Round Table Discussion

Overcoming acculturation barriers to ethics education for international engineering graduate students: an integrative approach

11th International Conference on Ethics Across the Curriculum
Rochester Institute of Technology
Rochester New York
November 12-15, 2009

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Directors:
Deborah Mower (Youngstown State University)
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Call for Papers

The Society picks conference themes to encourage faculty from the relevant areas to submit papers, panels, or other standard forms of presentation, but submissions may speak to any issue regarding ethics across the curriculum. Questions about possible submissions should be sent to the directors at Wade.Robison@rit.edu.

Theme: Teaching Citizenship and Civility

It is a hallmark of civility within a society that those of opposing points of view can reasonably discuss their differences and find common ground amidst their disagreements. Teaching students to become civil citizens and modeling a civil society within our classes are always pressing concerns. The concept of citizenship may encompass a wide variety of ethical actions (such as volunteerism or philanthropy) and political relations (such as nationalism or globalism). Teaching students to become civil citizens requires consideration of the content and practice of citizenship, in all its forms. Even in classes where the content is far removed from what seems relevant to a civic education, the way in which the class is taught -- how disagreements about answers are resolved -- can teach lessons essential to civility. Teaching civility, in all its forms, is an education across the curriculum. Although the theme of the conference highlights the content and practice of teaching civil citizens, submissions are not limited to the conference theme.

Submissions (either papers or abstracts) should be formatted for blind review and sent by September 15th 2009 to the Secretary-Treasurer of the Society, Donna Werner, DWerner@stlcc.edu or by hard copy to Dr. Donna Werner, Philosophy Department (HE 103), St. Louis Community College, Meramec, 11333 Big Bend Boulevard, St. Louis MO 63122-5799. Phone: 314.984.7934.

We will make decisions about papers as soon as we can after they arrive. So the sooner you submit your abstract or paper or panel suggestion, the sooner you will hear from us regarding its suitability for the conference.

The Society publishes Teaching Ethics, and papers for conferences may be considered for publication either in that journal or in a possible anthology on teaching citizenship and civility.
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Those on our team not with us today
- Katherine Austin, Ph.D., Department of Psychology, Texas Tech University, kathy.austin@ttu.edu
- Byron Newberry, Ph.D., P.E., Mechanical Engineering, Baylor University, Byron_Newberry@Baylor.edu
Greta’s Theme

- Having to use English as a second (or third) language for international graduate students in the U.S. has a major impact on their successful entry into professional communities of practice. Ethical norms and obligations constitute a significant part of engineering culture whether it be in academia, industry, or consulting. For ethics instruction to have the greatest effectiveness for international students, the content must be readable and comprehensible in the students’ second or third language (English). Grappling with these language constraints is an ongoing process and brings to the fore challenges which the students, and their teachers and institutions, must confront in all aspects of the educational process.

Tommy’s Theme

- Ethics ultimately concerns itself with how we live on a daily basis, how we make the right choices in complex and ambiguous situations, and how we do this while balancing the different and sometimes conflicting interests of those around us. Ethics training must go beyond learning codes of conduct or satisfying compliance requirements. It must prepare individuals to function well in a community, live meaningful and productive lives, and contribute to the overall wellbeing of that community. This is particularly true for engineers, as their work has a widespread impact on the lives of people in general.
Bill’s Theme

- International engineering graduate students are a natural audience for an educational intervention aimed at helping them overcome the acculturation barriers to personally knowing and inculcating normative ethical obligations associated with engineering practice in the United States.

Premises

- Ethics is important to engineering profession, hence featured in Accreditation Board for Engineering and Technology (ABET) requirements.
- How professional ethics is conceived, including codes, regulations, conventions, & practices, varies by culture as defined by geopolitics.
- Many international grad students will stay & work in U.S., either practicing engineering or teaching undergraduate students. They are critical to the U.S. economy (Susan Hockfield, WSJ)
- These individuals will benefit from a formal exposure to the professional ethics conventions of the U.S.
Approach

- Web-based modules/short course
- Can be offered within graduate course/seminar or as an extracurricular requirement
- Embed specifics of U.S. professional ethical conventions in engineering within the context of broad, “universal” principles.
- Address acculturation issues in module development
- So far, so good. But.......might not these last two points require perspectives from other disciplines?

Across Disciplines

- What do civil engineers, mechanical engineers, cognitive psychologists, applied linguists, and rhetoricians have in common?
- We share an interest in the success and contributions of international students in U.S. universities.
- We wish to explore and improve international students’ entrance into communities of practice as graduate students and future professionals.
Across Disciplines

- The process of developing the curriculum and platform for the course was interdisciplinary out of necessity.
- Ethics education goes beyond learning rules, policies, and procedures.
- Ethics education is at the core of preparing individuals to function well in a community and live productive, meaningful lives.
- Multiple disciplines and perspectives must be blended to create an effective platform for this kind of education.

Communities of Practice

- Communities of practice are collaborative, informal networks that support professional practitioners in their efforts to develop shared understandings and engage in work-relevant knowledge building.
- Another thing engineers, rhetoricians, applied linguists, etc. have in common.
- Communities of Practice are what we academics experience as doctoral students and faculty members.
- Applied linguists focus on the processes of second language learning and comprehension as students enter communities of practices in which new participants and “old timers” interact and establish “legitimate peripheral participation” of all participants who have varied degrees of familiarity with the practices of the community.
- Other disciplines might (and do!) call this acculturation.
Acculturation: Transnational and Professional

Acculturation definition: “second culture learning,” also “strategic reactions of the minority to continuous contact with the dominant group”

- Possible barriers to acculturation include:
  - Level of learners’ cultural competency
  - Learners’ English language proficiency (NOT a simple, unidimensional condition or trait)
  - Levels of acculturation stress

Second Language Learning and Comprehension

- Often overlooked as an issue in acculturation
- The operating hypotheses of much graduate education is: “if international students come to the U.S. they will be good enough in English (their second or third language) to do well, and if they are not, they will ‘pick up English’ after their arrival”
- Not the case at all.
Language Issues and Graduate Education

- New communities of practice mean:
  - New genres of language use.
- However:
  - Graduate programs are L2 acquisition poor environments.
  - L2 comprehension, even over time, cannot be assumed.
- Language may determine the success and speed of international students’ acculturation to graduate school and professional communities of practice.
- For applied linguists, language and identity are inextricable.

Language and Ethics Education Modules

- If we wish international students who have English as their second or third language to learn from our educational interventions,
  - And if our interventions use traditional means of concept development (such as reading),
- We must ensure students can access the content fairly fluently (reasonably quickly and accurately).
- We must adjust and monitor lexical density, lexical range, the range of grammatical structures, and the relevance of images in the text (details to come).
Module Topics

1. Codes of Ethics
2. Protecting Human Life and Welfare
3. Competence
4. Honesty
5. Fairness
6. Conflicts of Interest
7. Intellectual Property & Plagiarism
8. Data Integrity

Module topics blend content about rules, conventions, and laws necessary for being an effective professional with deeper cultural values.

Module topics were all developed with input and vetting from the different disciplines represented on the team.

The progression of the topics is also by design—it presents paramount principles first and then goes more in depth on areas essential to engineering practice.
While we cannot presume to know the cultures of others, we DO know our own culture.

- Modules written with full input from all authors and Cultural Advisory Panel; revised with three or more iterations.
- Learners’ English proficiency in the genre of general engineering writing on ethics issues becomes a salient issue—second language reading processing!
### Monitoring the Language of Texts in the Modules

- **Lexical density**: the number of different words, compared to the number of total words, in a given text.
- **Lexical range**: how frequently particular words in a given text are likely to be encountered by readers in other reading contexts.
- **Grammatical structures**: congruity of tense selection and active/passive sentence structure.
- **Relevance of illustrations**: appropriate illustrations within text fosters complex thinking and results in better comprehension.
- Developing and Designing Online Engineering Ethics Instruction for International Graduate Students, Austin et al.

### L2 Processing Constraint Remedies

- Writing to U.S. 9th - 10th grade level
- Shorter sentences
- Narrowed vocabulary range
- Embedded definitions for anticipated unknown or infrequent terms (Academic Word List)
  [http://www.nottingham.ac.uk/~alzsh3/acvocab/](http://www.nottingham.ac.uk/~alzsh3/acvocab/)
- Effective use of illustrations
- Usability Studies
**Testing our Tests and our Modules**

- Cognitive Task Analysis in 2007 yielded time stamp data
- Piloting with NSs and NNSs in graduate Engineering Leadership course in 2007
- Usability Study with ten NNSs using think aloud protocol
- Moving, elucidative denouement evoking ebullient applause and welling eyes.