

**Global Issues Breakout
Engineer 2020 Workshop
September 30, 2008**

Participants:

Mark Johnson, ECE; Vicki Harris, Instructional design, Yating Chang, GEP, Carolin Croswaite, UQ, Amy Penner, grad student ABE, Carl Smith, Civil, Nathan McNeil, grad student, ENE, Brent Jessick, ECE & ENE (interested in developing tools for global assessment); Jim Jones, Juan Garcia, Grad Student Civil, Rabi H. Mohtar (moderator), Gary Downey, Virginia Tech and John Grandin, IEP at University of Rhode Island (guest speakers)

Question 1 – why are global issues important? The discussion revealed general agreement that moving to a global perspective is essential, both to keep with the University's strategic plan, but perhaps more importantly, in order to maintain (or regain?) the position of 'leaders' of the profession. Engineering professionals must go beyond mere technical competence to become directly involved in the discovery and implementation of solutions to real engineering problems as effective and productive, professional members of society. Global implies addressing greater risks and reaping greater rewards: it demands the highest technical skill levels to address challenges, but requires a heightened self awareness that includes sensitivity, language and cultural skills, 'thinking outside the box' talents that are receptive to alternate modes of problem solving or organizing approaches to the needed solutions.

Recommended Resources:

- The New Argonauts/ The Innovator's Dilemma (Clayton Christensen)

Question 2 – What are effective methods to foster global learning?

Awareness of the world around us and outside our borders 'trans-boundary' consciousness is important, but not necessarily perceived as 'urgent' by faculty. This is a hurdle that needs to be overcome to achieve effective global activity in the engineer of 2020; the measure of student change in perception of their role in society once they have travelled abroad is a means of helping the faculty to move forward. Recruit (or require through curriculum structure) early involvement in global activities:

- Offer conventional organized package (Co-op, study abroad, etc.)
- Global Design Teams – discussed basic elements of this to be successful including quality control and follow up.
- Cultivate the engineering 'antenna' but also the 'cultural antenna – both are necessary
- Use the experiences of the community: international students and faculty are important resources and should be invited to share their perceptions and encouraged to put forward their awareness of their cultures and experiences.
- University of Queensland – students work with EWB-Australia for projects: Change notion of what it meant to be an engineer; learn to question assumptions; open their eyes and make it 'real'

Question 3 - What instruments are available to measure global competency?

Include education as well as engineering researchers to unify standards across institutions. Factors relevant for measurement must be defined and could include:

Length of program: Short-Term 'experience' vs Long-Term full-semester or academic year

Depth of Cultural Exposure/Immersion: stepping out of the American cultural comfort zone; adaptation to foreign educational system

Degree of Curricular Integration short-term "add-ons," vs. integration in the overall curriculum

Degree of Cultural/Linguistic Preparation for Experiences Abroad: Language (English or Not); begin preparation from Freshman year; course selection as a conscious plan of the experience abroad

Degree of Engineering-Specificity: generalized experience abroad; engineering specific; incorporate engineering education *as it is known elsewhere*; professional research; design internship opportunities

Degree of Institutional/Administrative Commitment: designed and offered by engineering faculty; designed and offered by language faculty or study abroad offices; global education for engineering students high priority vs. good idea, but not absolutely necessary

Scale: impact an elite few; impact a large percentage of students/community/faculty

Identify milestones (for progress measurement)

Develop a scoring matrix to quantify results and outcomes.

Assess plurality and 'added value' of technical and cultural measurements

Identify skills required

Incorporate awareness of these among students and faculty using conventional methods (plot on a grid: where skill was acquired, what skill was lacking, etc.)

Use non-conventional resources to share learning experiences and increase awareness of strengths and pitfalls related to cultural intelligence (CI).

International Program types (compiled by John Grandir)

- Double major/dual degree
- Minors/Certificates
- Int'l internships/Co-ops
- Int'l projects
- Study Abroad
- Academic Exchange
- Collaborative research
- Global Teaming
- Service Learning (abroad)
- Grad Int'l programs abroad (dual/joint degree programs with partner universities abroad)
- Distance learning
- In-house programs