High-Quality STEM Education for English Learners: Current Challenges and Effective Practices

*STEM Forum*
*July 11, 2011*

**Background:** English Learners (ELs) across the nation present a unique opportunity for our educational system to develop a skilled, multilingual STEM workforce for the globalizing economy of the 21st century. Representing a diversity of languages and cultures, ELs comprise one in ten students in the schools, and are projected to show continued growth in the years ahead. ELs are often spoken of in terms of their academic underachievement rather than the untapped potential they hold for success in a global business setting. In STEM education, it is imperative that all students, including ELs, have access to STEM-rich content and opportunities to learn about and explore the many STEM-related fields and careers that invite their participation.

**Purpose:** The forum’s major goals are to highlight effective practices for promoting EL achievement in the STEM subjects; examine data and research needs on ELs’ STEM learning and achievement; explore possibilities for public-private partnerships to advance reform in STEM education for ELs; and provide networking opportunities for educators and other professionals involved with STEM education for ELs. The panelists represent research, practice, professional organizations, and business in STEM disciplines.

**Prior to Forum:** The following professional articles on Math and Science for English Learners were distributed to panelists and audience members a week prior to the forum for background reading:


**8:30–9:15 a.m. OPENING REMARKS**

- **Congressman Rubén Hinojosa (TX-15)**
  U.S. House of Representatives
- **Assistant Deputy Secretary Rosalinda B. Barrera, PhD**
  Office of English Language Acquisition
  U.S. Department of Education
- **Okhee Lee, PhD**
  Professor, Department of Teaching and Learning
  University of Miami
9:15–10:15 a.m.  PANEL 1: DATA and RESEARCH
Panelists will discuss the status of ELs’ learning and achievement in STEM education.
Panelists will also address data collection and analysis methods.

- Guillermo Solano-Flores, PhD
  Associate Professor
  University of Colorado at Boulder
- Yuwadee Wongbundhit, PhD
  Curriculum and Instruction
  Miami-Dade County Public Schools
- Angelica Infante
  Executive Director, Office of English Language Learners
  New York City Department of Education
- Julio Lopez-Ferrao, PhD
  Program Director, Division of Research on Learning
  National Science Foundation

10:15–10:30 a.m.  BREAK

10:30–11:30 a.m.  PANEL 2: TEACHER EDUCATION and EFFECTIVE PRACTICES
Panelists will discuss the current status of teacher preparation for the STEM subjects as well as provide suggestions for effective professional development for teachers of ELs. Practitioners on this panel will present effective practices they have implemented in the classroom.

- Cory Buxton, PhD
  Associate Professor
  University of Georgia
- Michelle Shearer
  2011 National Teacher of the Year
  National Teacher of the Year Program
- Erick Pérez
  Teacher, Harbor Heights Academy (MS349)
  New York City Department of Education
- Patricia Simmons, PhD
  President of National Science Teachers Association (NSTA) and Department Head Department of Science, Technology, Engineering, and Mathematics Education, North Carolina State University

11:30–12:15 p.m.  DISCUSSION OF PANELS 1 and 2
Led by Okhee Lee
What are effective teacher education programs and classroom practices that promote ELs’ achievement in STEM subjects and encourage careers in the STEM fields?

12:15–1:00 p.m.  LUNCH BREAK
1:00–2:00 p.m. PANEL 3: PARENT, FAMILY, AND COMMUNITY ENGAGEMENT
Panelists will discuss the importance of parent, family, and community engagement and its long-term effects on EL academic achievement. Practitioners will share effective practices.

- Sharon Nelson-Barber, EdD
  President and CEO
  Pacific Resources for Education and Learning
- Ricardo Rincon
  Teacher, Monte Vista Elementary School
  Las Cruces Public Schools
- Aurelio Montemayor
  Senior Education Associate
  Intercultural Development Research Association
- Charles Galindo Jr.
  Principal Scientist, Astrobiology Lab Manager
  National Aeronautics and Space Administration

2:00–2:15 p.m. BREAK

2:15–3:15 p.m. PANEL 4: PUBLIC / PRIVATE PARTNERSHIPS
Panelists will discuss the impact of collaborative endeavors and partnerships for reforming and transforming STEM education for ELs.

- Rogelio Botello
  Lead Engineer
  Motorola Solutions Inc.
- Gerard Kovach
  Teacher, Ruben Salazar Bilingual School
  Chicago Public Schools
- Paula Hooper, PhD
  Senior Science Educator, Learning Research Scientist Institute for Inquiry
  Exploratorium Museum of Science
- Juan (Tony) Castilleja Jr.
  Founder
  DREAM Program at Rice University

3:15–4:00 p.m. DISCUSSION OF PANELS 3 and 4
Led by José Franco

How can public/private partnerships leverage resources to partner with families and communities in order to help ELs achieve and excel in STEM subjects?

4:00–4:30 p.m. CLOSING REMARKS
- José Franco
  Senior Research Associate
  WestEd
- Assistant Deputy Secretary Rosalinda B. Barrera, PhD
  Office of English Language Acquisition
  U.S. Department of Education