

**QUALITY EDUCATION FOR MINORITIES (QEM) NETWORK
PROFESSIONAL DEVELOPMENT WORKSHOP:
FUNDAMENTALS OF RESEARCH IN STEM EDUCATION
SUPPORTED BY THE NATIONAL SCIENCE FOUNDATION
DIVISION OF RESEARCH ON LEARNING IN FORMAL AND INFORMAL SETTINGS
EMBASSY SUITES HOTEL • 315 JULIA STREET • NEW ORLEANS, LA
OCTOBER 26-27, 2007**

AGENDA

Note: Participants supported by QEM are expected to take advantage of the free Full Breakfast available each morning at this Hotel.

DAY ONE – RESEARCH FUNDAMENTALS AND CASE STUDIES

AM

- 8:00 *Registration*
- 8:30 *Opening Plenary Session*
Welcome, Purpose, and Introductions
Shirley McBay, President, QEM Network
- 8:45 *Research in STEM Education: Background and Context*
(Origins, Development, Current Standing, and Guiding Principles)
Monica Mitchell, Associate, QEM Network
- 9:15 *Research Design – Asking the Right Questions*
(What is meant by Research Design? What attributes should a research question satisfy so that the question is deemed important to ask? What are some of the common forms/types of research questions?)
Robert Sherwood, Professor, Science Education, Indiana University
- 9:45 *Introduction of Case Studies*
Shirley McBay, QEM Network
- 10:00 *Case Study I: STEM Learning Communities and the Freshman Year Experience*
Janice Kennedy Sloan, Program Manager, HBCU-UP Project
Johnson C. Smith University
- 10:30 *Break*
- 10:45 *Case Study II: Langston University's STEM Digital Village*
John Coleman, HBCU-UP Project Director, Langston University
- 11:15 *Case Study III: Peer Led Team Learning at Morehouse College*
Susan Hall, Vice-President, Transformational Consultants International
- 11:45 *Case Study IV: Supplemental Instruction in Mathematics at Claflin University*
J. Arthur Jones, Senior Associate, QEM Network

PM

12:15 *Lunch and Plenary Session*

12:45 *Methods of Educational Research*

(Most common methods in educational research; purpose and review of various methods: quantitative, qualitative, and mixed-methods; controversies and ethical considerations related to methods; and research instruments)

Olatokunbo (Toks) Fashola, Adjunct Research Scientist
John Hopkins University

Participants will be assigned to four Working Groups
[with Group Leader and Reporter]

Group I: Case Study I (Freshman Year Academy)

Group II: Case Study II (Digital Village)

Group III: Case Study III (Peer Led Team Learning)

Group IV: Case Study IV (Supplemental Instruction)

1:30 Four Concurrent Sessions – *Asking the Right Question*

(Charge: Identify/formulate significant research question(s) for assigned case studies)

2:30 Four Concurrent Sessions – *Utilizing Appropriate Methods*

(Charge: Identify appropriate methods for the specific case studies and provide rationale for the methods selected)

3:30 *Coffee Break*

3:45 *Plenary Session: Data Collection, and Data Analysis*

Robert Sherwood, Indiana University

4:15 Four Concurrent Sessions - *Collecting Useful Data*

(Charge: Identify data collection and analytical strategies for investigating the research question(s) formulated during 1:30 pm session. Identify any specific data collection concerns and ethical considerations)

5:00 *Plenary Session: Group Reports – Questions, Methods, Data Collection and Analytical Strategies for each Case Study*

6:00 *Dinner (on your own)*

DAY TWO – ISSUES IN EDUCATIONAL RESEARCH

AM

- 8:30 *Plenary Session: Research at the K-12 Level – Considerations and Challenges*
Patricia F. Campbell, Associate Professor, Mathematics Education
University of Maryland College Park
- 9:15 *Research in Undergraduate STEM Education*
(Student Learning, Program Intervention, and Instructional Methodologies)
Patricia B. Campbell, President, Campbell-Kibler Associates, Inc.
- 10:00 *Break*
- 10:15 *Implementation, Research, and Evaluation*
(Is there unavoidable tension and/or conflict? What is the role of research in implementation?
What is the role of evaluation in research? What is the role of evaluation in implementation?
Can a researcher wear both hats?)
Olatokunbo (Toks) Fashola, John Hopkins University
- 11:00 Four Concurrent Sessions - *Implementation, Research, and Evaluation*
(Charge: Develop evaluation questions and distinguish between the research and
evaluation questions formulated)

NOON/PM

- 12:00 *Lunch and Plenary Session*
- 12:45 Group Reports – *Evaluation Questions for each Case Study*
- 1:45 *Plenary Session: The Socio-cultural Context of Research in STEM Education*
Patricia B. Campbell, Campbell-Kibler Associates, Inc.
- 2:30 *Staying Current in the Field*
Monica Mitchell, QEM Network
- 3:00 *Dissemination of Research Findings*
Patricia F. Campbell, University of Maryland College Park
- 3:45 *Break*
- 4:00 *Potential Funding Sources*
J. Arthur Jones, QEM Network
- 4:30 *Observations, Lessons Learned, and Concluding Comments*
Workshop Participants, Case Study Leaders, QEM Consultants, and
QEM Staff
- 5:00 *Adjournment*