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**Recap: STEM Partnership-Building Forum
June 28, 2006
Renaissance Montura LAX Hotel Los Angeles**

*To view agenda and powerpoint briefings by presenters, see
www.californiaspaceauthority.org/html/wired/k-u_forum.html*

**Break-Outs
Session I**

Effective Recruitment: Strategies and Outcomes

1. Outreach to parents
 - Bring scientists to open house or PTA meetings
 - Bridging programs
 - Policy/Culture interactions (e.g. absenteeism)
 - Hosting tours for K-6 parents
 - Focus on church or other community-based organizations
2. Address issues/opportunities
 - Policy/Culture interactions
 - a. State funding/absenteeism
 - Video/DVD/CSI effect
 - Assist teachers in teaching in a more interesting way – NSTA Comets program
 - a. Classroom experience in first year – improve retention
 - b. Enable tutoring for CSU teacher programs
 - c. Paid tutoring in local schools; enable tutoring funding stream
 - d. Integrate teachers into science community to enhance prestige
 - State Policy support
 - a. Provide classroom time to teach science
 - b. Provide materials, equipment to teach science
 - c. Provide professional development opportunities, funding for science, math
3. Teacher recruitment
 - Facilitate transition from 4-year engineering degree to teacher credentialing
 - Provide scholarships, faculty support for those going into math/science
 - Address disconnect between research and education departments, tenure issues
4. Provide role models
 - Globe program – brings scientists and students together
 - Develop industry speaker's bureau accessible to schools
 - Develop workshops to train industry volunteers to work with teachers
 - Focus on entrepreneurial interest

**Session I
Access and Equity**

1. Access defined:
 - Assumption: Educational process is for all children
 - Relationship to minority/majority
 - Sailer(Seiler?) study (black male youth)

- a. Education is key to labor/workforce and economic competency
 - Assumption that Information, opportunity, courses, etc. will be available and accessible to all at the exact time necessary
 - Everyone will be ready (financially, academically) for the next step along education continuum
 - Everyone can navigate the system
 - Everyone is given early awareness of college and careers (including technical careers)
2. Access: issues
- Need inter-segmental communication, analysis, metrics around access
 - Strategies need to be scalable – to be implemented on a large scale – across systems
 - The access “problem” needs to be defined, a common vision needs to be articulated
 - Agreement needs to be reached on a definition of “STEM” – is it just K-12? K-20? What does this mean to access?
 - What role does student option play in access?
 - Rigor must be seen as an issue, a requirement, as a necessary element of opportunity
1. Are we talking access or are we really talking success? (Community colleges have open access, but not everyone is successful)
3. Access: Ideas
- Is Education Trust West a possible answer?
 - California Community College CO has an Access component in its Strategic Plan – six months of dialogue already taken place – use as foundation? Use existing Access working group as also STEM access working group?
4. Equity
- Cannot use race/gender eligibility
 - Equity wraps around access
 - Continuum: equal opportunity vis a vis achievement gaps
 - Recommendation: unequal investments to create equity

Session II

Transition Points and Strategies

1. What investments need to be made to improve retention?
- Support network/Unified action
 - a. Need improved partnership to present a joint plan at State/Federal levels
 - b. Need to address ITAR as university policy issue
 - c. Community outreach
 - i. Explain benefits of “opting in” to education and guidance process
 - ii. Special parent conferences on STEM careers/support
 - iii. Hands-on experiences (parents/kids?)
 - iv. Share culture, benefits of theoretical physics
 - v. Frame recruiting events as social affairs (family science nights – “bring siblings!”)
 - vi. MESA is very effective
 - vii. Mentorship for initial steps to STEM parents
 - viii. Connection/accessibility to first generation
 - ix. Leverage federal funding for student tuition support
 - Middle school is a key point where attrition occurs, especially for girls
 - a. Girls do better in non-STEM areas, need additional encouragement in minority communities – seek support from AAUW, whose mission is in alignment
 - b. Girls do not choose STEM because image not positive, need to see as a field that helps society

- c. Pre-high school orientation with graduating STEM students to start on “right foot”
- High school to community college - another important transition
- University recruiting
 - a. engineering image being projected not always appealing to girls and others interested in fields helping society – address by reviewing university websites
 - b. Difficult/complex application process
 - c. Financial aid process
 - d. Financial aid access
- University undergraduate program “sink or swim” attitude (66% flunk out rate) forces students out, students who could be fine engineers or math/science teachers, even though not perhaps PhD or Nobel laureate researchers
- Transition to educator program
 - a. Need support to avoid first year burnout
 - b. Teacher to teacher mentoring
 - c. Need programs with longevity
 - d. TRPs have successful model
 - e. State budget has “rollercoaster” effect
 - f. Compensation differential; loan burden

Session II

A Successful STEM Partnership: Barriers, Opportunities & Outcomes

1. Success Factors

- Faculty led, faculty-driven (one perspective – how to keep industry, informal science engaged if everything is education system-focused? What is “faculty” – teachers?)
- Trust and commitment
- Champions and benefactors
- Lack of “control agenda”
- Sharing of information, responsibility, resources, leadership
- 100% Engagement
- Effective leadership
- Understanding and leveraging each other’s strengths
- Respectful disagreement
- Understanding of joint, collaborative opportunities
- Understanding of successful models
- Institutionalization/sustainability
- Broad-based, not just in one discipline
- Adaptable solutions (across disciplines, systems, levels, etc.)
- Common values
- Results measured/ROI
- Common vision
- Define end state, goal
- Common language
- Agreed upon problem definition
- Right/inclusive group
- Effective communication
 - a. individual
 - b. group
 - c. systems
 - d. external partners/education system

2. Issues

- Participation of adjunct professors

- State Public Policy
- 3. Others to include
 - CSTA, equivalent math organizations, engineering, etc.
 - STEM faculty
 - What K-12 entities?
 - Need industry/informal science involved in the working groups, not just as presenters

Closing Session
Next Steps

1. Next Steps
 - Get California STEM inventory started (CSEWI)
 - With industry
 - With informal science
 - With K-12
 - With higher education
 - Get input from Forum invitees on key STEM stakeholders not yet engaged (CSEWI)
 - Plan next STEM Collaboration session
 - Working, not presentation session
 - Creation of joint “vision” to be included as outcome
 - Key collaborative areas of work, working groups set up