



## UNITED STATES DEPARTMENT OF EDUCATION Office of English Language Acquisition

### 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 21<sup>st</sup> 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:

- **Math Article:** Moschkovich, J. (2011). Supporting Mathematical Reasoning and Sense Making for English Learners. *National Council of Teachers of Mathematics*, 17-34.
- **Science Article:** Lee, O. (2005). Science Education and English Language Learners: Synthesis and Research Agenda. *Review of Educational Research*, 75(4), 491-530.

#### **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