COLLEGES OF ENGINEERING AND EDUCATION: PARTNERING FOR EFFECTIVE COMMUNITY OUTREACH

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Abstract - With the growing influence and increasing complexity of technology, the public must have a certain level of technological understanding to make informed decisions and to attain a reasonable quality of life. It is crucial that current and future teachers have the resources, skills, knowledge and support to empower students to make informed decisions as citizens, consumers, and as members of the workforce. Colleges of Engineering and Education can take a leadership role in providing effective outreach programs for the pre-college community.

This panel session will feature: 1) a summary of Deans Summit II: Fostering Campus Collaborations attended by deans and faculty from colleges of education and engineering, 2) representatives from colleges of education and engineering describing successful campus collaborations between Colleges of Engineering and Education that have resulted in effective outreach programs to the pre-college community, 3) pre-college educators who have participated in these collaborative programs, and 4) a representative from industry discussing the potential role of the business community in these collaborations.

Index Terms – Collaborations, Colleges of Engineering and Education, Community Outreach, Technological Literacy.

BACKGROUND

The need for “technological literacy” is increasing and pre-college institutions are being held accountable for producing technologically literate graduates. However, educators, like other segments of society, possess varying degrees of technical expertise. Some teachers may be well prepared to teach technologically oriented subject matter. Others may not feel as confident. Colleges of Engineering and Education can take a leadership role in this effort. Fostering community outreach collaborations between engineering and education will assist future and current teachers, and their students, to increase their level of technological literacy.

In the past there have been many efforts to form partnerships between Education faculty and faculty in Science and Mathematics to address the needs of science and mathematics education, but efforts to include engineering faculty have not been formalized. Yet, with the increasingly important role of technology and the publication of Standards for Technological Literacy: Content for the Study of Technology, and the publication of Technically Speaking: Why All Americans Need to Know More About Technology, the benefits of bringing engineers into the community outreach picture are becoming readily apparent. Colleges of engineering and education are in a unique position to improve technological literacy throughout society and to help ensure an adequate number of well-prepared engineers and scientists.

Technically Speaking: Why All Americans Need to Know More About Technology is a report of the National Academy of Engineering published to inform the public and policy makers of the urgent need for technological literacy. This report states, “To take full advantage of the benefits and to recognize, address, or even avoid some of the pitfalls of technology, we must become better stewards of technological change. Unfortunately, we are ill prepared to meet this goal.”

Dr. Joseph Bordogna, Deputy Director of the National Science Foundation, and an engineer by training, recognizes the power of collaboration in education when he states: “Bringing our two communities together is a smart thing to do. We have a great deal to learn from each other, yet institutional boundaries have kept us apart far too long. This division has not always existed. Both education and engineering have deep roots in our history as a nation. Thomas Jefferson and Benjamin Franklin, each in his own way, recognized that discovery and innovation are the twin pillars of a democratic society. “Enlighten the people generally,” Jefferson said, “and tyranny and oppressions of body and mind will vanish like spirits at the dawn of day.”

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OVERVIEW OF DEANS SUMMIT II: FOSTERING CAMPUS COLLABORATIONS

Deans Summit II: Fostering Campus Collaborations (FCC) expanded the partnerships that were started at Taking the Lead: A Deans Summit on Education for a Technological World held in 2001. Approximately 150 attendees participated in FCC. These included deans, department chairs, associate deans and faculty members from colleges of engineering and education from institutions around the world. FCC featured presentations that demonstrated how collaborations between colleges of engineering and education can positively impact teacher preparation, outreach to the pre-college community, and pedagogical approaches for engineering education. During breakout group sessions FCC attendees developed: 1) common themes that will have broad impact on campus reform, 2) strategies for an action agenda of effective collaborations, and 3) collaborative action plans focusing on programs to improve teacher preparation, outreach to the pre-college community, and pedagogical approaches for engineering education.

Panel Session Overview

This panel session will showcase effective collaborations between colleges of education and engineering that have enhanced the level of technological literacy in the pre-college community through outreach efforts. Representatives from two universities will describe their collaborative outreach efforts and will discuss how they overcame the barriers and constraints that arise when undertaking any new campus-based program. Pre-college educators will discuss the impact of collaboration between engineering and education on teaching, students and their curricula. A representative of industry will share his insights as to the role of the business community in fostering and supporting collaborations between Colleges of Education and Engineering. A representative from the Institute of Electrical and Electronics Engineers (IEEE) will provide an overview of Deans Summit II: Fostering Campus Collaborations, held in January 2003.

Scheduled panelists include:
- Pam Cantrell, College of Education, University of Nevada
- John Kleppe, College of Engineering, University of Nevada
- Carly Hanson, Teacher, Prince Swope Middle School, Reno, NV
- Gary Morrison, Teacher, Mark Twain Elementary School, Reno, NV
- Wayne Johnson, Executive Director of University Relations Worldwide, Hewlett Packard Company
- Teri Reed Rhoades, College of Engineering, University of Oklahoma
- Barbara Stoler/Doug Gorham, Institute of Electrical and Electronics Engineers

References
1 Bordogna, Joseph. Keynote Address, Deans Summit II: Fostering Campus Collaborations, 10 January 2003.