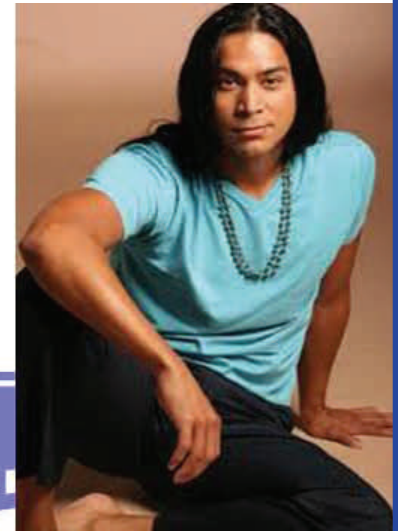
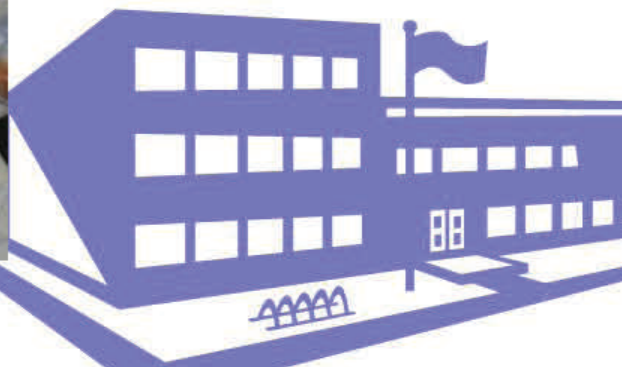




**NSF-Sponsored
Colloquy on Minority Males in STEM**

**August 8-12, 2010
Mt. Washington Conference Center
Baltimore, MD**

ACTIVITIES AND FINDINGS



NSF-SPONSORED COLLOQUY ON MINORITY MALES IN STEM

**MT. WASHINGTON CONFERENCE CENTER
BALTIMORE, MARYLAND
AUGUST 8-12, 2010**

Hosted by the

Center for the Advancement of Scholarship on Engineering Education
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1.0 BACKGROUND

Recent reports by the College Board¹ and the National Center for Educational Statistics² have highlighted the educational challenges facing minority males.

The Research on Gender in Science and Engineering (GSE) program of the National Science Foundation's (NSF's) Directorate for Education and Human Resources (EHR) in collaboration with two other NSF programs—the Historically Black Colleges and Universities Program (HBCU-UP) and the Social Psychology program of the NSF Directorate for Social, Behavioral and Economic Sciences—decided to gather input from the community on how to frame approaches to investigating gender-based factors that impact learning and choice in STEM education and the workforce. There was particular interest in framing research studies of how societal and (formal and informal) educational systems' interactions with individuals encourage or discourage interest and persistence in study or careers in science, technology, engineering, and mathematics (STEM) fields by underrepresented minority males.

During August 9-12, 2010, the Center for the Advancement of Scholarship on Engineering Education (CASEE) of the National Academy of Engineering hosted the NSF-sponsored Colloquy on Minority Males in STEM in support of NSF's objectives in gaining community input into the parameters of a future research program³. The Colloquy was held at the historic Mt. Washington Conference Center in suburban Baltimore with 36 invited attendees drawn from such fields as education, psychology, sociology, mathematics, and physics (see list of attendees in Appendix A). It was conducted over a period of three and one-half days (see the Colloquy agenda in Appendix B).

2.0 COLLOQUY GOALS

The Colloquy was designed to provide a forum for discussion of research questions, theories, and methodologies that, while recognizing and acknowledging the differences within and between specific minority male populations, would frame a research agenda on underrepresented minority males in STEM:

- What do we know?
- What do we want to know?
- What would be key elements of an NSF solicitation to encourage research in this area?
- What should be the balance between research and implementation?

The colloquy was also designed to build bridges among researchers operating in different subspecialties with the aim of stimulating productive research collaborations.

While the Colloquy was originally designed with specific reference to framing a research agenda with respect to underrepresented minority males (African Americans, Hispanic Americans, and Native Americans), discussions during the colloquy expanded the populations of concerns to include Native Pacific Islanders (Native Hawaiians, Polynesians, Indonesians), Southeast Asian (e.g., Vietnamese and Thai), and Filipino populations.

¹ The College Board, *The Educational Crisis Facing Young Men of Color*, January, 2010. Available at <http://professionals.collegeboard.com/profdownload/educational-crisis-facing-young-men-of-color.pdf>

² National Center for Educational Statistics, *Status and Trends in the Education of Racial and Ethnic Groups*, July 2010. Available at http://www.air.org/files/AIR-NCESracial_stats_trends1.pdf

³ Support was provided via a supplement to award GSE-0533520.

3.0 COLLOQUY PRODUCTS

Major products produced by the colloquy include (a) a draft solicitation summarizing major areas of inquiry with respect to access, participation, and success of minority males in STEM, and (b) detailed research questions along with discussion of theories and methodologies that frame their resolution.

3.1 Draft Solicitation

Over the 3.5 days of the Colloquy, attendees identified major areas of inquiry and crafted a draft solicitation for consideration by NSF in developing and implementing a new research program focused on minority males in STEM. Major areas of inquiry identified include investigating, discovering, and understanding:

- Descriptions and explications of the challenges to the access, participation, and success of minority males in STEM.
- Descriptions and explications of the challenges facing minority males in STEM and their educational, intellectual, political, social, and economic manifestations.
- Descriptions and explications of the underlying causes and mechanisms of the challenges facing minority males in STEM.
- Descriptions and explications of models of success in STEM by minority males, both as organic wholes and collections of “best” or promising practices.

Colloquy attendees also placed a high premium on the translation of understandings gained from the research program into guidance for practitioner communities (interpreted broadly to include all those with influence on minority males who are or could be in STEM).

See Appendix C for the draft solicitation.

3.2 Major Research Foci and Questions

On their way to developing the draft solicitation, Colloquy attendees identified major research questions within each major area of inquiry.

3.2.1 Challenges

- What defines academic and professional success in STEM by minority males? What levels of representation and performance represent “threshold” levels for self-sustainability? How does the definition vary from comparable definitions for majority males? How does the definition vary among various ethnic minority populations?
- Are efforts to enhance participation, representation and performance in STEM by minority males more productively directed at sustaining, nurturing and enhancing capacity among those with demonstrated interest or building awareness and interest among those with latent talent? What costs or trade-offs, if any, are imposed by pursuing both strategies?
- How do we identify STEM potential among minority males? How do we sustain, nurture, and enhance capacity in STEM among minority males?
- What efforts can productively be made to re-engage in educational systems, and STEM learning, boys and men who are leaving or have left systems of formal and informal education (drop-outs, migrant workers, transients, homeless, etc.)? What has been learned since “The Forgotten Half” (1998)?

- What are the impediments to academic and professional participation and performance in STEM by minority males overall and by various ethnic minority populations?
- What are the complementarities between the learning and teaching experiences that occur in-school and those that occur out of school with respect to interest in, learning of and mastery of STEM disciplines and professions by minority males?
- What is the philosophical basis for conceptualizing challenges to the academic and professional representation, participation, and performance of minority males in STEM (e.g., How is the problem framed in terms of the goals and philosophies of W.E.B. DuBois, Booker T. Washington, etc.)? What analogs exist from conceptualizations of women and girls in STEM?
- What are the differentials in societal and institutional expectations (as intended, as they exist, and as they are perceived) of minority males vis-à-vis majority males with respect to academic and professional participation and performance in STEM?
- What would constitute full representation and participation in STEM by minority males overall and by various ethnic subpopulations? What are the capacities of educational and professional institutions and systems to accommodate full participation in STEM by minority males?
- How can transformational rather than incremental progress toward academic and professional representation, participation, and performance in STEM be achieved by minority males?

3.2.2 Manifestations of the Challenges

Within the Target Population

- What are epistemologies on the visibility and perception of minority males in STEM?
- What are the experiences of boys of color within groups and across groups with respect to various aspects of identity as correlates with stage in the decision making process for degree and career aspiration in STEM?
- What are the Implications of class and other societal distinctions (e.g., immigration status, etc.) for the academic and professional participation and performance of minority males in STEM?
- What pathways are followed by minority males in pursuit of STEM education and careers?
- Where are the most significant losses along educational and career pathways by minority males and how does the answer change for various ethnic minority populations?
- Why do so few minority males graduate from high school despite the large number who enter with high aspirations?
- How does the participation and performance in STEM by minority males within systems of formal or informal education vary with respect to content, pedagogy, curricula, educational environment, teacher training, teacher experience, mentor presence and prevalence, etc.?
- How does participation and performance in STEM education and careers by minority males vary with the nature and extent of social and cultural support (e.g., reservation-based American Indians versus those who are not reservation-based, or those who maintain traditional values and lifestyles versus those who do not)?
- What causes sudden and unexpected failures to perform or sudden departures from STEM pathways among minority males who appeared to be doing well?

- What motivates changes in interest in pursuing STEM careers among collegiate minority males with demonstrated skill and proficiency in STEM?
- What are the effects of limited learning in foundational disciplines such as English in impeding STEM interest, performance, and proficiency?

Within institutions and systems

- What are the capacities of existing educational and professional systems to accommodate new minority male entrants?
- What incentives exist for existing systems to accommodate new entrants?

3.2.3 Underlying Causes and Mechanisms of the Challenges

- How are impediments to the participation and performance of minority males in STEM related to and influenced by dominant political, economic and social contexts?
- Is understanding advanced by alternative conceptualizations of possible associations or causal relations in the underrepresentation of minority group males among persons who study and excel in STEM disciplines and professions? Are there differentials in associations or causal relations among the various ethnic minority groups?
- What learning environments (including consideration of context, content, pedagogy, and curriculum) have been demonstrated effective by teachers and faculty in adjusting to the evolving needs in STEM pathways of an increasing number and variety of minority male groups? How many of these are dependent upon or consistent with relevant cultural knowledge and understanding? How is knowledge of such practices continually updated through on-going professional development and lifelong learning?
- How might students at all levels be provided with systematic exposure to structured inquiry (including basic and applied research) inside and outside formal educational systems?
- What systemic, organizational or individual models (both evidence-based and theoretical) might guide efforts to intervene on behalf of increased participation and performance in STEM education and professions by minority males?
- What models might be particularly derived from the roles of professional STEM societies in engaging and encouraging students in STEM (e.g., the American Indian Science and Engineering Society [AISES] and the Society for the Advancement of Chicanos and Native Americans in Science [SACNAS] have been effective in supporting American Indian students)?
- What is the effect on minority male participation and performance in STEM of the social organization of learning environments (including formal and informal education) and the policy contexts of such environments?

3.2.4 Models of Success in Surmounting the Challenges

- What demonstrated models exist of systems, organizations, or individuals who significantly increased the academic and professional representation and performance in STEM by minority males? By what means did they do so and were these means immune to the underlying impediments or did they counteract the impediments?
- What fundamental and applicable knowledge can be extracted and distilled from extant research on the promotion, teaching and learning of STEM subject matter from US mission agencies (e.g., Department of Defense) and other countries (e.g., United Kingdom) that are known to have made progress on the inclusion of under-represented groups in the mastery of STEM disciplines and professions?

4.0 COLLOQUY DISCUSSIONS

Inspired by stimulating and engaging presentations by Dr. Lorelle Espinosa, policy director of the Institute for Higher Education Policy and Dr. James Stith, vice president emeritus of the American Institute of Physics (See Appendices D and E), Colloquy attendees engaged in a series of breakout discussions as they sought to identify research strands and contribute to the draft solicitation for a new research program. This section summarizes key points raised in the breakout discussions.

4.1 Discussions on Ethnicity, Educational Level, and Influence of Educational Level on Questions by Ethnicity.

Attendees were divided into groups based upon the ethnic populations that are their primary areas of research. There were two groups focused on African Americans, one group focused on Hispanic Americans, and, because the number of researchers in each group was so small, a single combined group focused on Native Americans and Asian Pacific Islanders. Each group was first asked to consider three sets of questions with respect to their research population (African American, Hispanic American, and Asian Pacific Islander). Groups were then re-formed based on educational focus level of research (K-8, middle school, high school, graduate education/professional) and asked to consider what refinements in research questions are necessitated by issues particular to a given educational level. Finally, attendees returned to their original groups to re-consider the answers to the original questions framed in terms of ethnicity in light of their discussions looking at issues by educational level.

The original and final set of questions looked at by each group with respect to their target research population were as follows:

- **IN WHAT AREAS DO GENDER DIFFERENCES EXIST?** What significant gaps exist in the research base with respect to the discovery and description of gender-based differences and preferences in learning STEM at K-16 levels,
- **WHAT IS CAUSING THE GENDER DIFFERENCES?** What significant gaps exist in the research base with respect to understanding factors affecting interest, performance, and choice of STEM study and careers in those fields where significant differences in performance by gender exist?
- **HOW ARE THE GENDER DIFFERENCES EXACERBATED BY EDUCATIONAL SETTINGS?** What significant gaps exist in the research base with respect to discovering and understanding how experiences and interactions in informal and formal educational settings either inhibit or encourage interest and performance of learners based on gender?

In discussing these questions attendees explicitly rejected deficit models. The issue is not how to “fix” minority males, but rather how to create environments more conducive to their participation and performance. Discussants were also strongly motivated to have research findings inform practice and to have the challenges of practice inform future research. They emphasized the need to recognize that research questions and practice approaches will likely differ between and among various minority groups.

A key outcome from this set of breakouts was the observation that ethnicity was not well defined. Attendees did not believe that Native Americans and Asian Pacific Islander should have been lumped into a single group, rather there should have been three groups—Native American, Native Pacific Islander, and Asian—in recognition of their unique issues. Native Americans are not only ethnically distinct, but also have prerogatives of sovereignty which must be considered. Native Pacific Islanders lack federally recognized sovereignty. Asian Pacific Islanders are often not considered a minority and have to struggle with recognition issues. This is a particular problem with some Southeast Asian groups (e.g., Vietnamese, Hmong, etc.) whose underrepresentation is hidden in the larger representation of the catchall category of Asian. There is the additional challenge of recognizing the increasing underrepresentation of native-born Asians. Similar issues (subgroup underrepresentation and distinction between native-born and immigrant communities) exist within the Hispanic-American community.

Other key points made by the breakout groups are noted by breakout group:

4.1.1 African American

Discussion in this group was aligned with the educational levels identified by the Colloquy planners: K-8, high school, undergraduate, and graduate/professional.



K-8

To be more effective, different approaches need to be taken to the conduct of research on younger boys of color. Scale-based research might not be as helpful at the younger ages. There is a need for more qualitative studies for younger boys. Research at this level should take into consideration age-appropriate developmental perspectives of identity (e.g., gender, race, masculinity, socioeconomic status, and academic) as well as the ecological domains of examination (e.g., parental/home, community, peer, school, media, etc.).

Key research objectives include understanding where are the leverage points for effective intervention to enhance academic performance and STEM interest. Peer connections may particularly merit investigation as one such point of leverage.

There is a need for more comparative and longitudinal studies on effective content and pedagogy associated with content, particularly those that may create earlier orientations toward STEM. Based on their current social prominence, two candidates for such studies include (a) examination of to what extent are STEM concepts present in communications technologies and social media (iPods, TV watching, video games, Facebook, etc.), and (b) examination of when within the educational continuum same-sex schools are more effective.

High School

Key research questions at this level include understanding what characterizes an educational culture of success and what pathways toward “success” are enabled or precluded by a child’s elementary and middle school experiences, behaviors, and assessments. What are empowering culturally relevant pedagogies that positively impact STEM achievement in what (in-school and out-of-school) learning spaces are they practiced?

Ultimately, researchers need to understand the interaction of identity and social capital efficacy. But in order to achieve this aim, researchers must first better understand the multiple dimensions of identity within males of color at this level (including how peer, community, school, political, and intra/inter racial contexts impact the student, teacher, counselor, and administrator sense of self). Researchers must also better understand how social and cultural capital develop and manifest in the academic and life trajectories of males of color.

Undergraduate

Research at this level is necessarily coupled with understanding pre-college experiences (academic, advisory, social, and cultural) which either do or do not adequately prepare African American males for pursuing STEM study and careers. Questions to be addressed initially at the pre-college levels include assessment of the nature and effectiveness of advisement in high school as well as the effectiveness of various school administration models (e.g., magnet schools, learning communities within conventional schools, etc.).

Ultimately, the desire should be to have holistic approaches to understanding undergraduate recruitment, matriculation, retention, progression, and graduation by African American males. Beyond understand African American male performance in each of these dimensions, holistic approaches may necessarily need to treat individual STEM disciplines as vectors of analysis in order to understand movement across STEM disciplines as well as movement from STEM to non-STEM disciplines.

Research at this level also bridges to consideration of preparation and success for graduate study and professional practice. Researchers need to better understand the how curricular, co-curricular,

and extracurricular experiences encourage or discourage interest in STEM careers. For example, what role is played by mathematics in either inhibiting or promoting career interest in various STEM fields? And, how do research internships build career interest? One goal of research at this level is to contribute to providing academic and psychosocial profiles of successful STEM majors. For example, how do successful STEM majors balance the various aspects of their lives? Do they rely heavily on others in STEM for support, and/or is it just as important for them to have connections outside of STEM to provide balance?

Graduate/Professional

Key questions at this level involve choice and persistence. How are talented STEM graduates encouraged to persist to graduate study rather than immediately entering industry? Encouragement may not be sufficient; as indicated above, stakeholders need to better understand the nature and extent of educational experiences that inhibit receptivity to consideration of graduate study. Beyond encouragement to pursue STEM study, how is resilience to persist attained?

While researchers are concerned with a wide array of STEM professions, the future of the fields is highly dependent on having a robust professoriate with diverse role models. Thus, a key challenge is understanding how to recruit and retain minority male faculty through reappointment and tenure within various institutional contexts (and the implied emphases on research, teaching, mentorship, and service). What support structures are available to ease their transitions through these milestones?

4.1.2 Hispanic American

This group identified seven major research strands with respect to Hispanic Males in STEM: academic preparation, institutional and career pathways, institutional policies and practices, understanding resiliency, identify formation, effective pedagogy and instruction, and mentoring.



K-8 Academic Preparation

Hispanic males enter the academic pipeline with high aspirations but too often leave with failure. Researchers need to understand why. There appear to be challenges with the mathematics core: algebra, geometry, trigonometry, and pre-calculus. Inadequate parental knowledge of academic requirements appears to be a contributory issue. Language of instruction can be a challenge for second language learners. Researchers need to better understand the effect of standardized testing and accelerated/advanced courses in imposing systemic inequity and barriers to further STEM study.

Undergraduate Institutional and Career Pathways

Researchers should seek to better understand the messages students are getting in high school as undergraduates about STEM study and STEM career fields. Those studying Hispanic males (actually all students in higher education) need a much better understanding of transfers from community colleges by sub-field. It would be good to understand better if the assumed graduate pathways of the NSF Research Experiences for Undergraduates programs serve Hispanics as well as they serve the general population. What is the nature of anticipatory socialization to enter graduate degree programs versus immediate employment in industry?

Institutional Policies and Practices

Researchers need to better understand what models exist of institutions and programs that are effective at engaging Hispanic males at the K-12 and undergraduate levels. How scalable are such programs and how might they be moved from *ad hoc* pilots to institutionalized programs? It is especially important to understand what policies and procedures encourage or inhibit faculty support for the recruitment and retention of graduate students of color through mentoring/supportive activities.

Understanding Resiliency

Studies are needed to identify the characteristics of STEM achievers. What are their educational experiences and their home environments? Within that set of experiences, which ones build and further resiliency?

Identity Formation

Identity formation needs to be much better understood. How do male students see themselves as scientists? Are such views congruent with their views of masculinity? What effect do teacher/coach interactions have, and how are those interactions themselves affected by the identity roles assumed by the students and the teacher/coaches? What is the influence of early immersion programs in mathematics in science in science identity development? What role is played by social and political contexts?

Effective Pedagogy and Instruction

We should seek to better understand models of success. What is the role of culturally relevant pedagogy? How important are early immersion research opportunities? What are particularly effective models of foundation mathematics and English instruction within the context of STEM?

Mentoring

The most significant questions relate to how mentors can be better prepared and how effective mentors can be better leveraged. How are teachers and faculty best prepared to mentor Latino men? How might miscommunications based on class differences be minimized between faculty and students? What incentives exist for teachers and faculty, especially senior ones, to serve as mentors and how effective are such incentives? Who are the effective mentors and how might they best be replicated? How are teacher and faculty mentors best used without endangering their own psychological, physical, and professional health?

Other issues

Across academic levels and STEM fields (e.g., math-intensive and non-math intensive), there are a lack of comprehensive data sets and therefore of demographic analyses to characterize the full nature and extent of differentials in academic and professional participation and performance by Hispanic American males (versus Hispanic American females as well as other male populations).

This lack of data contributes to doubts in some policy communities that this issue merits the attention of researcher and practitioner communities.

Members of this group expressed their belief that participation and performance of Hispanic Americans is imperiled by systemic inequities that begin in elementary education systems (e.g., lack of minority male role models in elementary and secondary education) and are reinforced by the culture and climate existing at different levels of academic and professional organizations. Educational settings in particular exacerbate differences in gender performance through differential expectations of teachers and faculty in gateway and gatekeeper courses. These inequities are reinforced by differences in peer and parental influences (e.g., cultural expectations that Hispanic males will leave educational pathways at the high school or baccalaureate levels in order to assume gainful employment).

4.1.3 Native American and Asian Pacific Islander



Native Americans and Asian Pacific Islanders (including Native Hawaiians) share a lack of societal awareness and visibility. They also share fluid and ambiguous definitions of themselves. But they are also distinct groups with unique challenges that require research and interventions beyond those developed for African American and Hispanic American populations. Indeed each group has great racial and ethnic diversity within it. [The small population sizes of these distinct subgroups may necessitate regional studies and innovative methodologies to supplement national studies. Additionally, data disaggregation by subpopulation in large national studies is critically important to understand what really going on.] Native Americans also have sovereign political identities.

Among both populations, societal and cultural issues underlie a variety of challenges to STEM participation and performance. Large fractions of both populations struggle with low socio-economic status and its associated challenges with community safety, school quality, teacher quality, nutritional quality, and other quality of life issues. Education is frequently associated by males in these populations with emasculation and unwanted assimilation into the dominant culture. A question to consider is whether this is driven by the lack of male role model teachers/mentors/advisors at all levels of education.

At root, researchers are seeking to understand complex questions such as the main drivers of low rates of educational interest/attainment and high rates of incarceration and military service. What role is played by education in traditional-culture versus dominant-culture settings? How can pursuit of education pathways be better facilitated? How can the view be reversed that higher education, particularly for males, is a selfish pursuit that does not contribute to the general welfare of families and communities?

It is possible that unexamined data sets exist. For example, the American Indian Science and Engineering Society (AISES) ran several NSF-funded Young Scholars programs in the 1990s. The populations are small enough that it may be possible to track down previous participants and ascertain their current participation in STEM.

4.1.4 General Discussion on Ethnicity and Educational Level

Following the discussions that focused on specific ethnic groups, there was a broad general discussion by Colloquy attendees in which they identified gaps in current research that merited

exploration in any future research program. The results of this discussion are summarized in section 3.2.

4.2 Discussion of Theoretical Frameworks

After identifying research questions, Colloquy attendees turned their attention to identifying theoretical frameworks that might guide developing the answers. Attendees were formed into four randomly assigned groups of six to eight persons and their findings are reported below. Across the four groups attendees cautioned that the application of theories (and methodologies) must be driven by specific research questions.

4.2.1 Group 1

The first group developed the graphic shown in Figure 1. It shows a circle with four quadrants with each quadrant corresponding to one of the major areas of inquiry previously identified. Within each area of inquiry, relevant theoretical frameworks are indicated. For example, in the area of “Challenges,” suggested theoretical frameworks include critical race theory (CRT), organizational change, ecological change, and social/cultural capital.

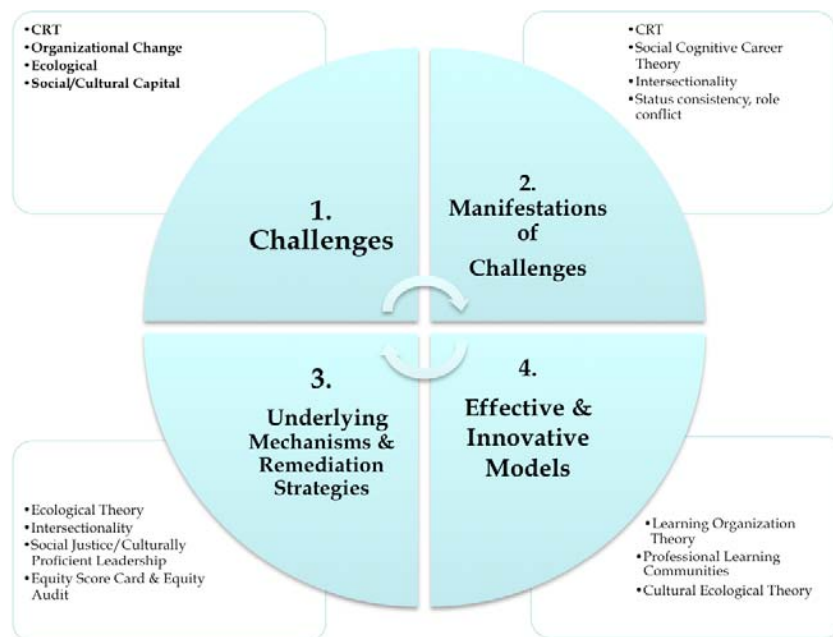


Figure 1. Meta-framework linking each of the major areas of inquiry with theoretical frameworks as suggested by Group 1.

This group also developed an example through which to clarify the application of the framework as shown in Figure 2.



Figure 2. Example of the application of Group 1’s theoretical meta-framework.

In the example, a challenge to the academic performance of minority males has been identified, within the construct of critical race theory, as a lack of culturally responsive faculty. The challenge is made manifest by toxic school cultures which marginalize minority males. The underlying mechanisms of the challenge include the privileging of social conformity, lack of incentives for change, inadequate faculty training, and lack of equity audits. Applicable innovative models by which to address the challenge include replication at Predominantly White Institutions (PWI) of support structures found to be effective at Historically Black Colleges and Universities (HBCUs) as well as models for culturally responsive activities (e.g., Equity scorecards).

4.2.2 Group 2

The second group developed the graphic shown in Figure 3. It shows four quadrants with each quadrant corresponding to one of the major areas of inquiry previously identified. Within each area of inquiry, relevant theoretical frameworks are indicated. For example, in the area of “Challenges,” the suggested theoretical frameworks are all within the broad category of Human Ecology including attributional work (including the work of Claude Steele), Margaret Beale-Spencer’s PVEST theory, Uri Bronfenbrenner’s theory, and Kurt Lewin’s approach to social psychology.

<p>Challenges - Human Ecology</p> <ul style="list-style-type: none"> • Attributional (encompasses Claude Steele’s work) • Margaret Beale-Spencer’s PVEST Theory (1997) • Uri Bronfenbrenner’s Theory (1972) • Kurt Lewin (social psychology) 	<p>Manifestations</p> <ul style="list-style-type: none"> • Identity Theories <ul style="list-style-type: none"> - Race-based Identity Development theories including social construction of masculinity - Gender-based - Identity Development (Worham) <ul style="list-style-type: none"> * Adolescent Identity Development Theories * Respectability • Agency/Self-Efficacy/Self-Concept <ul style="list-style-type: none"> - Bandura, Mendosa, Steele/Aaronson
<p>Underlying Mechanisms (models of intervention)</p> <ul style="list-style-type: none"> • Discipline-Based Intervention <ul style="list-style-type: none"> - Subject Matter Learning • Organizational Theory <ul style="list-style-type: none"> - Organizational Psychology/Organizational Behavior • Distributed Intelligence with pooled knowledge • Social Supportive 	<p>Success</p> <ul style="list-style-type: none"> • Macro <ul style="list-style-type: none"> - The Algebra Project (Bob Moses) <ul style="list-style-type: none"> * Organizational Psychology/Behavior Theories - The Meyerhoff Program (Hrabrowski) <ul style="list-style-type: none"> * Social Supportive Theories - DNIMAS (Norfolk State) - McNair Scholars/SROP - Others (e.g. program models for women in S&E) • Micro (as concepts considered) <ul style="list-style-type: none"> - Models of Effort (Lauren Resnick) - Models of Aspiration

Figure 3. Meta-framework linking each of the major areas of inquiry with theoretical frameworks as suggested by Group 2.

4.2.3. Group 3

The third group offered questions tied to each of the major areas of inquiry as shown in Table 1.

Table 1. Key framework questions for each major area of inquiry as offered by Group 3.

Challenge

- What role do masculinity and gender knowledge in the field play into the role of science (e.g., feminization of science and characterization of disciplines as “soft” vs. “hard”)?
- What can be learned from a review of the data on students being “pushed out” or transferring from one science to the next? What role does micro-aggression play?
- Do male views of masculinity play into their decisions to pursue (or not) specific fields in STEM?
- How might deficit cognitive frame theory, specifically with regards to faculty attitudes, improve our understanding?

Manifestations – How might a review of Cumulative Advantage (essentially the rich get richer) inform our efforts? What are some best practices for creating a system of cumulative advantage in STEM for minority males? Are there different models at different educational levels?

Mechanisms - What are the layers of context that should be taken into consideration in developing multi-complex comprehensive models of research interventions include attention to individuals and families? How might such a model be informed by a review of the social, racial, policy, ecological frameworks?

Success Models

How might the following models (in whole or in part) contribute to our understanding of what works to enhance the academic and career prospects of minority males?

- Resiliency, coping models
- Critical race theory (CRT), specifically with respect to interest convergence.
- “Academic Identification” – There are models that are based on how well male students perform academically including “stereotype threat” vs. “self help”
- Self support systems
- “Self theory” – a concept of encouraging students to see themselves in STEM
- Elaine Seymour’s work “Talking About Leaving”

4.2.4 Group 4

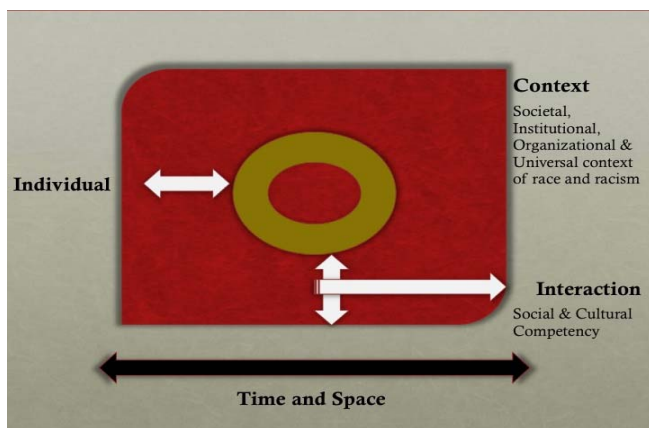


Figure 4. Theoretical framework connecting individuals, their interactions, and contexts.

The fourth group developed the graphic shown in Figure 4. Unlike the others it is not tied to the four major research areas. Rather, it starts with the individual and looks at their interactions and contexts.

This framework places particular emphasis on context as created by interactions among various meta-theoretical frameworks (e.g., identity, racial, social, teaching/learning, and organizational).

As shown in Table 2, within this meta -framework a variety of theoretical frameworks may be applicable.

Table 2. Theoretical frameworks applicable to the meta-framework shown in Figure 4.

- Critical Race Theory
- Sociological and Cultural Theoretical Frameworks
 - Racial Formation
 - Stratification
 - Social and Cultural Capital
 - Affirmative Development
 - Cultural Responsive/ Empowering Theories
- Meta-theoretical Paradigms
 - Pedagogy
- Ecological/ Phenomenology
 - Race, human development, context, risk protective factors, individual agency
- Social Closure Theory
 - Organizational dynamics and ownership
 - Protecting existing structure
- Language Socialization Theory
 - Scientific Discourse
 - Family Interaction
- Resiliency Theory
 - Adaption and adjustment
 - Organizational, group, and individual
 - Defiance leading to agency [can teach defiance, but not resilience]
 - Resistance (transformational: political w/ academic trajectory)
- Racial Identity
 - TRIOS – [*TRIOS is comprised of attitudes, beliefs and values about time, rhythm, improvisation, orality and spirituality.*]
 - Multidimensional Model of Racial Identity
 - Race Self Complexity
 - Triple Quandary (after Boykin's)
- New Big Five (personality)
- Socio-cultural framework
- Mentoring Theory
- Learning Theory
- Stereotype Threat
- Multiple Worlds
- Identity and Development (gender, race, professional, and socio-class)

General Discussion of Theoretical Frameworks.

In considering the presentations of groups 1, 2 and 3, some wondered whether race had been privileged over gender. Each may be individually salient as well as salient in combination. The view was expressed that looking at either individually was no longer sufficient.

The general discussion acknowledged that there are various levels of examination and a lot of complexity to be managed. The groups considered 10 to 15 theoretical frameworks, but could just as easily have looked at 10 to 15 others. Those present agreed that different theoretical frameworks may be appropriate at different educational levels (K-5, middle school, high school, college, etc.) and that the frameworks offered are simply examples and not “the best” frameworks for application in any given instance. It was noted that this view provided greater freedom to researchers to propose innovative approaches.

4.3 Discussion of Research Methodologies

After identifying theoretical frameworks, Colloquy attendees turned their attention to identifying research methodologies by which to pursue the research questions. Attendees were formed into four randomly assigned groups of six to eight persons and their findings are reported below. Across the four groups attendees cautioned that the application of methodologies (and theories) must be driven by specific research questions and the overall research design.



4.3.1 Group 1

The first group admonished that research designs are needed that are more tailored to work that is currently being left undone. Alternate ways of generating knowledge beyond the traditional empirical research focus are needed. Quantitative and qualitative works should speak to and amplify one another in their approach to generating knowledge about the nuances of being men of color in STEM fields.

They noted that a structural concern may arise regarding the validity and reliability of the research because of the samples sizes of the populations being studied and an inability to extrapolate data in a manner consistent with the post-modern paradigm and approach to research design.

The specific research methodologies identified by Group 1 are shown in Table 3.

Table 3. Candidate research methodologies identified by Group 1.

- Quantitative Methods
 - Structural Equation Modeling
- Qualitative Methods [very important if we are to dig deep into men's experiences]
 - Oral Histories
 - Life Histories – important for role models of current young men (and to see newer stories)
 - Critical-Ethnography
 - Case Studies
 - Grounded Theory
 - Hermeneutical (Meta-analysis, biographies, fiction, narrative, historical)
- Mixed Methods
 - Program Evaluations to inform future practice in communities
 - Longitudinal Studies
- Action-Based Research – practitioner based research with more immediate results and may have emancipatory effects in the practitioner

4.3.2 Group 2

The second group also surfaced the issue of determining the sample sizes required to obtain defensible empirical data as well as anticipating that the topic area may prompt increased skepticism among researchers outside of the area. They also cautioned against conflating methodology and method. This group suggested a variety of methodologies organized as fairly standard research methodologies, grassroots methodologies that may allow researchers to examine the complexities of males of color and their trajectories into STEM in an environment of mutual suspicion, and a new conceptual grounded methodology as shown in Table 4.

Table 4. Candidate research methodologies identified by Group 2.

Research Methodologies

- Structural Equation Modeling (SEM)
- Hierarchical Linear Modeling (HLM)
- Classroom Research
 - Studying the ecologies of effective classrooms
 - Classroom observations/interventions (if pedagogy is so important for minority males, then we need to understand it)
- GIS and GPS Strategies
 - Looking at counties & regions with high numbers of people of color
 - Study students who have achieved success
 - Asset mapping

Table 4 (continued). Candidate research methodologies identified by Group 2.

Grassroots Methodologies

- Critical Race Methodologies
 - Permanence of racism
 - Intersectionality of race, class, gender, geography, history
 - Histories of scientific racism
 - Honors the complexity of lived experiences of males of color
 - Importance of place, geography
 - Honor or privilege the voice of men of color (need to talk with them and not just about them)
 - Longitudinal work
 - Comes from a critical perspective

A Grounded Methodology

- A new synergistic framework has to be critical; it has to be transformative and tied to action.
- Needs to be collaborative, interdisciplinary, transdisciplinary, inclusive, innovative
- Needs to be reflexive (admit what we do not know): bold, willing to take risks, challenge itself, challenges scientific hegemonies, iconoclastic
- Creates new data source
- Creates a culture of inquiry that recognizes that that data are not center stage, but that practitioners, using data, become agents of change. How you use the data is more important than what it says, particularly with respect to the data generated by institutional research offices at individual institutions.

Diffusion of Research-based innovation (need support to move good ideas into practice)

This group expressed the view that the research program should aim to humanize males of color by focusing on human agency, the validation of voice and honoring the complexity of human experiences and communities.

4.3.3 Group 3

This group emphasized that research designs must support examination of the individual, communal, organizational, and societal factors embedded within “the challenge” major research area. They suggested such methodologies as life event storytelling and surveying (including discourse analysis), longitudinal data collection, quasi-experimental research design, ethnographies, and portraiture (as pioneered by Harvard’s Sara Lawrence-Lightfoot). They observed that it is important to consider the lens through which methodologies are applied and cautioned against becoming trapped in a post-positivist construct. They were concerned about how specific methodologies might harm vulnerable populations (e.g., attempting to conduct large-scale national data investigations on populations that are fundamentally small and regional). Ultimately, they urged caution as there are strengths and limitations to any methodological approach.

4.3.4 Group 4

The final group emphasized the need for new methodologies, with appropriate theoretical grounding, that are validated by pilot study use. They also emphasized the importance of broad diversity in the reviewer pool for any grant program—including attention to ethnicity, discipline, background, as well as research theories and methodologies used. They suggested that experienced researchers should

nominate other experienced researchers for service on review panels. Finally, they emphasized that any research program solicitation should communicate that all research methodologies are equally valued and possibly provide examples (e.g., photo voice, observational, experimental, focus groups, interviews, etc.).

4.3.5 General Discussion of Research Methodologies

Colloquy attendees expressed concern about the adequacy of reviewer pool for proposals submitted to an NSF grant program addressing this area and emphasized how critical it will be to properly both properly prepare reviewers and to sensitize NSF to be receptive to new approaches. In particular, the small sample size of many of the (sub) populations under consideration will necessitate unconventional methodologies. Irrespective of the methods used, it is essential that the researchers hear and reflect the minority male populations under study.

4.4 Implications of Previous Discussions for the Draft Solicitation

During a plenary discussion on the implications of previous discussions for the Draft Solicitation, attendees urged that any solicitation explicitly welcome contributions from a variety of fields and a broad array of relevant theories, research designs, and research methodologies, including secondary data analysis. Disaggregation to understand underlying dynamics will be crucial. This is true not simply for the catchall category of “minority males,” but also for the many subcommunities aggregated within the terms “African American,” “Asian American,” “Hispanic American,” “Native American,” and “Pacific Islander American.” NSF should be particularly receptive to innovative research designs that recognize and exploit the small sample sizes inherent in the communities to be studied. Even so, there may be significant lessons learned by looking at similarities across subpopulations and across populations.

NSF should give special attention catalyzing and providing guidance to a broad community of researchers. Although this is a research effort, it should be clearly communicated that research findings, as a whole across individual research projects, are expected to inform practice. Further, priority should be given to research questions which are informed by the challenges and opportunities of practice environments. That is, the research agenda fits within the label of “use-inspired basic research.” Nonetheless, a key output of the overall research effort should be to inform new research theories and methodologies that may be broadly applicable beyond the specific research questions suggested here.

4.5 Community Building Activities

Although the agenda called for attendees to consider organizational models and change processes and the types of projects that might be supported. The Colloquy planning team, in consultation with on-site NSF representatives, decided that it would be more productive to reallocate the time for allotted for such discussions to informal discussions within self-selected groups. The idea was to foster cross-disciplinary and cross-institutional research collaborations which might further inform and initiate the nascent research agenda that had evolved thus far.



In support of the individual and group discussions, Dr. Robert Teranishi, who serves as a consultant for the Ford Foundation's Advancing Higher Education Access and Success Initiative, made an impromptu presentation on grant opportunities available at the Ford Foundation. The foundation has an education division which has separate program officers for pre-college and higher education. He indicated that the foundation is concerned about the need to be responsive to needs of the most vulnerable populations. Its agenda includes attention to college access and completion. He indicated that Ford's goals include removing barriers, changing attitudes, and achieving social justice. It seeks to increase institutional capacity for implementing and sustaining reform, as well as building political will among would-be change agents. Although, the Ford Foundation is interested in supporting

large-scale systemic efforts as well as demonstrations of scalability and replicability. Teranishi urged resistance to attitudes such as "If you work at the margins, you'll get marginal change" which imply a need to ignore small minority communities.

Teranishi emphasized the importance of talking with program officers at private foundations because they often do not have external reviewers, and seek to achieve a consensus discussion among program officers. Therefore the more your program officer knows about your research, the better s/he can advocate on your behalf. Teranishi noted that, compared to past years, fewer program officers have discretionary funds.

With regard to budgeting, Teranishi noted that for Ford Foundation, a moderate grant is one in the range of \$150,000 to \$250,000 over a duration of 2 to 3 years, but he has seen grant amounts of up to \$1M over 2 years. He noted that many private foundations strictly limit indirect costs, so it is important to carefully account for actual direct costs that you may be used to treating as indirect costs.

4.5 Advocacy

On their own initiative and without NSF staff present, Colloquy attendees devoted a few moments to a discussion of how to be effective advocates for the proposed research program. There was a discussion of the various audiences to be considered (e.g., a university office of public or governmental affairs, city/state/federal legislator, city/state/federal agencies, various executive branch offices such as the White House Domestic Policy Council, professional societies, think tanks, and advocacy organizations): For each of these audiences the message is basically the same – keep them informed of what you are doing (individually and collectively) and its implications for existing or pending policy initiatives. For interactions with individuals, the point is to show them how your work advances their agendas. Although the big picture message is the same, it necessarily needs to be tailored to the needs and "ear" of each distinct audience. Essential points to keep in mind are that academics can provide data that help to tell a story, a key part of messaging is desired actions, and

effective messages have specific characteristics⁴ (e.g., see for example *Now Hear This* by Fenton Communications). Many of the points made echoed those made by Dr. Espinosa (see Appendix D).

5.0 OTHER AREAS OF CONCERN

During the course of the Colloquy several issues were raised that attendees recognized merited separate meetings to discuss them adequately in their full complexity. Such issues included:

- Data Collection and Reporting – With some minority populations the participation in STEM is sufficiently small that privacy concerns have prompted the practice of suppressing available data on academic and professional progress. Yet such actions can significantly impede the ability to learn from promising and proven practices to increase participation in STEM. Similarly, at the level of individuals, there are practical programmatic concerns about balancing activities that might tend to (a) spotlight individuals in such a way as to make them subject to stereotype threat, or (b) ignore individuals in such a way as contribute to feelings of invisibility. Serious attention needs to be devoted to discerning a means by which to balance privacy concerns and researchers' need for access to valuable information to inform future improved educational and professional practices.

Another data issue is one of properly reflecting the contributions of liberal arts minority serving institutions as sources of minority STEM baccalaureate recipients. For example, Georgia Tech is frequently cited as a top producer of African Americans baccalaureates in STEM, but little acknowledgement is given of the role of its 3-2 program with Morehouse College that provide many of the African Americans who go on to attain baccalaureate degrees. Data on community college contributions to STEM baccalaureate degree attainment is similarly lacking even though some reports indicated that up to a third of community college students are students of color and up to 50% of community college students aspire to transfer to a baccalaureate program.

Another issue which is particularly salient in community colleges is how inclusively STEM is defined. It clearly includes the physical and life sciences and engineering disciplines as well as technology fields associated with these disciplines (e.g., chemical technology). But given the complexity of on-board computer systems, does it include automotive technology? STEM includes computer science and computer technology, but what about management information systems, or knowledge management systems? Fundamentally, the question concerns the areas of overlap between STEM and career and technical fields. Many of those concerned about economic development and employment would include many career and technical fields, while many traditional academics would not. Given the evident interest of many in minority communities in career and technical fields, should researchers view these fields as distinct, as pathways to STEM, or as full parts of STEM? A full discussion of the implications of such choices is merited.

- For-profit colleges have a prominent role in the higher education of minorities. For example, data presented by Lorelle Espinosa showed that the University of Phoenix (online) and Strayer University were the fourth and fifth most productive producer of STEM degrees for African American males in 2007. Yet as highlighted in recent Congressional hearings, some for profit educational institutions have engaged in practices that might be characterized as predatory. Therefore, discussion is warranted on the relative merits of for-profit educational institutions in

⁴ See for example, *Now Hear This*, by Fenton Communications. Available at http://www.fenton.com/FENTON_IndustryGuide_NowHearThis.pdf.

engaging and enrolling minority males, the graduation rates of minority males from such institutions, and the financial impact on minority males of choosing for-profit institutions as their educational pathway.

- Have the colloquy attendees placed too much emphasis on identity manifestation rather than its function in any given context? Might specific identities matter less than the concept of identity and how it evolves? Consider the work of Princeton's Anthony Appiah. Might individuals forced to assume a given identity within STEM face a conflict with their other identities and therefore choose to avoid or leave STEM? Role conflict and Role confusion may both exist.

6.0 Closing Comments

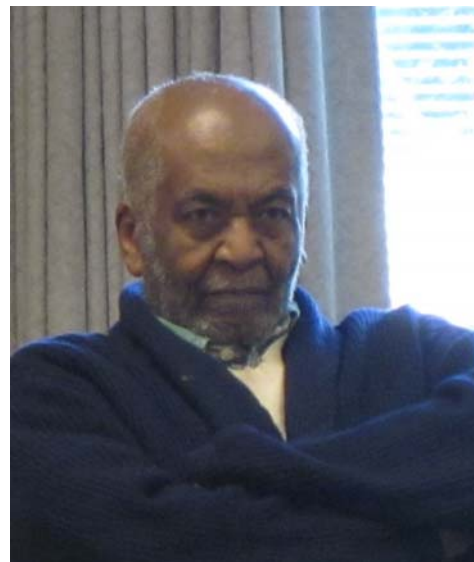
6.1 By Attendees

Colloquy attendees had two overriding concerns. First, they thought it imperative to continually emphasize that any research program must not exist in isolation, but must be tied to energetic action to achieve positive outcomes for minority males. Second, much of the discussion at the Colloquy implicitly was framed in terms of boys who were within formal or informal educational systems. But there are too many young men who have left or are in danger of leaving these systems.

There may be models of successful efforts to re-engage them in education in general, but particularly in STEM education. We may need an emotional mental health approach to encourage students to enter STEM. This may require attention to surrounding issues that affect student enrollment, engagement, and completion. Viewed a different way, even those aspiring to be novelists have to take math in high school; so math becomes a gateway to college education in all fields.

One attendee noted that we often assume that we need people who are “passionate” about STEM, but if we are to reach the populations discussed at the Colloquy and even more broadly into the US population, we need to be more welcoming of people who are “okay” with STEM, but not necessarily passionate. They may not all will want to be Ph.D. scientists and engineers, but they can be informed citizens, consumers, business owners, service providers, employees, and policy makers able to operate in a society that is increasingly complex and driven by scientific and technological underpinnings.

Dr. Edmund W. Gordon agreed to provide the chapter of contents for his most recent book, *Pedagogical Imagination*, as well as the paper on “The Education of Black Male Youth.” (See Appendices F and G).



6.2 By NSF Staff



NSF GSE Program Officer Jolene Jesse expressed her appreciation to the Colloquy attendees for their thoughtful and diligent deliberations. She indicated that she would explore the possibility of a distinguished lectureship series at NSF on this topic to better inform the NSF community about the findings that are occurring and the opportunities that may exist through collaborative research ventures.

She suggested that attendees might want to explore opportunities to pursue elements of the research agenda that they have identified via existing NSF programs such as REESE, STEP, HBCU-UP (research component), TUES (research component), SBE-Social Psychology program, LSAMP (research component), and DRK-12, perhaps listing GSE as a “secondary” program

She thanked NAE staff for planning and implementing the workshop and suggested it might be interesting to explore follow-on meetings that explore the unique issues within each population.

APPENDIX A. – LIST OF COLLOQUY ATTENDEES

Attendees:

Lee Bitsoi Harvard University	Dorina Carter Andrews Michigan State University	Jorge Chapa University of Illinois
Michael Cunningham Tulane University	James E. Davis Temple University	Dedra Eatmon North Carolina A&T State University
Lorenzo L. Esters APLU	Edmund W. Gordon Yale and Columbia Universities	Shaun R. Harper University of Pennsylvania
Paola Heincke The CEJES Institute	Daryl B. Holloman Columbus State University	Jerlando F. L. Jackson University of Wisconsin – Madison
Marlon C. James University of Connecticut	Stanley L. Jackson, Jr. University of California, Los Angeles	Amber Jones Emory University
Tomashu “Kenyatta” Jones University of California, Los Angeles	Tony Laing University of Illinois, Urbana-Champaign	Nicole Lewis University of Kentucky
Jonathan Lightfoot Hofstra University	Arlene P. Macklin Morgan State University	Lindsey E. Malcom University of California, Riverside
Bryan T. Marks Morehouse College	Robert E. Megginson University of Michigan	Ernest Morrell University of California, Los Angeles
Christopher B. Newman University of California, Los Angeles	Luis Ponjuan University of Florida	Shameem Rakha University of Illinois, Urbana-Champaign
Donald Wall Rice Morehouse College	Tracy R. Rone Morgan State University	Angela Slates University of Illinois, Urbana-Champaign
Dana Taylor North Carolina A&T State University	Edd Taylor Northwestern University	Robert Teranishi New York University
William T. Trent University of Illinois, Urbana-Champaign	J. Luke Wood Lincoln Memorial University	

Speakers:

Lorelle Espinosa
Institute for Higher Education Policy

James Stith
American Institute of Physics (emeritus)

Invited NSF Staff:

Kellina Craig-Henderson
Social Psychology Program
Social, Behavioral and Economic Sciences Directorate
Jolene Kay Jesse
Research on Gender in Science and Engineering
Education and Human Resources Directorate

Caesar Jackson
Acting Division Director, Human Resources Development
Education and Human Resources Directorate

Claudia Rankins
Historically Black Colleges and Universities Program
Education and Human Resources Directorate

**Mt. Washington Conference Center
Baltimore, MD
August 8 – 12, 2010**

Sunday, August 8, 2010

6:00 – 7:00 p.m.	Introductions & Ice Breaker Catherine Didion, <i>National Academy of Engineering (NAE)</i>	Conference Room 18
7:00 – 9:00 p.m.	Buffet Dinner with Cash Bar	Octagon Atrium

Monday, August 9, 2010: Major Research Strands, Gaps, and Opportunities

7:00 – 8:00 a.m.	Breakfast served in McAuley Café	1 st Level, McAuley Hall
8:00 – 8:20 a.m.	Welcome and Greetings Norman Fortenberry, <i>NAE</i> Jolene Jesse, <i>National Science Foundation (NSF)</i> Caesar Jackson, Director, <i>Division of Human Resource Development, NSF</i>	Conference Room 19
8:20 – 8:30	Goals for the Colloquy and Charge to Attendees Jolene Jesse, <i>NSF</i>	Conference Room 19
8:30 – 9:00 a.m.	Plenary Speaker Lorelle Espinosa, <i>Institute for Higher Education Policy</i>	Conference Room 19
9:00 – 10:00 a.m.	Breakout 1: <i>Focus on Ethnicity</i> What are the gaps in our knowledge about <ul style="list-style-type: none"> • The areas in which gender differences exist? • What is causing gender differences? • How gender differences are exacerbated by educational settings? 	Individual Rooms (Breakout Groups and Rooms will be Assigned Monday morning – see handout for list of rooms)
10:00 – 10:30 a.m.	Break	
10:30 – 11:30 a.m.	Breakout 2: <i>Focus on Educational Level</i> What are gaps in knowledge with respect to particular questions on performance by gender and ethnicity that are unique to particular educational levels?	Individual Rooms (see handout)
11:30 – 12:30 p.m.	Breakout 3: <i>Synthesis by Ethnicity across Educational Level</i> Return to Breakout 1 groups and update your findings to reflect key points from Breakout 2 discussions	Individual Rooms (see handout)
12:30 – 2:00 p.m.	Lunch	Hayward Dining Room 2 nd level McAuley Hall
2:00 – 2:30 p.m.	Report out from Breakout 3	Conference Room 19
2:30 – 3:45 p.m.	General Plenary Discussion on key points from Breakout 3	Conference Room 19
3:45 – 4:15 p.m.	Break	
4:15 – 5:00 p.m.	Implications of Today's Discussion for Tuesday's Discussions	Conference Room 19

APPENDIX B. – COLLOQUY AGENDA

5:00 – 6:00 p.m.	Break	
6:00 – 8:00 p.m.	Dinner	Hayward Dining Room

Tuesday, August 10, 2010: Theoretical Frameworks and Research Methodologies

7:00 – 8:00 a.m.	Breakfast served in McAuley Café	McAuley Hall
8:00 – 8:30 a.m.	Summary of Day 1	Conference Room 19
8:30 – 9:00 a.m.	Plenary Speaker James Stith, <i>American Institute of Physics - Emeritus</i>	Conference Room 19
9:00 – 10:30 a.m.	Breakout 4: <i>Theoretical Frameworks</i> <ul style="list-style-type: none"> • What theoretical frameworks may aid in closing the gaps identified in Breakout 3? • Should new frameworks be synthesized or created? 	Individual Rooms (see handout)
10:30 – 11:00 a.m.	Break	
11:00 – 12:00 a.m.	Breakout 5: <i>Research Methodologies</i> <ul style="list-style-type: none"> • What research methodologies may aid in explicating the theoretical frameworks identified in Breakout 4? • Should new methodologies be synthesized or created? 	Individual Rooms (see handout)
12:00 – 2:00 p.m.	Lunch	Hayward Dining Room
2:00 – 2:45 p.m.	Report out from Breakouts 4 and 5	Conference Room 19
2:45 – 3:45 p.m.	Plenary Discussion of Key Theoretical Issues Informed by Methodology Discussion	Conference Room 19
3:45 – 4:15 p.m.	Break	
4:15 – 5:00 p.m.	Anticipating the implications of today's discussion for Wednesday's discussions	Conference Room 19
5:00 – 6:00 p.m.	Break	
6:15 – 8:00 p.m.	Dinner	Mt. Washington Tavern 5700 Newbury Street

Wednesday, August 11, 2010: Framing a Research Agenda

7:00 – 8:00 a.m.	Breakfast served in McAuley Café	1 st Level, McAuley Hall
8:00 – 8:30 a.m.	Summary of Tuesday Goal of Symposium : <i>New Solicitation</i>	Conference Room 19
8:30 – 10:00 a.m.	Discussion of Big Questions What major questions should be reflected in a solicitation?	Conference Room 19
10:00 – 10:30 a.m.	Break	
10:30 – 12:00 p.m.	Breakout 6: <i>Organizational Models and Change Process by Educational Level</i> What organizational and change models may most aid in	Individual Rooms

APPENDIX B. – COLLOQUY AGENDA

	applying research findings to achieve improved practice?	
12:00 – 12:30 p.m.	Report out from Breakout 6	Conference Room 19
12:30 – 2:00 p.m.	Lunch	Hayward Dining Room
2:00 – 3:00 p.m.	Breakout 7: <i>Types of Project Teams</i> What types of project teams should be encouraged/allowed?	Conference Room 19
3:00 – 3:30 p.m.	Report out from Breakout 7	Conference Room 19
3:30 – 4:00 p.m.	Break	
4:00 – 5:00 p.m.	Discussion – <i>What’s Missing?</i>	Conference Room 19
5:00 – 6:00 p.m.	Break	
6:00 – 8:00 p.m.	Dinner – Outdoor Barbeque	Conference Center Grounds

Thursday, August 12, 2010: Wrapping Up

7:00 – 8:00 a.m.	Breakfast served in McAuley Café	1 st Level, McAuley Hall
8:00 – 8:30 a.m.	Summary of Wednesday: Accomplishments	Conference Room 19
8:30 – 10:15a.m.	Summarizing Discussion, Observations	Conference Room 19
10:15 – 10:30	Closing Comments Jolene Jesse, <i>NSF</i> Norman Fortenberry, <i>NAE</i>	Conference Room 19
10:30 a.m.	Adjourn	
11:00 a.m.	Departure	

Overview

Based on the work products of Colloquy attendees, key sections of a research program solicitation were drafted. Attendees had an opportunity to review and comment on this draft. The text below reflects their collective input of Colloquy attendees on the major elements that should be present in a research solicitation.

Summary of Program Requirements

Title

Colloquy attendees believed that the title should reflect the focus on the research program as well as its intended outcomes. An initial title suggestion was “Interest, Access, Participation, Engagement, and Success of Minority Males in STEM: Research and Praxis.” But, it was thought that a shorter, snappier title might be easier to remember and promote. The final title suggested is “Powerful Research on Minority Males in STEM Education (PROM²ISE).”

The term “minority” should be broadly defined to include not only race and ethnicity, but also economic status and sexual orientation.

Synopsis of Program

This will be distilled from the “Introduction” and “Program Description” The intended span is from pre-school through lifelong learning in formal and informal environments but with particular encouragement of minority males in high school and as college undergraduates.

Organizational Limits

None are envisioned, but there is a desire to encourage collaborations involving institutions where ethnic minority males are present in significant numbers.

PI Limit

None.

Introduction

NSF staff should provide an overview of the NSF organizational context for the program and the types of grants envisioned.

Program Description

Background

This section should provide an overview of the Issues underlying the need for the program and provide a brief review of key literature on what we know, and indicate what we want to know about minority males in STEM. Key synthetic sources and references include the following:

1. Susan J. Paik and Herbert J. Wahlberg, editors, *Narrowing the Achievement Gap: Strategies for Educating Latino, Black and Asian Students*, Springer Science + Business Media (2007).
2. James Keith *et. al*, “School Achievement and Dropout among Anglo and Indian Females and Males: A Comparative Examination,” *American Indian Culture and Research Journal* (2007).
3. The College Board, *The Educational Crisis Facing Young Men of Color* (2010).

4. National Center for Education Statistics, *Status and Trends in the Education of Racial and Ethnic Groups (2010)*.

Goal

This section should specify the goals of the research program and desired ideal cumulative outcomes across the set of projects to be supported as being:

- To investigate, discover and understand the (a) challenge, (b) manifestations, (c) underlying mechanisms, and (d) models of success both as organic whole and individual best practices;
- To translate research findings to practitioner communities writ large (i.e., anyone who can influence target populations of minority males).

Description

This section should provide broad general guidance key features (including those taken from the current GSE solicitation) should include the following:

- GSE - Gender a key variable
- The program acknowledges the complex interactions among gender, race, ethnicity, social class, and other roles and identities.
- GSE - Successful proposals will incorporate relevant advances in research methodologies and theoretical models or conceptual frameworks.
- GSE - All research proposals should be located in a body of literature to which a contribution would be made.
- GSE - The program will allow for descriptive and/or exploratory studies of phenomena that could lead to the development of a model or that contribute to theory.
- GSE - All projects should provide a research foundation for educational approaches, curriculum, and technological tools that are already developed or can be developed in the future, bridging research and educational practice in such settings as classrooms, informal learning sites, and technological learning environments.
- The research conducted may benefit from the exploration of alternative ways of generating knowledge In general research methods should be selected and tailored to match the demands of the problems to be studied and the conditions under which they can be studied rather than to match the methodologies that are currently known.
- Research questions should drive theories and theories should drive methodologies, but researchers should be open to novel theories and methodologies.
- Sample sizes should be appropriate to the research question, the population under study, the guiding theory and the selected methodologies.

The Types of research to be supported may include but is not limited to the following:

- Challenges – types of research questions from Section 3.2.1 of the main text (e.g., Research on philosophical bases and conceptualization of the challenges to academic success of minority males in STEM resulting in powerful new concepts in order to develop new theoretical frameworks.)

APPENDIX C. – DRAFT SOLICITATION

- Manifestations – types of research questions from Section 3.2.2 of the main text (e.g., Understanding the experiences of boys of color within groups and across groups [various and multiple identities] in influencing decision making processes for degree and career aspiration in STEM)
- Studies on the causes underlying the challenges and means for resolving the challenges and effecting desired transformations and how/why the means are effective – types of research questions from Section 3.2.3 of the main text, e.g.,
 - Research on the effects of social organization of schools and learning environments on STEM outcomes; Effect of policy contexts on schools and learning environments on STEM outcomes.
 - Evidence-based and theoretical research on models of intervention
- Models of Success – types of research questions from Section 3.2.4 of the main text (e.g., The identification and characterization the “mechanisms” underlying exemplary models for in-school and out-of school interventions designed to increase the representation and/or performance of minority group males in the study of STEM disciplines and professions)

Outreach and Communication

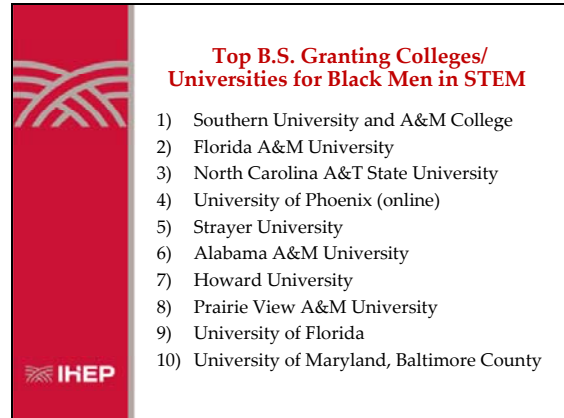
The current text in the GSE solicitation is appropriate.

Project Evaluation

The current text in the GSE solicitation is appropriate.

Other

The solicitation should include an explicit request to help build the pool of potential reviewers.



**Top B.S. Granting Colleges/
Universities for Black Men in STEM**

- 1) Southern University and A&M College
- 2) Florida A&M University
- 3) North Carolina A&T State University
- 4) University of Phoenix (online)
- 5) Strayer University
- 6) Alabama A&M University
- 7) Howard University
- 8) Prairie View A&M University
- 9) University of Florida
- 10) University of Maryland, Baltimore County

IHEP

Slide 1.

She indicated that although each was complex enough to be separate topics for different conferences, it was important to think about thorny issues such as

- The educational impact of for-profits versus non-profit institutions (note from the Slide 1, the prominent role of the University of Phoenix and Strayer College, the for-profits were masked from the other slides),
- How data are collected on students and institutions and the gaps that exist among populations at institutions, especially for minorities at community colleges, and
- How definitions such as STEM are operationalized (e.g., does it include medicine or not).

Dr. Lorelle Espinosa, policy director of the Institute for Higher Education Policy (IHEP), began her remarks by providing background on the work of the IHEP at the intersection of policy research and practice. She observed that her charge was to make provocative remarks, and began to do so by observing research on gender includes the study of men. There is much that may be applicable to men and boys from prior research on and assessment of programmatic activity targeting women and girls. Theoretical work on intersectionality (e.g., Black feminist theory as it looks at gender, race, and socioeconomic status, etc.) and other feminist study areas (e.g., women in science) are also applicable.

In looking at men of color, Dr. Espinosa indicated that it was important to keep in mind where they are in terms of institutions of higher education (e.g., community colleges, minority serving institutions, etc.), geographically and regionally (coasts and southern border), etc. (See Slides 1-5.) But in response to an audience member's question, she agreed that it was important to look at things in a disaggregated manner. Data for any single minority group may look very different than the aggregate data across groups.



**Top B.S. Granting Non-Profit Colleges/
Universities for Latino Men in STEM**

- 1) University of Puerto Rico, Mayaguez
- 2) Florida International University
- 3) University of Texas, El Paso
- 4) Universidad Politecnica de Puerto Rico
- 5) University of Texas, Austin
- 6) University of Florida
- 7) University of Texas, Pan American
- 8) Texas A&M University
- 9) California State Polytechnic University, Pomona
- 10) The University of Texas, San Antonio

IHEP

Slide 2




**Top B.S. Granting Non-Profit Colleges/
Universities for Native Am. Men in STEM**

- 1) Oklahoma State University
- 2) University of Oklahoma, Norman
- 3) Southeastern Oklahoma State University
- 4) Northeastern State University
- 5) North Carolina State University, Raleigh
- 6) University of North Carolina, Pembroke
- 7) Arizona State University
- 8) University of Arizona
- 9) Easat Central University
- 10) University of Washington, Seattle




Slide 3

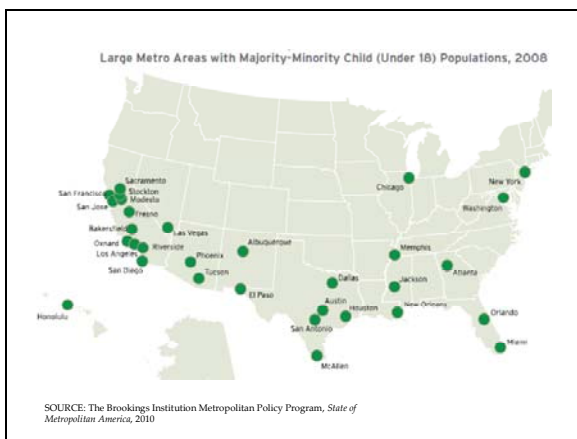


**Top B.S. Granting Non-Profit Colleges/
Universities for API Men in STEM**

- 1) University of California, Berkeley
- 2) University of California, Davis
- 3) University of California, San Diego
- 4) University of California, Irvine
- 5) University of California, Los Angeles
- 6) University of Texas, Austin
- 7) University of Washington, Seattle
- 8) San Jose State University
- 9) California State Polytechnic University, Pomona
- 10) University of Illinois, Urbana-Champaign



Slide 4.




Slide 5.

Dr. Espinosa indicated that in presenting data it is important to do so in a way that it provides a compelling message to policy makers. In this regard she noted that policy makers want compelling stories back up by rigorous data. Either alone is insufficient for their needs.

Dr. Espinosa reminded the audience that it was also important to keep in mind what level of change one is seeking. How many more graduates is enough? What types of degrees should graduates have; are PhD's to be preferred to MD's? How does that choice align with national needs and personal desires? The rationale underlying discussions of minority degree production have shifted from fairness and equity to national competitiveness.

Dr. Espinosa observed that there is a need to educate the field. For any particular group (e.g., higher education, the general public, etc.) audiences of particular interest include policy makers (e.g., elected officials and high ranking appointees) who need stories backed by data and policy shapers (i.e., foundations, think tanks and national associations). One needs to know the audience and the message for the audience, and recognize that not everyone will be able to speak to all audiences. She noted that IHEP aligns with policy shapers. IHEP will be releasing a series of reports on minority males and they will have a ready audience among a segment of the policy maker community. She urged attendees to work outside of their comfort zone and provided a summary of research legislation that will affect minority communities and has implications for STEM outreach (i.e., Pell Grant, College Access Grants, changes in federal loan repayment rules, investments in community colleges, and increases in categorical funds for MSIs, as well as the America COMPETES act).


The Health Care and Education Reconciliation Act (HCERA) provides a total of \$36 billion for the Pell Grant program which disproportionately serves minority communities (see Slides 6 and 7). The increase is meant to protect against cuts in the short term. It also includes a provision that the maximum award size is to be tied to the Consumer Price Index starting in 2011. There is also a dedicated mandatory amount that will help maintain the base level for FY2011, thus protecting the planned increase in the maximum award level.




Health Care and Education Reconciliation Act (HCERA)

I. Federal Pell Grant Program

- A total of \$36 billion to protect against cuts and an inflationary increase
- Dedicated \$13.5 billion in mandatory appropriations

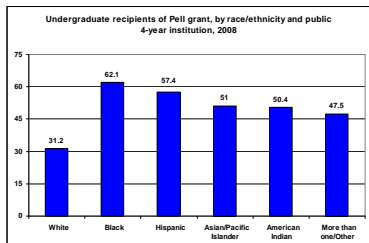


Slide 6.




Distribution of Pell Recipients

Undergraduate recipients of Pell grant, by race/ethnicity and public 4-year institution, 2008




Source: U.S. Department of Education, National Center for Education Statistics, 2007–08 National Postsecondary Student Aid Study (NPSAS08)



Slide 7.

The College Access Grants portion of the Act saw a huge increase from the originally projected \$66 million to the current \$750 million. The program was originally scheduled to sunset, but will now support current initiatives as well as new innovative programming. (See Slide 8.)




Health Care and Education Reconciliation Act (HCERA)

III. College Access Challenge Grant (CACG)

- Appropriates \$750 m over five years
- Minimum of \$1.5 m per state
- Continued focus on access/completion programs and financial literacy


IV. Income-Based Repayment

- New borrowers can cap repayments at 10% of discretionary income
- Debt forgiveness after 20 years, 10 years for public service workers (teachers, nurses, military)



Slide 8.

HCERA invest \$2 billion in community colleges that enroll nearly half of all undergraduates in the U.S. are enrolled in community colleges – over 11 million students. Fewer than half of community college students earn an associates degree or transfer to a four-year institution. (See Slides 9 and 10). A lot of minority males are resident in community colleges. There is a need to develop and improve community college education and career training programs.




Health Care and Education Reconciliation Act (HCERA)

V. Investment in Community Colleges


- \$2 billion over four years for the *Community College and Career Training Grant Program*
- No less than \$2.5 m per state

VI. Support for Minority Serving Institutions

- Mandatory \$2.55 billion for MSIs, including those serving a critical mass of Hispanics, African Americans, Alaska/Hawaiian Natives, Asian American/Pacific Islanders, and Native Americans
- Provision includes funding for STEM education programs

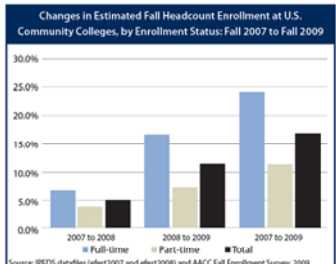


Slide 9.




Increasing Enrollment at CCs

Changes in Estimated Fall Headcount Enrollment at U.S. Community Colleges, by Enrollment Status: Fall 2007 to Fall 2009



Source: IPEDS datafiles (fsees2007 and fsees2008) and AACC Fall Enrollment Survey, 2009

1/2 have transfer aspirations; 1/3 are URM

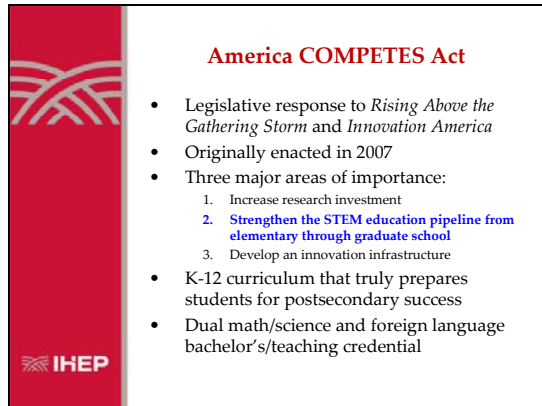


Slide 10.

Support for Minority Serving Institutions (MSIs) under the College Cost Reduction and Access Act of 2007 includes funding through 2010 and also includes programs that are targeted toward low income students seeking STEM degrees. The largest amount goes to [the more numerous] Hispanic Serving Institutions (HSIs) followed by Historically Black Colleges and Universities (HBCUs). (See Slide 9). NSF and the Department of Education are two agencies to keep an eye on

as they are monitoring how MSIs are following the many regulations associated with the change in student loan repayment rules.

There are also relevant provisions in the American COMPETES Act that should be followed. (See Slides 10 and 11).

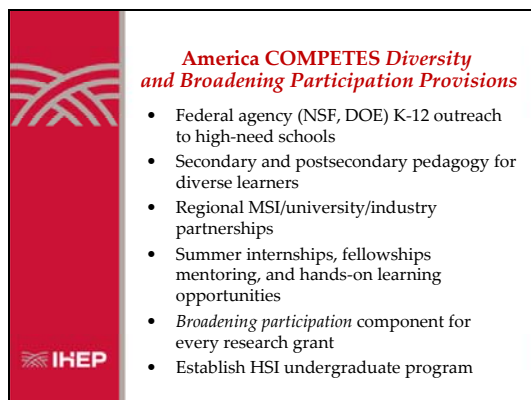


America COMPETES Act

- Legislative response to *Rising Above the Gathering Storm* and *Innovation America*
- Originally enacted in 2007
- Three major areas of importance:
 1. Increase research investment
 2. **Strengthen the STEM education pipeline from elementary through graduate school**
 3. Develop an innovation infrastructure
- K-12 curriculum that truly prepares students for postsecondary success
- Dual math/science and foreign language bachelor's/teaching credential

IHEP

Slide 10.



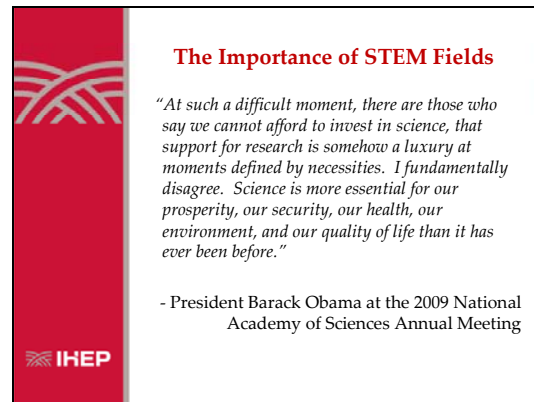
America COMPETES Diversity and Broadening Participation Provisions

- Federal agency (NSF, DOE) K-12 outreach to high-need schools
- Secondary and postsecondary pedagogy for diverse learners
- Regional MSI/university/industry partnerships
- Summer internships, fellowships mentoring, and hands-on learning opportunities
- *Broadening participation* component for every research grant
- Establish HSI undergraduate program

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Slide 11.

In closing, Dr. Espinosa reminded Colloquy attendees of a recent statement by President Obama in support of STEM (see slide 12) and urged them not forget the students in their own communities and institutions as part of their outreach and information efforts.



The Importance of STEM Fields

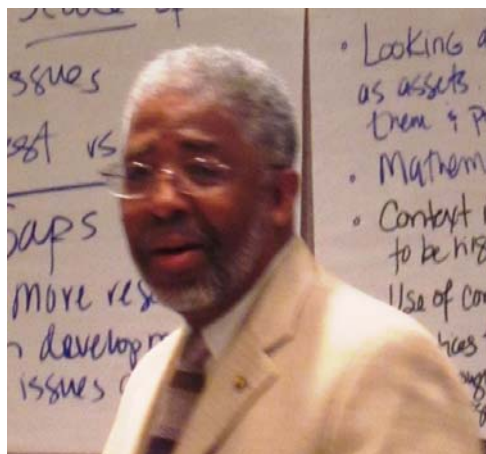
"At such a difficult moment, there are those who say we cannot afford to invest in science, that support for research is somehow a luxury at moments defined by necessities. I fundamentally disagree. Science is more essential for our prosperity, our security, our health, our environment, and our quality of life than it has ever been before."

- President Barack Obama at the 2009 National Academy of Sciences Annual Meeting

IHEP

Slide 12.

Significant points made during the question and answer period included a re-emphasis on the importance of disaggregating data if one is to see the very different situations among and within specific minority populations. Audience members also argued for higher education to take a greater and more active role in teacher preparation given the high correlation between teacher quality and student learning and the generally lower quality of teachers in minority neighborhoods. Higher education also needs to think more seriously about its role in educating those minority males not in college, especially those incarcerated or enlisted in front-line military units.



Dr. James Stith reflected on his career as a Black physicist who began as the child of a single mother with a third-grade education who was told that he would “never amount to anything.” He taught at West Point the Ohio State University, and most recently served as Vice President of the American Institute of Physics (an umbrella of physics societies). He has been working on replacing himself his entire career. He starts with the proposition that minority groups should be represented in the professions proportional to the representation in the population.

He noted that there are low numbers of URM in all STEM fields, and we need to do something about that since so much work remains to be done. In terms of coursework, minority students are as well prepared (or even better prepared) than they have ever been. Since physics is the last science course students take in high school, he uses it as a bell weather for college readiness to enter STEM. In 1945 25% of high school students had taken a physics course, the current number is 36% (See Figure 1.)

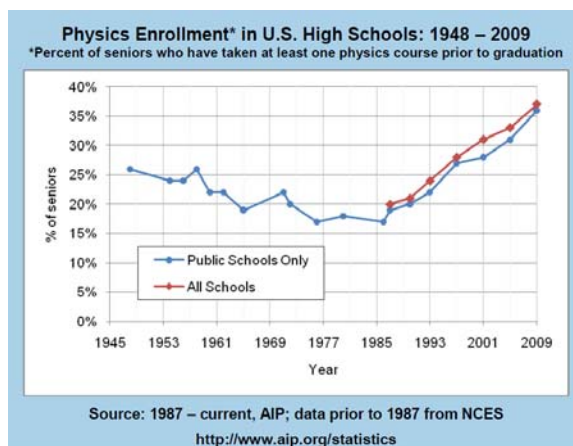


Figure 1.

Percentages and numbers have increased across all ethnic groups (White, Black, Hispanic, Native American); similarly for chemistry and biology. Student interest in science across all groups is high. But the number of underrepresented STEM majors remains a challenge. In 1996, roughly 6% (166 majors/year) of all physics baccalaureate recipients were African American. In 2008, it was 3%. (144 majors/year). (See Figure 2.)

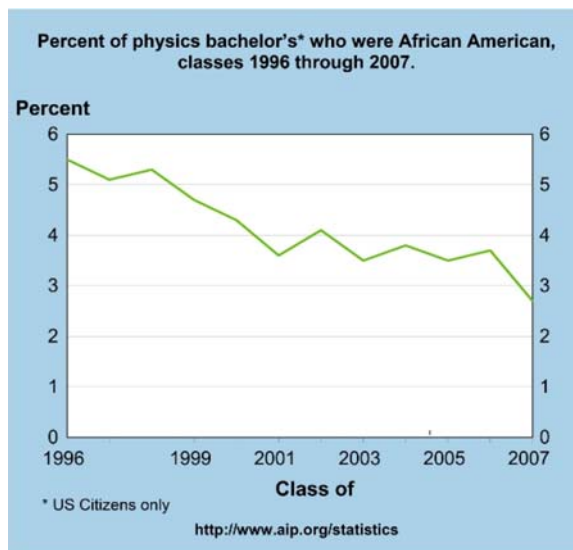


Figure 2.

Dr. Stith noted that the drop in percentage is due to both an increase in total number of physics majors and a

real decrease in number of African Americans. While the US was producing about six doctoral recipients each year/year, now it now produces 13-14 per year. A significant number of the underrepresented minorities are graduating from college and choosing not to enter academe.

According to Stith, most African American physics doctoral recipients used to receive their degrees from one of 34 HBCUs (generating 60% roughly of the African American baccalaureates in physics). However, because of program closures, now only 4 HBCU (Howard, Hampton, FAMU, Alabama A&M) are producing the bulk of physics PhDs. See Table 1.

Table 1.

Universities that awarded the most physics PhDs to African Americans.
Physics departments in these twelve universities awarded more than 65% of all physics PhDs degrees earned by African Americans since 1998.
Alabama A&M University
Cornell University *
Florida A&M University
Georgia Institute of Technology
Hampton University
Howard University
Massachusetts Institute of Technology
North Carolina State University
Stanford University *
University of Alabama at Birmingham
University of California at San Diego
University of Michigan *
<small>* Denotes universities that have two departments that award physics PhDs</small>
<small>The universities on this list reported conferring 3 or more physics PhDs to African Americans between 1998 and 2007.</small>
<small>Source: AIP Statistical Research Center, Enrollment & Degrees Survey</small>

Dr. Stith found this change particularly troubling since only 13% of African Americans attend any of the 110 HBCUs for their collegiate educations. Therefore, the percentage able to attend the four HBCUs with a record of

producing doctoral physicists is very small indeed.

Stith noted that African American students in the top quartile of SAT, ACT, etc. do not perform at the rate of majority students at predominantly white institutions. He wondered whether, as long as well prepared students are not succeeding in the numbers to which the aspire, do we have a hope of inspiring the unprepared students, given that the two groups talk to each other? Put another way if the neighborhood “brainiacs” are seen as not succeeding in school, will the “regular” kids even try?

Dr. Stith asserted that the problem will be solved when all of us, and all the people not in the room, put it higher on their agenda.

He asked “What support do students need to be successful?” For example, it is known that underrepresented minorities tend not to be part of study groups. Yet, faculty often assume that students (in study groups) have access to old exams and use them to prepare. Faculty need to either validate that assumption or make it explicitly true by, for example, putting old exams in the reserve room of the library or putting them online. That way, all students will, in fact, have access to old exams.

Dr. Stith asked, “Do we and our faculty colleagues believe that faculty are capable of doing the work we want them to do?” This, he said, is where the most work needs to be done. Too many faculty blame the victim. If you do not believe your students can succeed, you do not belong in the classroom. You teach the students you have, not the

students you wish you had, he admonished.

According to Stith, not encouraging students to do science is the same as discouraging them from doing so. He wondered whether we are using all the talent we have and whether we are expanding the pool in the face of limiting external factors.

In Dr. Stith's view, students today have the same complaints of students many years ago. They can see that their faculty do not believe in their abilities, that they are ignored in scientific conversations, that their ideas are not recognized until espoused by others. He believes that we need to work on faculty and not just students. Ultimately, we need to help students live up to their potential and not down to expectations.

ON PEDAGOGICAL IMAGINATION: A CONCEPTUAL MEMOIR

Edmund W. Gordon

Volume III

Defiance: On Becoming an Agentic Black Male Scholar

Part 1: The Defiant Ones: My Models for What it Means to be a Black Man

1. Edmund Tayloe Gordon and the men of my childhood
2. Charles W. White: Foremost an Artist and Friend
3. Kenneth B. Clark: A Role Model & Critic
4. W. E. B. DuBois: Agentic Scholar par Excellence and Mentor

Part 2: Defiance as Black Male Human Agency

1. Attempts at Understanding Black Males
2. The Black Male Problematique
3. Defiance/Resilience as a Factor in Overcoming Obstacles to High Academic Achievement
4. Resilience Re-conceptualized as Defiance
5. The Education of Black Male Youth
6. Reconstruction and Black Male Human Agency

Part 3: On Becoming an Agentic Black Scholar

Gordon, E. W. (In press) The Education of Black Male Youth. In *Pedagogical Imagination*. Volume III. Chicago, IL: Third World Press

2.5. The Education of Black Male Youth

Edmund W. Gordon

In recent years attention has been directed to the perceived crisis in the development and education of young Black males. As a result, we are seeing initiatives of many kinds that try to address the issue. However, I think that in this area we have some confusion about the nature of the problem, and that confusion is reflected in the nature of the interventions we design. It's certainly clear that, what we have been doing, or what our kids have been experiencing, and especially experiencing in education, has not worked. In this paper, we seek to answer the question, "What should be special about the education of Black boys? The question is asked because emerging practice is quite varied and sometimes appears to be more motivated by the felt need to do something than it is informed by careful conceptualizations of the problem and strategic programs for addressing the problem.

I. Conceptualization

In seeking a conceptual basis for special educational treatment for young Black boys I see four categories of issues:

1. Normal biological variations and vulnerabilities,
2. Paradoxical conditions of socialization
3. Contradictions in the intent of the political economy
4. Natural patterns of subaltern cultural resistance.

1. Normal biological variations and vulnerabilities

I believe that male and female organisms have different biological characteristics that determine the way in which they behave and learn. I don't believe in the intellectual superiority of males or females, but for me, the biological differences between the sexes and role differences between the genders may determine the advantages for the intellectual development that males or females have under certain educational treatments

We all begin as females and in the process of gestation, it is the function of the Y chromosome to make us males, i.e., to masculinize the developing fetus. Almost from the beginning, male subjects have the task of becoming males. We also have good evidence that the flow of testosterone changes the way in which human organisms function. It may make us more active and even more aggressive in the socialization process, where the major challenge is to become reflective, to take time to think about things rather than to act. That same testosterone may make us more aggressive and more assertive, in a world that is increasingly based upon the reconciliation of relationships. We are born into societies that, traditionally, depend upon women to raise us, and women, because of the functions that they have in society, give attention to relationships early on, learn to privilege them, while we are learning to compete, to assert, and to aggress. We know that from conception through early childhood the male fetus and developing child is more biologically vulnerable than is the female developing organism. We do not know if or how this physical vulnerability translates into psychological and social vulnerability. We do know that in all highly industrialized societies adolescent and young adult

males are in trouble. Modern nations appear to be inhospitable environments for young males, especially if they are Black or of low status.

2. Paradoxical conditions of socialization

Cognitive dissonance is likely to be experienced by Black boys who must learn from people whose distrust in them increases as they mature; and when they must learn the data and values of those who represent both their oppressors and their suspects.

I am referring to the fact that in some Black communities, women tend to have negative experiences with Black males as reflected in the feminist Black literature of the 60's and the 70's, where Black women writers expressed their anger and frustration for the inadequacies and abusiveness they experienced with Black males. These women are in many instances the ones who raise Black boys and, who, in disproportionate numbers, are their teachers. Black boys face serious contradictions when they sense that the people from whom they are supposed to learn do not trust them, are afraid of them and often feel threatened by them especially as they mature.

The same problem applies to the relationship of these Black boys with the dominant sector of the society. The people who write about racism argue that underlying racism and the negative feelings toward Blacks is an apprehensive feeling toward Black men and the possible threat that they represent. Black males are often thought to be more agile physically than white men and have the reputation of being more aggressive. This means that the people who are setting the standards for the society and for education, and who are determining what it is that these boys should be aspiring to become, maybe perceived by these kids as the 'enemy' because they are the people who are fearful of them, who try to contain them, and too often actually abuse and oppress them. In these conceptual frames, Black boys may feel that they are being forced to learn from the very people who fear and oppress them.

3. Contradictions in the intent of the political economy

There is great folly in expecting students to seriously engage the behaviors and values of a system that imprisons them. John and Margaret Rowntree's "Political Economy of Youth" concludes that beginning at least at the mid twentieth century the United States has used its schools, its military and its prisons to contain and control its youth. They remind us that the military and the prison systems claim disproportionate numbers of those male youth who come from low income groups and communities of color. That may explain why "... the youth of the United States are adopting a posture of self-defense and self-liberation from the systemic exploitation of youth." (Rowntree, 1968) It could also explain the relatively high levels of disengagement and dropout the society's major socializing institution – the school.

In the book The Next Generation: An Ethnography of Education in an Urban Neighborhood John Ogbu (1974), reported on his studies of Black and Hispanic youth in Compton, California. One of his findings is that in the preadolescent years, the kids he interviewed seemed to understand that if they finished high school, their chances of being employed would be about 50 percent as good as their White English-speaking peers. They also were aware that if they were lucky enough to be employed, they would earn 25 to 35 percent less than the Angles. Ogbu goes on to speculate that these kids' investment of their energies in education seemed to be depressed at about the same level as their expectation of the reward. If he's right, fiddling around helping these kids do better in school was not likely to make a lot of difference, but doing something to change their expectation of the way in which society will reward their educational effort might

change the quality of their investment in it. The political economy of the United States is not intended to ensure or even support the development of low status Black and Latino boys, and these young men know it and act accordingly.

4. Natural patterns of subaltern cultural resistance.

I'm convinced that the problem of Black kids is certainly not a lack of intellect, and their ability to learn things. Our problem has to do with their engagement. It is hard to engage them when our education and socialization of Black and Latino boys into a social order subordinates them and has no real place for them. A realistic approach to their education needs to take into account what is now recognized as natural patterns of resistance to exploitation and oppression, sometimes camouflaged as schooling and other youth development opportunities.

According to E. T. Gordon, the problems of “mismatched symbol systems and the absence of shared practices and meanings between the cultures of many subaltern students and those of the dominant culture in the classroom” have significant impact in the communication between students and teachers. This is reflected in the difficulty that kids have in learning academic concepts and skills, as well in the resistance of these students to learn or adopt codes that do not belong to their own culture. As a result, the subaltern culture creates a system with different goals and standards from the dominant culture. The challenge is to teach students “not only to be conversant in dominant and subaltern cultures but the validity and utility of the continuum between the dominant and the subaltern – the intrinsic interrelationship between their elements, their basic similarities, and the interrelatedness of conflicting and complementary values, meanings and modes of expression.” (Gordon, 2005) E. T. Gordon refers to “mapping the academic agenda onto one’s political agenda”.

It also may be that the problem has to do with the possible difference between the purposes for which these youngsters come to school, and the purposes for which schools are run. 40 years ago, Anthony Wallace wrote about the differences in the functions of education in societies at different stages of their development: revolutionary stage, conservative stage and, reactionary stage. For him, the three functions of education have to do with the development of morality, the development of skills, and the development of intellect. He suggests that in the revolutionary society, morality skills are emphasized but some attention is given to intellect because you need intelligent people to participate in the revolution. In the conservative society, the primary attention is given to the development of skills because the society needs to have people who have the skills that are necessary to maintain the society. Almost no attention is given to intellectual development. During the reactionary period, when the development of intellect is discouraged, some attention is given to skills, but most attention is given to morality. But It is not the kind of morality that most of us would embrace. The reactionary society is really concerned with how you get along without disturbing the status quo. The emphasis is given to law and order.

In reaction to Wallace’s article, I suggested that in different segments of societal structure emphasis is given to different of these values, Poverty stricken, rich, working class people, etc, go to school for different reasons. It is in the self interests of these different groups that some of them should be going for different reasons. I think that the kids that we are dealing with really should be going to school for the purpose of developing the intellectual competence needed for revolutionary purposes. They need education that serves revolutionary change. They may not think in the sophisticated sense of revolution but what they are thinking is: "this system is not working for me, so let's change it." But schooling is design to maintain the status quo.

II. Curriculum Goals

To address these issues, several curriculum goals appear to be indicated for a curriculum directed specifically at boys who identify themselves as Black and/or Latino. There is no goal more important than the achievement of intellectual competence which is grounded in such content and procedural knowledge as is necessary for the development of logical reasoning, analysis, relationship recognition and problem solving. I refer to Intellectual Competence as a characteristic way of adapting, appreciating, knowing and understanding the phenomena of human experience. I also use the construct to reference the quality with which these mental processes are applied in one's engagement with common, novel, and specialized problems. Intellectual competence reflects the quality or goodness of the products of mental functioning (Gordon & Bridglall 2001). Given the current state of education we pretty much have to depend upon the usual academic content as vehicles for developing this kind of skills, but content mastery is not the end, but the instrument of intellectual competence development.

The curriculum should also help students with the development of self-understanding, and what I call personal and cultural identity. It means not only to know who I am but also to know how I function. In psychology we talk about: 1) meta-cognition, the understanding of how my mental processes work and 2) meta-componential strategies, knowledge and ability to apply these processes strategically to achieve certain ends. In a course that I developed some years ago, "Learning about thinking and thinking about learning", we tried to help kids to learn what thinking is about, how it works, what the components are, etc, and then we wanted them to think about how to use those different strategies in solving problems. In other words, if I know that analogical reasoning, memorization and the establishment or recognition of associations are instrumentalities for learning and thinking; when I am confronted with a problem and I know which of these instrumental capacities work together to solve this problem, I will function much more efficiently.

There is perhaps, no problem concerning the nexus between teaching and learning for black males than the associated with identity. Much of our concern to this problem has confused cultural experience with cultural identity. I think we make a mistake when we infer cultural identity from the stereotypical or real experience we associate with a person. Colloquial knowledge leads us to expect that humans are likely to develop attitudes and behaviors that are appropriate to the cultures in which they are acculturated and socialized, but in an age when in one's formative years one may be exposed to multiple cultures with different features, contagion and imitation may be insufficient to explain persistent habits of behavior and mind. I posit a second process that may not be dictated by cultural experience, but by attribution and intentionality. I refer to cultural identity – the attitudes, behaviors, belief systems and life styles, mental images of that with which one lives. Thus despite the wide variety of cultural experiences to which I have been exposed, they are the attitudes and behaviors that I associate with being an African American Male that are the most powerful influences on my cultural identity. For many young black males these referent image are in conflict. E. T. Gordon has described one such conflict as that between the idea of respectability and the notion of reputation. These young men desire respect. They confuse reputation with respect. Reputation may be acquired more quickly and with less sustained effort so the pursuit of reputation comes to substitute for the pursuit of respectability. One of the tasks of a pedagogy directed at the needs of the black boys, then, is that of creating teaching and learning experiences that enable, support and reward the distinction between the two and the pursuit of respectability.

Each of our students should be enabled to develop self-regulation, the capacity to control or regulate himself. Some people argue that all behaviors are intentional. We may not recognize it,

but it means that every activity serves some purpose. A mature and effective person understands the purpose served by an action and the personal conditions and behaviors that are necessary to achieve those goals. It means that you can direct and control your behavior to influence the outcomes of your actions. In colloquial terms people talk about “self control” or “deliberate behavior”, when the behavior is deliberately consistent with the intent. We know from Defense Department approaches to education that self-regulation can be learned.

It is also important that our curriculum contributes to the development of what I call “agency”, the ability to act in one’s own self-interests and the interest of others without exploiting other people. The understanding of self interest can be explained as the recognition of what is in my best interest or the development of sensitivity about what my interests are. This is related to the development of “knowledge interest”, the part of critical thinking that deals with the capacity to understand whose interests this knowledge serves. Bandura (2001) suggests that the core features of human agency include intentionality, forethought, self-reactiveness, self-reflectiveness and self-regulation. Accordingly, to be agentic is to intentionally make things happen by one’s deliberate use of self.

III. Curriculum Content

In the pursuit of these goals students should be enabled to learn from the following curriculum content areas:

- Essential skills and knowledge such as critical literacy, numeracy and knowledge exchange skills; selected declarative and procedural knowledge from the hegemonic disciplines; and selected declarative and procedural knowledge and skills from one’s indigenous culture and from the demands of one’s own political agenda.
- Deductive and inductive logical reasoning
- Communication, debate and self-presentation
- Non-violent conflict resolution
- Physical and verbal defense: Our kids should be enabled to use mental strategies rather than depend on physical power in the same way that they are used in the Martial Arts. As I understand, the Martial Arts are based upon the strategic use of movement rather than force, this provides students with the ability to defend themselves at the same time that we train them to use their minds before using their bodies. I suggest that they develop the ability to strategically use ideas and logic to influence other people, to lead them and when necessary to best them.

IV. Curriculum Processes

One of the problems we are dealing with is a population that does not come from a history of rich and successful exposure to academic learning; as a result, we need to be sensitive to declarative knowledge, tacit knowledge and procedural knowledge. In pursuit of curriculum content, processes like personalization, explication and politicalization are proposed as showing promise.

Personalization

Students “need to understand the current state of their knowledge and to build on it, improve it, and make decisions in the face of uncertainty (McLaughlin and Talbert 1993).” One of the ways educators can enable students to meet this standard is to both personalize the learning environment and nurture those psychosocial attitudes and behaviors (including self-efficacy,

agency, motivational regulation, internal locus of control) that may be just as crucial in maintaining students' interest, performance, and commitment to academic excellence and achievement. For Gordon and Bridglall, personalization is a tri-focal phenomenon that references the extent to which: 1) the teaching and learning process is adapted to or fits with the characteristics of the learner, 2) the processes by which teachers and students relate in transforming what is being learned; and 3) the learner's identification with and ownership of the processes and products of the learning transaction. (Gordon & Bridglall 2006)

Explication

Part of the problem that people who are less than successful have is that they have not been explicitly taught how to use the knowledge, strategies or resources that they have available. Many of our kids do not grow up in environments that are rich in examples of the practical knowledge of how to solve problems in the abstract. We need to make this tacit knowledge explicit for them. As these students gain experience in such environments and see others applying tacit knowledge to solve academic, every day and technical problems, they are more likely to learn.

Politicalization

In one of my chapters in the book Affirmative Development of Academic Ability I argue that politicalization is a neglected pedagogical process. There are class and caste conflicts to which insufficient attention has been given in the organization and delivery of educational services. If cultural and ethnic identification are important components of the learning experience, to ignore or demean them is poor education. If curriculum and delivery systems do not take these factors into account, inefficient learning may be the result. I argue that education should help our kids to 1) foster, celebrate and assert one's own cultural identity, and show respect for that of the other; 2) identify and understand the knowledge and policy interests of the phenomenon at hand; 3) exercise critical thinking through contextualization, multiple perspective taking, knowledge interests identification and relational adjudication; 4) teach and learn social action for responsible citizenship and humane social change; 5) develop agentic behavior and strategic action, which can be defined as the assumption of responsibility for rational behavior in support of one's self and others without the abuse of others.

Some authors have called attention to the fact that there is not evidence that group differences per se imply any inability on the part of particular individuals to meet the demands of society. (Gordon & Bridglall 2007) I believe that once we understand what should be special about the education of black boys, we should be able to turn our energies and efforts to help them to meet the demands of education and the demands of the society in which they live, which include the capacity to become active participants in the process of the achievement of social justice.

Notes for College Board Dialogue Day in Los Angeles. "A Dream Deferred: The Future of African American Education". Policy's Role in Implementing Change. April 23, 2008. Los Angeles, California. April 19, 2008 EWG & PCH Revised 03/10/09

Bibliography

Bandura, A. (2001). "Social cognitive theory: An agentic perspective." *Annual Review of Psychology*, 52, 1-26

Gordon, E.W. and B.L. Bridglall (2006). *Affirmative development: Cultivating academic ability*. Lanham, MD: Rowman & Littlefield Publishers Inc.

APPENDIX G. – Paper from *Pedagogical Imagination* Dr. Edmund W. Gordon

Gordon E.W., B.L. Bridglall, (September 2001) Affirmative Development of Academic Abilities. *Pedagogical Inquiry and Praxis*. Number 2. New York: Institute for Urban and Minority Education. Teachers College, Columbia University.

Gordon, E.W., B. L. Bridglall, et al. (2004). *Supplementary education: The hidden curriculum of high academic achievement*. Lanham, MD: Rowman & Littlefield Publishers Inc.

Gordon E.W. and B.L. Bridglall (2006) *Engagement, Effort, and the Personalization of Academic Learning*. Unpublished

McLaughlin, M. W., & Talbert, J. E. (1993, March). *Contexts that matter for teaching and learning: Strategic opportunities for meeting the nation's educational goals*. Stanford, CA: Stanford University, Center for Research on The Context of Secondary School Teaching.

Ogbu, J. (1974). *The Next Generation: An Ethnography of Education in an Urban Neighborhood*. New York: Academic Press.

Rowntree, J and M. (1968) *Youth as a class: the political economy of youth. Our Generation* | Volume: 6 | Issue: 1-2 | Pages: 155 – 167.