

Northwestern Center for Engineering Education Research

NCEER Newsletter No. 4

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News

➤ Two NCEER seminars are scheduled for the Fall 2010 quarter. The first is on Wednesday, October 20, when Xaver Neumeyer, a PhD candidate in Mechanical Engineering, will give a talk entitled “Investigation of Team Conflict in Student Design Teams”. The talk will be at 4 pm in Ryan Hall, room 4003. An announcement with further details will be sent soon.



Xaver Neumeyer

➤ The second NCEER seminar is on Wednesday, November 17 at 4 pm. Prof. Reed Stevens of the School of Education and Social Policy will give a talk on how engineering students form their identities as engineers over the course of their undergraduate career – and the hurdles to this they face along the way. Location and further details on this talk will be forthcoming.



Reed Stevens

➤ Ann McKenna, until recently a co-director of NCEER, has assumed a new position as an Associate Professor at Arizona State in the College of Technology & Innovation, where she will continue her research on engineering education as well as teaching. Ann looks forward to new challenges, but also to continuing her interactions with colleagues at Northwestern. She can be reached at Ann.Mckenna@asu.edu. Robert Linsenmeier will continue as the sole Director of NCEER.

➤ As a result of Ann McKenna’s departure, a search is now underway for a Clinical Professor of Design and Engineering Education. More details are available at the NCEER website at <http://www.nceer.northwestern.edu/news/index.html>.

NCEER Project Spotlight – Bioengineering Education Research REU

The Bioengineering Education Research REU, a joint project of Northwestern, Vanderbilt, and the University of Texas at Austin, completed its first summer session last month.

This REU program is a direct descendant of the VaNTH REU program, and is dedicated to training undergraduate students in basic education research techniques and learning theory while they create or assess new learning materials in biomedical engineering.

Students were located at each of the research sites; 4 at Northwestern, 3 at Vanderbilt, and 2 at UT Austin. They worked on projects under faculty mentors to evaluate and develop undergraduate curriculum, create middle school curriculum units and other K-12 outreach projects, and assess the globalization of engineering majors. They also attended weekly sessions on research ethics and were instructed in oral and written communication.

The nine participants were an excellent balance of students from all over the country and in various majors. We were gratified that students reported being highly satisfied with the experience of being involved in research on engineering education, and the mentors felt that the students accomplished a great deal to assist their own research efforts. Several students will become authors on publications resulting from their work.

The program will be offered again in 2011 and 2012. For more information on any of the 2010 projects or the program in general, visit <http://www.bme.vanderbilt.edu/reu2010/> or contact Mark Bourgeois or Robert Linsenmeier.

NCEER Article Spotlight: “Seeking Congruity Between Goals and Roles : A New Look at Why Women Opt Out of Science, Technology, Engineering, and Mathematics Careers”

Amanda B. Diekman, Elizabeth R. Brown, Amanda M. Johnston and Emily K. Clark

Psychological Science, July 14, 2010

Four psychologists at Miami University, Ohio, have made the latest attempt to address the question of why, in an age when most college disciplines have reached gender parity, STEM disciplines continue to lag substantially. As they note, only 20-30% of the highest degrees in STEM fields go to women, whereas many other fields are near 50%.

The authors' approach is premised on the hypothesis that STEM fields' perceived lack of "communal goals" makes them less appealing to women – who, they claim, value this communal focus more than men. They define "communal goals" as relating to both working with other people, and with the goal of helping people – that is, as working socially towards a social good.

The authors were led to this hypothesis in large part because so-called "agentic" explanations, which focus on differences in attitudes towards competitive achievement, do not explain why STEM fields in particular lack gender parity, while fields such as business and medicine have more gender balance.

There are thus three parts to their argument: first, that STEM fields are seen to lack this communal focus; second, that this is a major causal factor behind a lack of interest in them in general; and third, that this connection in particular accounts for many women's decisions not to pursue them.

To substantiate this hypothesis, the researchers surveyed 333 psychology students and 27 STEM students at their institution, both male and female. Participants rated STEM fields along with both historically male-dominated and historically female-dominated non-STEM careers.

As predicted, rankings for the potential to achieve communal goals were notably higher for the latter career category than either of the former ones. And, indeed, those who voiced having communal goals reported lower interest in STEM or other male-dominated fields. Finally, to hone in on the gender difference itself, the authors controlled for this endorsement of communal goals, and found that the gender distinctions were vastly reduced after doing so.

The authors propose that this research points towards a new way to address the gender parity gap in STEM, by publicizing the very real communal aspects of science and engineering, both as a practice and as working towards social good. They contend that this would not only draw more women into the field, but increase enthusiasm for it more generally as well.

The article is available at: <http://pss.sagepub.com/content/early/2010/07/14/0956797610377342>

Upcoming Conferences and Events

- ❖ The 40th Annual Frontiers in Education Conference (FIE 2010) will be hosted by The University of Virginia and Virginia Tech in Washington, D.C., October 27–30, 2010. For a list of paper formats and topics of interest, conference information and submitting an abstract, visit <http://fie-conference.org/fie2010/>.

If you have any engineering education news to share please send it to Mark Bourgeois at m-bourgeois@northwestern.edu for inclusion in the next NCEER newsletter. We are always interested in learning more about any awards you have received, projects that have been funded, results from your research, or any other news that would be of interest to the community.

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