raise concerns regarding education for Hawaiian Natives. The University has created a position for an individual to address recruitment and retention of Native Hawaiians. A list of the University’s programs targeting Native Hawaiians has been compiled and distributed.

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### **Recommendations for Key Components of a Pathway-Focused Replication Model**

In addition to pursuing the practices described above, participants recommended strategies for the two- to four-year transition. These include developing clear vocational course transitions to professional STEM fields and careers, e.g., building trades to civil/structural engineering; electrician to electrical engineering; and auto mechanics to mechanical engineering.

For the undergraduate to graduate transition, QEM could prepare a “Pathways to the Ph.D.” document that specifically addresses the steps from a two-year college to a Ph.D. degree in STEM.

### **Overnight Assignment**

Institutional teams were asked to discuss potential changes/modifications to their approaches to the recruitment and retention of Native American males in STEM.

### **Saturday, April 10, 2010**

In the Opening Plenary Session, participants reported on their overnight assignment. The following reports were discussed:

#### **Dine College-Shiprock Campus**

Dine has four high schools and a number of four-year institutions in its vicinity. This makes it difficult to recruit STEM students. Some students who initially attend four-year colleges in the area return to Dine to pursue their degrees.

#### **Haskell Indian Nations University**

The Mathematics Department Chair looks at the whole transcripts of entering students, not only at their test scores, to determine how to place them in appropriate mathematics classes.

#### **Sitting Bull College**

The College has a low retention rate for Native males. It intends to strengthen the current activities underway to address this issue. The strategies include: increasing community awareness through Pow Wows and weekly radio talk shows; offering paid internships for STEM students; focusing on students already enrolled in general education to increase interest and retention in pursuing a STEM-related career; pairing incoming students with a faculty advisor/mentor; and sending postcards to persons in the military and encouraging them to attend college following their military careers.

The reports were followed by a presentation by Dr. Patrick Weasel Head on *Facilitating/Inhibiting Factors in Program Implementation and Lessons Learned*.

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### Remarks by Dr. Weasel Head

Dr. Weasel Head's remarks focused on facilitating/inhibiting factors in program implementation and lessons learned. He asked the participants "How can we formalize the process of recruiting and retaining American Indian males in STEM"? Dr. Weasel Head suggested that the institutional team members should look at their institutions' strategic plan and see how it matches with their male recruitment and retention plans. The teams should then put together a game plan and identify the best person to lead the charge. Dr. Weasel Head emphasized the importance of having a back-up plan in case persons leave the institution.

The plan should involve training more than one person in the implementation of the recruitment and retention process. He suggested that the program developed should work around transition points (from middle school to high school and from high school to two- and four-year college). He also mentioned that the lack of STEM-related jobs in Tribal communities was a barrier to recruiting males to college and to STEM-related careers. Dr. Weasel Head recommended that exit interviews be conducted with drop-outs and stop-outs to ascertain the reasons for their decisions.

Following Dr. Weasel Head's presentation, the participants moved into Concurrent Sessions to discuss the Development of Pathway-based STEM Recruitment and Retention Strategies for Native American Males, with a Special Focus on Three Critical Transition Junctures

### **Final Plenary Session Comments:**

Dr. Jody Chase, Program Director for the Tribal Colleges and Universities Program (TCUP) at the National Science Foundation; and Mr. Steve DuPuis, QEM TCUP Fellow and Director of the Indigenous Mathematics and Science Institute at Salish Kootenai College, spoke to the group on NSF Funding Opportunities for STEM Capacity-Building and Recruitment and Retention. Ms. Althea Burns, QEM Associate, spoke to the group on Private Foundation/Corporate Funding Opportunities. A copy of the QEM Funding Source Guide is given at **Appendix D**.

### **A Summary of Key Strategies Suggested by Participants**

- Employ student recruiters or ambassadors, targeting Native males
- Increase ties with local school districts
- Consider offering high school mathematics and science courses for college credit
- Collaborate in the conduct of community science fairs
- Formalize peer-mentoring activities
- Develop and offer culturally correct curricula related to mathematics and science
- Establish men's talking circles on-line or through audio conferences
- Disseminate information on innovative pathways to STEM degrees

# NATIVE AMERICAN MALES IN STEM

Quality Education for Minorities (QEM) Network  
Workshop on the Recruitment of Native American Males in  
Science, Technology, Engineering, and Mathematics (STEM)  
Albuquerque, New Mexico • April 9-10, 2010

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## APPENDICES

Appendix A: List of Participating Institutions and Workshop Participants

Appendix B: Native American Males Workshop Agenda

Appendix C: Responses from Participating Institutions to Pre-Workshop  
Questions

Appendix D: Funding Resource Guide

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## **APPENDIX A**

### **List of Participating Institutions and Workshop Participants**

**American Indian Science and Engineering Society (AISES)**

**Dine College – Shiprock Campus**

**Haskell Indian Nations University**

**Lac Courte Oreilles Ojibwa Community College**

**Sitting Bull College**

**University of Alaska Fairbanks, Bristol Bay Campus**

**University of Alaska Fairbanks, Interior Aleutians Campus**

**University of Hawaii at Hilo**



## NATIVE AMERICAN MALES IN STEM

### Workshop Participants

Dr. Mark Bauer  
Faculty  
Department of Science  
Diné College-Shiprock Campus

Ms. Ronya Hoblit  
Career Counselor  
Department of Student Services  
Sitting Bull College

Mr. Steven Becker  
Alaska Roads Scholar and STEM Faculty  
Department of Tribal Management  
University of Alaska Fairbanks,  
Interior Aleutians Campus

Ms. Tina Pino  
Program Officer  
American Indian Science and Engineering  
Society

Mr. Gabriel Begaye  
Instructor  
Department of Mathematics  
Haskell Indian Nations University

Ms. Maile Kehaulani Sing  
Admissions Officer for Native Hawaiians  
Office of Admissions  
University of Hawaii at Hilo

Ms. Karen Breit  
Recruitment and Retention  
Office of Student Services  
Lac Courte Oreilles Ojibwa  
Community College

Dr. William Wallace Moekahi Steiner  
Dean, College of Agriculture, Forestry and  
Natural Resource Management  
University of Hawaii at Hilo

Mr. Perry Charley  
Director  
Diné Environmental Institute  
Diné College-Shiprock Campus

Ms. Angelina Adams  
Counselor  
Office of Student Services  
Haskell Indian Nations University

Ms. Annette Freiburger  
Coordinator, Student Services, Nenana Center  
University of Alaska Fairbanks,  
Interior Aleutians Campus

Mr. Verl Walking Elk  
Outreach Coordinator  
Office of Student Services  
Sitting Bull College

Mr. Paul Grahovac  
Director  
Student Support Services  
Lac Courte Oreilles Ojibwa Community College

Dr. Victor Zinger  
Associate Professor of Mathematics  
and General Studies  
Department of Mathematics  
University of Alaska Fairbanks,  
Bristol Bay Campus

## **NATIVE AMERICAN MALES IN STEM**

### **CONSULTANTS AND PRESENTERS**

Dr. Anselm Davis, Jr.  
Former Executive Director  
White House Initiative on Tribal  
Colleges and Universities (WHITCU)

Dr. Patrick Weasel Head  
Former Director of American Indian  
Student Services (Retired)  
University of Montana-Missoula

Dr. Lloyd Lee  
Assistant Professor  
Native American Studies  
University College  
University of New Mexico

### **STUDENT PANELIST**

Mr. Stephan Chase  
Environmental Science Major  
Diné College

### **NSF STAFF**

Dr. Jody Chase  
Program Director  
Tribal Colleges and Universities Program (TCUP)  
Division of Human Resource Development  
Directorate for Education and Human Resources

Mr. Steve Dupuis  
QEM/TCUP Fellow, NSF, and  
Director, Indigenous Math & Science Institute,  
All Nations LSAMP & SKC-Wireless  
Salish Kootenai College

### **QEM STAFF**

Ms. Althea Burns  
Associate and Conference Coordinator

Dr. J. Arthur Jones  
Senior Associate

Dr. Shirley McBay  
President

# NATIVE AMERICAN MALES IN STEM

## APPENDIX B – NATIVE AMERICAN MALES WORKSHOP AGENDA

**Quality Education for Minorities (QEM) Network  
Workshop on the Recruitment and Retention of Native American Male Students in  
Science, Technology, Engineering, and Mathematics (STEM)  
NATIVO Lodge • Albuquerque, NM**

**April 9-10, 2010**

### FRIDAY, APRIL 9

#### AM

8:30 *Registration and Continental Breakfast*

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

9:15 *Overview of Research Findings (Data and Lessons Learned) on STEM Participation and Achievement of Native American Males*

Research Findings: J. Arthur Jones, Senior Associate, QEM Network

Panel on Lessons Learned:

Patrick Weasel Head, former Director of American Indian Student Services  
University of Montana-Missoula and QEM Consultant

Lloyd Lee, Assistant Professor, Native American Studies Department  
University College, University of New Mexico

Anselm Davis, former Executive Director  
White House Initiative on Tribal Colleges and Universities (WHITCU)

*Q&A: Group Discussion of Findings, Status, and Broadening Participation Challenges*

Session Moderator: Althea Burns, Associate and Conference Coordinator, QEM Network

10:45 *Coffee Break*

11:00 *Effective Strategies, Best Practice, and Institutional Challenges in Recruitment and Retention of Native American Males in STEM*

Panelists:

Perry Charley, Coordinator, Diné Environmental Institute, Diné College

Paul Grahovac, Director, Student Support Services  
Lac Courte Oreilles Ojibwa Community College

Victor Zinger, Associate Professor of Mathematics and General Studies  
University of Alaska Fairbanks, Bristol Bay Campus

Group Discussion of Strategies and Best Practices – Identification of Success Factors

Session Moderator: Steve DuPuis, QEM/NSF Tribal Colleges and Universities Program (TCUP) Fellow, National Science Foundation (NSF), and Director, Indigenous Math & Science Institute, All Nations LSAMP & SKC-Wireless  
Salish Kootenai College

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### PM

- 12:30 *Working Lunch (Buffet)*  
Teams discuss their Institutions' *Current Recruitment/Retention Strategies*
- 1:30 *Barriers to the STEM Education of Native American Males and What Can be Done to Improve Outcomes: Views from A College Student*
- Panelists:  
Stephan Chase, Environmental Science Major, Diné College
- Group Discussion of Barriers and Proposed Strategies*  
Session Moderator: Althea Burns, QEM Network
- 2:30 Concurrent Sessions: *A Closer Look at Pathway Transition Points*  
(see assignment sheet for working groups)
- Each working group is to discuss the following topics:
- Best practices, strategies, and models for increasing STEM enrollment/participation of Native American males
  - Current status and contributing factors in Native American male educational attainment and achievement in STEM
  - Recommendations for key/essential components of a pathway-focused replication model
- Group I Facilitators: Patrick Weasel Head and J. Arthur Jones
- Group II Facilitators: Anselm Davis and Althea Burns
- 3:30 *Break*
- 3:45 Plenary Session:  
*Development of Innovative and Creative Enrollment and Support Strategies and Initiatives in STEM at Critical Junctures Along the Educational Pathway*
- Working groups present overview of their discussions/recommendations regarding key strategies and pathway components
  - Group discussion of facilitating/inhibiting factors in the implementation of initiatives to address Native American Male participation in STEM (Topics will include the Impact of Cultural Traditions on Native American Male Participation)
- Session Moderator: Patrick Weasel Head, QEM Consultant
- 4:45 *Review of Overnight Assignment and Next Day's Agenda*  
Shirley McBay, QEM Network
- 5:00 *Adjournment, Day One*  
*Dinner on Your Own*

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

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### SATURDAY, APRIL 10

#### AM

8:30 *Continental Breakfast*

9:00 Plenary Session: *Report on Overnight Assignment on Recruitment/Retention Strategies*  
Institutional teams present ideas for changes/modifications to their current efforts  
(key elements, pathway target, and expected outcomes)

Session Moderator: J. Arthur Jones, QEM Network

10:00 *Facilitating/Inhibiting Factors in Program Implementation and Lessons Learned*

Presenter and Discussion Leader: Patrick Weasel Head, QEM Consultant

10:30 *Coffee Break*

10:45 Concurrent Sessions:

*Development of pathway-based STEM recruitment and retention strategies for  
Native American Males, with a specific focus on three critical transition junctures:*

- *High School to College/2-year College Transition*
- *2-year to 4-Year College/University Transition*
- *Undergraduate to Graduate School Transition*

Group I Facilitators: Patrick Weasel Head and J. Arthur Jones

Group II Facilitators: Anselm Davis and Althea Burns

#### NOON/PM

12:00 *Working Lunch (Buffet)*

- Working Groups present summary of key discussion points and strategies  
for pathway-focused replication model

Discussion Moderator: Althea Burns, QEM Network

1:00 Plenary Session: *NSF/Foundation/Corporate Funding Opportunities for  
STEM Capacity-Building–Recruitment/Retention*

Jody Chase, Program Director, Tribal Colleges and Universities Program (TCUP)

National Science Foundation (NSF), and

Steve DuPuis, QEM/TCUP Fellow, NSF

Althea Burns, QEM Network (Private Foundation/Corporate Funding Opportunities)

1:30 *Closing Comments and Next Steps*

Institutional Representatives, QEM Consultants, NSF Staff, and QEM Staff

1:45 *Adjournment*

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## APPENDIX C

### Responses from Participating Institutions to Pre-Workshop Questions

#### Dine College-Shiprock Campus

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

Nothing specific that I am aware of at this time – simply trying to provide adequate support for all students through scholarships and appropriate work experiences should help male students who benefit from applications, connections to the world of work.

**What does your institution hope to gain from your participation in the workshop?**

Some ideas from other institutions and help in thinking through our issues to see if there are things we should be doing.

#### Haskell Indian Nations University

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

We are offering a variety of exciting hands-on STEM oriented research activities. It is our experience that our male students find these types of projects exciting and interesting. Additionally, we are actively communicating with our students, talking with them outside of class, and doing our best to serve as mentors for their undergraduate experience

**What does your institution hope to gain from your participation in the workshop?**

*We hope to learn a variety of strategies that other universities are using to improve male student retention in STEM related fields.*

#### Lac Courte Oreilles Ojibwa Community College

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

Men's Talking Circle

The mission of the Lac Courte Oreilles Ojibwe Community College Men's Talking Circle is to provide a support system with male students, both academically and personally, to help men meet their individual needs and enable them to persevere and be successful in attaining their desired degrees. Moreover, we hope that this effort inspires our Native male students to be role models and sources of encouragement for other Native men to seriously consider higher education. The Circle meets on a bi-weekly basis during each semester.

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### **Student Ambassador Program**

The Student Ambassador Program is a new student organization made up of volunteers from currently enrolled students to supplement the overall recruitment effort. Fifty seven percent of the Student Ambassadors are Native American males. It is anticipated that by spotlighting current NA males as college success stories and through positive networking involving the students themselves, NA male enrollments will increase.

### **What does your institution hope to gain from your participation in the workshop?**

Through participation in this workshop we as an institution would hope to gain insight and understanding of reasons for low NA male enrollments thereby enabling us to better formulate plans and strategies to attract and boost NA male enrollment at our college and persistence toward graduation at Tribal Colleges and Universities.

### **Sitting Bull College**

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

Adding and/or maintaining courses that may have more appeal to male students (i.e., information technology, energy technician training, business, environmental science, agri-science, horsemanship); bringing local high school students (male & female) into the college for a day to experience the classroom

### **What does your institution hope to gain from your participation in the workshop?**

Fresh approach/perspective on how to bring male students into the classroom; practices for keeping them in the classroom without compromising the student's learning experience or the college's reputation for delivering a good education.

### **University of Alaska Fairbanks, Bristol Bay Campus**

Nothing noted.

### **University of Alaska Fairbanks, Interior Aleutians Campus**

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

Increasing Alaska Native male enrollment is one of IAC's strategic goals and has been for a number of years. We have pursued this goal by developing programs attractive to men including: TM, CTT, Alaska Roads Scholar, GIS/GPS and the Associate of Science. We have also pursued grants such as the Gaalee'ya NSF STEM grant which has 50% Alaska Native participation.

### **What does your institution hope to gain from your participation in the workshop?**

The campus would like to develop new strategies to attract and retain Alaska Native male students, especially in the area of Developmental Math and Science. The campus also recognizes the writing and reading are also hindrances to academic success for all of our students.

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### University of Hawaii at Hilo

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

Creating a Native Hawaiian Admissions Officer position which is focused on recruitment of native students; Adapting outreach efforts to include events that are sponsored by the native Hawaiian community, even if they are nontraditional to the institution; Having Native Hawaiian male representation at college awareness events; Staffing Kipuka Native Hawaiian Student Center with Native Hawaiian Peer Mentors and Tutors to support current students; Collaborating with pre-college culture based education programs that focuses on exciting Native Hawaiian students in the area of Science and Technology (Na Pua No'eau); Offering opportunities for Special Admission for students who do not meet the regular requirements for university admission but would like to major in the area of Agriculture, Forestry and Natural Resource Management; Providing early Placement Exams, Advising, and Registration assistance within student's home community, prior to their transition to the university.

The College of Agriculture, Forestry and Natural Resource Management (CAFNRM) is now working to build a dual-track program in Engineering, including Agricultural/Biological Engineering as one track and Systems Engineering as a second track. Both tracks will incorporate training in *Indigenous Engineering* to complete a base in which native students can learn how engineering was used within their own culture to build and design structures (houses or *hale*, ocean voyaging canoes, temples or *heiau*, irrigation systems, fish ponds, field systems, and even tools). These studies will incorporate aspects of the culture to place native built systems in social, physical, spiritual and pragmatic contexts. Modern tools associated with archeological studies such as 3-D laser scanners measuring to within 1mm can be used to study ancient structures, artifacts and facilities to determine what engineering principles were used and these then compared to modern principles of stress, connectivity and accuracy of design. This approach can be expanded to study engineering principles of any indigenous system enhancing the relationship between culture, ancient knowledge and modern practice thus serving as a way to attract male students to fields that relate them to STEM approaches to knowing. In addition, the emerging engineering program will seek to establish summer math programs at two levels. One will be to "teach the teachers" (of elementary and high school math); the other will offer math experiences to students exposing them to mathematical ways of describing the world in which they live. In this way, a pipeline of students with increased mathematical ability will be prepared to engage college/university level studies in STEM sciences.



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

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**Program Name/Focus: *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/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. Programs within HRD 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.

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### 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).

**Deadline Information:**

Preliminary Proposal Deadline Date: June 24, 2010, except CRPA proposals  
Full Proposal Deadline Date: November 18, 2010, except CRPA proposals

**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](mailto: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/funding/pgm_summ.jsp?pims_id=5361&org=DRL&from=home)  
[http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=nsf09553](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf09553)

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**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.

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

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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.

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**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](http://www.ncrr.nih.gov/about_us/programs.asp)

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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](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.

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### 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, NY 10017  
(212) 573-5000 office-secretary@fordfound.org

**Foundation/Agency URL:**

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

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."

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### 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/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

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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.”

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### 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 grantmaking of the Education Team:

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

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### 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/about_us/)  
[http://www.luminafoundation.org/our\\_work/](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 – 16<sup>th</sup> Street, NW, Suite 416, Washington, DC 20036-3207  
(202) 822-7840      [foundation\\_info@nea.org](mailto:foundation_info@nea.org)

**Foundation/Agency URL:**

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

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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.

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### The Spencer Foundation

**Program Name/Focus:** The Relation between Education and Social Opportunity (Research Foci)

**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



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**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.

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### 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.

upon within four months.

**Contact:**

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

## NATIVE AMERICAN MALES IN STEM

### ACRONYMS AND LINKS TO

#### SELECTED NSF PROGRAMS THAT ARE POTENTIAL SOURCES OF SUPPORT FOR MINORITY MALE-FOCUSED PROJECTS

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

## NATIVE AMERICAN MALES IN STEM

### 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.

## **NATIVE AMERICAN MALES IN STEM**

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

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**The Quality Education for Minorities (QEM) Network  
1818 N Street, NW Suite 350 • Washington, DC 20036  
Tel: 202/659-1818 • Fax: 202/659-5408 • E-mail: [qemnetwork@qem.org](mailto:qemnetwork@qem.org)  
URL: <http://qemnetwork.qem.org/>**